Exhibit H

5100 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: Cynthia de la Torre, Planner IV

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
rinconconsultants.com

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Appendix A Air Quality/Greenhouse Gas Emissions Modeling Results
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Initial Study

1. Project Title

5100 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

Cynthia de la Torre, Planner IV
(562) 570-6559

4. Project Sponsor's Name and Address

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

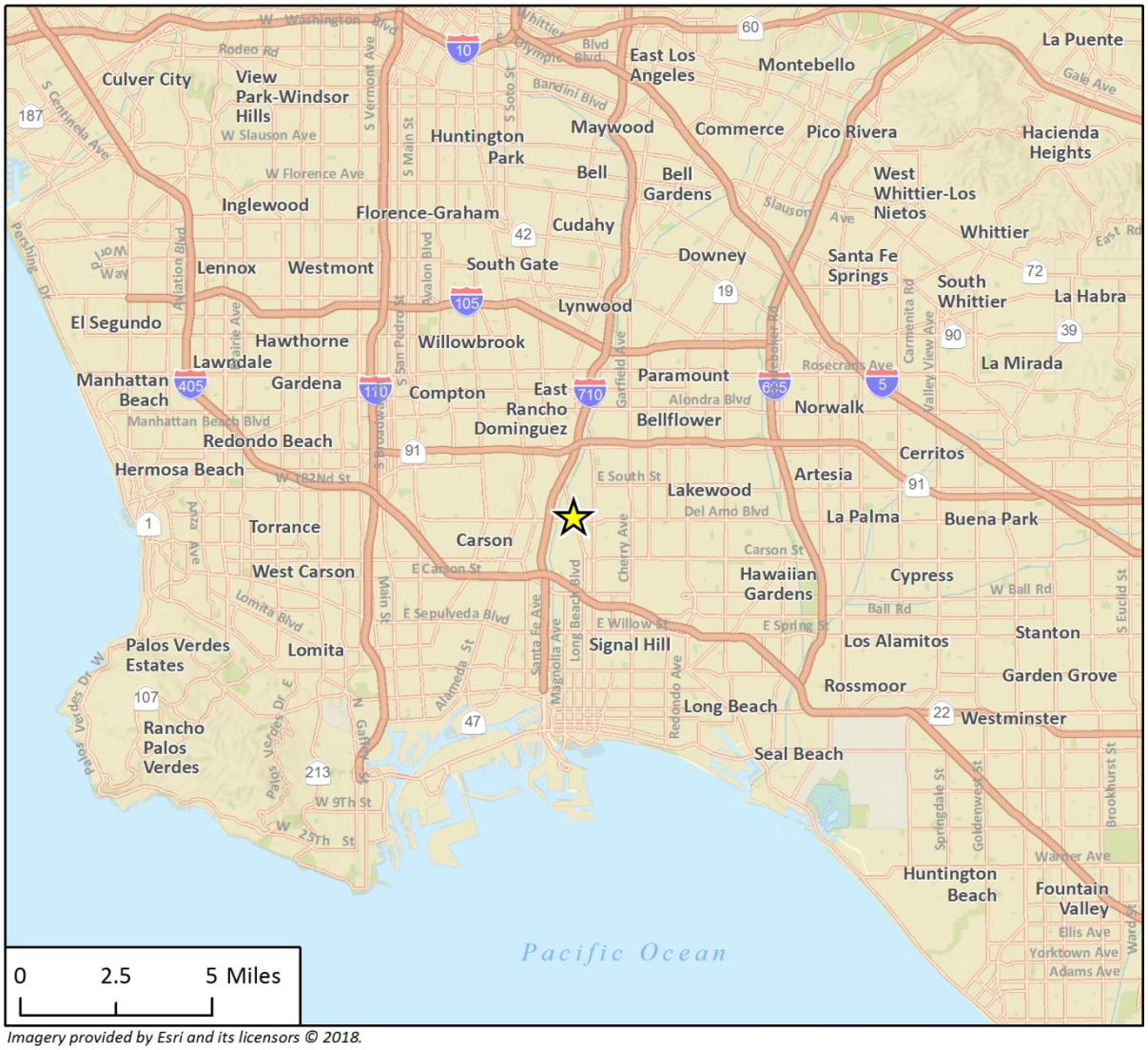
5. Project Location

The project site is located at 5100 Long Beach Boulevard, Long Beach, California. The project site encompasses 1.805 acres (approximately 78,621 square feet [sf]) and includes seven parcels, which are identified as Assessor Parcel Numbers (APNs) 7131-032-900, -905, -909, -910, - 911, -912,and -913. The project site is bordered by Long Beach Boulevard to the west followed by commercialuses and Dooley Elementary School, Cedar Avenue to the east, followed by residential uses, SunsetStreet to the north, followed by commercial residential uses, and Home Street to the south,followed by commercial and residential uses. Figure 1 shows the location of the project site in the region and Figure 2 shows the site in its neighborhood context.

6. Existing Setting

The project site consists of five vacant parcels and two developed parcels that are occupied by a 1,478-sf single-story, single-family residence. Vegetation on the project site includes ruderal vegetation and ornamental landscaping. Four palm trees and one ornamental tree are present on the northwestern and northeastern portion of the site, respectively. Above ground utility lines are present on the northern portion of the project. Figure 3 includes photos of the existing conditions at the project site.

Figure 1 Regional Location



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Project Location

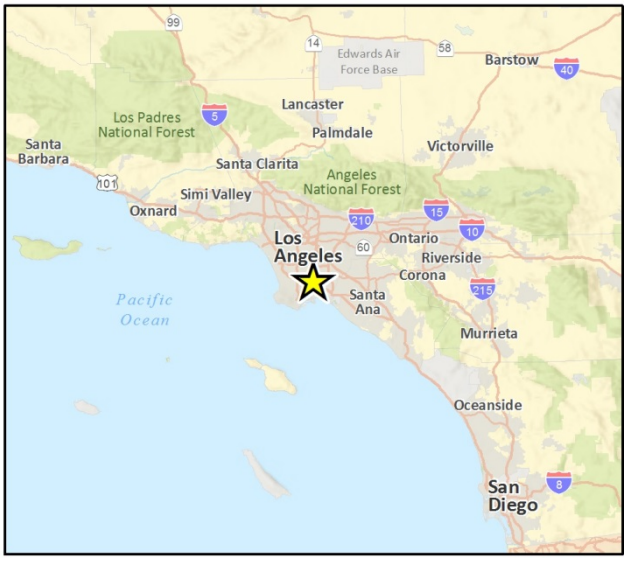


Figure 2 Project Location

Imagery provided by Microsoft Bing and its licensors © 2018.

Figure 3 Views of the Project Site

View of the project site, looking southwest, from the west side of Cedar Avenue

View of the project site, looking north, from the east side of Long Beach Bouelvard

7. General Plan Designation

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

8. Zoning

CCA (Community Commercial Automobile-Oriented) and R-1-N (Single-family Residential)

9. Description of Project

The 5100 Long Beach Boulevard Project ("proposed project" or "project") involves demolition of the existing 1,478 sf single-family residence and the development of 38 three-story townhomes within seven buildings that would be a maximum height of 38 feet. Of the proposed units, 21 would be three bedroom three bathroom units consisting of 1,411 sf and 17 of the units would have three bedrooms, three bathrooms and a den and consist of 1,747 sf. Pursuant to the Long Beach Municipal Code ("LBMC"), the allowable density on site is 44 homes per acre (per permitted density for CCN/R-4-N zones). The total site area is 78,621 sf (1.805 acres) and the net site area is 69,957 sf (1.606 acres). The density of the proposed project would be 23.66 homes per acre.

The proposed project would require 86 parking spaces, including 76 residential spaces (two spaces per home) and ten guest spaces (0.25 spaces per home). The proposed project would provide 86 parking spaces on site, including 76 spaces in garages (two spaces per garage) and ten guest parking spaces. The proposed project requires 5,700 sf of open space, including 2,850 sf of common space (75 sf per home) and 2,850 sf of private space (75 sf per home). The proposed project would provide 12,735 sf of open space, including 4,729 sf of common open space and 8,006 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

Table 1 provides details of the proposed residences while Figure 4 and Figure 5 through Figure 9 show the proposed site plan and elevations, respectively.

Table 1 Project Details

Lot Area (sf)	78,621
Height	3 stories (38 feet)
Floor Plan 1 (3 bedrooms, 3 bathrooms)	1,411 sf per unit
Floor Plan 2 (sf) (3 bedrooms, 3 bathrooms, + den)	1,747 sf per unit
Residential Parking Spaces	76
Guest Parking Spaces	10
Private Open Space (sf)	8,006
Common Open Space (sf)	4,729
Setbacks	
Front Yard (ft)	15
Street Side Yard (ft)	10
Interior Side Yard (ft)	10
Rear Yard (ft)	10

sf = square feet; ft = feet

Zone Change

The proposed project involves development of 38 three-story townhomes. The project site is currently zoned CCA (Community Commercial Automobile-Oriented) along the western portion of the project site, fronting Long Beach Boulevard, and R-1-N on the eastern portion. The CCA zone permits retail and service uses. Multi-family residential uses are not permitted in the CCA zone. The R-1-N zone allows for single-family residential uses with standard lots. 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 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 current General Plan designation but would not be consistent with the zoning designation. Project entitlements include a Zone Change to CCN (Community R-4-N) to allow for the development of the proposed townhomes. The CCN zone is similar to the Community Auto-Oriented District, but also permits medium density residential development at R-4-N densities.

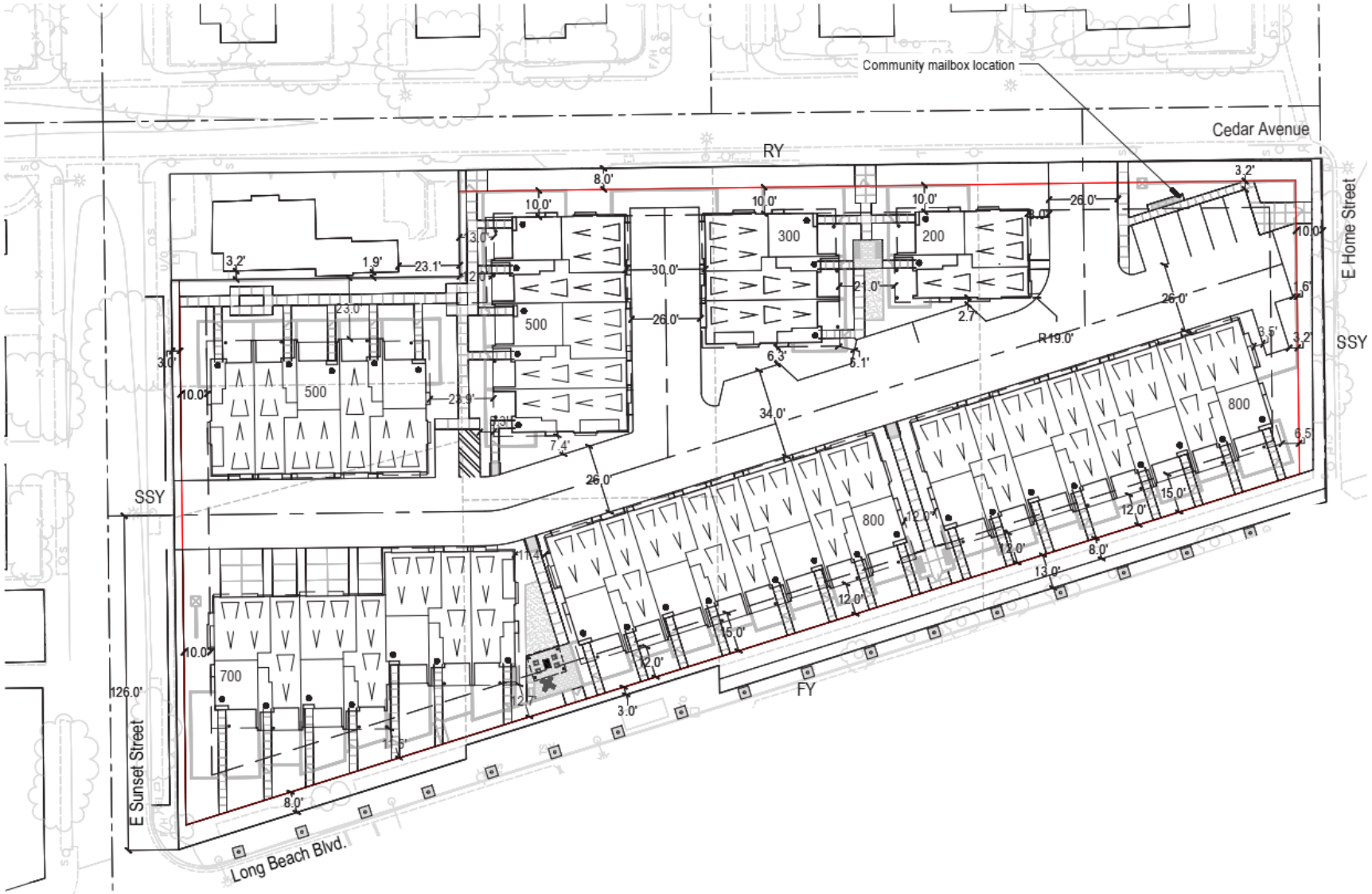
Construction and Grading

Construction of the proposed project is anticipated to occur over an approximately 17-month period that would begin in January 2022. Construction phasing would include demolition of the existing structure (1,478 sf), site preparation, grading, building construction, asphalt paving and architectural coating. The graded soil would be utilized on-site for construction of the building pads and foundations.

Access

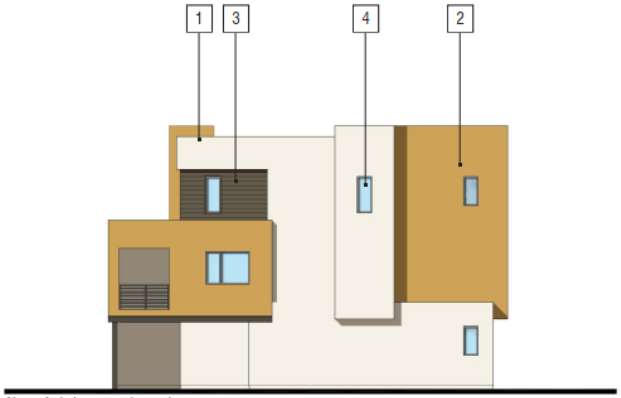
Access to the project site would be provided via Sunset Street and Cedar Avenue, which would lead to an internal driveway that would provide access to the individual garages and surface parking.

Figure 4 Project Site Plan



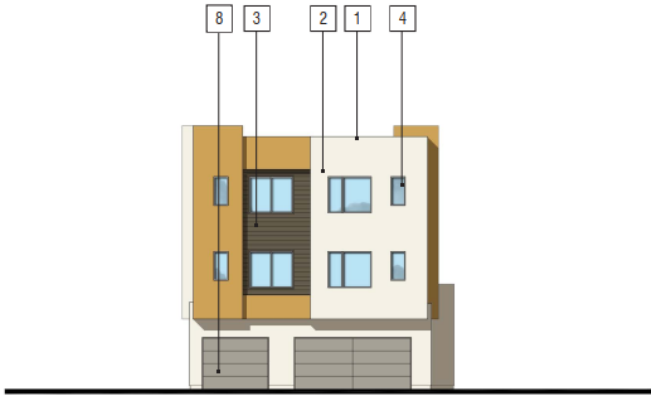
Source: William Hezmalhalch Architects, Inc., March 2020.

Figure 5 Project Elevations – Building 200 Townhome Elevations

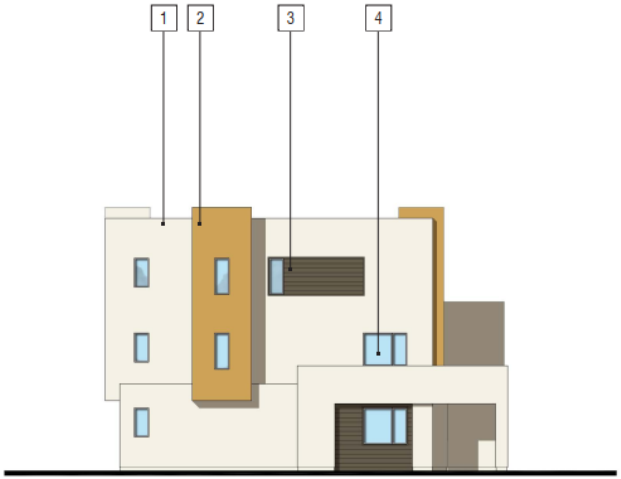


Note: Artist's conception, colors, materials and application may vary. Right Elevation

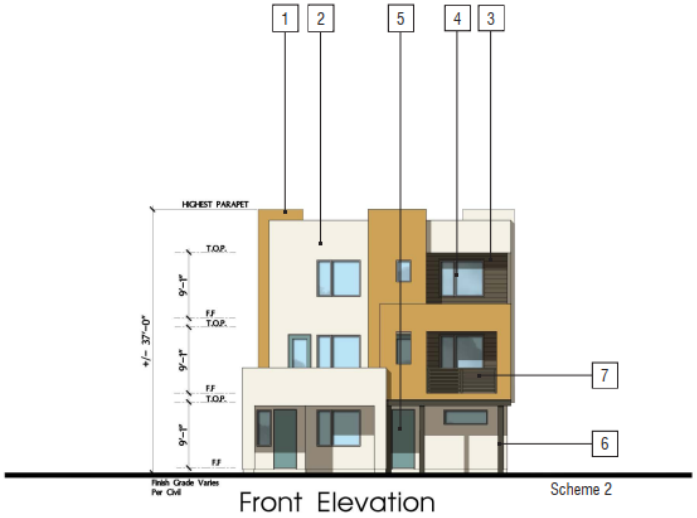
MATERIALS:
1 Roof: Flat With Parapet
2 Stucco
3 Horizontal Lap Siding
4 Vinyl Windows
5 Entry Door
6 Stucco Column
7 Horizontal Railing
8 Metal Sectional Roll-Up Garage Door
9 Coach Light And Illuminated Address Panel
10 Utility Cabinet
11 Decorative Light Fixture



Rear Elevation



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



Front Elevation Scheme 2

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

Figure 6 Project Elevations – Building 300 Row Townhome Elevations

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

Figure 7 Project Elevations – Building 500 Townhome Elevations

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

Figure 8 Project Elevations – Building 700 Townhome Elevations

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

Figure 9 Project Elevations – Building 800 Townhome Elevations

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

10. Surrounding Land Uses and Setting

The project site is in an urbanized area. Land uses to the east of the project site, across Cedar Avenue, include one-story single-family residences. Land uses to the north, across Sunset Street include one-story commercial and single-family residential uses. Land uses to the west, across Long Beach Boulevard, include one-story commercial uses and Dooley Elementary School. Land uses to the south, across Home Street, include one-story single-family residences, one- to three- story multi-family residences and one-story commercial 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 CCN.

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.

■	Aesthetics	☐	Agriculture and Forestry Resources	■	Air Quality
■	Biological Resources	■	Cultural Resources	☐	Energy
■	Geology/Soils	☐	Greenhouse Gas Emissions	■	Hazards & Hazardous Materials
☐	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
■	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☐	Transportation	■	Tribal Cultural Resources
☐	Utilities/Service Systems	☐	Wildfire	■	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.

Cynthia de la Torre	5/7/2020
Signature	Date
Cynthia de la Torre	Planner IV
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?	☐	☐	☐	■
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	■
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?	☐	■	☐	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	■	☐	☐

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 East Sunset Street in a highly urbanized area of Long Beach. The project would result in the demolition of the existing single-family residence located on the project site, and the construction of 38 three-story townhomes on a 1.805-acre site. There are no scenic vistas that can be viewed from the project site or scenic vistas that would be obstructed by the project. Views from the project site include one- and two-story residential and commercial uses. Views of the project site consist of undeveloped property and a single story, single- family residence. 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 5.4 miles south. Historical assets in the project's vicinity include two preserved ranches: Rancho Los Cerritos which is 0.6 miles south and Rancho Los Alamitos, which is 7 miles southeast of the project site. Additionally, American Legion Post #560, which is a historic structure designated by the City of Long Beach, is located 1.4 miles southwest of the project site (City of Long Beach 1975a). Development of the proposed project would not obstruct public views

of cultural or historical resources because no views of these resources are available in the project site vicinity. Therefore, there would be no impact to the scenic vistas.

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 (California Department of Transportation [Caltrans] 2011). In addition, the project would not affect any trees, rock outcroppings, historic buildings, or other identified scenic resources. Existing vegetation on-site consists of ruderal and ornamental vegetation, four palm trees and one ornamental tree, which would be removed during construction. As discussed in Section 5, *Cultural Resources*, no designated historic buildings are located on the project site (City of Long Beach 2010). However, as discussed above, 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 38 housing units on an infill 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 in an urbanized area. Land uses to the east of the project site, across Cedar Avenue, include one-story single-family residences. Land uses to the north, across Sunset Street include one-story commercial and single-family residential uses. Land uses to the west, across Long Beach Boulevard, include one-story commercial uses and Dooley Elementary School. Land uses to the south, across Home Street, include one-story single-family residences, one- to three- story multi-family residences and one-story commercial uses.

Project entitlements include a Zone Change to CCN (Community R-4-N) to allow for the development of the proposed townhomes. The CCN zone is similar to the Community Auto-Oriented District, but also permits medium density residential development at R-4-N densities. Upon approval of the requested discretionary actions, development of the proposed project 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 proposed 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 that would adversely affect daytime 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 80.202C of the Long Beach Municipal Code (LBMC), construction activities are prohibited between the hours of 7:00 p.m. and 7:00 a.m. on weekdays and Federal holidays, between the hours of 7:00 p.m. on Friday and 9:00 a.m. on Saturday and after 6:00 p.m. 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 light would potentially be required. In addition, any lighting or generated 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, a school, and other commercial buildings. Operation of the proposed project would include the use of nighttime security lighting, and general lighting associated with residential 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. Implementation of mitigation measure AES-2 would ensure that any exterior lighting would not spill over onto adjacent uses. Because the project would not generate substantial sources of light or glare, with incorporation of mitigation, 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
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?	☐	☐	☐	■
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	■
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	■

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 is located in an urbanized area in the City of Long Beach. The majority of the project site is vacant, and the northeast portion is occupied by a single-family residence. The California Department of Conservation's (DOC) Important Farmland Finder map shows that the project site is within an area that does not consist of Farmland (DOC 2020a). 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?

The project site is not zoned for agricultural use or under any Williamson Act contract (DOC 2020a). The project site is designated by the City of Long Beach's General Plan as NSC-L (Neighborhood Serving Center or Corridor Low Density) and zoned CCA (Community Commercial Automobile-Oriented) and R-1-N (Single-family Residential). The proposed project would involve the development of the three-story townhomes and a parking lot. The project would 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 nor the surrounding area is 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 in an urban area. 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?	☐	☐	■	☐
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?	☐	☐	■	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	■	☐

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 as "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 nonattainment. The SCAQMD is designated as nonattainment for the federal AAQS for ozone and particulate matter $PM_{2.5}$ 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 as nonattainment for ozone, PM_{10}, and $PM_{2.5}$. The SCAB is designated as unclassifiable or in attainment for all other federal and state standards. Characteristics of O_3, CO, NO_2, SO_2, and particulate matter are described in Table 2.

Table 2 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.

Sources: U.S. EPA 2016a, 2016b, 2018b, 2019, and 2020a

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 as 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 3.

Table 3 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, PM_{10} = 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.

[1] Organic 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 NO_2, CO, PM_{10}, 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 on-site 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 1.8 acres. Therefore, this analysis was estimated using a linear regression based on one- and two-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 *Final LST Methodology* (2008) 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 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 4.

Table 4 SCAQMD LSTs for Construction Emissions

Pollutant	Allowable Emissions from a 1.8-acre Site in SRA-4 for a Receptor 82 Feet Away
Gradual conversion of NO_X to NO_2	77
CO	791
PM_{10}	6
$PM_{2.5}$	5

Source: SCAQMD 2008b

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 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 SCAQMD AQMP. In the event that a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the AQMP.

As mentioned in Section 11, *Land Use and Planning*, the proposed project involves development of 38 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 and low-density apartment and condominium buildings. As such, 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 38 new townhomes would increase the existing population by approximately 108 residents (approximately 0.02 percent) to 475,121, 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 38 housing units would represent approximately 0.1 of the projected housing stock increase, which would not exceed SCAG's 2040 housing units forecast. The City has identified that it needs to allocate approximately 28,000 additional housing units by 2040 (Beacon Economics 2018). The 38 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. Therefore, the potential population and housing increase generated by the proposed project would not conflict with 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.

Construction Emissions

Project construction would generate temporary air pollutant emissions. These emissions are associated with fugitive dust and exhaust emissions from heavy construction vehicles, as well as ROGs released during the application of architectural coatings. Grading, excavation, hauling, and site preparation would involve the greatest use of heavy equipment and 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 applicable Regulatory Compliance Measures are listed below.

Table 5 summarizes the estimated maximum daily emissions of pollutants during construction on the project site. 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 5 Construction Emissions

Construction Phase	Estimated Maximum Daily Emissions (lbs/day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
2022 Maximum (lbs/day)	4.2	36.3	27.4	0.1	4.1	2.6
2023 Maximum (lbs/day)	3.3	13.4	15.5	<0.1	1.0	0.7
SCAQMD Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum On-site Emissions (lbs/day)	3.2	33.9	25.6	<0.1	3.5	2.5
Local Significance Thresholds (LSTs) (on-site only)	N/A	77	791	N/A	6	5
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 to reduce fugitive dust:

- 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 5 of this report).

Operational Emissions

Long-term emissions associated with project operation, as shown in Table 6, would include emissions from vehicle trips (mobile sources) and landscape maintenance equipment, consumer products and architectural coating associated with onsite development (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.

Table 6 Operational Emissions

	Maximum Daily Emissions (lbs/day)					
Emission Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area	1.3	<0.1	3.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	0.2	1.3	3.3	<0.1	1.6	0.4
Total Project Emissions	1.5	1.3	6.5	<0.1	1.6	0.5
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 project design features that will be included in the project.

As indicated in Table 6 emissions during operation of the proposed project would not exceed SCAQMD thresholds for any criteria pollutant.

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 5, project construction generated emissions would not exceed localized significance thresholds. Therefore, the project would not expose local sensitive receptors to substantial pollutant concentrations from on-site activities during construction. Impacts would be less than significant.

CO Hot Spots

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). Specifically, hotspots generally occur at intersections where traffic volumes are high and congestion occurs.

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 U.S. EPA 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. 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, none of which are known 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, commercial uses, and institutional uses. None of these land uses are typically associated with the emission of TACs. Therefore, 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 during project construction, however, construction activities would be temporary. Therefore, construction would result in less than significant impacts to odor.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses. The proposed project would not include any of these uses that are known to generate odors. In addition, solid waste generated by the proposed on-site uses would be collected by a contracted waste hauler, ensuring that odors resulting from on-site waste would be managed and collected in a manner to prevent the proliferation of odors. Therefore, the project would have a less than significant impact on operational odors.

LESS THAN SIGNIFICANT IMPACT

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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?	☐	■	☐	☐
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?	☐	☐	☐	■
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?	☐	☐	☐	■
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	■
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	■	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

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

The project site is located in an urbanized area in the City of Long Beach. The majority of the project site is vacant, and the northeast portion is occupied by a single-family residence. Existing vegetation on-site consists of ornamental and ruderal vegetation. Four on-site palm trees and one ornamental tree would be removed as part of the project. This removal could potentially affect nesting birds. The vegetation present on the project site 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 (CFGC), 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 CFGC, 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 on-site 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 (CDFW) or U.S. Fish and Wildlife Service (USFWS)?

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 or in the immediate vicinity. The Los Angeles River is 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 on 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. 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 is 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?

Construction of the proposed project would result in the removal of four mature palm trees and one ornamental tree. Section 14.28 of the LBMC regulates tree trimming and removal of any City-owned street trees. While trees on the project site would not be protected under Section 14.28 of the LBMC, three ornamental trees are located within the public right-of-way fronting the northern portion of the project site along East Sunset Drive, eight potted trees are located within the public right-of-way fronting the western portion of the project site along Long Beach Boulevard, and four ornamental trees are located within the public right-of-way fronting the southern portion of the project site along Home Street. Removal of these trees would be completed in accordance with LBMC Section 14.28. Therefore, the project would not conflict with Municipal Code Section 14.28 and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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 is not located in an area subject to 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?	☐	☐	■	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	■	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	■	☐	☐

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

The project site consists of five vacant, undeveloped parcels that have been previously disturbed and graded, and two developed parcels (APN 713-032-912 and -913) that are occupied by a single-story, single-family residence. The existing residence was constructed in the 1927; however, the residence is not designated as a historic resource, nor is the project site located in a historic district (City of Long Beach 2010). The project site is 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 designated by the City of Long Beach is the American Legion Post #560, located 1.6 miles southwest of the project site. Therefore, no impact would occur.

NO 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 is located in an urbanized area. There is no evidence that archaeological resources or human remains are present on-site. However, cultural resources may be encountered during project-related development and ground-disturbing activities. Impacts would be significant if construction activities result in the destruction, damage, or loss of scientifically important cultural 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 on-site. 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?	☐	☐	■	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	■

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 7 and Table 8 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 (CEC 2020a). Also, in 2018, SCG provided approximately 23.2 percent of the total natural gas usage in California (CEC 2020b).

Table 7 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 8 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 2018a). 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 2018a).

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?

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 9 presents the estimated construction phase energy consumption, indicating construction equipment, vendor trips, and worker trips would consume approximately 76,744 gallons of fuel over the project construction period. Construction equipment would consume an estimated 65,875 gallons of fuel; vendor and hauling trips would consume approximately 2,021 gallons of fuel; and worker trips would consume approximately 9,518 gallons of fuel over the combined phases of project construction.

Table 9 Estimated Fuel Consumption during Construction

Fuel Type	Gallons of Fuel	MMBtu[4]
Diesel Fuel (Construction Equipment)[1]	65,875	8,397
Diesel Fuel (Hauling & Vendor Trips)[2]	2,021	258
Other Petroleum Fuel (Worker Trips)[3]	9,518	1,045
Total	**77,414**	**9,700**

[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 consumptions factors for engines between 0 to 100 horsepower and greater than 100 horsepower (U.S. EPA 2018a). 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 (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. 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. Natural gas and 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 residents. 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 733,848 annual VMT (Appendix A). Table 10 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 10 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)	Total Fuel Consumption (MBtu)[5]
Passenger Cars	55.3	406,084	24.0	16,920.2	1,857.6
Light/Medium Trucks	36.2	265,535	17.4	15,260.6	1,945.2
Heavy Trucks/Other	8.0	58,679	7.4	7,929.6	1,010.7
Motorcycles	0.5	3,550	44.0	80.7	8.9
Total	**100.0**	**733,848**	**–**	**40,191.0**	**4,822.0**

[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 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] DOT 2018.[5] CaRFG fuel specification of 109,786 Btu/gallon used to identify conversion rate for fuel energy consumption for vehicle classes specified above (CARB 2015).

[5] One gallon of gasoline is equivalent to approximately 109,786 Btu (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 10, the project would consume approximately 40,191 gallons of fuel, or 4,822 MBtu, each year for transportation uses from the 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 2018b). 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. Therefore, the project would have a less than significant impact.

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
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?	☐	☐	■	☐
2. Strong seismic ground shaking?	☐	☐	■	☐
3. Seismic-related ground failure, including liquefaction?	☐	☐	■	☐
4. Landslides?	☐	☐	☐	■
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	■	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	■
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?	☐	☐	☐	■
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?	☐	☐	☐	■
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	■	☐	☐

a.1. Would the project 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 is 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 1.5 miles away from the project site (DOC 2020b). The project site is not located in an Alquist-Priolo earthquake fault zone as defined by the State Geologist (DOC 2020b). 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. Impacts would be less than significant.

LESS THAN SIGNIFICANT 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 is located in the highly seismic Southern California region, where several fault systems are considered to be active or potentially active. Nearby active faults include the Newport-Inglewood Fault Zone which is approximately 1.5 miles away from the project site (DOC 2020b). 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 is 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. In addition, the proposed project does not include any uses, such as mining or fracking, that would cause or exacerbate ground shaking. Impacts related to seismically induced ground shaking would be less than significant.

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 is located 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 and the surrounding area are flat. Therefore, there is no risk of landslides on the site.

NO IMPACT

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

Ground-disturbing activities associated with 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 Municipal Code, 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.

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 is 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 consists of loamy materials and Riverwash soils (City of Long Beach 1988). The project site does 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 impact 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 is located in an urbanized area. There is no evidence that paleontological resources, are present on-site. However, paleontological resources may be encountered during project-related development and ground-disturbing activities. 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. This measure would apply to all phases of project construction and would ensure that any significant resources present on-site are preserved. Implementation of mitigation measure GEO-1 would reduce potential impacts to the unanticipated discovery of paleontological resource 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?	☐	☐	■	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	■	☐

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 adjusted for the year 2030.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.

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

[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.

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 11 summarizes the project specific threshold for this analysis.

Table 11 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_2e	1,787,091 MT CO_2e	1,332,699 MT CO_2e	3.70 MT CO_2e/ Resident	7.03 MT CO_2e/ 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 CO_2e per resident is used for assessing the proposed project. In addition, the residential threshold of 3.70 MT CO_2e 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 108 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 CO_2, CH_4, and N_2O 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, and a 19 percent exceedance of Title 24 were included in CalEEMod.

Emissions exceeding the 3.7 MT of CO_2e per person threshold would be considered significant.

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. Nevertheless, SCAQMD has recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's operational emissions.

Based on CalEEMod results, construction of the project would generate an estimated 688.7 MT of CO_2e, as shown in Table 12.

Table 12 Estimated Construction GHG Emissions

Year	Project Emissions (CO_2e) in metric tons
2022	562.2
2023	126.5
Total	688.7
Total Amortized over 30 Years	23.0

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, a high-efficiency landscape irrigation system, and hot water pipe insulation would be included in the proposed project. As shown in

Table 13, the project's emissions would be approximately 301.7 MT of CO_2e or 2.79 MT CO_2e per person, which would not exceed the project specific threshold of 3.7 MT CO_2e per person

Table 13 Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions (CO_2e) in metric tons
Construction	23.0
Operational	
Area	0.7
Energy	0.0
Solid Waste	5.3
Water	7.1
Mobile	
CO_2 and CH_4	249.7
N_2O	15.9
Total Emissions	**301.7**
Service Population (Residents)	108
Emissions per Service Population (MT CO_2e/SP/year)	**2.79**
Project-Specific Efficiency Threshold (MT CO_2e/SP/year)	3.70
Exceed Project-Specific Threshold?	**No**

Source: Appendix A (CalEEMod outputs)

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 Sustainable Communities Strategy (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 policies,

programs, practices, and incentives for Long Beach residents and businesses to reduce the City's GHG footprint.

The proposed residential project would not conflict with any of the SCAG's RTP/SCS goals because it would allow for the construction of townhomes in an urbanized area long a major transportation corridor.

Table 14 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 14, the project is consistent with the applicable strategies in the 2016 RTP/SCS. Therefore, the project would have a less than significant impact.

Table 14 Consistency with Applicable SCAG RTP/SCS GHG Emission Reduction Strategies

Strategy/Action	Project Consistency
Land Use and Transportation	
Focus new growth around transit. 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.	**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.
Plan for growth around livable corridors. The Livable Corridors strategy seeks to create neighborhood retail nodes that would be walking and biking destinations by integrating three different planning components: 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.	**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.
Provide more options for short trips. 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.	**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.

Strategy/Action	Project Consistency
Protect Natural and Farm Lands. 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.	**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.
Transit Initiatives	
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.	**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.
Other Initiatives	
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.	**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.

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
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	■	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	■	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	■	☐
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?	☐	☐	☐	■
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?	☐	☐	☐	■
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	■

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 temporary use of potentially hazardous materials such as vehicle fuels and fluids that could be released should an accidental leak or spill occur. 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. 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. However, because the existing single-family residence located on the project site was constructed in the 1920s, building materials may contain asbestos and lead-based paint. It is recommended that prior to the demolition of the existing property, a survey of the building materials suspected to contain asbestos or lead based paint be conducted. With implementation of mitigation, 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.

Mitigation Measure

HAZ-1 Existing Toxic/Hazardous Materials

ASBESTOS

In the event that any suspect asbestos-containing materials (ACMs) are discovered during demolition activities, the materials shall be sampled and analyzed for asbestos content prior to any disturbance. Prior to the issuance of the demolition permit, the applicant shall provide a letter from a qualified asbestos abatement consultant that no ACMs are present in the building. If ACMs are found to be present, all asbestos removal operations shall be performed by a Cal/OSHA-DOSH-registered and California-licensed asbestos contractor. All disturbances of ACMs, and/or abatement operations, shall be performed under the surveillance of a third-party Cal/OSHA Certified Asbestos

Consultant. All disturbances of ACMs, and/or abatement operations, shall be performed in accordance with the Cal/OSHA requirements set forth in 8 CCR 1529. Asbestos abatement must also be performed in accordance with SCAQMD requirements set forth in Rule 1403 as well as all other applicable State and federal rules and regulations.

LEAD

Any suspect lead-based paint shall be sampled prior to any renovations or demolition activities. Prior to the issuance of the demolition permit, the applicant shall provide a letter from a licensed lead-based paint abatement contractor that no lead-based paint is present in the building. If identified, lead-based paint located within building scheduled for renovation or demolition, or noted to be damaged, shall be abated by a licensed lead-based paint abatement contractor, and disposed of according to all state and local regulations.

All construction work shall be subject to 29 Code of Federal Regulations (CFR) Part 1926.62 "Lead Exposure in Construction Interim Final Rule," which was adopted and incorporated into California's own standard Title 8 Code of California Regulations (CCR) Section 1532.1.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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 Dooley Elementary and 730 feet (0.14 mile) from Dorothy Ahrens Nursery School. During construction of the proposed project, hazardous and potentially hazardous materials would be utilized for the transport and operation of vehicles and machinery. 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 April 2020 for known hazardous materials contamination at the project sites:

- **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 is 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 2020b). 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 quarter-mile radius of the project site (SWRCB 2020). As 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 project site is the Long Beach Airport, located approximately 5 miles southeast of the project site. The project is not located within two miles of a public use airport 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. In accordance with the Public Safety Element of the General Plan, emergency response and evacuation procedures would be developed though the City in coordination with the police and fire departments (City of Long Beach 1975b). 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 is 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?	☐	☐	■	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	■
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;	☐	☐	■	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	■	☐
(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	☐	☐	■	☐
(iv) Impede or redirect flood flows?	☐	☐	■	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	■
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	■

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 served by three sewage treatment facilities that discharge treated effluent to marine waters. The project site is located in an urban area and there are no surface water bodies in the project vicinity. The project site consists of vacant parcels that have been previously disturbed and graded, and two developed parcels that are occupied by a single-family residence. Construction and grading are planned to occur and would include residential buildings and parking areas. 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 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, 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 Gaspur 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. As discussed in Section 19, *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 through the addition of impervious surfaces, in a manner which 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?

The project 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. 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 is not located in a 100-year flood zone (Map # 06037C1955F) (FEMA 2018). The dam nearest to the project site is the Sepulveda Dam approximately 36 miles to the northwest. The project site is located 6.6 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 is 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

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 Items *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?	☐	☐	☐	■
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?	☐	☐	■	☐

a. Would the project physically divide an established community?

The proposed project would occur on an infill site, surrounded by an established community. The project does not propose any new roads or infrastructure that have 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 38 three-story townhomes. The project site is currently zoned CCA (Community Commercial Automobile-Oriented) along the western portion of the project site, fronting Long Beach Boulevard, and R-1-N on the eastern portion. The CCA zone permits retail and service uses. Multi-family residential uses are not permitted in the CCA zone. The R-1-N zone allows for single-family residential uses with standard lots. 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 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 land use designation but would not be consistent with the current zoning. Project entitlements include a Zone Change to CCN (Community R-4-N) to allow for the development of the proposed townhomes. The CCN zone is similar to the Community Auto-Oriented District, but also permits medium density residential development at R-4-N densities.

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. 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. 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 that 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 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?	☐	☐	☐	■
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?	☐	☐	☐	■

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 and surrounding properties are located in an urbanized 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 a MRZ-1 designation, indicating that there is little to no likelihood for the presence of significant mineral deposits on-site (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?	☐	■	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
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?	☐	☐	☐	■

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 p.m. to 7:00 a.m.) 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 p.m. to 10:00 p.m. and a 10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 p.m. 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 (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. 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 the afternoon peak traffic hour between 5:00 p.m. and 6:00 p.m. 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 10 for the locations of sound measurements. As shown in Table 15, the ambient noise level at the project site was measured at a range between 57.8 and 69.4 dBA Leq.

Table 15 Sound Level Measurement Results

	Measurement Location	Primary Source of Noise	Approximate Distance to Roadway Centerline (feet)	Sample Time	Leq[10] (dBA)[1]
1	Cedar Avenue, eastern boundary of the site	Vehicles on Long Beach Boulevard	250	5:11 p.m. – 5:21 p.m.	61.8
2	Sunset Street, northern boundary of the site	Vehicles on Long Beach Boulevard	185	5:23 p.m. – 5:33 p.m.	57.8
3	Long Beach Boulevard, western boundary of the site	Vehicles on Long Beach Boulevard	45	5:37 p.m. – 5:47 p.m.	69.4

See Figure 10 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 10 Sound Level Measurement and Sensitive Receptor Locations

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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 (1975c), 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 single-family residences abutting the northeast boundary of the site, single-family residences located 35 feet north across Sunset Street, single-family residences located 35 feet east across Cedar Avenue, Dooley Elementary School located 100 feet west across Long Beach Boulevard, and the Del Amo Gardens retirement home located 300 feet southeast of the site (see Figure 10). In addition, the proposed residences would 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). Table 16 summarizes the exterior and interior noise limits for District One while Table 17 summarizes interior noise limits based on general land uses.

Table 16 Exterior Noise Limits

Time Period	Noise Level (dbA)[1]
10:00 p.m. to 7:00 a.m.	45
7:00 a.m. to 10:00 p.m.	50

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

Source: LBMC Section 8.80.160

Table 17 Interior Noise Limits

Receiving Land Use	Source Land Use	Time Period	Noise Level (dBA)[1]
All	Residential	10:00 p.m. to 7:00 a.m. 7:00 a.m. to 10:00 p.m.	35 45
All	School	7:00 a.m. to 10:00 p.m. (while school is in session)	45
Hospital, designated quite zones and noise sensitive zones		Anytime	40

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

Source: LBMC Section 8.80.170

Sections 8.80.202A through 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 p.m. and 7:00 a.m. on weekdays and federal holidays; between the hours of 7:00 p.m. on Friday and 9:00 a.m. on Saturday and after 6:00 p.m. on Saturday; or at any time on Sunday.

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 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 Table 15 for measurement results and Figure 10 for sound measurement locations in the site vicinity). As shown in Table 15, the ambient noise level at the project site is 69.4 dBA Leq. As shown in Table 18 below , 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-

rated[2] 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.

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 (see discussion under Checklist Item *c.* of this section) and expose future on-site, noise-sensitive residents to new and unusual noise. Nonetheless, the exposure of future on-site residents to ambient noise 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 38 new townhomes to the project area. Existing noise-sensitive uses near the project site may be subject to both on-site residential noise sources and off-site traffic noise associated with operation of the proposed project. The following discussion addresses each noise source separately.

On-site Operational Noise

The primary on-site noise sources associated with operation of the proposed project would include vehicle circulation noise (e.g., engine startups, alarms, parking) associated with the on-site 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-family residences, Dooley Elementary School, 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 16 and Table 17.

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. On-site 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 17, *Transportation and Traffic*, full buildout of the proposed project would generate approximately 221 daily trips, including 17 a.m. peak hour trips and 20 p.m. peak hour trips. Access to the project site would be provided via Sunset Street and Cedar Avenue. 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

[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.

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 18, 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 taken during peak traffic hour (see Table 15), the HUD DNL Calculator appropriately reflects existing traffic noise.

Table 18 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 18, the addition of 221 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 18 Comparison of Existing and Existing plus Project Traffic Noise

	Noise Level (dBA, CNEL)				
Roadway Segment	Existing [1]	Existing Plus Project [2]	Change in Noise Level [2] – [1]	Significance Threshold[1] (dBA, CNEL)	Significant
Long Beach Boulevard between Del Amo Boulevard and Market Street	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 single-family residences abutting the northeast boundary of the site, single-family residences located 35 feet north across Sunset Street, single-family residences located 35 feet east across Cedar Avenue, Dooley Elementary School located 100 feet across Long Beach Boulevard, and the Del Amo Gardens retirement home located 300 feet southeast of the site.

As with the ground-borne vibration modeling, modeled construction noise assumes that on-site 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 adjacent single-family residences, 85 feet for single-family residences across Sunset Street and Cedar Avenue, 150 feet for Dooley Elementary School, and 350 feet for the Del Amo Gardens retirement home. Table 19 presents 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, 85 feet, 150 feet, and 350 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 19 represent a reasonably conservative estimate of actual construction noise.

Table 19 Construction Noise Levels by Phase

		Approximate Leq, dBA			
Construction Phase	**Equipment**	**50 Feet[1]**	**85 Feet[2]**	**150 Feet[3]**	**350 Feet[4]**
Demolition	Concrete Industrial Saw, Dozer, Tractor (3)	87	83	78	70
Site Preparation and Grading	Grader, Tractor, Dozer	85	80	75	68
Building Construction	Generator Set, Crane, Forklift, Tractor, Welders (3)	86	81	76	69
Paving	Cement and Mortar Mixer, Paver, Roller, Tractor, Paving Equipment	86	81	76	69
Architectural Coating	Air Compressor	74	69	64	57

See Appendix B for RCNM data sheets and assumptions.

[1] Modeled distance for adjacent single-family residences.

[2] Modeled distance for single-family residences across Sunset Street and Cedar Avenue.

[3] Modeled distance for Dooley Elementary School across Long Beach Boulevard.

[4] Modeled distance for Del Amo Gardens southeast of the site.

The City does not have specific quantitative noise standards or limits related to construction noise. As shown in Table 15, the ambient noise level at the project site was measured at a range between 57.8 and 69.4 dBA Leq. As shown in Table 19, construction would generate noise levels of up to an estimated 87 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 80.202C of the LBMC prohibits construction activities between the hours of 7:00 p.m. and 7:00 a.m. on weekdays and Federal holidays, between the hours of 7:00 p.m. on Friday and 9:00 a.m. on Saturday and after 6:00 p.m. 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. In addition, 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 to below 45 CNEL, as required by CCR Title 24. All residential windows, exterior doors, and exterior wall assemblies that face Long Beach Boulevard 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, regarding the construction schedule of the proposed project. 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 on-site 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 single-family residences abutting the northeast boundary of the site, single-family residences located 35 feet north across Sunset Street, single-family residences located 35 feet east across Cedar Avenue, Dooley Elementary School located 100 feet west across Long Beach Boulevard, and the Del Amo Gardens retirement home located 300 feet southeast 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 on-site 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 adjacent single-family residences, 85 feet for single-family residences across Sunset Street and Cedar Avenue, 150 feet for Dooley Elementary School, and 350 feet for the Del Amo Gardens retirement home. 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 20 lists ground-borne vibration levels from a roller and dozer at 50 feet, 85 feet, 150 feet, and 350 feet from the source.

Table 20 Vibration Levels for Construction Equipment

	Approximate VdB			
Equipment	**50 Feet[1]**	**85 Feet[2]**	**150 Feet[3]**	**350 Feet[4]**
Roller	85	78	71	60
Dozer	78	71	64	53

See Appendix B for vibration modeling data sheets.

[1] Modeled distance for adjacent single-family residences.

[2] Modeled distance for single-family residences across Sunset Street and Cedar Avenue.

[3] Modeled distance for Dooley Elementary School across Long Beach Boulevard.

[4] Modeled distance for Del Amo Gardens southeast of the site.

As shown in Table 20, 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 p.m. and 7:00 a.m. on weekdays and Federal holidays, between the hours of 7:00 p.m. on Friday and 9:00 a.m. on Saturday and after 6:00 p.m. 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.

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 is the Long Beach Airport approximately 5 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. 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

14 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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)?	☐	☐	■	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	■	☐

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)?

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 38 new townhomes would increase the existing population by approximately 108 residents (approximately 0.02 percent) to 475,121, which would be within SCAG's 2040 population forecast (SCAG 2016). 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 38 housing units would represent approximately 0.1 of the projected housing stock increase, which would not exceed SCAG's 2040 housing units forecast. Therefore, the proposed project would not cause a substantial increase in population or induce unplanned population growth. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

The project site is occupied by vacant parcels and a single-family residence; however, demolition of the existing residence would not result in the displacement of a substantial number of existing housing or people. Additionally, the project would not necessitate the construction of replacement housing elsewhere, as 38 townhomes would be developed on the project site. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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15 Public Services

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	■	☐
	2 Police protection?	☐	☐	■	☐
	3 Schools?	☐	☐	■	☐
	4 Parks?	☐	☐	■	☐
	5 Other public facilities?	☐	☐	■	☐

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 0.5 mile north. As identified in Chapter 18.48 of the LBMC, the City of Long Beach has adopted the California Fire Code (2019 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 38 residential townhomes in an urbanized area. 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 (CalFire 2007). Based on verbal communication with the LBFD Fire Prevention Division, LBFD has adequate capabilities to serve the proposed project (LBFD 2018). 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. 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 475,013 (DOF 2019), the current officer to population ratio is 2.5 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 is served by the LBPD North Division Station, located at 4891 Atlantic Avenue, approximately 0.7 miles southeast of the project site. The proposed project would add an estimated 108 new residents to the City population. Based on verbal communication with LBPD Crime Prevention Division, the LBPD would have adequate capabilities to serve the proposed project (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 or other performance objectives?

The project site is 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 sites include Dooley Elementary School, located at 5075 Long Beach Boulevard, which serves grades K through 5th, Perry Lindsey Middle School, 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 38 new townhomes. A conservative assumption of one student per household was used to determine that the proposed project would generate approximately 38 additional students that would attend the schools within the LBUSD. 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 21 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 project would not result in the need for new or physically altered school facilities as sufficient capacity is available.

Table 21 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 recreational space (Long Beach Department of Parks, Recreation and Marine [DPRM] 2018). Based on a population of 475,013 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 0.5 miles 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 108 residents and would incrementally increase the demand for usage of existing parks in the City. The proposed project would include 12,735 sf of open space, which would offset some demand on park and recreational facilities in the City. However, since the City is well served by open space on a per population basis, the proposed project 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 project would increase the local population by approximately 108 residents. 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 1.5 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 (Long Beach Public Library 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?	☐	☐	■	☐
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?	☐	☐	■	☐

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 recreational space (DPRM 2018). Based on a population of 475,013 residents, the City's current parkland ratio is approximately 6.5 parkland acres per 1,000 residents (DOF 2019). 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 0.5 miles 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 108 residents and would incrementally increase the demand for usage of existing parks in the City. The proposed project would include 12,735 sf of open space, which would offset some demand on park and recreational facilities in the City. 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 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

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17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	■	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	■	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	☐	■
d. Result in inadequate emergency access?	☐	☐	☐	■

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.

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 9th Edition. According to ITE rates for residential condo/townhouse, the proposed project would generate approximately 221 daily trips, including 17 a.m. peak hour trips and 20 p.m. 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 Sunset Street and Cedar Avenue. 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, 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 221 daily trip generated by the proposed project would represent an increase of 0.9 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 includes a 13-foot dedication on Long Beach Boulevard for future street widening. Sidewalk improvements shall be in accordance with Public Works requirements. The project would include an eight-foot dedication along Cedar Avenue, a ten-foot dedication along Home Street, and three-foot dedication along East Sunset Street for future sidewalk widening. Sidewalk improvements shall be constructed in accordance with Public Works requirements. Existing transit lines along Long Beach Boulevard include Long Beach Transit (LBT), 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 15 a.m. peak hour trips and 17 p.m. 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 CCN (Community R-4-N) to allow for the development of the proposed townhomes. The CCN zone is similar to the Community Auto-Oriented District, but also permits medium density residential development at R-4-N densities.

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 immediately adjacent to a bus stop for LBT Routes 51, 52, 191, and 192 along Long Beach Boulevard and Del Amo Boulevard. CEQA Guidelines Section 15064.3, subdivision (b)(1), states that, “Generally, projects within one-half mile of either an

existing major transit stop[3] or a stop along an existing high-quality transit corridor[4] should be presumed to cause a less than significant transportation impact." LBT Routes 51 and 52 run approximately every 12 to 13 minutes during peak hours and have terminals at Metro's Artesia Station and at Long Beach Boulevard and 1st Street in Downtown Long Beach (LBT 2020a). LBT Routes 191 and 192 run approximately every 12 to 15 minutes during peak hours and have stops at the Metro Blue Line Station in downtown, the Blue Line Del Amo Station, Los Cerritos Center, and Artesia Highschool (LBT 2020b). Therefore, the bus stops along Long Beach Boulevard within a half-mile of the project site meet the definition of a major transit stop and Long Beach Boulevard meets the definition of a high-quality transit corridor pursuant to Public Resources Code § 21064.3 and § 21155. The project site is also approximately one mile from the Metro Blue Line 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 major public transit options. 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. During operation of the project, each of the proposed residences would have an individual access driveway leading to an internal driveway located off Sunset Street and Cedar Avenue. 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 would not result in inadequate emergency access because it would be subject to the Long Beach County 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

[3] Public Resources Code, § 21064.3 states that "'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods."

[4] Public Resources Code, § 21155 states that "a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours."

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18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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	☐	■	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

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 Section 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 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 disturbed. There is no evidence that archaeological resources are present onsite. 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. Mitigation measures CR-1, 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 construction.

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
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?	☐	☐	■	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	■	☐
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?	☐	☐	■	☐
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. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	■	☐

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 0.30 million gallons (0.92 acre-feet [AFY]) of water per year according to CalEEMod estimates (see Appendix A). Project water demand would represent approximately 0.02 percent of the projected increase in water demand of 3,900 AFY for 2040. 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 300,000 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, 300,000 gallons per year (821.9 gallons per day or 0.0008 MGD) represents less than 0.001 percent of the remaining daily capacity of 140 MGD of wastewater at the JWPCP. 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, including 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 is located in a 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 or 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. As

such, although the proposed project would create an incremental increase in demand 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 22, 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).

Table 22 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

The proposed project would demand an estimated 0.30 million gallons (0.92 acre-feet [AFY]) of water per year according to CalEEMod estimations (see Appendix A). The proposed project would represent less than 0.01 percent of the 15,154 AF surplus of water supply during normal, single, and multiple dry year conditions for year 2040. Because sufficient water is available to serve the project during normal, single, and multiple dry year conditions, new sources of water supply would be not required to meet project water needs. The impact would be less than significant.

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 1.6 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, 300,000 gallons per year (821.9 gallons per day or 0.0008 MGD) represents less than 0.001 percent of the remaining daily capacity of 140 MGD of wastewater at the JWPCP. 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 tons 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 10.49 tons of waste per year (0.03 tons of solid waste per day). This estimate is conservative since it does not factor in any recycling or waste diversion programs. The 0.03 tons of solid waste generated by the project would be approximately 0.05 percent of the available daily capacity of 57 tons at the Savage Canyon landfill. 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. Impacts related to solid waste and waste facilities would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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?	☐	☐	☐	■
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?	☐	☐	☐	■
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?	☐	☐	☐	■
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?	☐	☐	☐	■

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 is located in an urban area of the City of Long Beach. Undeveloped wildland areas are not located in proximity to the project site. According 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 1975b). 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 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 and surrounding area is 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 is 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 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 is located in an urbanized area and is 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 38 townhomes and would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk. The 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
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?	☐	■	☐	☐
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)?	☐	☐	■	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	■	☐

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 area does not include any mapped essential habitat connectivity areas in the immediate vicinity of the project site. 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 trees 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, respectively, 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 seven planned and pending projects as shown in Table 23.

Table 23 Cumulative Projects List

Project No.	Project Location[1]	Land Use	Description[2]
1	4800 Long Beach Blvd.	Multi-Family Residential	18 three-story townhomes
2	5721 Lime Ave.	Multi-Family Residential	14 new residential units with 1 very low-income unit
3	6151 Atlantic Ave	Commercial	
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	4000 Vrai 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 4800 Long Beach Boulevard, approximately 0.31 miles south of the site, and the single-family residential subdivision located at 4747 Daisy Avenue approximately a 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, Noise and Transportation. 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. 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 Sections 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 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.

RINCON CONSULTANTS, INC.

Joe Power, AICP CEP, Vice President, Principal-in-Charge
Susanne Huerta, AICP, Supervising Planner, Project Manager
Hannah Mize, Sustainability Project Manager
Vanessa Villanueva, Associate Environmental Planner
Emily Marino, Environmental Planner

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Appendix A

Air Quality/Greenhouse Gas Emissions Modeling Results

5100 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	38.00	Dwelling Unit	1.80	59,330.00	109

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	353.87	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted for 2030 RPS

Land Use - taken from project plan

Construction Phase - per client plans

Off-road Equipment -

Off-road Equipment - Per client info

Off-road Equipment - Per client provided info

Off-road Equipment - per client info

Off-road Equipment - per client provided info

Demolition -

Grading - Site is approximately 1.8 acres

Architectural Coating - architectural and area code compliance with Rule 1113

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Assume no fireplaces

Area Coating -

Energy Use - 7% reduction for 2019 building code; net zero energy buildings

Water And Wastewater - City uses sanitary sewer only. 20% reduction for 2016 CALGreen

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

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

Mobile Land Use Mitigation -

Area Mitigation - Zero VOC interior paint per GPR scorecard

Energy Mitigation - Per GPR Scorecard. Rooftop solar panels

Water Mitigation - Per GPR Scorecard

Fleet Mix -

Trips and VMT -

5100 Long Beach Blvd - South Coast Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	50	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstructionPhase	NumDays	10.00	261.00
tblConstructionPhase	NumDays	200.00	365.00
tblConstructionPhase	NumDays	4.00	25.00
tblConstructionPhase	NumDays	10.00	222.00
tblConstructionPhase	NumDays	2.00	14.00
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	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	32.30	0.00
tblFireplaces	NumberNoFireplace	3.80	38.00
tblFireplaces	NumberWood	1.90	0.00
tblGrading	AcresOfGrading	34.38	1.50
tblGrading	AcresOfGrading	21.00	1.00
tblGrading	MaterialImported	0.00	1,950.00
tblLandUse	LandUseSquareFeet	38,000.00	59,330.00
tblLandUse	LotAcreage	2.38	1.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	17.48	10.49
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	2,475,852.97	1,980,682.38
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	1.90	0.00
tblWoodstoves	NumberNoncatalytic	1.90	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.4908	3.1219	3.2350	6.5100e-003	0.1652	0.1427	0.3079	0.0703	0.1354	0.2057	0.0000	559.2507	559.2507	0.1172	0.0000	562.1806
2023	0.1680	0.6886	0.7960	1.5000e-003	0.0194	0.0303	0.0497	5.1800e-003	0.0294	0.0345	0.0000	126.1119	126.1119	0.0173	0.0000	126.5441
Maximum	**0.4908**	**3.1219**	**3.2350**	**6.5100e-003**	**0.1652**	**0.1427**	**0.3079**	**0.0703**	**0.1354**	**0.2057**	**0.0000**	**559.2507**	**559.2507**	**0.1172**	**0.0000**	**562.1806**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.4908	3.1219	3.2350	6.5100e-003	0.1131	0.1427	0.2558	0.0420	0.1354	0.1774	0.0000	559.2501	559.2501	0.1172	0.0000	562.1800
2023	0.1680	0.6886	0.7960	1.5000e-003	0.0194	0.0303	0.0497	5.1800e-003	0.0294	0.0345	0.0000	126.1118	126.1118	0.0173	0.0000	126.5440
Maximum	**0.4908**	**3.1219**	**3.2350**	**6.5100e-003**	**0.1131**	**0.1427**	**0.2558**	**0.0420**	**0.1354**	**0.1774**	**0.0000**	**559.2501**	**559.2501**	**0.1172**	**0.0000**	**562.1800**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**28.24**	**0.00**	**14.58**	**37.52**	**0.00**	**11.78**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-15-2022**	**4-14-2022**	1.0507	1.0507
2	**4-15-2022**	**7-14-2022**	0.8982	0.8982
3	**7-15-2022**	**10-14-2022**	1.0105	1.0105
4	**10-15-2022**	**1-14-2023**	0.7517	0.7517
5	**1-15-2023**	**4-14-2023**	0.6418	0.6418
6	**4-15-2023**	**7-14-2023**	0.1211	0.1211
		Highest	1.0507	1.0507

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	0.2447	4.5100e-003	0.3917	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6555
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	30.6369	30.6369	1.3000e-003	2.6000e-004	30.7468
Mobile	0.0416	0.2278	0.5595	2.6800e-003	0.2786	1.6400e-003	0.2803	0.0746	1.5300e-003	0.0762	0.0000	249.4033	249.4033	9.9300e-003	0.0000	249.6515
Waste						0.0000	0.0000		0.0000	0.0000	2.1294	0.0000	2.1294	0.1258	0.0000	5.2754
Water						0.0000	0.0000		0.0000	0.0000	0.7008	6.9232	7.6240	2.7100e-003	1.5800e-003	8.1632
Total	**0.2863**	**0.2324**	**0.9512**	**2.7000e-003**	**0.2786**	**3.8100e-003**	**0.2824**	**0.0746**	**3.7000e-003**	**0.0783**	**2.8302**	**287.6035**	**290.4337**	**0.1404**	**1.8400e-003**	**294.4924**

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	0.2262	4.5100e-003	0.3917	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6555
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	0.0416	0.2278	0.5595	2.6800e-003	0.2786	1.6400e-003	0.2803	0.0746	1.5300e-003	0.0762	0.0000	249.4033	249.4033	9.9300e-003	0.0000	249.6515
Waste						0.0000	0.0000		0.0000	0.0000	2.1294	0.0000	2.1294	0.1258	0.0000	5.2754
Water						0.0000	0.0000		0.0000	0.0000	0.5606	6.0952	6.6559	2.1900e-003	1.2700e-003	7.0893
Total	**0.2677**	**0.2324**	**0.9512**	**2.7000e-003**	**0.2786**	**3.8100e-003**	**0.2824**	**0.0746**	**3.7000e-003**	**0.0783**	**2.6900**	**256.1387**	**258.8287**	**0.1386**	**1.2700e-003**	**262.6717**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.95**	**10.94**	**10.88**	**1.30**	**30.98**	**10.81**

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	1/15/2022	1/31/2022	6	14	
2	Grading	Grading	2/1/2022	3/1/2022	6	25	
3	Paving	Paving	2/15/2022	10/31/2022	6	222	
4	Building Construction	Building Construction	3/2/2022	5/1/2023	6	365	
5	Architectural Coating	Architectural Coating	7/1/2022	5/1/2023	6	261	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 120,143; Residential Outdoor: 40,048; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

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	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	244.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0374	0.0000	0.0374	0.0203	0.0000	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.1559	0.1027	2.4000e-004		6.5800e-003	6.5800e-003		6.0600e-003	6.0600e-003	0.0000	20.9639	20.9639	6.7800e-003	0.0000	21.1334
Total	**0.0145**	**0.1559**	**0.1027**	**2.4000e-004**	**0.0374**	**6.5800e-003**	**0.0440**	**0.0203**	**6.0600e-003**	**0.0264**	**0.0000**	**20.9639**	**20.9639**	**6.7800e-003**	**0.0000**	**21.1334**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.9000e-004	3.3800e-003	1.0000e-005	1.1500e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.9685	0.9685	2.0000e-005	0.0000	0.9691
Total	**4.1000e-004**	**2.9000e-004**	**3.3800e-003**	**1.0000e-005**	**1.1500e-003**	**1.0000e-005**	**1.1600e-003**	**3.1000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.9685**	**0.9685**	**2.0000e-005**	**0.0000**	**0.9691**

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					0.0168	0.0000	0.0168	9.1500e-003	0.0000	9.1500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.1559	0.1027	2.4000e-004		6.5800e-003	6.5800e-003		6.0600e-003	6.0600e-003	0.0000	20.9638	20.9638	6.7800e-003	0.0000	21.1334
Total	**0.0145**	**0.1559**	**0.1027**	**2.4000e-004**	**0.0168**	**6.5800e-003**	**0.0234**	**9.1500e-003**	**6.0600e-003**	**0.0152**	**0.0000**	**20.9638**	**20.9638**	**6.7800e-003**	**0.0000**	**21.1334**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.9000e-004	3.3800e-003	1.0000e-005	1.1500e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.9685	0.9685	2.0000e-005	0.0000	0.9691
Total	**4.1000e-004**	**2.9000e-004**	**3.3800e-003**	**1.0000e-005**	**1.1500e-003**	**1.0000e-005**	**1.1600e-003**	**3.1000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.9685**	**0.9685**	**2.0000e-005**	**0.0000**	**0.9691**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0574	0.0000	0.0574	0.0311	0.0000	0.0311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3348	0.2206	5.2000e-004		0.0139	0.0139		0.0129	0.0129	0.0000	45.5456	45.5456	0.0136	0.0000	45.8864
Total	**0.0317**	**0.3348**	**0.2206**	**5.2000e-004**	**0.0574**	**0.0139**	**0.0713**	**0.0311**	**0.0129**	**0.0440**	**0.0000**	**45.5456**	**45.5456**	**0.0136**	**0.0000**	**45.8864**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0302	7.1000e-003	9.0000e-005	2.1000e-003	9.0000e-005	2.1800e-003	5.8000e-004	8.0000e-005	6.6000e-004	0.0000	9.0461	9.0461	6.5000e-004	0.0000	9.0624
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	8.8000e-004	6.3000e-004	7.2500e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	2.0754	2.0754	5.0000e-005	0.0000	2.0767
Total	**1.7700e-003**	**0.0308**	**0.0144**	**1.1000e-004**	**4.5700e-003**	**1.1000e-004**	**4.6700e-003**	**1.2400e-003**	**1.0000e-004**	**1.3300e-003**	**0.0000**	**11.1215**	**11.1215**	**7.0000e-004**	**0.0000**	**11.1390**

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					0.0258	0.0000	0.0258	0.0140	0.0000	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3348	0.2206	5.2000e-004		0.0139	0.0139		0.0129	0.0129	0.0000	45.5455	45.5455	0.0136	0.0000	45.8863
Total	**0.0317**	**0.3348**	**0.2206**	**5.2000e-004**	**0.0258**	**0.0139**	**0.0397**	**0.0140**	**0.0129**	**0.0269**	**0.0000**	**45.5455**	**45.5455**	**0.0136**	**0.0000**	**45.8863**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0302	7.1000e-003	9.0000e-005	2.1000e-003	9.0000e-005	2.1800e-003	5.8000e-004	8.0000e-005	6.6000e-004	0.0000	9.0461	9.0461	6.5000e-004	0.0000	9.0624
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	8.8000e-004	6.3000e-004	7.2500e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	2.0754	2.0754	5.0000e-005	0.0000	2.0767
Total	**1.7700e-003**	**0.0308**	**0.0144**	**1.1000e-004**	**4.5700e-003**	**1.1000e-004**	**4.6700e-003**	**1.2400e-003**	**1.0000e-004**	**1.3300e-003**	**0.0000**	**11.1215**	**11.1215**	**7.0000e-004**	**0.0000**	**11.1390**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0747	0.7871	0.8910	1.8000e-003		0.0380	0.0380		0.0349	0.0349	0.0000	158.3781	158.3781	0.0512	0.0000	159.6587
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0747**	**0.7871**	**0.8910**	**1.8000e-003**		**0.0380**	**0.0380**		**0.0349**	**0.0349**	**0.0000**	**158.3781**	**158.3781**	**0.0512**	**0.0000**	**159.6587**

3.4 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-003	4.6400e-003	0.0537	1.7000e-004	0.0183	1.3000e-004	0.0184	4.8500e-003	1.2000e-004	4.9700e-003	0.0000	15.3577	15.3577	3.9000e-004	0.0000	15.3674
Total	**6.5000e-003**	**4.6400e-003**	**0.0537**	**1.7000e-004**	**0.0183**	**1.3000e-004**	**0.0184**	**4.8500e-003**	**1.2000e-004**	**4.9700e-003**	**0.0000**	**15.3577**	**15.3577**	**3.9000e-004**	**0.0000**	**15.3674**

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	0.0747	0.7871	0.8910	1.8000e-003		0.0380	0.0380		0.0349	0.0349	0.0000	158.3779	158.3779	0.0512	0.0000	159.6585
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0747**	**0.7871**	**0.8910**	**1.8000e-003**		**0.0380**	**0.0380**		**0.0349**	**0.0349**	**0.0000**	**158.3779**	**158.3779**	**0.0512**	**0.0000**	**159.6585**

3.4 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-003	4.6400e-003	0.0537	1.7000e-004	0.0183	1.3000e-004	0.0184	4.8500e-003	1.2000e-004	4.9700e-003	0.0000	15.3577	15.3577	3.9000e-004	0.0000	15.3674
Total	**6.5000e-003**	**4.6400e-003**	**0.0537**	**1.7000e-004**	**0.0183**	**1.3000e-004**	**0.0184**	**4.8500e-003**	**1.2000e-004**	**4.9700e-003**	**0.0000**	**15.3577**	**15.3577**	**3.9000e-004**	**0.0000**	**15.3674**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2160	1.6379	1.6672	2.8900e-003		0.0771	0.0771		0.0745	0.0745	0.0000	237.8658	237.8658	0.0414	0.0000	238.9015
Total	**0.2160**	**1.6379**	**1.6672**	**2.8900e-003**		**0.0771**	**0.0771**		**0.0745**	**0.0745**	**0.0000**	**237.8658**	**237.8658**	**0.0414**	**0.0000**	**238.9015**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4100e-003	0.0484	0.0122	1.3000e-004	3.3000e-003	9.0000e-005	3.3900e-003	9.5000e-004	9.0000e-005	1.0400e-003	0.0000	12.6107	12.6107	7.9000e-004	0.0000	12.6305
Worker	0.0138	9.8600e-003	0.1140	3.6000e-004	0.0388	2.8000e-004	0.0391	0.0103	2.6000e-004	0.0106	0.0000	32.6248	32.6248	8.2000e-004	0.0000	32.6454
Total	**0.0152**	**0.0582**	**0.1262**	**4.9000e-004**	**0.0421**	**3.7000e-004**	**0.0425**	**0.0113**	**3.5000e-004**	**0.0116**	**0.0000**	**45.2355**	**45.2355**	**1.6100e-003**	**0.0000**	**45.2758**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2160	1.6379	1.6672	2.8900e-003		0.0771	0.0771		0.0745	0.0745	0.0000	237.8655	237.8655	0.0414	0.0000	238.9012
Total	**0.2160**	**1.6379**	**1.6672**	**2.8900e-003**		**0.0771**	**0.0771**		**0.0745**	**0.0745**	**0.0000**	**237.8655**	**237.8655**	**0.0414**	**0.0000**	**238.9012**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4100e-003	0.0484	0.0122	1.3000e-004	3.3000e-003	9.0000e-005	3.3900e-003	9.5000e-004	9.0000e-005	1.0400e-003	0.0000	12.6107	12.6107	7.9000e-004	0.0000	12.6305
Worker	0.0138	9.8600e-003	0.1140	3.6000e-004	0.0388	2.8000e-004	0.0391	0.0103	2.6000e-004	0.0106	0.0000	32.6248	32.6248	8.2000e-004	0.0000	32.6454
Total	**0.0152**	**0.0582**	**0.1262**	**4.9000e-004**	**0.0421**	**3.7000e-004**	**0.0425**	**0.0113**	**3.5000e-004**	**0.0116**	**0.0000**	**45.2355**	**45.2355**	**1.6100e-003**	**0.0000**	**45.2758**

3.5 Building Construction - 2023

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	0.0785	0.6031	0.6495	1.1400e-003		0.0265	0.0265		0.0256	0.0256	0.0000	93.5236	93.5236	0.0159	0.0000	93.9206
Total	**0.0785**	**0.6031**	**0.6495**	**1.1400e-003**		**0.0265**	**0.0265**		**0.0256**	**0.0256**	**0.0000**	**93.5236**	**93.5236**	**0.0159**	**0.0000**	**93.9206**

3.5 Building Construction - 2023

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	4.1000e-004	0.0143	4.3000e-003	5.0000e-005	1.3000e-003	2.0000e-005	1.3100e-003	3.7000e-004	2.0000e-005	3.9000e-004	0.0000	4.8046	4.8046	2.7000e-004	0.0000	4.8114
Worker	5.1100e-003	3.5100e-003	0.0413	1.4000e-004	0.0153	1.1000e-004	0.0154	4.0500e-003	1.0000e-004	4.1500e-003	0.0000	12.3479	12.3479	2.9000e-004	0.0000	12.3552
Total	**5.5200e-003**	**0.0178**	**0.0456**	**1.9000e-004**	**0.0166**	**1.3000e-004**	**0.0167**	**4.4200e-003**	**1.2000e-004**	**4.5400e-003**	**0.0000**	**17.1525**	**17.1525**	**5.6000e-004**	**0.0000**	**17.1666**

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	0.0785	0.6031	0.6495	1.1400e-003		0.0265	0.0265		0.0256	0.0256	0.0000	93.5234	93.5234	0.0159	0.0000	93.9205
Total	**0.0785**	**0.6031**	**0.6495**	**1.1400e-003**		**0.0265**	**0.0265**		**0.0256**	**0.0256**	**0.0000**	**93.5234**	**93.5234**	**0.0159**	**0.0000**	**93.9205**

3.5 Building Construction - 2023

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	4.1000e-004	0.0143	4.3000e-003	5.0000e-005	1.3000e-003	2.0000e-005	1.3100e-003	3.7000e-004	2.0000e-005	3.9000e-004	0.0000	4.8046	4.8046	2.7000e-004	0.0000	4.8114
Worker	5.1100e-003	3.5100e-003	0.0413	1.4000e-004	0.0153	1.1000e-004	0.0154	4.0500e-003	1.0000e-004	4.1500e-003	0.0000	12.3479	12.3479	2.9000e-004	0.0000	12.3552
Total	**5.5200e-003**	**0.0178**	**0.0456**	**1.9000e-004**	**0.0166**	**1.3000e-004**	**0.0167**	**4.4200e-003**	**1.2000e-004**	**4.5400e-003**	**0.0000**	**17.1525**	**17.1525**	**5.6000e-004**	**0.0000**	**17.1666**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1124					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0162	0.1113	0.1433	2.3000e-004		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003	0.0000	20.1707	20.1707	1.3100e-003	0.0000	20.2035
Total	**0.1285**	**0.1113**	**0.1433**	**2.3000e-004**		**6.4600e-003**	**6.4600e-003**		**6.4600e-003**	**6.4600e-003**	**0.0000**	**20.1707**	**20.1707**	**1.3100e-003**	**0.0000**	**20.2035**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5400e-003	1.1000e-003	0.0127	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.6434	3.6434	9.0000e-005	0.0000	3.6457
Total	**1.5400e-003**	**1.1000e-003**	**0.0127**	**4.0000e-005**	**4.3300e-003**	**3.0000e-005**	**4.3700e-003**	**1.1500e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**3.6434**	**3.6434**	**9.0000e-005**	**0.0000**	**3.6457**

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	0.1124					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0162	0.1113	0.1433	2.3000e-004		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003	0.0000	20.1707	20.1707	1.3100e-003	0.0000	20.2035
Total	**0.1285**	**0.1113**	**0.1433**	**2.3000e-004**		**6.4600e-003**	**6.4600e-003**		**6.4600e-003**	**6.4600e-003**	**0.0000**	**20.1707**	**20.1707**	**1.3100e-003**	**0.0000**	**20.2035**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5400e-003	1.1000e-003	0.0127	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.6434	3.6434	9.0000e-005	0.0000	3.6457
Total	**1.5400e-003**	**1.1000e-003**	**0.0127**	**4.0000e-005**	**4.3300e-003**	**3.0000e-005**	**4.3700e-003**	**1.1500e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**3.6434**	**3.6434**	**9.0000e-005**	**0.0000**	**3.6457**

3.6 Architectural Coating - 2023

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	0.0733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.8700e-003	0.0671	0.0933	1.5000e-004		3.6500e-003	3.6500e-003		3.6500e-003	3.6500e-003	0.0000	13.1493	13.1493	7.9000e-004	0.0000	13.1689
Total	**0.0831**	**0.0671**	**0.0933**	**1.5000e-004**		**3.6500e-003**	**3.6500e-003**		**3.6500e-003**	**3.6500e-003**	**0.0000**	**13.1493**	**13.1493**	**7.9000e-004**	**0.0000**	**13.1689**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5000e-004	6.5000e-004	7.6500e-003	3.0000e-005	2.8300e-003	2.0000e-005	2.8500e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.2867	2.2867	5.0000e-005	0.0000	2.2880
Total	**9.5000e-004**	**6.5000e-004**	**7.6500e-003**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8500e-003**	**7.5000e-004**	**2.0000e-005**	**7.7000e-004**	**0.0000**	**2.2867**	**2.2867**	**5.0000e-005**	**0.0000**	**2.2880**

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	0.0733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.8700e-003	0.0671	0.0933	1.5000e-004		3.6500e-003	3.6500e-003		3.6500e-003	3.6500e-003	0.0000	13.1492	13.1492	7.9000e-004	0.0000	13.1689
Total	**0.0831**	**0.0671**	**0.0933**	**1.5000e-004**		**3.6500e-003**	**3.6500e-003**		**3.6500e-003**	**3.6500e-003**	**0.0000**	**13.1492**	**13.1492**	**7.9000e-004**	**0.0000**	**13.1689**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5000e-004	6.5000e-004	7.6500e-003	3.0000e-005	2.8300e-003	2.0000e-005	2.8500e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.2867	2.2867	5.0000e-005	0.0000	2.2880
Total	**9.5000e-004**	**6.5000e-004**	**7.6500e-003**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8500e-003**	**7.5000e-004**	**2.0000e-005**	**7.7000e-004**	**0.0000**	**2.2867**	**2.2867**	**5.0000e-005**	**0.0000**	**2.2880**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0416	0.2278	0.5595	2.6800e-003	0.2786	1.6400e-003	0.2803	0.0746	1.5300e-003	0.0762	0.0000	249.4033	249.4033	9.9300e-003	0.0000	249.6515
Unmitigated	0.0416	0.2278	0.5595	2.6800e-003	0.2786	1.6400e-003	0.2803	0.0746	1.5300e-003	0.0762	0.0000	249.4033	249.4033	9.9300e-003	0.0000	249.6515

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	220.78	215.46	183.92	733,848	733,848
Total	220.78	215.46	183.92	733,848	733,848

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
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

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	30.6369	30.6369	1.3000e-003	2.6000e-004	30.7468
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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	190869	30.6369	1.3000e-003	2.6000e-004	30.7468
Total		**30.6369**	**1.3000e-003**	**2.6000e-004**	**30.7468**

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

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	0.2262	4.5100e-003	0.3917	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6555
Unmitigated	0.2447	4.5100e-003	0.3917	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6555

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0186					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2144					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0118	4.5100e-003	0.3917	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6555
Total	**0.2447**	**4.5100e-003**	**0.3917**	**2.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.1700e-003**	**2.1700e-003**	**0.0000**	**0.6401**	**0.6401**	**6.1000e-004**	**0.0000**	**0.6555**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2144					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0118	4.5100e-003	0.3917	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6555
Total	**0.2262**	**4.5100e-003**	**0.3917**	**2.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.1700e-003**	**2.1700e-003**	**0.0000**	**0.6401**	**0.6401**	**6.1000e-004**	**0.0000**	**0.6555**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.6559	2.1900e-003	1.2700e-003	7.0893
Unmitigated	7.6240	2.7100e-003	1.5800e-003	8.1632

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	1.98068 / 1.56086	7.6240	2.7100e-003	1.5800e-003	8.1632
Total		**7.6240**	**2.7100e-003**	**1.5800e-003**	**8.1632**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	1.58455 / 1.56086	6.6559	2.1900e-003	1.2700e-003	7.0893
Total		**6.6559**	**2.1900e-003**	**1.2700e-003**	**7.0893**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.1294	0.1258	0.0000	5.2754
Unmitigated	2.1294	0.1258	0.0000	5.2754

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	10.49	2.1294	0.1258	0.0000	5.2754
Total		**2.1294**	**0.1258**	**0.0000**	**5.2754**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	10.49	2.1294	0.1258	0.0000	5.2754
Total		**2.1294**	**0.1258**	**0.0000**	**5.2754**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

5100 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	38.00	Dwelling Unit	1.80	59,330.00	109

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	353.87	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted for 2030 RPS

Land Use - taken from project plan

Construction Phase - per client plans

Off-road Equipment -

Off-road Equipment - Per client info

Off-road Equipment - Per client provided info

Off-road Equipment - per client info

Off-road Equipment - per client provided info

Demolition -

Grading - Site is approximately 1.8 acres

Architectural Coating - architectural and area code compliance with Rule 1113

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Assume no fireplaces

Area Coating -

Energy Use - 7% reduction for 2019 building code; net zero energy buildings

Water And Wastewater - City uses sanitary sewer only. 20% reduction for 2016 CALGreen

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

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

Mobile Land Use Mitigation -

Area Mitigation - Zero VOC interior paint per GPR scorecard

Energy Mitigation - Per GPR Scorecard. Rooftop solar panels

Water Mitigation - Per GPR Scorecard

Fleet Mix -

Trips and VMT -

5100 Long Beach Blvd - South Coast Air Basin, Summer

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	50	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstructionPhase	NumDays	10.00	261.00
tblConstructionPhase	NumDays	200.00	365.00
tblConstructionPhase	NumDays	4.00	25.00
tblConstructionPhase	NumDays	10.00	222.00
tblConstructionPhase	NumDays	2.00	14.00
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	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	32.30	0.00
tblFireplaces	NumberNoFireplace	3.80	38.00
tblFireplaces	NumberWood	1.90	0.00
tblGrading	AcresOfGrading	34.38	1.50
tblGrading	AcresOfGrading	21.00	1.00
tblGrading	MaterialImported	0.00	1,950.00
tblLandUse	LandUseSquareFeet	38,000.00	59,330.00
tblLandUse	LotAcreage	2.38	1.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	17.48	10.49
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	2,475,852.97	1,980,682.38
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	1.90	0.00
tblWoodstoves	NumberNoncatalytic	1.90	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.1432	36.2940	27.3738	0.0687	5.5127	1.4627	6.5910	2.9491	1.3546	3.9900	0.0000	6,745.0164	6,745.0164	1.7760	0.0000	6,789.4173
2023	3.2633	13.3591	15.5277	0.0293	0.3833	0.5881	0.9714	0.1022	0.5703	0.6725	0.0000	2,716.0535	2,716.0535	0.3703	0.0000	2,725.3101
Maximum	**4.1432**	**36.2940**	**27.3738**	**0.0687**	**5.5127**	**1.4627**	**6.5910**	**2.9491**	**1.3546**	**3.9900**	**0.0000**	**6,745.0164**	**6,745.0164**	**1.7760**	**0.0000**	**6,789.4173**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.1432	36.2940	27.3738	0.0687	2.6044	1.4627	4.0670	1.3516	1.3546	2.6200	0.0000	6,745.0164	6,745.0164	1.7760	0.0000	6,789.4173
2023	3.2633	13.3591	15.5277	0.0293	0.3833	0.5881	0.9714	0.1022	0.5703	0.6725	0.0000	2,716.0535	2,716.0535	0.3703	0.0000	2,725.3101
Maximum	**4.1432**	**36.2940**	**27.3738**	**0.0687**	**2.6044**	**1.4627**	**4.0670**	**1.3516**	**1.3546**	**2.6200**	**0.0000**	**6,745.0164**	**6,745.0164**	**1.7760**	**0.0000**	**6,789.4173**

5100 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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**49.33**	**0.00**	**33.38**	**52.36**	**0.00**	**29.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3707	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	5.6450	5.6450	5.4200e-003	0.0000	5.7804
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	0.2516	1.2498	3.3211	0.0157	1.6030	9.2800e-003	1.6122	0.4287	8.6200e-003	0.4373		1,611.3049	1,611.3049	0.0620		1,612.8555
Total	**1.6222**	**1.2859**	**6.4548**	**0.0159**	**1.6030**	**0.0267**	**1.6296**	**0.4287**	**0.0260**	**0.4547**	**0.0000**	**1,616.9499**	**1,616.9499**	**0.0674**	**0.0000**	**1,618.6359**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2690	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	5.6450	5.6450	5.4200e-003	0.0000	5.7804
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	0.2516	1.2498	3.3211	0.0157	1.6030	9.2800e-003	1.6122	0.4287	8.6200e-003	0.4373		1,611.3049	1,611.3049	0.0620		1,612.8555
Total	**1.5205**	**1.2859**	**6.4548**	**0.0159**	**1.6030**	**0.0267**	**1.6296**	**0.4287**	**0.0260**	**0.4547**	**0.0000**	**1,616.9499**	**1,616.9499**	**0.0674**	**0.0000**	**1,618.6359**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.27**	**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	1/15/2022	1/31/2022	6	14	
2	Grading	Grading	2/1/2022	3/1/2022	6	25	
3	Paving	Paving	2/15/2022	10/31/2022	6	222	
4	Building Construction	Building Construction	3/2/2022	5/1/2023	6	365	
5	Architectural Coating	Architectural Coating	7/1/2022	5/1/2023	6	261	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 120,143; Residential Outdoor: 40,048; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

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	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	244.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3451	0.0000	5.3451	2.9046	0.0000	2.9046			0.0000			0.0000
Off-Road	2.0774	22.2672	14.6664	0.0341		0.9404	0.9404		0.8652	0.8652		3,301.2444	3,301.2444	1.0677		3,327.9366
Total	**2.0774**	**22.2672**	**14.6664**	**0.0341**	**5.3451**	**0.9404**	**6.2855**	**2.9046**	**0.8652**	**3.7698**		**3,301.2444**	**3,301.2444**	**1.0677**		**3,327.9366**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0589	0.0370	0.5208	1.6100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		160.0895	160.0895	4.0500e-003		160.1906
Total	**0.0589**	**0.0370**	**0.5208**	**1.6100e-003**	**0.1677**	**1.2100e-003**	**0.1689**	**0.0445**	**1.1100e-003**	**0.0456**		**160.0895**	**160.0895**	**4.0500e-003**		**160.1906**

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					2.4053	0.0000	2.4053	1.3071	0.0000	1.3071			0.0000			0.0000
Off-Road	2.0774	22.2672	14.6664	0.0341		0.9404	0.9404		0.8652	0.8652	0.0000	3,301.2444	3,301.2444	1.0677		3,327.9366
Total	**2.0774**	**22.2672**	**14.6664**	**0.0341**	**2.4053**	**0.9404**	**3.3457**	**1.3071**	**0.8652**	**2.1723**	**0.0000**	**3,301.2444**	**3,301.2444**	**1.0677**		**3,327.9366**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0589	0.0370	0.5208	1.6100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		160.0895	160.0895	4.0500e-003		160.1906
Total	**0.0589**	**0.0370**	**0.5208**	**1.6100e-003**	**0.1677**	**1.2100e-003**	**0.1689**	**0.0445**	**1.1100e-003**	**0.0456**		**160.0895**	**160.0895**	**4.0500e-003**		**160.1906**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5890	0.0000	4.5890	2.4909	0.0000	2.4909			0.0000			0.0000
Off-Road	2.5361	26.7797	17.6484	0.0416		1.1113	1.1113		1.0311	1.0311		4,016.4333	4,016.4333	1.2021		4,046.4848
Total	**2.5361**	**26.7797**	**17.6484**	**0.0416**	**4.5890**	**1.1113**	**5.7004**	**2.4909**	**1.0311**	**3.5220**		**4,016.4333**	**4,016.4333**	**1.2021**		**4,046.4848**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0705	2.3424	0.5531	7.3900e-003	0.1705	6.8200e-003	0.1773	0.0467	6.5300e-003	0.0532		803.5756	803.5756	0.0564		804.9855
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	0.0707	0.0444	0.6250	1.9300e-003	0.2012	1.4500e-003	0.2026	0.0534	1.3300e-003	0.0547		192.1074	192.1074	4.8500e-003		192.2287
Total	**0.1412**	**2.3868**	**1.1781**	**9.3200e-003**	**0.3717**	**8.2700e-003**	**0.3799**	**0.1001**	**7.8600e-003**	**0.1079**		**995.6830**	**995.6830**	**0.0613**		**997.2142**

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					2.0651	0.0000	2.0651	1.1209	0.0000	1.1209			0.0000			0.0000
Off-Road	2.5361	26.7797	17.6484	0.0416		1.1113	1.1113		1.0311	1.0311	0.0000	4,016.4333	4,016.4333	1.2021		4,046.4848
Total	**2.5361**	**26.7797**	**17.6484**	**0.0416**	**2.0651**	**1.1113**	**3.1764**	**1.1209**	**1.0311**	**2.1520**	**0.0000**	**4,016.4333**	**4,016.4333**	**1.2021**		**4,046.4848**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0705	2.3424	0.5531	7.3900e-003	0.1705	6.8200e-003	0.1773	0.0467	6.5300e-003	0.0532		803.5756	803.5756	0.0564		804.9855
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	0.0707	0.0444	0.6250	1.9300e-003	0.2012	1.4500e-003	0.2026	0.0534	1.3300e-003	0.0547		192.1074	192.1074	4.8500e-003		192.2287
Total	**0.1412**	**2.3868**	**1.1781**	**9.3200e-003**	**0.3717**	**8.2700e-003**	**0.3799**	**0.1001**	**7.8600e-003**	**0.1079**		**995.6830**	**995.6830**	**0.0613**		**997.2142**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6725	7.0905	8.0266	0.0163		0.3419	0.3419		0.3145	0.3145		1,572.8107	1,572.8107	0.5087		1,585.5277
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6725**	**7.0905**	**8.0266**	**0.0163**		**0.3419**	**0.3419**		**0.3145**	**0.3145**		**1,572.8107**	**1,572.8107**	**0.5087**		**1,585.5277**

3.4 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0589	0.0370	0.5208	1.6100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		160.0895	160.0895	4.0500e-003		160.1906
Total	**0.0589**	**0.0370**	**0.5208**	**1.6100e-003**	**0.1677**	**1.2100e-003**	**0.1689**	**0.0445**	**1.1100e-003**	**0.0456**		**160.0895**	**160.0895**	**4.0500e-003**		**160.1906**

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	0.6725	7.0905	8.0266	0.0163		0.3419	0.3419		0.3145	0.3145	0.0000	1,572.8107	1,572.8107	0.5087		1,585.5277
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6725**	**7.0905**	**8.0266**	**0.0163**		**0.3419**	**0.3419**		**0.3145**	**0.3145**	**0.0000**	**1,572.8107**	**1,572.8107**	**0.5087**		**1,585.5277**

3.4 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0589	0.0370	0.5208	1.6100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		160.0895	160.0895	4.0500e-003		160.1906
Total	**0.0589**	**0.0370**	**0.5208**	**1.6100e-003**	**0.1677**	**1.2100e-003**	**0.1689**	**0.0445**	**1.1100e-003**	**0.0456**		**160.0895**	**160.0895**	**4.0500e-003**		**160.1906**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0106	0.3639	0.0881	1.0000e-003	0.0256	6.8000e-004	0.0263	7.3700e-003	6.5000e-004	8.0200e-003		107.3481	107.3481	6.4700e-003		107.5098
Worker	0.1060	0.0666	0.9375	2.8900e-003	0.3018	2.1700e-003	0.3040	0.0800	2.0000e-003	0.0820		288.1611	288.1611	7.2800e-003		288.3431
Total	**0.1166**	**0.4304**	**1.0256**	**3.8900e-003**	**0.3274**	**2.8500e-003**	**0.3303**	**0.0874**	**2.6500e-003**	**0.0901**		**395.5091**	**395.5091**	**0.0138**		**395.8529**

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	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0106	0.3639	0.0881	1.0000e-003	0.0256	6.8000e-004	0.0263	7.3700e-003	6.5000e-004	8.0200e-003		107.3481	107.3481	6.4700e-003		107.5098
Worker	0.1060	0.0666	0.9375	2.8900e-003	0.3018	2.1700e-003	0.3040	0.0800	2.0000e-003	0.0820		288.1611	288.1611	7.2800e-003		288.3431
Total	**0.1166**	**0.4304**	**1.0256**	**3.8900e-003**	**0.3274**	**2.8500e-003**	**0.3303**	**0.0874**	**2.6500e-003**	**0.0901**		**395.5091**	**395.5091**	**0.0138**		**395.8529**

3.5 Building Construction - 2023

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	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

3.5 Building Construction - 2023

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	7.8300e-003	0.2743	0.0795	9.7000e-004	0.0256	3.1000e-004	0.0259	7.3700e-003	3.0000e-004	7.6700e-003		104.0146	104.0146	5.7200e-003		104.1575
Worker	0.0997	0.0603	0.8657	2.7800e-003	0.3018	2.1100e-003	0.3039	0.0800	1.9500e-003	0.0820		277.4277	277.4277	6.5700e-003		277.5919
Total	**0.1075**	**0.3346**	**0.9452**	**3.7500e-003**	**0.3274**	**2.4200e-003**	**0.3298**	**0.0874**	**2.2500e-003**	**0.0897**		**381.4423**	**381.4423**	**0.0123**		**381.7494**

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	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

3.5 Building Construction - 2023

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	7.8300e-003	0.2743	0.0795	9.7000e-004	0.0256	3.1000e-004	0.0259	7.3700e-003	3.0000e-004	7.6700e-003		104.0146	104.0146	5.7200e-003		104.1575
Worker	0.0997	0.0603	0.8657	2.7800e-003	0.3018	2.1100e-003	0.3039	0.0800	1.9500e-003	0.0820		277.4277	277.4277	6.5700e-003		277.5919
Total	**0.1075**	**0.3346**	**0.9452**	**3.7500e-003**	**0.3274**	**2.4200e-003**	**0.3298**	**0.0874**	**2.2500e-003**	**0.0897**		**381.4423**	**381.4423**	**0.0123**		**381.7494**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.4224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.6269**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0196	0.0123	0.1736	5.4000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		53.3632	53.3632	1.3500e-003		53.3969
Total	**0.0196**	**0.0123**	**0.1736**	**5.4000e-004**	**0.0559**	**4.0000e-004**	**0.0563**	**0.0148**	**3.7000e-004**	**0.0152**		**53.3632**	**53.3632**	**1.3500e-003**		**53.3969**

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	1.4224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.6269**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0196	0.0123	0.1736	5.4000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		53.3632	53.3632	1.3500e-003		53.3969
Total	**0.0196**	**0.0123**	**0.1736**	**5.4000e-004**	**0.0559**	**4.0000e-004**	**0.0563**	**0.0148**	**3.7000e-004**	**0.0152**		**53.3632**	**53.3632**	**1.3500e-003**		**53.3969**

3.6 Architectural Coating - 2023

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	1.4224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**1.6141**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

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	0.0185	0.0112	0.1603	5.2000e-004	0.0559	3.9000e-004	0.0563	0.0148	3.6000e-004	0.0152		51.3755	51.3755	1.2200e-003		51.4059
Total	**0.0185**	**0.0112**	**0.1603**	**5.2000e-004**	**0.0559**	**3.9000e-004**	**0.0563**	**0.0148**	**3.6000e-004**	**0.0152**		**51.3755**	**51.3755**	**1.2200e-003**		**51.4059**

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	1.4224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**1.6141**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

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	0.0185	0.0112	0.1603	5.2000e-004	0.0559	3.9000e-004	0.0563	0.0148	3.6000e-004	0.0152		51.3755	51.3755	1.2200e-003		51.4059
Total	**0.0185**	**0.0112**	**0.1603**	**5.2000e-004**	**0.0559**	**3.9000e-004**	**0.0563**	**0.0148**	**3.6000e-004**	**0.0152**		**51.3755**	**51.3755**	**1.2200e-003**		**51.4059**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2516	1.2498	3.3211	0.0157	1.6030	9.2800e-003	1.6122	0.4287	8.6200e-003	0.4373		1,611.3049	1,611.3049	0.0620		1,612.8555
Unmitigated	0.2516	1.2498	3.3211	0.0157	1.6030	9.2800e-003	1.6122	0.4287	8.6200e-003	0.4373		1,611.3049	1,611.3049	0.0620		1,612.8555

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	220.78	215.46	183.92	733,848	733,848
Total	220.78	215.46	183.92	733,848	733,848

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
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

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

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

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	1.2690	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	5.6450	5.6450	5.4200e-003	0.0000	5.7804
Unmitigated	1.3707	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	5.6450	5.6450	5.4200e-003	0.0000	5.7804

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	0.1017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1747					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	0.0942	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174		5.6450	5.6450	5.4200e-003		5.7804
Total	**1.3707**	**0.0361**	**3.1337**	**1.7000e-004**		**0.0174**	**0.0174**		**0.0174**	**0.0174**	**0.0000**	**5.6450**	**5.6450**	**5.4200e-003**	**0.0000**	**5.7804**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1747					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	0.0942	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174		5.6450	5.6450	5.4200e-003		5.7804
Total	**1.2690**	**0.0361**	**3.1337**	**1.7000e-004**		**0.0174**	**0.0174**		**0.0174**	**0.0174**	**0.0000**	**5.6450**	**5.6450**	**5.4200e-003**	**0.0000**	**5.7804**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

5100 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	38.00	Dwelling Unit	1.80	59,330.00	109

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	353.87	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted for 2030 RPS

Land Use - taken from project plan

Construction Phase - per client plans

Off-road Equipment -

Off-road Equipment - Per client info

Off-road Equipment - Per client provided info

Off-road Equipment - per client info

Off-road Equipment - per client provided info

Demolition -

Grading - Site is approximately 1.8 acres

Architectural Coating - architectural and area code compliance with Rule 1113

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Assume no fireplaces

Area Coating -

Energy Use - 7% reduction for 2019 building code; net zero energy buildings

Water And Wastewater - City uses sanitary sewer only. 20% reduction for 2016 CALGreen

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

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

Mobile Land Use Mitigation -

Area Mitigation - Zero VOC interior paint per GPR scorecard

Energy Mitigation - Per GPR Scorecard. Rooftop solar panels

Water Mitigation - Per GPR Scorecard

Fleet Mix -

Trips and VMT -

5100 Long Beach Blvd - South Coast Air Basin, Winter

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	50	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstructionPhase	NumDays	10.00	261.00
tblConstructionPhase	NumDays	200.00	365.00
tblConstructionPhase	NumDays	4.00	25.00
tblConstructionPhase	NumDays	10.00	222.00
tblConstructionPhase	NumDays	2.00	14.00
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	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	32.30	0.00
tblFireplaces	NumberNoFireplace	3.80	38.00
tblFireplaces	NumberWood	1.90	0.00
tblGrading	AcresOfGrading	34.38	1.50
tblGrading	AcresOfGrading	21.00	1.00
tblGrading	MaterialImported	0.00	1,950.00
tblLandUse	LandUseSquareFeet	38,000.00	59,330.00
tblLandUse	LotAcreage	2.38	1.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	17.48	10.49
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	2,475,852.97	1,980,682.38
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	1.90	0.00
tblWoodstoves	NumberNoncatalytic	1.90	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.1631	36.3286	27.2982	0.0684	5.5127	1.4628	6.5911	2.9491	1.3547	3.9901	0.0000	6,709.2273	6,709.2273	1.7775	0.0000	6,753.6649
2023	3.2765	13.3646	15.4344	0.0291	0.3833	0.5882	0.9714	0.1022	0.5703	0.6725	0.0000	2,692.8294	2,692.8294	0.3701	0.0000	2,702.0818
Maximum	**4.1631**	**36.3286**	**27.2982**	**0.0684**	**5.5127**	**1.4628**	**6.5911**	**2.9491**	**1.3547**	**3.9901**	**0.0000**	**6,709.2273**	**6,709.2273**	**1.7775**	**0.0000**	**6,753.6649**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.1631	36.3286	27.2982	0.0684	2.6044	1.4628	4.0671	1.3516	1.3547	2.6201	0.0000	6,709.2273	6,709.2273	1.7775	0.0000	6,753.6649
2023	3.2765	13.3646	15.4344	0.0291	0.3833	0.5882	0.9714	0.1022	0.5703	0.6725	0.0000	2,692.8294	2,692.8294	0.3701	0.0000	2,702.0818
Maximum	**4.1631**	**36.3286**	**27.2982**	**0.0684**	**2.6044**	**1.4628**	**4.0671**	**1.3516**	**1.3547**	**2.6201**	**0.0000**	**6,709.2273**	**6,709.2273**	**1.7775**	**0.0000**	**6,753.6649**

5100 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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**49.33**	**0.00**	**33.37**	**52.36**	**0.00**	**29.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3707	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	5.6450	5.6450	5.4200e-003	0.0000	5.7804
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	0.2407	1.2666	3.1140	0.0150	1.6030	9.3100e-003	1.6123	0.4287	8.6400e-003	0.4373		1,532.8715	1,532.8715	0.0623		1,534.4282
Total	**1.6114**	**1.3027**	**6.2478**	**0.0151**	**1.6030**	**0.0267**	**1.6296**	**0.4287**	**0.0260**	**0.4547**	**0.0000**	**1,538.5165**	**1,538.5165**	**0.0677**	**0.0000**	**1,540.2086**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2690	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	5.6450	5.6450	5.4200e-003	0.0000	5.7804
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	0.2407	1.2666	3.1140	0.0150	1.6030	9.3100e-003	1.6123	0.4287	8.6400e-003	0.4373		1,532.8715	1,532.8715	0.0623		1,534.4282
Total	**1.5097**	**1.3027**	**6.2478**	**0.0151**	**1.6030**	**0.0267**	**1.6296**	**0.4287**	**0.0260**	**0.4547**	**0.0000**	**1,538.5165**	**1,538.5165**	**0.0677**	**0.0000**	**1,540.2086**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.31**	**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	1/15/2022	1/31/2022	6	14	
2	Grading	Grading	2/1/2022	3/1/2022	6	25	
3	Paving	Paving	2/15/2022	10/31/2022	6	222	
4	Building Construction	Building Construction	3/2/2022	5/1/2023	6	365	
5	Architectural Coating	Architectural Coating	7/1/2022	5/1/2023	6	261	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 120,143; Residential Outdoor: 40,048; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

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	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	244.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3451	0.0000	5.3451	2.9046	0.0000	2.9046			0.0000			0.0000
Off-Road	2.0774	22.2672	14.6664	0.0341		0.9404	0.9404		0.8652	0.8652		3,301.2444	3,301.2444	1.0677		3,327.9366
Total	**2.0774**	**22.2672**	**14.6664**	**0.0341**	**5.3451**	**0.9404**	**6.2855**	**2.9046**	**0.8652**	**3.7698**		**3,301.2444**	**3,301.2444**	**1.0677**		**3,327.9366**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0651	0.0406	0.4706	1.5100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		150.1468	150.1468	3.7800e-003		150.2414
Total	**0.0651**	**0.0406**	**0.4706**	**1.5100e-003**	**0.1677**	**1.2100e-003**	**0.1689**	**0.0445**	**1.1100e-003**	**0.0456**		**150.1468**	**150.1468**	**3.7800e-003**		**150.2414**

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					2.4053	0.0000	2.4053	1.3071	0.0000	1.3071			0.0000			0.0000
Off-Road	2.0774	22.2672	14.6664	0.0341		0.9404	0.9404		0.8652	0.8652	0.0000	3,301.2444	3,301.2444	1.0677		3,327.9366
Total	**2.0774**	**22.2672**	**14.6664**	**0.0341**	**2.4053**	**0.9404**	**3.3457**	**1.3071**	**0.8652**	**2.1723**	**0.0000**	**3,301.2444**	**3,301.2444**	**1.0677**		**3,327.9366**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0651	0.0406	0.4706	1.5100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		150.1468	150.1468	3.7800e-003		150.2414
Total	**0.0651**	**0.0406**	**0.4706**	**1.5100e-003**	**0.1677**	**1.2100e-003**	**0.1689**	**0.0445**	**1.1100e-003**	**0.0456**		**150.1468**	**150.1468**	**3.7800e-003**		**150.2414**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5890	0.0000	4.5890	2.4909	0.0000	2.4909			0.0000			0.0000
Off-Road	2.5361	26.7797	17.6484	0.0416		1.1113	1.1113		1.0311	1.0311		4,016.4333	4,016.4333	1.2021		4,046.4848
Total	**2.5361**	**26.7797**	**17.6484**	**0.0416**	**4.5890**	**1.1113**	**5.7004**	**2.4909**	**1.0311**	**3.5220**		**4,016.4333**	**4,016.4333**	**1.2021**		**4,046.4848**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0723	2.3690	0.5879	7.2600e-003	0.1705	6.9300e-003	0.1774	0.0467	6.6300e-003	0.0533		789.6603	789.6603	0.0584		791.1214
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	0.0781	0.0487	0.5647	1.8100e-003	0.2012	1.4500e-003	0.2026	0.0534	1.3300e-003	0.0547		180.1762	180.1762	4.5400e-003		180.2897
Total	**0.1504**	**2.4178**	**1.1527**	**9.0700e-003**	**0.3717**	**8.3800e-003**	**0.3800**	**0.1001**	**7.9600e-003**	**0.1080**		**969.8365**	**969.8365**	**0.0630**		**971.4110**

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					2.0651	0.0000	2.0651	1.1209	0.0000	1.1209			0.0000			0.0000
Off-Road	2.5361	26.7797	17.6484	0.0416		1.1113	1.1113		1.0311	1.0311	0.0000	4,016.4333	4,016.4333	1.2021		4,046.4848
Total	**2.5361**	**26.7797**	**17.6484**	**0.0416**	**2.0651**	**1.1113**	**3.1764**	**1.1209**	**1.0311**	**2.1520**	**0.0000**	**4,016.4333**	**4,016.4333**	**1.2021**		**4,046.4848**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0723	2.3690	0.5879	7.2600e-003	0.1705	6.9300e-003	0.1774	0.0467	6.6300e-003	0.0533		789.6603	789.6603	0.0584		791.1214
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	0.0781	0.0487	0.5647	1.8100e-003	0.2012	1.4500e-003	0.2026	0.0534	1.3300e-003	0.0547		180.1762	180.1762	4.5400e-003		180.2897
Total	**0.1504**	**2.4178**	**1.1527**	**9.0700e-003**	**0.3717**	**8.3800e-003**	**0.3800**	**0.1001**	**7.9600e-003**	**0.1080**		**969.8365**	**969.8365**	**0.0630**		**971.4110**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6725	7.0905	8.0266	0.0163		0.3419	0.3419		0.3145	0.3145		1,572.8107	1,572.8107	0.5087		1,585.5277
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6725**	**7.0905**	**8.0266**	**0.0163**		**0.3419**	**0.3419**		**0.3145**	**0.3145**		**1,572.8107**	**1,572.8107**	**0.5087**		**1,585.5277**

3.4 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0651	0.0406	0.4706	1.5100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		150.1468	150.1468	3.7800e-003		150.2414
Total	**0.0651**	**0.0406**	**0.4706**	**1.5100e-003**	**0.1677**	**1.2100e-003**	**0.1689**	**0.0445**	**1.1100e-003**	**0.0456**		**150.1468**	**150.1468**	**3.7800e-003**		**150.2414**

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	0.6725	7.0905	8.0266	0.0163		0.3419	0.3419		0.3145	0.3145	0.0000	1,572.8107	1,572.8107	0.5087		1,585.5277
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6725**	**7.0905**	**8.0266**	**0.0163**		**0.3419**	**0.3419**		**0.3145**	**0.3145**	**0.0000**	**1,572.8107**	**1,572.8107**	**0.5087**		**1,585.5277**

3.4 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0651	0.0406	0.4706	1.5100e-003	0.1677	1.2100e-003	0.1689	0.0445	1.1100e-003	0.0456		150.1468	150.1468	3.7800e-003		150.2414
Total	**0.0651**	**0.0406**	**0.4706**	**1.5100e-003**	**0.1677**	**1.2100e-003**	**0.1689**	**0.0445**	**1.1100e-003**	**0.0456**		**150.1468**	**150.1468**	**3.7800e-003**		**150.2414**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0111	0.3627	0.0979	9.8000e-004	0.0256	7.0000e-004	0.0263	7.3700e-003	6.7000e-004	8.0400e-003		104.4088	104.4088	6.9100e-003		104.5815
Worker	0.1171	0.0731	0.8471	2.7100e-003	0.3018	2.1700e-003	0.3040	0.0800	2.0000e-003	0.0820		270.2643	270.2643	6.8100e-003		270.4345
Total	**0.1282**	**0.4358**	**0.9450**	**3.6900e-003**	**0.3274**	**2.8700e-003**	**0.3303**	**0.0874**	**2.6700e-003**	**0.0901**		**374.6731**	**374.6731**	**0.0137**		**375.0160**

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	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0111	0.3627	0.0979	9.8000e-004	0.0256	7.0000e-004	0.0263	7.3700e-003	6.7000e-004	8.0400e-003		104.4088	104.4088	6.9100e-003		104.5815
Worker	0.1171	0.0731	0.8471	2.7100e-003	0.3018	2.1700e-003	0.3040	0.0800	2.0000e-003	0.0820		270.2643	270.2643	6.8100e-003		270.4345
Total	**0.1282**	**0.4358**	**0.9450**	**3.6900e-003**	**0.3274**	**2.8700e-003**	**0.3303**	**0.0874**	**2.6700e-003**	**0.0901**		**374.6731**	**374.6731**	**0.0137**		**375.0160**

3.5 Building Construction - 2023

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	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

3.5 Building Construction - 2023

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	8.2400e-003	0.2728	0.0869	9.4000e-004	0.0256	3.3000e-004	0.0259	7.3700e-003	3.2000e-004	7.6800e-003		101.2121	101.2121	6.0600e-003		101.3636
Worker	0.1105	0.0661	0.7808	2.6100e-003	0.3018	2.1100e-003	0.3039	0.0800	1.9500e-003	0.0820		260.1970	260.1970	6.1400e-003		260.3504
Total	**0.1187**	**0.3390**	**0.8676**	**3.5500e-003**	**0.3274**	**2.4400e-003**	**0.3298**	**0.0874**	**2.2700e-003**	**0.0897**		**361.4091**	**361.4091**	**0.0122**		**361.7140**

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	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

3.5 Building Construction - 2023

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	8.2400e-003	0.2728	0.0869	9.4000e-004	0.0256	3.3000e-004	0.0259	7.3700e-003	3.2000e-004	7.6800e-003		101.2121	101.2121	6.0600e-003		101.3636
Worker	0.1105	0.0661	0.7808	2.6100e-003	0.3018	2.1100e-003	0.3039	0.0800	1.9500e-003	0.0820		260.1970	260.1970	6.1400e-003		260.3504
Total	**0.1187**	**0.3390**	**0.8676**	**3.5500e-003**	**0.3274**	**2.4400e-003**	**0.3298**	**0.0874**	**2.2700e-003**	**0.0897**		**361.4091**	**361.4091**	**0.0122**		**361.7140**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.4224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.6269**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0135	0.1569	5.0000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		50.0489	50.0489	1.2600e-003		50.0805
Total	**0.0217**	**0.0135**	**0.1569**	**5.0000e-004**	**0.0559**	**4.0000e-004**	**0.0563**	**0.0148**	**3.7000e-004**	**0.0152**		**50.0489**	**50.0489**	**1.2600e-003**		**50.0805**

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	1.4224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.6269**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0135	0.1569	5.0000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		50.0489	50.0489	1.2600e-003		50.0805
Total	**0.0217**	**0.0135**	**0.1569**	**5.0000e-004**	**0.0559**	**4.0000e-004**	**0.0563**	**0.0148**	**3.7000e-004**	**0.0152**		**50.0489**	**50.0489**	**1.2600e-003**		**50.0805**

3.6 Architectural Coating - 2023

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	1.4224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**1.6141**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

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	0.0205	0.0123	0.1446	4.8000e-004	0.0559	3.9000e-004	0.0563	0.0148	3.6000e-004	0.0152		48.1846	48.1846	1.1400e-003		48.2130
Total	**0.0205**	**0.0123**	**0.1446**	**4.8000e-004**	**0.0559**	**3.9000e-004**	**0.0563**	**0.0148**	**3.6000e-004**	**0.0152**		**48.1846**	**48.1846**	**1.1400e-003**		**48.2130**

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	1.4224					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**1.6141**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

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	0.0205	0.0123	0.1446	4.8000e-004	0.0559	3.9000e-004	0.0563	0.0148	3.6000e-004	0.0152		48.1846	48.1846	1.1400e-003		48.2130
Total	**0.0205**	**0.0123**	**0.1446**	**4.8000e-004**	**0.0559**	**3.9000e-004**	**0.0563**	**0.0148**	**3.6000e-004**	**0.0152**		**48.1846**	**48.1846**	**1.1400e-003**		**48.2130**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2407	1.2666	3.1140	0.0150	1.6030	9.3100e-003	1.6123	0.4287	8.6400e-003	0.4373		1,532.8715	1,532.8715	0.0623		1,534.4282
Unmitigated	0.2407	1.2666	3.1140	0.0150	1.6030	9.3100e-003	1.6123	0.4287	8.6400e-003	0.4373		1,532.8715	1,532.8715	0.0623		1,534.4282

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	220.78	215.46	183.92	733,848	733,848
Total	220.78	215.46	183.92	733,848	733,848

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
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

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

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

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	1.2690	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	5.6450	5.6450	5.4200e-003	0.0000	5.7804
Unmitigated	1.3707	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	5.6450	5.6450	5.4200e-003	0.0000	5.7804

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	0.1017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1747					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	0.0942	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174		5.6450	5.6450	5.4200e-003		5.7804
Total	**1.3707**	**0.0361**	**3.1337**	**1.7000e-004**		**0.0174**	**0.0174**		**0.0174**	**0.0174**	**0.0000**	**5.6450**	**5.6450**	**5.4200e-003**	**0.0000**	**5.7804**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1747					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	0.0942	0.0361	3.1337	1.7000e-004		0.0174	0.0174		0.0174	0.0174		5.6450	5.6450	5.4200e-003		5.7804
Total	**1.2690**	**0.0361**	**3.1337**	**1.7000e-004**		**0.0174**	**0.0174**		**0.0174**	**0.0174**	**0.0000**	**5.6450**	**5.6450**	**5.4200e-003**	**0.0000**	**5.7804**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

5100 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	38.00	Dwelling Unit	1.80	59,330.00	109

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/MWhr)	353.87	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted for 2030 RPS

Land Use - taken from project plan

Construction Phase - per client plans

Off-road Equipment -

Off-road Equipment - Per client info

Off-road Equipment - Per client provided info

Off-road Equipment - per client info

Off-road Equipment - per client provided info

Demolition -

Grading - Site is approximately 1.8 acres

Architectural Coating - architectural and area code compliance with Rule 1113

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Assume no fireplaces

Area Coating -

Energy Use - 7% reduction for 2019 building code; net zero energy buildings

Water And Wastewater - City uses sanitary sewer only. 20% reduction for 2016 CALGreen

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

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

Mobile Land Use Mitigation -

Area Mitigation - Zero VOC interior paint per GPR scorecard

Energy Mitigation - Per GPR Scorecard. Rooftop solar panels

Water Mitigation - Per GPR Scorecard

Fleet Mix -

Trips and VMT -

5100 Long Beach Blvd - South Coast Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	50	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstructionPhase	NumDays	10.00	261.00
tblConstructionPhase	NumDays	200.00	365.00
tblConstructionPhase	NumDays	4.00	25.00
tblConstructionPhase	NumDays	10.00	222.00
tblConstructionPhase	NumDays	2.00	14.00
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	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	32.30	0.00
tblFireplaces	NumberNoFireplace	3.80	38.00
tblFireplaces	NumberWood	1.90	0.00
tblGrading	AcresOfGrading	34.38	1.50
tblGrading	AcresOfGrading	14.00	1.00
tblGrading	MaterialImported	0.00	1,950.00
tblLandUse	LandUseSquareFeet	38,000.00	59,330.00
tblLandUse	LotAcreage	2.38	1.80
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	17.48	10.49
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	2,475,852.97	1,980,682.38
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	1.90	0.00
tblWoodstoves	NumberNoncatalytic	1.90	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.4886	3.1203	3.2166	6.4500e-003	0.1590	0.1426	0.3016	0.0686	0.1354	0.2040	0.0000	554.0023	554.0023	0.1171	0.0000	556.9289
2023	0.1680	0.6886	0.7960	1.5000e-003	0.0194	0.0303	0.0497	5.1800e-003	0.0294	0.0345	0.0000	126.1119	126.1119	0.0173	0.0000	126.5441
Maximum	**0.4886**	**3.1203**	**3.2166**	**6.4500e-003**	**0.1590**	**0.1426**	**0.3016**	**0.0686**	**0.1354**	**0.2040**	**0.0000**	**554.0023**	**554.0023**	**0.1171**	**0.0000**	**556.9289**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.4886	3.1203	3.2166	6.4500e-003	0.1068	0.1426	0.2495	0.0403	0.1354	0.1757	0.0000	554.0017	554.0017	0.1171	0.0000	556.9283
2023	0.1680	0.6886	0.7960	1.5000e-003	0.0194	0.0303	0.0497	5.1800e-003	0.0294	0.0345	0.0000	126.1118	126.1118	0.0173	0.0000	126.5440
Maximum	**0.4886**	**3.1203**	**3.2166**	**6.4500e-003**	**0.1068**	**0.1426**	**0.2495**	**0.0403**	**0.1354**	**0.1757**	**0.0000**	**554.0017**	**554.0017**	**0.1171**	**0.0000**	**556.9283**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**29.23**	**0.00**	**14.84**	**38.37**	**0.00**	**11.86**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-15-2022**	**4-14-2022**	1.0497	1.0497
2	**4-15-2022**	**7-14-2022**	0.8969	0.8969
3	**7-15-2022**	**10-14-2022**	1.0093	1.0093
4	**10-15-2022**	**1-14-2023**	0.7515	0.7515
5	**1-15-2023**	**4-14-2023**	0.6418	0.6418
6	**4-15-2023**	**7-14-2023**	0.1211	0.1211
		Highest	1.0497	1.0497

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	0.2446	4.5100e-003	0.3909	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6554
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	30.6369	30.6369	1.3000e-003	2.6000e-004	30.7468
Mobile	0.0416	0.2278	0.5595	2.6800e-003	0.2786	1.6400e-003	0.2803	0.0746	1.5300e-003	0.0762	0.0000	249.4033	249.4033	9.9300e-003	0.0000	249.6515
Waste						0.0000	0.0000		0.0000	0.0000	2.1294	0.0000	2.1294	0.1258	0.0000	5.2754
Water						0.0000	0.0000		0.0000	0.0000	0.7008	6.9232	7.6240	2.7100e-003	1.5800e-003	8.1632
Total	**0.2862**	**0.2324**	**0.9503**	**2.7000e-003**	**0.2786**	**3.8100e-003**	**0.2824**	**0.0746**	**3.7000e-003**	**0.0783**	**2.8302**	**287.6035**	**290.4337**	**0.1404**	**1.8400e-003**	**294.4923**

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	0.2261	4.5100e-003	0.3909	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6554
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	0.0416	0.2278	0.5595	2.6800e-003	0.2786	1.6400e-003	0.2803	0.0746	1.5300e-003	0.0762	0.0000	249.4033	249.4033	9.9300e-003	0.0000	249.6515
Waste						0.0000	0.0000		0.0000	0.0000	2.1294	0.0000	2.1294	0.1258	0.0000	5.2754
Water						0.0000	0.0000		0.0000	0.0000	0.5606	6.0952	6.6559	2.1900e-003	1.2700e-003	7.0893
Total	**0.2677**	**0.2324**	**0.9503**	**2.7000e-003**	**0.2786**	**3.8100e-003**	**0.2824**	**0.0746**	**3.7000e-003**	**0.0783**	**2.6900**	**256.1387**	**258.8287**	**0.1386**	**1.2700e-003**	**262.6716**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.95**	**10.94**	**10.88**	**1.30**	**30.98**	**10.81**

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	1/15/2022	1/31/2022	6	14	
2	Grading	Grading	2/1/2022	3/1/2022	6	25	
3	Paving	Paving	2/15/2022	10/31/2022	6	222	
4	Building Construction	Building Construction	3/2/2022	5/1/2023	6	365	
5	Architectural Coating	Architectural Coating	7/1/2022	5/1/2023	6	261	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 120,143; Residential Outdoor: 40,048; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

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	244.00	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	27.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0374	0.0000	0.0374	0.0203	0.0000	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.1559	0.1027	2.4000e-004		6.5800e-003	6.5800e-003		6.0600e-003	6.0600e-003	0.0000	20.9639	20.9639	6.7800e-003	0.0000	21.1334
Total	**0.0145**	**0.1559**	**0.1027**	**2.4000e-004**	**0.0374**	**6.5800e-003**	**0.0440**	**0.0203**	**6.0600e-003**	**0.0264**	**0.0000**	**20.9639**	**20.9639**	**6.7800e-003**	**0.0000**	**21.1334**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.5000e-004	2.9300e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8394	0.8394	2.0000e-005	0.0000	0.8399
Total	**3.6000e-004**	**2.5000e-004**	**2.9300e-003**	**1.0000e-005**	**1.0000e-003**	**1.0000e-005**	**1.0100e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8394**	**0.8394**	**2.0000e-005**	**0.0000**	**0.8399**

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					0.0168	0.0000	0.0168	9.1500e-003	0.0000	9.1500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.1559	0.1027	2.4000e-004		6.5800e-003	6.5800e-003		6.0600e-003	6.0600e-003	0.0000	20.9638	20.9638	6.7800e-003	0.0000	21.1334
Total	**0.0145**	**0.1559**	**0.1027**	**2.4000e-004**	**0.0168**	**6.5800e-003**	**0.0234**	**9.1500e-003**	**6.0600e-003**	**0.0152**	**0.0000**	**20.9638**	**20.9638**	**6.7800e-003**	**0.0000**	**21.1334**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.5000e-004	2.9300e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8394	0.8394	2.0000e-005	0.0000	0.8399
Total	**3.6000e-004**	**2.5000e-004**	**2.9300e-003**	**1.0000e-005**	**1.0000e-003**	**1.0000e-005**	**1.0100e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8394**	**0.8394**	**2.0000e-005**	**0.0000**	**0.8399**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0574	0.0000	0.0574	0.0311	0.0000	0.0311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3348	0.2206	5.2000e-004		0.0139	0.0139		0.0129	0.0129	0.0000	45.5456	45.5456	0.0136	0.0000	45.8864
Total	**0.0317**	**0.3348**	**0.2206**	**5.2000e-004**	**0.0574**	**0.0139**	**0.0713**	**0.0311**	**0.0129**	**0.0440**	**0.0000**	**45.5456**	**45.5456**	**0.0136**	**0.0000**	**45.8864**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0302	7.1000e-003	9.0000e-005	2.1000e-003	9.0000e-005	2.1800e-003	5.8000e-004	8.0000e-005	6.6000e-004	0.0000	9.0461	9.0461	6.5000e-004	0.0000	9.0624
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	8.8000e-004	6.3000e-004	7.2500e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	2.0754	2.0754	5.0000e-005	0.0000	2.0767
Total	**1.7700e-003**	**0.0308**	**0.0144**	**1.1000e-004**	**4.5700e-003**	**1.1000e-004**	**4.6700e-003**	**1.2400e-003**	**1.0000e-004**	**1.3300e-003**	**0.0000**	**11.1215**	**11.1215**	**7.0000e-004**	**0.0000**	**11.1390**

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					0.0258	0.0000	0.0258	0.0140	0.0000	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3348	0.2206	5.2000e-004		0.0139	0.0139		0.0129	0.0129	0.0000	45.5455	45.5455	0.0136	0.0000	45.8863
Total	**0.0317**	**0.3348**	**0.2206**	**5.2000e-004**	**0.0258**	**0.0139**	**0.0397**	**0.0140**	**0.0129**	**0.0269**	**0.0000**	**45.5455**	**45.5455**	**0.0136**	**0.0000**	**45.8863**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0302	7.1000e-003	9.0000e-005	2.1000e-003	9.0000e-005	2.1800e-003	5.8000e-004	8.0000e-005	6.6000e-004	0.0000	9.0461	9.0461	6.5000e-004	0.0000	9.0624
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	8.8000e-004	6.3000e-004	7.2500e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	2.0754	2.0754	5.0000e-005	0.0000	2.0767
Total	**1.7700e-003**	**0.0308**	**0.0144**	**1.1000e-004**	**4.5700e-003**	**1.1000e-004**	**4.6700e-003**	**1.2400e-003**	**1.0000e-004**	**1.3300e-003**	**0.0000**	**11.1215**	**11.1215**	**7.0000e-004**	**0.0000**	**11.1390**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0747	0.7871	0.8910	1.8000e-003		0.0380	0.0380		0.0349	0.0349	0.0000	158.3781	158.3781	0.0512	0.0000	159.6587
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0747**	**0.7871**	**0.8910**	**1.8000e-003**		**0.0380**	**0.0380**		**0.0349**	**0.0349**	**0.0000**	**158.3781**	**158.3781**	**0.0512**	**0.0000**	**159.6587**

3.4 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3300e-003	3.0900e-003	0.0358	1.1000e-004	0.0122	9.0000e-005	0.0123	3.2300e-003	8.0000e-005	3.3200e-003	0.0000	10.2385	10.2385	2.6000e-004	0.0000	10.2450
Total	**4.3300e-003**	**3.0900e-003**	**0.0358**	**1.1000e-004**	**0.0122**	**9.0000e-005**	**0.0123**	**3.2300e-003**	**8.0000e-005**	**3.3200e-003**	**0.0000**	**10.2385**	**10.2385**	**2.6000e-004**	**0.0000**	**10.2450**

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	0.0747	0.7871	0.8910	1.8000e-003		0.0380	0.0380		0.0349	0.0349	0.0000	158.3779	158.3779	0.0512	0.0000	159.6585
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0747**	**0.7871**	**0.8910**	**1.8000e-003**		**0.0380**	**0.0380**		**0.0349**	**0.0349**	**0.0000**	**158.3779**	**158.3779**	**0.0512**	**0.0000**	**159.6585**

3.4 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3300e-003	3.0900e-003	0.0358	1.1000e-004	0.0122	9.0000e-005	0.0123	3.2300e-003	8.0000e-005	3.3200e-003	0.0000	10.2385	10.2385	2.6000e-004	0.0000	10.2450
Total	**4.3300e-003**	**3.0900e-003**	**0.0358**	**1.1000e-004**	**0.0122**	**9.0000e-005**	**0.0123**	**3.2300e-003**	**8.0000e-005**	**3.3200e-003**	**0.0000**	**10.2385**	**10.2385**	**2.6000e-004**	**0.0000**	**10.2450**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2160	1.6379	1.6672	2.8900e-003		0.0771	0.0771		0.0745	0.0745	0.0000	237.8658	237.8658	0.0414	0.0000	238.9015
Total	**0.2160**	**1.6379**	**1.6672**	**2.8900e-003**		**0.0771**	**0.0771**		**0.0745**	**0.0745**	**0.0000**	**237.8658**	**237.8658**	**0.0414**	**0.0000**	**238.9015**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4100e-003	0.0484	0.0122	1.3000e-004	3.3000e-003	9.0000e-005	3.3900e-003	9.5000e-004	9.0000e-005	1.0400e-003	0.0000	12.6107	12.6107	7.9000e-004	0.0000	12.6305
Worker	0.0138	9.8600e-003	0.1140	3.6000e-004	0.0388	2.8000e-004	0.0391	0.0103	2.6000e-004	0.0106	0.0000	32.6248	32.6248	8.2000e-004	0.0000	32.6454
Total	**0.0152**	**0.0582**	**0.1262**	**4.9000e-004**	**0.0421**	**3.7000e-004**	**0.0425**	**0.0113**	**3.5000e-004**	**0.0116**	**0.0000**	**45.2355**	**45.2355**	**1.6100e-003**	**0.0000**	**45.2758**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2160	1.6379	1.6672	2.8900e-003		0.0771	0.0771		0.0745	0.0745	0.0000	237.8655	237.8655	0.0414	0.0000	238.9012
Total	**0.2160**	**1.6379**	**1.6672**	**2.8900e-003**		**0.0771**	**0.0771**		**0.0745**	**0.0745**	**0.0000**	**237.8655**	**237.8655**	**0.0414**	**0.0000**	**238.9012**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4100e-003	0.0484	0.0122	1.3000e-004	3.3000e-003	9.0000e-005	3.3900e-003	9.5000e-004	9.0000e-005	1.0400e-003	0.0000	12.6107	12.6107	7.9000e-004	0.0000	12.6305
Worker	0.0138	9.8600e-003	0.1140	3.6000e-004	0.0388	2.8000e-004	0.0391	0.0103	2.6000e-004	0.0106	0.0000	32.6248	32.6248	8.2000e-004	0.0000	32.6454
Total	**0.0152**	**0.0582**	**0.1262**	**4.9000e-004**	**0.0421**	**3.7000e-004**	**0.0425**	**0.0113**	**3.5000e-004**	**0.0116**	**0.0000**	**45.2355**	**45.2355**	**1.6100e-003**	**0.0000**	**45.2758**

3.5 Building Construction - 2023

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	0.0785	0.6031	0.6495	1.1400e-003		0.0265	0.0265		0.0256	0.0256	0.0000	93.5236	93.5236	0.0159	0.0000	93.9206
Total	**0.0785**	**0.6031**	**0.6495**	**1.1400e-003**		**0.0265**	**0.0265**		**0.0256**	**0.0256**	**0.0000**	**93.5236**	**93.5236**	**0.0159**	**0.0000**	**93.9206**

3.5 Building Construction - 2023

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	4.1000e-004	0.0143	4.3000e-003	5.0000e-005	1.3000e-003	2.0000e-005	1.3100e-003	3.7000e-004	2.0000e-005	3.9000e-004	0.0000	4.8046	4.8046	2.7000e-004	0.0000	4.8114
Worker	5.1100e-003	3.5100e-003	0.0413	1.4000e-004	0.0153	1.1000e-004	0.0154	4.0500e-003	1.0000e-004	4.1500e-003	0.0000	12.3479	12.3479	2.9000e-004	0.0000	12.3552
Total	**5.5200e-003**	**0.0178**	**0.0456**	**1.9000e-004**	**0.0166**	**1.3000e-004**	**0.0167**	**4.4200e-003**	**1.2000e-004**	**4.5400e-003**	**0.0000**	**17.1525**	**17.1525**	**5.6000e-004**	**0.0000**	**17.1666**

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	0.0785	0.6031	0.6495	1.1400e-003		0.0265	0.0265		0.0256	0.0256	0.0000	93.5234	93.5234	0.0159	0.0000	93.9205
Total	**0.0785**	**0.6031**	**0.6495**	**1.1400e-003**		**0.0265**	**0.0265**		**0.0256**	**0.0256**	**0.0000**	**93.5234**	**93.5234**	**0.0159**	**0.0000**	**93.9205**

3.5 Building Construction - 2023

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	4.1000e-004	0.0143	4.3000e-003	5.0000e-005	1.3000e-003	2.0000e-005	1.3100e-003	3.7000e-004	2.0000e-005	3.9000e-004	0.0000	4.8046	4.8046	2.7000e-004	0.0000	4.8114
Worker	5.1100e-003	3.5100e-003	0.0413	1.4000e-004	0.0153	1.1000e-004	0.0154	4.0500e-003	1.0000e-004	4.1500e-003	0.0000	12.3479	12.3479	2.9000e-004	0.0000	12.3552
Total	**5.5200e-003**	**0.0178**	**0.0456**	**1.9000e-004**	**0.0166**	**1.3000e-004**	**0.0167**	**4.4200e-003**	**1.2000e-004**	**4.5400e-003**	**0.0000**	**17.1525**	**17.1525**	**5.6000e-004**	**0.0000**	**17.1666**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1124					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0162	0.1113	0.1433	2.3000e-004		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003	0.0000	20.1707	20.1707	1.3100e-003	0.0000	20.2035
Total	**0.1285**	**0.1113**	**0.1433**	**2.3000e-004**		**6.4600e-003**	**6.4600e-003**		**6.4600e-003**	**6.4600e-003**	**0.0000**	**20.1707**	**20.1707**	**1.3100e-003**	**0.0000**	**20.2035**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5400e-003	1.1000e-003	0.0127	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.6434	3.6434	9.0000e-005	0.0000	3.6457
Total	**1.5400e-003**	**1.1000e-003**	**0.0127**	**4.0000e-005**	**4.3300e-003**	**3.0000e-005**	**4.3700e-003**	**1.1500e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**3.6434**	**3.6434**	**9.0000e-005**	**0.0000**	**3.6457**

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	0.1124					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0162	0.1113	0.1433	2.3000e-004		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003	0.0000	20.1707	20.1707	1.3100e-003	0.0000	20.2035
Total	**0.1285**	**0.1113**	**0.1433**	**2.3000e-004**		**6.4600e-003**	**6.4600e-003**		**6.4600e-003**	**6.4600e-003**	**0.0000**	**20.1707**	**20.1707**	**1.3100e-003**	**0.0000**	**20.2035**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5400e-003	1.1000e-003	0.0127	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.6434	3.6434	9.0000e-005	0.0000	3.6457
Total	**1.5400e-003**	**1.1000e-003**	**0.0127**	**4.0000e-005**	**4.3300e-003**	**3.0000e-005**	**4.3700e-003**	**1.1500e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**3.6434**	**3.6434**	**9.0000e-005**	**0.0000**	**3.6457**

3.6 Architectural Coating - 2023

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	0.0733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.8700e-003	0.0671	0.0933	1.5000e-004		3.6500e-003	3.6500e-003		3.6500e-003	3.6500e-003	0.0000	13.1493	13.1493	7.9000e-004	0.0000	13.1689
Total	**0.0831**	**0.0671**	**0.0933**	**1.5000e-004**		**3.6500e-003**	**3.6500e-003**		**3.6500e-003**	**3.6500e-003**	**0.0000**	**13.1493**	**13.1493**	**7.9000e-004**	**0.0000**	**13.1689**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5000e-004	6.5000e-004	7.6500e-003	3.0000e-005	2.8300e-003	2.0000e-005	2.8500e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.2867	2.2867	5.0000e-005	0.0000	2.2880
Total	**9.5000e-004**	**6.5000e-004**	**7.6500e-003**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8500e-003**	**7.5000e-004**	**2.0000e-005**	**7.7000e-004**	**0.0000**	**2.2867**	**2.2867**	**5.0000e-005**	**0.0000**	**2.2880**

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	0.0733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.8700e-003	0.0671	0.0933	1.5000e-004		3.6500e-003	3.6500e-003		3.6500e-003	3.6500e-003	0.0000	13.1492	13.1492	7.9000e-004	0.0000	13.1689
Total	**0.0831**	**0.0671**	**0.0933**	**1.5000e-004**		**3.6500e-003**	**3.6500e-003**		**3.6500e-003**	**3.6500e-003**	**0.0000**	**13.1492**	**13.1492**	**7.9000e-004**	**0.0000**	**13.1689**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5000e-004	6.5000e-004	7.6500e-003	3.0000e-005	2.8300e-003	2.0000e-005	2.8500e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.2867	2.2867	5.0000e-005	0.0000	2.2880
Total	**9.5000e-004**	**6.5000e-004**	**7.6500e-003**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8500e-003**	**7.5000e-004**	**2.0000e-005**	**7.7000e-004**	**0.0000**	**2.2867**	**2.2867**	**5.0000e-005**	**0.0000**	**2.2880**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0416	0.2278	0.5595	2.6800e-003	0.2786	1.6400e-003	0.2803	0.0746	1.5300e-003	0.0762	0.0000	249.4033	249.4033	9.9300e-003	0.0000	249.6515
Unmitigated	0.0416	0.2278	0.5595	2.6800e-003	0.2786	1.6400e-003	0.2803	0.0746	1.5300e-003	0.0762	0.0000	249.4033	249.4033	9.9300e-003	0.0000	249.6515

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	220.78	215.46	183.92	733,848	733,848
Total	220.78	215.46	183.92	733,848	733,848

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
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

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	30.6369	30.6369	1.3000e-003	2.6000e-004	30.7468
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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	190869	30.6369	1.3000e-003	2.6000e-004	30.7468
Total		**30.6369**	**1.3000e-003**	**2.6000e-004**	**30.7468**

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

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	0.2261	4.5100e-003	0.3909	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6554
Unmitigated	0.2446	4.5100e-003	0.3909	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6554

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0186					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2144					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0117	4.5100e-003	0.3909	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6554
Total	**0.2446**	**4.5100e-003**	**0.3909**	**2.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.1700e-003**	**2.1700e-003**	**0.0000**	**0.6401**	**0.6401**	**6.1000e-004**	**0.0000**	**0.6554**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2144					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0117	4.5100e-003	0.3909	2.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	0.6401	0.6401	6.1000e-004	0.0000	0.6554
Total	**0.2261**	**4.5100e-003**	**0.3909**	**2.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.1700e-003**	**2.1700e-003**	**0.0000**	**0.6401**	**0.6401**	**6.1000e-004**	**0.0000**	**0.6554**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.6559	2.1900e-003	1.2700e-003	7.0893
Unmitigated	7.6240	2.7100e-003	1.5800e-003	8.1632

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	1.98068 / 1.56086	7.6240	2.7100e-003	1.5800e-003	8.1632
Total		**7.6240**	**2.7100e-003**	**1.5800e-003**	**8.1632**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	1.58455 / 1.56086	6.6559	2.1900e-003	1.2700e-003	7.0893
Total		**6.6559**	**2.1900e-003**	**1.2700e-003**	**7.0893**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.1294	0.1258	0.0000	5.2754
Unmitigated	2.1294	0.1258	0.0000	5.2754

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	10.49	2.1294	0.1258	0.0000	5.2754
Total		**2.1294**	**0.1258**	**0.0000**	**5.2754**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	10.49	2.1294	0.1258	0.0000	5.2754
Total		**2.1294**	**0.1258**	**0.0000**	**5.2754**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Greenhouse Gas Emission Worksheet
N20 Mobile Emissions 5100 Long Beach Blvd.

From CalEEMod v.2016.3.2 Vehicle Fleet Mix Output:

Annual VMT: 733,848

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	0.55	0.04	0.0221345	0.04	0.022135
Light Truck < 3750 lbs	0.04	0.05	0.002127	0.06	0.002552
Light Truck 3751-5750 lbs	0.20	0.05	0.0101846	0.06	0.012222
Med Truck 5751-8500 lbs	0.12	0.12	0.0138728	0.2	0.023121
Lite-Heavy Truck 8501-10,000 lbs	0.01	0.12	0.0017527	0.2	0.002921
Lite-Heavy Truck 10,001-14,000 lbs	0.01	0.09	0.0005247	0.125	0.000729
Med-Heavy Truck 14,001-33,000 lbs	0.02	0.06	0.001308	0.05	0.00109
Heavy-Heavy Truck 33,001-60,000 lbs	0.03	0.06	0.0019394	0.05	0.001616
Other Bus	0.00	0.06	0.0001272	0.05	0.000106
Urban Bus	0.00	0.06	0.0001035	0.05	8.63E-05
Motorcycle	0.00	0.09	0.0004353	0.01	4.84E-05
School Bus	0.00	0.06	4.266E-05	0.05	3.56E-05
Motor Home	0.00	0.09	7.614E-05	0.125	0.000106
Total	**100.0%**		**0.0546286**		**0.066768**

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	
N20 Emissions:	0.0490	metric tons N2O	**15.19**	metric tons CO2e
		Project Total:	***15.19***	***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 : 40-100
- Max dB : 78.5 - 2018/08/29 17:14:29
- Level Range : 40-100
- SEL : 89.5
- Leq : 61.8
-

No.s	Date Time	(dB)
1	2018/08/29 17:11:42	53.5
2	2018/08/29 17:11:43	55.8
3	2018/08/29 17:11:44	58.0
4	2018/08/29 17:11:45	62.6
5	2018/08/29 17:11:46	63.1
6	2018/08/29 17:11:47	60.4
7	2018/08/29 17:11:48	55.7
8	2018/08/29 17:11:49	54.6
9	2018/08/29 17:11:50	53.8
10	2018/08/29 17:11:51	53.5
11	2018/08/29 17:11:52	52.9
12	2018/08/29 17:11:53	54.7
13	2018/08/29 17:11:54	54.1
14	2018/08/29 17:11:55	53.0
15	2018/08/29 17:11:56	53.8
16	2018/08/29 17:11:57	53.1
17	2018/08/29 17:11:58	53.7
18	2018/08/29 17:11:59	54.0
19	2018/08/29 17:12:00	53.5
20	2018/08/29 17:12:01	53.7
21	2018/08/29 17:12:02	54.1
22	2018/08/29 17:12:03	54.3
23	2018/08/29 17:12:04	54.2
24	2018/08/29 17:12:05	54.1
25	2018/08/29 17:12:06	53.7
26	2018/08/29 17:12:07	53.9
27	2018/08/29 17:12:08	54.1
28	2018/08/29 17:12:09	53.4
29	2018/08/29 17:12:10	52.9
30	2018/08/29 17:12:11	53.4
31	2018/08/29 17:12:12	52.6
32	2018/08/29 17:12:13	52.4
33	2018/08/29 17:12:14	52.8
34	2018/08/29 17:12:15	52.0
35	2018/08/29 17:12:16	52.5
36	2018/08/29 17:12:17	53.1
37	2018/08/29 17:12:18	53.6
38	2018/08/29 17:12:19	53.5
39	2018/08/29 17:12:20	52.9
40	2018/08/29 17:12:21	52.6
41	2018/08/29 17:12:22	53.3
42	2018/08/29 17:12:23	52.9
43	2018/08/29 17:12:24	53.2
44	2018/08/29 17:12:25	53.3
45	2018/08/29 17:12:26	53.7
46	2018/08/29 17:12:27	52.8
47	2018/08/29 17:12:28	52.6
48	2018/08/29 17:12:29	52.1
49	2018/08/29 17:12:30	51.8
50	2018/08/29 17:12:31	52.2
51	2018/08/29 17:12:32	52.0
52	2018/08/29 17:12:33	52.3
53	2018/08/29 17:12:34	54.4
54	2018/08/29 17:12:35	54.9
55	2018/08/29 17:12:36	54.4
56	2018/08/29 17:12:37	54.2
57	2018/08/29 17:12:38	54.2
58	2018/08/29 17:12:39	54.2
59	2018/08/29 17:12:40	55.0
60	2018/08/29 17:12:41	54.3
61	2018/08/29 17:12:42	54.0
62	2018/08/29 17:12:43	54.0
63	2018/08/29 17:12:44	53.5
64	2018/08/29 17:12:45	54.7
65	2018/08/29 17:12:46	53.3
66	2018/08/29 17:12:47	53.9
67	2018/08/29 17:12:48	54.2
68	2018/08/29 17:12:49	55.8
69	2018/08/29 17:12:50	54.1
70	2018/08/29 17:12:51	52.6
71	2018/08/29 17:12:52	53.2
72	2018/08/29 17:12:53	53.2
73	2018/08/29 17:12:54	52.9
74	2018/08/29 17:12:55	52.4
75	2018/08/29 17:12:56	52.3
76	2018/08/29 17:12:57	52.3
77	2018/08/29 17:12:58	52.6
78	2018/08/29 17:12:59	52.1
79	2018/08/29 17:13:00	51.7
80	2018/08/29 17:13:01	52.0
81	2018/08/29 17:13:02	50.9
82	2018/08/29 17:13:03	50.6
83	2018/08/29 17:13:04	53.0
84	2018/08/29 17:13:05	50.8
85	2018/08/29 17:13:06	51.5

86	2018/08/29	17:13:07	51.3
87	2018/08/29	17:13:08	52.2
88	2018/08/29	17:13:09	52.0
89	2018/08/29	17:13:10	54.2
90	2018/08/29	17:13:11	53.2
91	2018/08/29	17:13:12	53.0
92	2018/08/29	17:13:13	53.5
93	2018/08/29	17:13:14	53.1
94	2018/08/29	17:13:15	53.5
95	2018/08/29	17:13:16	52.8
96	2018/08/29	17:13:17	53.5
97	2018/08/29	17:13:18	54.3
98	2018/08/29	17:13:19	53.6
99	2018/08/29	17:13:20	54.7
100	2018/08/29	17:13:21	53.5
101	2018/08/29	17:13:22	54.2
102	2018/08/29	17:13:23	55.3
103	2018/08/29	17:13:24	54.9
104	2018/08/29	17:13:25	54.7
105	2018/08/29	17:13:26	55.4
106	2018/08/29	17:13:27	55.3
107	2018/08/29	17:13:28	53.7
108	2018/08/29	17:13:29	53.2
109	2018/08/29	17:13:30	53.8
110	2018/08/29	17:13:31	53.1
111	2018/08/29	17:13:32	53.9
112	2018/08/29	17:13:33	53.0
113	2018/08/29	17:13:34	52.2
114	2018/08/29	17:13:35	51.6
115	2018/08/29	17:13:36	51.4
116	2018/08/29	17:13:37	51.2
117	2018/08/29	17:13:38	51.0
118	2018/08/29	17:13:39	51.7
119	2018/08/29	17:13:40	50.8
120	2018/08/29	17:13:41	51.1
121	2018/08/29	17:13:42	52.4
122	2018/08/29	17:13:43	52.1
123	2018/08/29	17:13:44	52.2
124	2018/08/29	17:13:45	51.8
125	2018/08/29	17:13:46	51.3
126	2018/08/29	17:13:47	52.1
127	2018/08/29	17:13:48	52.7
128	2018/08/29	17:13:49	51.9
129	2018/08/29	17:13:50	51.0
130	2018/08/29	17:13:51	50.9
131	2018/08/29	17:13:52	51.9
132	2018/08/29	17:13:53	53.4
133	2018/08/29	17:13:54	50.5
134	2018/08/29	17:13:55	52.1
135	2018/08/29	17:13:56	52.9
136	2018/08/29	17:13:57	54.1
137	2018/08/29	17:13:58	51.8
138	2018/08/29	17:13:59	53.3
139	2018/08/29	17:14:00	54.5
140	2018/08/29	17:14:01	59.3
141	2018/08/29	17:14:02	63.3
142	2018/08/29	17:14:03	62.0
143	2018/08/29	17:14:04	58.1
144	2018/08/29	17:14:05	54.1
145	2018/08/29	17:14:06	53.5
146	2018/08/29	17:14:07	53.0
147	2018/08/29	17:14:08	53.9
148	2018/08/29	17:14:09	54.4
149	2018/08/29	17:14:10	53.9
150	2018/08/29	17:14:11	53.9
151	2018/08/29	17:14:12	53.5
152	2018/08/29	17:14:13	53.2
153	2018/08/29	17:14:14	54.7
154	2018/08/29	17:14:15	54.8
155	2018/08/29	17:14:16	54.7
156	2018/08/29	17:14:17	58.7
157	2018/08/29	17:14:18	61.8
158	2018/08/29	17:14:19	58.2
159	2018/08/29	17:14:20	62.6
160	2018/08/29	17:14:21	71.4
161	2018/08/29	17:14:22	69.4
162	2018/08/29	17:14:23	70.5
163	2018/08/29	17:14:24	69.4
164	2018/08/29	17:14:25	71.5
165	2018/08/29	17:14:26	70.7
166	2018/08/29	17:14:27	71.0
167	2018/08/29	17:14:28	72.8
168	2018/08/29	17:14:29	75.6
169	2018/08/29	17:14:30	74.7
170	2018/08/29	17:14:31	72.3
171	2018/08/29	17:14:32	71.6
172	2018/08/29	17:14:33	74.4
173	2018/08/29	17:14:34	74.9
174	2018/08/29	17:14:35	73.7
175	2018/08/29	17:14:36	70.7
176	2018/08/29	17:14:37	71.8
177	2018/08/29	17:14:38	70.6
178	2018/08/29	17:14:39	71.9
179	2018/08/29	17:14:40	68.7
180	2018/08/29	17:14:41	66.5
181	2018/08/29	17:14:42	65.1
182	2018/08/29	17:14:43	62.2
183	2018/08/29	17:14:44	60.1
184	2018/08/29	17:14:45	58.1

185	2018/08/29	17:14:46	60.7
186	2018/08/29	17:14:47	59.1
187	2018/08/29	17:14:48	59.9
188	2018/08/29	17:14:49	58.9
189	2018/08/29	17:14:50	59.2
190	2018/08/29	17:14:51	56.2
191	2018/08/29	17:14:52	56.1
192	2018/08/29	17:14:53	60.1
193	2018/08/29	17:14:54	62.7
194	2018/08/29	17:14:55	62.8
195	2018/08/29	17:14:56	60.4
196	2018/08/29	17:14:57	59.4
197	2018/08/29	17:14:58	55.2
198	2018/08/29	17:14:59	55.7
199	2018/08/29	17:15:00	55.3
200	2018/08/29	17:15:01	51.1
201	2018/08/29	17:15:02	51.9
202	2018/08/29	17:15:03	51.4
203	2018/08/29	17:15:04	56.7
204	2018/08/29	17:15:05	56.7
205	2018/08/29	17:15:06	56.0
206	2018/08/29	17:15:07	53.6
207	2018/08/29	17:15:08	53.1
208	2018/08/29	17:15:09	52.5
209	2018/08/29	17:15:10	50.8
210	2018/08/29	17:15:11	51.6
211	2018/08/29	17:15:12	51.3
212	2018/08/29	17:15:13	51.5
213	2018/08/29	17:15:14	56.7
214	2018/08/29	17:15:15	54.2
215	2018/08/29	17:15:16	54.9
216	2018/08/29	17:15:17	55.4
217	2018/08/29	17:15:18	55.3
218	2018/08/29	17:15:19	54.8
219	2018/08/29	17:15:20	53.6
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221	2018/08/29	17:15:22	53.5
222	2018/08/29	17:15:23	54.0
223	2018/08/29	17:15:24	53.4
224	2018/08/29	17:15:25	54.7
225	2018/08/29	17:15:26	57.7
226	2018/08/29	17:15:27	57.9
227	2018/08/29	17:15:28	60.8
228	2018/08/29	17:15:29	67.5
229	2018/08/29	17:15:30	68.2
230	2018/08/29	17:15:31	60.7
231	2018/08/29	17:15:32	57.7
232	2018/08/29	17:15:33	56.6
233	2018/08/29	17:15:34	58.1
234	2018/08/29	17:15:35	62.1
235	2018/08/29	17:15:36	67.0
236	2018/08/29	17:15:37	64.0
237	2018/08/29	17:15:38	57.5
238	2018/08/29	17:15:39	55.9
239	2018/08/29	17:15:40	56.9
240	2018/08/29	17:15:41	56.8
241	2018/08/29	17:15:42	57.1
242	2018/08/29	17:15:43	58.1
243	2018/08/29	17:15:44	61.3
244	2018/08/29	17:15:45	66.2
245	2018/08/29	17:15:46	66.2
246	2018/08/29	17:15:47	59.1
247	2018/08/29	17:15:48	55.7
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251	2018/08/29	17:15:52	57.2
252	2018/08/29	17:15:53	57.2
253	2018/08/29	17:15:54	56.8
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255	2018/08/29	17:15:56	55.6
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373	2018/08/29	17:17:54	53.9
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378	2018/08/29	17:17:59	61.4
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381	2018/08/29	17:18:02	59.0
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431	2018/08/29	17:18:52	52.0
432	2018/08/29	17:18:53	51.7
433	2018/08/29	17:18:54	53.1
434	2018/08/29	17:18:55	55.1
435	2018/08/29	17:18:56	54.7
436	2018/08/29	17:18:57	54.4
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452	2018/08/29	17:19:13	51.1
453	2018/08/29	17:19:14	51.2
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461	2018/08/29	17:19:22	56.0
462	2018/08/29	17:19:23	51.8
463	2018/08/29	17:19:24	58.0
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465	2018/08/29	17:19:26	51.4
466	2018/08/29	17:19:27	52.1
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469	2018/08/29	17:19:30	52.2
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492	2018/08/29 17:19:53	51.5
493	2018/08/29 17:19:54	52.5
494	2018/08/29 17:19:55	56.2
495	2018/08/29 17:19:56	59.7
496	2018/08/29 17:19:57	57.1
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498	2018/08/29 17:19:59	52.7
499	2018/08/29 17:20:00	52.2
500	2018/08/29 17:20:01	53.1
501	2018/08/29 17:20:02	52.1
502	2018/08/29 17:20:03	53.7
503	2018/08/29 17:20:04	54.5
504	2018/08/29 17:20:05	61.8
505	2018/08/29 17:20:06	60.9
506	2018/08/29 17:20:07	55.8
507	2018/08/29 17:20:08	54.2
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516	2018/08/29 17:20:17	55.7
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521	2018/08/29 17:20:22	62.2
522	2018/08/29 17:20:23	65.6
523	2018/08/29 17:20:24	67.2
524	2018/08/29 17:20:25	69.6
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528	2018/08/29 17:20:29	75.1
529	2018/08/29 17:20:30	72.6
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533	2018/08/29 17:20:34	72.8
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536	2018/08/29 17:20:37	71.9
537	2018/08/29 17:20:38	71.9
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551	2018/08/29 17:20:52	58.5
552	2018/08/29 17:20:53	58.9
553	2018/08/29 17:20:54	58.5
554	2018/08/29 17:20:55	57.2
555	2018/08/29 17:20:56	55.1
556	2018/08/29 17:20:57	56.4
557	2018/08/29 17:20:58	54.7
558	2018/08/29 17:20:59	56.9
559	2018/08/29 17:21:00	56.8
560	2018/08/29 17:21:01	56.5
561	2018/08/29 17:21:02	54.1
562	2018/08/29 17:21:03	57.0
563	2018/08/29 17:21:04	54.3
564	2018/08/29 17:21:05	54.4
565	2018/08/29 17:21:06	61.1
566	2018/08/29 17:21:07	56.0
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577	2018/08/29 17:21:18	58.1
578	2018/08/29 17:21:19	61.8
579	2018/08/29 17:21:20	61.1
580	2018/08/29 17:21:21	58.5

581	2018/08/29	17:21:22	60.0
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584	2018/08/29	17:21:25	63.0
585	2018/08/29	17:21:26	62.0
586	2018/08/29	17:21:27	58.4
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597	2018/08/29	17:21:38	50.8
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- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 77.2 - 2018/08/29 17:27:29
- Level Range : 40-100
- SEL : 85.5
- Leq : 57.8
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3	2018/08/29 17:23:54	57.6
4	2018/08/29 17:23:55	57.5
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8	2018/08/29 17:23:59	58.3
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31	2018/08/29 17:24:22	58.0
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484	2018/08/29	17:31:55	54.2
485	2018/08/29	17:31:56	55.4
486	2018/08/29	17:31:57	53.4
487	2018/08/29	17:31:58	53.3
488	2018/08/29	17:31:59	53.3
489	2018/08/29	17:32:00	52.8
490	2018/08/29	17:32:01	53.5
491	2018/08/29	17:32:02	57.4
492	2018/08/29	17:32:03	56.0
493	2018/08/29	17:32:04	55.8
494	2018/08/29	17:32:05	53.4
495	2018/08/29	17:32:06	55.1
496	2018/08/29	17:32:07	56.1
497	2018/08/29	17:32:08	56.5
498	2018/08/29	17:32:09	56.2
499	2018/08/29	17:32:10	55.8
500	2018/08/29	17:32:11	58.5
501	2018/08/29	17:32:12	56.0
502	2018/08/29	17:32:13	54.3
503	2018/08/29	17:32:14	55.4
504	2018/08/29	17:32:15	53.5
505	2018/08/29	17:32:16	52.7
506	2018/08/29	17:32:17	51.4
507	2018/08/29	17:32:18	53.0
508	2018/08/29	17:32:19	52.7
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512	2018/08/29	17:32:23	53.1
513	2018/08/29	17:32:24	52.5
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515	2018/08/29	17:32:26	51.9
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518	2018/08/29	17:32:29	51.7
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524	2018/08/29	17:32:35	57.2
525	2018/08/29	17:32:36	55.5
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527	2018/08/29	17:32:38	54.2
528	2018/08/29	17:32:39	54.7
529	2018/08/29	17:32:40	57.6
530	2018/08/29	17:32:41	57.8
531	2018/08/29	17:32:42	57.5
532	2018/08/29	17:32:43	57.5
533	2018/08/29	17:32:44	56.6
534	2018/08/29	17:32:45	57.6
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536	2018/08/29	17:32:47	55.9
537	2018/08/29	17:32:48	56.8
538	2018/08/29	17:32:49	57.0
539	2018/08/29	17:32:50	57.4
540	2018/08/29	17:32:51	58.1
541	2018/08/29	17:32:52	59.1
542	2018/08/29	17:32:53	58.8
543	2018/08/29	17:32:54	58.3
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545	2018/08/29	17:32:56	60.7
546	2018/08/29	17:32:57	57.8
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549	2018/08/29	17:33:00	58.0
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552	2018/08/29	17:33:03	58.3
553	2018/08/29	17:33:04	60.8
554	2018/08/29	17:33:05	58.9
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561	2018/08/29	17:33:12	58.9
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563	2018/08/29	17:33:14	58.7
564	2018/08/29	17:33:15	58.4
565	2018/08/29	17:33:16	60.0
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567	2018/08/29	17:33:18	58.2
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576	2018/08/29	17:33:27	61.0
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578	2018/08/29	17:33:29	57.6
579	2018/08/29	17:33:30	56.9
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581	2018/08/29	17:33:32	55.4
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583	2018/08/29	17:33:34	58.3
584	2018/08/29	17:33:35	59.3
585	2018/08/29	17:33:36	56.2
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595	2018/08/29	17:33:46	53.1
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597	2018/08/29	17:33:48	53.2
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599	2018/08/29	17:33:50	52.8
600	2018/08/29	17:33:51	54.8

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 91.0 - 2018/08/29 17:40:39
- Level Range : 40-100
- SEL : 97.1
- Leq : 69.4
-

No.s	Date Time	(dB)
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2	2018/08/29 17:37:03	62.9
3	2018/08/29 17:37:04	64.2
4	2018/08/29 17:37:05	63.5
5	2018/08/29 17:37:06	61.6
6	2018/08/29 17:37:07	61.0
7	2018/08/29 17:37:08	60.7
8	2018/08/29 17:37:09	60.6
9	2018/08/29 17:37:10	60.9
10	2018/08/29 17:37:11	62.1
11	2018/08/29 17:37:12	62.2
12	2018/08/29 17:37:13	60.7
13	2018/08/29 17:37:14	60.2
14	2018/08/29 17:37:15	62.9
15	2018/08/29 17:37:16	62.4
16	2018/08/29 17:37:17	62.2
17	2018/08/29 17:37:18	61.4
18	2018/08/29 17:37:19	61.4
19	2018/08/29 17:37:20	59.0
20	2018/08/29 17:37:21	56.0
21	2018/08/29 17:37:22	56.0
22	2018/08/29 17:37:23	58.5
23	2018/08/29 17:37:24	59.0
24	2018/08/29 17:37:25	52.1
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31	2018/08/29 17:37:32	59.2
32	2018/08/29 17:37:33	59.6
33	2018/08/29 17:37:34	60.5
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37	2018/08/29 17:37:38	63.9
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39	2018/08/29 17:37:40	58.7
40	2018/08/29 17:37:41	58.1
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58	2018/08/29 17:37:59	74.4
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62	2018/08/29 17:38:03	69.8
63	2018/08/29 17:38:04	73.0
64	2018/08/29 17:38:05	72.1
65	2018/08/29 17:38:06	71.0
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308	2018/08/29	17:42:09	60.7
309	2018/08/29	17:42:10	61.3
310	2018/08/29	17:42:11	60.9
311	2018/08/29	17:42:12	60.0
312	2018/08/29	17:42:13	59.5
313	2018/08/29	17:42:14	59.0
314	2018/08/29	17:42:15	58.5
315	2018/08/29	17:42:16	58.1
316	2018/08/29	17:42:17	60.0
317	2018/08/29	17:42:18	59.0
318	2018/08/29	17:42:19	58.4
319	2018/08/29	17:42:20	58.6
320	2018/08/29	17:42:21	59.9
321	2018/08/29	17:42:22	59.7
322	2018/08/29	17:42:23	59.3
323	2018/08/29	17:42:24	60.1
324	2018/08/29	17:42:25	60.4
325	2018/08/29	17:42:26	62.3
326	2018/08/29	17:42:27	58.8
327	2018/08/29	17:42:28	60.0
328	2018/08/29	17:42:29	60.7
329	2018/08/29	17:42:30	60.9
330	2018/08/29	17:42:31	61.3
331	2018/08/29	17:42:32	59.1
332	2018/08/29	17:42:33	59.5
333	2018/08/29	17:42:34	58.5
334	2018/08/29	17:42:35	61.0
335	2018/08/29	17:42:36	59.1
336	2018/08/29	17:42:37	60.8
337	2018/08/29	17:42:38	60.4
338	2018/08/29	17:42:39	61.4
339	2018/08/29	17:42:40	61.3
340	2018/08/29	17:42:41	60.2
341	2018/08/29	17:42:42	60.9
342	2018/08/29	17:42:43	60.3
343	2018/08/29	17:42:44	59.7
344	2018/08/29	17:42:45	62.2
345	2018/08/29	17:42:46	67.5
346	2018/08/29	17:42:47	60.2
347	2018/08/29	17:42:48	65.3
348	2018/08/29	17:42:49	63.2
349	2018/08/29	17:42:50	61.8
350	2018/08/29	17:42:51	63.8
351	2018/08/29	17:42:52	62.6
352	2018/08/29	17:42:53	64.1
353	2018/08/29	17:42:54	64.0
354	2018/08/29	17:42:55	63.7
355	2018/08/29	17:42:56	64.1
356	2018/08/29	17:42:57	66.1
357	2018/08/29	17:42:58	64.3
358	2018/08/29	17:42:59	63.2
359	2018/08/29	17:43:00	62.8
360	2018/08/29	17:43:01	61.7
361	2018/08/29	17:43:02	62.1
362	2018/08/29	17:43:03	62.7
363	2018/08/29	17:43:04	63.3
364	2018/08/29	17:43:05	64.3
365	2018/08/29	17:43:06	65.4
366	2018/08/29	17:43:07	68.1
367	2018/08/29	17:43:08	74.2
368	2018/08/29	17:43:09	70.8
369	2018/08/29	17:43:10	71.8
370	2018/08/29	17:43:11	72.2
371	2018/08/29	17:43:12	71.8
372	2018/08/29	17:43:13	69.5
373	2018/08/29	17:43:14	71.2
374	2018/08/29	17:43:15	71.1
375	2018/08/29	17:43:16	70.7
376	2018/08/29	17:43:17	69.8
377	2018/08/29	17:43:18	70.4
378	2018/08/29	17:43:19	70.4
379	2018/08/29	17:43:20	71.1
380	2018/08/29	17:43:21	69.8
381	2018/08/29	17:43:22	71.2
382	2018/08/29	17:43:23	69.3

383	2018/08/29	17:43:24	74.7
384	2018/08/29	17:43:25	67.8
385	2018/08/29	17:43:26	66.5
386	2018/08/29	17:43:27	65.8
387	2018/08/29	17:43:28	67.0
388	2018/08/29	17:43:29	68.4
389	2018/08/29	17:43:30	67.6
390	2018/08/29	17:43:31	69.4
391	2018/08/29	17:43:32	70.3
392	2018/08/29	17:43:33	66.1
393	2018/08/29	17:43:34	66.8
394	2018/08/29	17:43:35	63.9
395	2018/08/29	17:43:36	63.0
396	2018/08/29	17:43:37	61.8
397	2018/08/29	17:43:38	61.0
398	2018/08/29	17:43:39	60.9
399	2018/08/29	17:43:40	61.0
400	2018/08/29	17:43:41	60.8
401	2018/08/29	17:43:42	59.0
402	2018/08/29	17:43:43	59.0
403	2018/08/29	17:43:44	60.2
404	2018/08/29	17:43:45	60.7
405	2018/08/29	17:43:46	63.3
406	2018/08/29	17:43:47	67.4
407	2018/08/29	17:43:48	66.7
408	2018/08/29	17:43:49	66.9
409	2018/08/29	17:43:50	72.8
410	2018/08/29	17:43:51	70.6
411	2018/08/29	17:43:52	73.3
412	2018/08/29	17:43:53	75.4
413	2018/08/29	17:43:54	71.5
414	2018/08/29	17:43:55	70.3
415	2018/08/29	17:43:56	70.5
416	2018/08/29	17:43:57	71.2
417	2018/08/29	17:43:58	72.4
418	2018/08/29	17:43:59	68.8
419	2018/08/29	17:44:00	68.7
420	2018/08/29	17:44:01	64.7
421	2018/08/29	17:44:02	61.8
422	2018/08/29	17:44:03	60.2
423	2018/08/29	17:44:04	60.3
424	2018/08/29	17:44:05	64.8
425	2018/08/29	17:44:06	70.4
426	2018/08/29	17:44:07	65.7
427	2018/08/29	17:44:08	67.3
428	2018/08/29	17:44:09	68.9
429	2018/08/29	17:44:10	67.4
430	2018/08/29	17:44:11	72.1
431	2018/08/29	17:44:12	67.2
432	2018/08/29	17:44:13	69.6
433	2018/08/29	17:44:14	67.2
434	2018/08/29	17:44:15	66.7
435	2018/08/29	17:44:16	65.7
436	2018/08/29	17:44:17	66.3
437	2018/08/29	17:44:18	66.6
438	2018/08/29	17:44:19	66.6
439	2018/08/29	17:44:20	65.5
440	2018/08/29	17:44:21	64.0
441	2018/08/29	17:44:22	63.7
442	2018/08/29	17:44:23	61.9
443	2018/08/29	17:44:24	60.1
444	2018/08/29	17:44:25	58.7
445	2018/08/29	17:44:26	57.0
446	2018/08/29	17:44:27	56.2
447	2018/08/29	17:44:28	52.9
448	2018/08/29	17:44:29	52.2
449	2018/08/29	17:44:30	52.1
450	2018/08/29	17:44:31	52.9
451	2018/08/29	17:44:32	53.9
452	2018/08/29	17:44:33	55.8
453	2018/08/29	17:44:34	59.1
454	2018/08/29	17:44:35	63.5
455	2018/08/29	17:44:36	63.5
456	2018/08/29	17:44:37	62.3
457	2018/08/29	17:44:38	61.4
458	2018/08/29	17:44:39	62.5
459	2018/08/29	17:44:40	64.6
460	2018/08/29	17:44:41	64.9
461	2018/08/29	17:44:42	68.8
462	2018/08/29	17:44:43	71.0
463	2018/08/29	17:44:44	74.1
464	2018/08/29	17:44:45	74.7
465	2018/08/29	17:44:46	70.4
466	2018/08/29	17:44:47	69.1
467	2018/08/29	17:44:48	68.0
468	2018/08/29	17:44:49	67.6
469	2018/08/29	17:44:50	66.0
470	2018/08/29	17:44:51	66.5
471	2018/08/29	17:44:52	66.4
472	2018/08/29	17:44:53	67.1
473	2018/08/29	17:44:54	65.5
474	2018/08/29	17:44:55	64.2
475	2018/08/29	17:44:56	64.0
476	2018/08/29	17:44:57	64.5
477	2018/08/29	17:44:58	65.3
478	2018/08/29	17:44:59	65.7
479	2018/08/29	17:45:00	60.2
480	2018/08/29	17:45:01	59.8
481	2018/08/29	17:45:02	58.4

482	2018/08/29	17:45:03	58.8
483	2018/08/29	17:45:04	59.3
484	2018/08/29	17:45:05	60.8
485	2018/08/29	17:45:06	61.9
486	2018/08/29	17:45:07	64.4
487	2018/08/29	17:45:08	65.4
488	2018/08/29	17:45:09	69.4
489	2018/08/29	17:45:10	64.3
490	2018/08/29	17:45:11	63.3
491	2018/08/29	17:45:12	62.5
492	2018/08/29	17:45:13	63.7
493	2018/08/29	17:45:14	63.6
494	2018/08/29	17:45:15	63.7
495	2018/08/29	17:45:16	63.8
496	2018/08/29	17:45:17	64.9
497	2018/08/29	17:45:18	65.8
498	2018/08/29	17:45:19	64.7
499	2018/08/29	17:45:20	63.3
500	2018/08/29	17:45:21	65.7
501	2018/08/29	17:45:22	64.6
502	2018/08/29	17:45:23	64.0
503	2018/08/29	17:45:24	62.5
504	2018/08/29	17:45:25	61.1
505	2018/08/29	17:45:26	60.5
506	2018/08/29	17:45:27	60.7
507	2018/08/29	17:45:28	59.2
508	2018/08/29	17:45:29	58.8
509	2018/08/29	17:45:30	58.9
510	2018/08/29	17:45:31	57.2
511	2018/08/29	17:45:32	58.2
512	2018/08/29	17:45:33	58.0
513	2018/08/29	17:45:34	58.0
514	2018/08/29	17:45:35	60.1
515	2018/08/29	17:45:36	61.2
516	2018/08/29	17:45:37	62.9
517	2018/08/29	17:45:38	65.7
518	2018/08/29	17:45:39	66.8
519	2018/08/29	17:45:40	68.5
520	2018/08/29	17:45:41	70.6
521	2018/08/29	17:45:42	75.4
522	2018/08/29	17:45:43	71.6
523	2018/08/29	17:45:44	72.6
524	2018/08/29	17:45:45	71.8
525	2018/08/29	17:45:46	76.1
526	2018/08/29	17:45:47	71.4
527	2018/08/29	17:45:48	69.1
528	2018/08/29	17:45:49	68.2
529	2018/08/29	17:45:50	69.1
530	2018/08/29	17:45:51	70.3
531	2018/08/29	17:45:52	70.1
532	2018/08/29	17:45:53	73.0
533	2018/08/29	17:45:54	73.2
534	2018/08/29	17:45:55	72.6
535	2018/08/29	17:45:56	69.1
536	2018/08/29	17:45:57	70.1
537	2018/08/29	17:45:58	71.5
538	2018/08/29	17:45:59	71.1
539	2018/08/29	17:46:00	73.7
540	2018/08/29	17:46:01	70.3
541	2018/08/29	17:46:02	70.6
542	2018/08/29	17:46:03	70.2
543	2018/08/29	17:46:04	68.7
544	2018/08/29	17:46:05	71.2
545	2018/08/29	17:46:06	68.8
546	2018/08/29	17:46:07	69.7
547	2018/08/29	17:46:08	66.7
548	2018/08/29	17:46:09	66.0
549	2018/08/29	17:46:10	68.0
550	2018/08/29	17:46:11	67.6
551	2018/08/29	17:46:12	68.1
552	2018/08/29	17:46:13	65.3
553	2018/08/29	17:46:14	63.6
554	2018/08/29	17:46:15	61.7
555	2018/08/29	17:46:16	63.0
556	2018/08/29	17:46:17	62.4
557	2018/08/29	17:46:18	60.4
558	2018/08/29	17:46:19	61.0
559	2018/08/29	17:46:20	61.3
560	2018/08/29	17:46:21	60.8
561	2018/08/29	17:46:22	59.6
562	2018/08/29	17:46:23	59.3
563	2018/08/29	17:46:24	61.6
564	2018/08/29	17:46:25	65.9
565	2018/08/29	17:46:26	66.4
566	2018/08/29	17:46:27	66.2
567	2018/08/29	17:46:28	69.9
568	2018/08/29	17:46:29	71.3
569	2018/08/29	17:46:30	71.6
570	2018/08/29	17:46:31	70.9
571	2018/08/29	17:46:32	70.7
572	2018/08/29	17:46:33	73.0
573	2018/08/29	17:46:34	71.9
574	2018/08/29	17:46:35	71.7
575	2018/08/29	17:46:36	71.2
576	2018/08/29	17:46:37	79.7
577	2018/08/29	17:46:38	73.8
578	2018/08/29	17:46:39	69.5
579	2018/08/29	17:46:40	73.6
580	2018/08/29	17:46:41	75.4

581	2018/08/29	17:46:42	65.0
582	2018/08/29	17:46:43	69.1
583	2018/08/29	17:46:44	70.6
584	2018/08/29	17:46:45	71.0
585	2018/08/29	17:46:46	69.7
586	2018/08/29	17:46:47	69.3
587	2018/08/29	17:46:48	69.1
588	2018/08/29	17:46:49	67.8
589	2018/08/29	17:46:50	67.9
590	2018/08/29	17:46:51	69.4
591	2018/08/29	17:46:52	70.1
592	2018/08/29	17:46:53	66.0
593	2018/08/29	17:46:54	68.7
594	2018/08/29	17:46:55	70.0
595	2018/08/29	17:46:56	70.4
596	2018/08/29	17:46:57	67.8
597	2018/08/29	17:46:58	65.7
598	2018/08/29	17:46:59	66.2
599	2018/08/29	17:47:00	67.5
600	2018/08/29	17:47:01	68.5

Vibration Analysis

PPV (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	in/sec
D =	50	feet
PPV at receptor =	***0.074***	***in/sec***

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

Therefore estimated RMS velocity =	***0.019***	***in/sec***
Lv =	***85***	***VdB***

Equipment = Dozer

PPV{ref} =	0.089	in/sec
D =	50	feet
PPV at receptor =	***0.031***	***in/sec***

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

Therefore estimated RMS velocity =	***0.008***	***in/sec***
Lv =	***78***	***VdB***

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

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
	large	0.089	87
Bulldozer	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 ~

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	Horizontol 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
75	35	50	Approx. dividing line between barely perceptible and clearly perceptible. Annoying vibration for most people. Low-freq acceptable for sleeping areas.
85	45	60	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.
90	50	65	Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.

Impact Criteria

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

Vibration Analysis

PPV (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	in/sec
D =	85	feet
PPV at receptor =	***0.033***	***in/sec***

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

Therefore estimated RMS velocity =	***0.008***	***in/sec***
Lv =	***78***	***VdB***

Equipment = Dozer

PPV{ref} =	0.089	in/sec
D =	85	feet
PPV at receptor =	***0.014***	***in/sec***

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

Therefore estimated RMS velocity =	***0.004***	***in/sec***
Lv =	***71***	***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
	large	0.089	87
Bulldozer	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	Horizontol 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
75	35	50	Approx. dividing line between barely perceptible and clearly perceptible. Annoying vibration for most people. Low-freq acceptable for sleeping areas.
85	45	60	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.
90	50	65	Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.

Impact Criteria

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

Vibration Analysis

PPV (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	in/sec
D =	150	feet
PPV at receptor =	***0.014***	***in/sec***

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

Therefore estimated RMS velocity =	***0.004***	***in/sec***
Lv =	***71***	***VdB***

Equipment = Dozer

PPV{ref} =	0.089	in/sec
D =	150	feet
PPV at receptor =	***0.006***	***in/sec***

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

Therefore estimated RMS velocity =	***0.002***	***in/sec***
Lv =	***64***	***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
	large	0.089	87
Bulldozer	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	Horizontol 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
75	35	50	Approx. dividing line between barely perceptible and clearly perceptible. Annoying vibration for most people. Low-freq acceptable for sleeping areas.
85	45	60	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.
90	50	65	Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.

Impact Criteria

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

Vibration Analysis

PPV (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	in/sec
D =	350	feet
PPV at receptor =	***0.004***	***in/sec***

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

Therefore estimated RMS velocity =	***0.001***	***in/sec***
Lv =	***60***	***VdB***

Equipment = Dozer

PPV{ref} =	0.089	in/sec
D =	350	feet
PPV at receptor =	***0.002***	***in/sec***

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

Therefore estimated RMS velocity =	***0.000***	***in/sec***
Lv =	***53***	***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
	large	0.089	87
Bulldozer	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 ~

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Criterion

US Bureau of Mines, 1971	
PPV, in/sec	Degree of Damage
<2	Safe
2 - 4	Plaster Cracking
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Canmet, Bauer, and Calder, 1977		
Equipment	PPV Threshold, in/sec	Type of Damage
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House	2	Cracked Plaster
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Cased Drill Holes	15	Horizontol Offset
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90	50	65	Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.

Impact Criteria

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

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	5100 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** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
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	**0**
Combined DNL including Airport	
Site DNL with Loud Impulse Sound	

Calculate

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/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

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- 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	5100 Long Beach Boulevard - Existing plus Project
Record Date	3/27/2020
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	**Long Beach Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	45	45	45
Distance to Stop Sign			
Average Speed	35	35	35
Average Daily Trips (ADT)	23986	490	245
Night Fraction of ADT	10	3	2
Road Gradient (%)			2
Vehicle DNL	67.8703	59.2232	66.3265
Calculate Road #1 DNL	70.4819	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○**Yes** ○**No**

Combined DNL for all Road and Rail sources	**0**
Combined DNL including Airport	
Site DNL with Loud Impulse Sound	

Calculate

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/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/21/2019
Case Description: Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Residences	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Concrete Saw	No	20		89.6	50.0	0.0
Dozer	No	40		81.7	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
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
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
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
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Total	89.6	87.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Residences	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		85.0	0.0
Tractor	No	40	84.0		85.0	0.0
Tractor	No	40	84.0		85.0	0.0
Concrete Saw	No	20		89.6	85.0	0.0
Dozer	No	40		81.7	85.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Tractor	79.4	75.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	79.4	75.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	79.4	75.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	85.0	78.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	77.1	73.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	82.7	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
Dooley Elementary School	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		150.0	0.0
Tractor	No	40	84.0		150.0	0.0
Tractor	No	40	84.0		150.0	0.0
Concrete Saw	No	20		89.6	150.0	0.0
Dozer	No	40		81.7	150.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)				Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	74.5	70.5			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
Tractor	74.5	70.5			N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	80.0	73.0			N/A	N/A	N/A	N/A	N/A	N/A
Dozer	72.1	68.1			N/A	N/A	N/A	N/A	N/A	N/A
Total	80.0	77.8			N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Del Amo Gardens (retirement)	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		350.0	0.0
Tractor	No	40	84.0		350.0	0.0
Tractor	No	40	84.0		350.0	0.0
Concrete Saw	No	20		89.6	350.0	0.0
Dozer	No	40		81.7	350.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Tractor	67.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	67.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	67.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	72.7	65.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	64.8	60.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.7	70.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SP and G
Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/21/2018
Case Description: Site Preparation/Grading

**** Receptor #1 ****

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)
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 Limits (dBA)

Noise Limit Exceedance (dBA)

Night	Day	Calculated (dBA) Evening	Night	Day	Evening	Night
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		85.0	81.0	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
Dozer		81.7	77.7	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

**** Receptor #2 ****

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)
Grader	No	40	85.0		85.0	0.0
Tractor	No	40	84.0		85.0	0.0
Dozer	No	40		81.7	85.0	0.0

SP and G

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	80.4	76.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	79.4	75.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	77.1	73.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.4	80.0	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
Dooley Elementary School	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (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 Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
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
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

SP and G

Dozer			72.1	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					
	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					

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Del Amo Gardens (retirement)	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		350.0	0.0
Tractor	No	40	84.0		350.0	0.0
Dozer	No	40		81.7	350.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)											
Day			Evening			Night			Day		Evening
Night											
Equipment			Lmax	Leq		Lmax	Leq		Lmax	Leq	Lmax
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq					
Grader			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					
Tractor			67.1	63.1		N/A	N/A		N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A					
Dozer			64.8	60.8		N/A	N/A		N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A					
	Total		68.1	67.7		N/A	N/A		N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A					

BC
Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/21/2018
Case Description: Building Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Residences	Residential	65.0	65.0	65.0

Equipment Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	50.0	0.0
Crane	No	16		80.6	50.0	0.0
All Other Equipment > 5 HP	No	50	85.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Generator	80.6	77.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	80.6	72.6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	85.0	82.0			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
Welder / Torch	74.0	70.0			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	74.0	70.0			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	N/A	N/A	N/A				
Welder / Torch				74.0	70.0	N/A	N/A	N/A	N/A		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
		Total		85.0	85.6	N/A	N/A	N/A	N/A		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Residences	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	85.0	0.0
Crane	No	16		80.6	85.0	0.0
All Other Equipment > 5 HP	No	50	85.0		85.0	0.0
Tractor	No	40	84.0		85.0	0.0
Welder / Torch	No	40		74.0	85.0	0.0
Welder / Torch	No	40		74.0	85.0	0.0
Welder / Torch	No	40		74.0	85.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Generator	76.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	75.9	68.0	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	80.4	77.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	79.4	75.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	69.4	65.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

BC

Welder / Torch				69.4	65.4		N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A			
Welder / Torch				69.4	65.4		N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A			
	Total			80.4	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			

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Dooley Elementary School	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	150.0	0.0
Crane	No	16		80.6	150.0	0.0
All Other Equipment > 5 HP	No	50	85.0		150.0	0.0
Tractor	No	40	84.0		150.0	0.0
Welder / Torch	No	40		74.0	150.0	0.0
Welder / Torch	No	40		74.0	150.0	0.0
Welder / Torch	No	40		74.0	150.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

	Calculated (dBA)				Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	71.1	68.1			N/A	N/A	N/A	N/A	N/A	N/A
Crane	71.0	63.0			N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	75.5	72.4			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
Welder / Torch	64.5	60.5			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				
Welder / Torch				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				
Welder / Torch				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				
	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				

**** Receptor #4 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Del Amo Gardens (retirement)	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	350.0	0.0
Crane	No	16		80.6	350.0	0.0
All Other Equipment > 5 HP	No	50	85.0		350.0	0.0
Tractor	No	40	84.0		350.0	0.0
Welder / Torch	No	40		74.0	350.0	0.0
Welder / Torch	No	40		74.0	350.0	0.0
Welder / Torch	No	40		74.0	350.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

	Calculated (dBA)				Day		Evening		Night	
	Day		Evening		Night					
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	63.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	63.6	55.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	68.1	65.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	67.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

					BC								
Welder / Torch				57.1	53.1		N/A	N/A	N/A	N/A	N/A	N/A	
Welder / Torch				57.1	53.1		N/A	N/A	N/A	N/A	N/A	N/A	
Welder / Torch				57.1	53.1		N/A	N/A	N/A	N/A	N/A	N/A	
		Total		68.1	68.7		N/A	N/A	N/A	N/A	N/A	N/A	

P

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/21/2018
Case Description: Site Preparation/Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Residences	Residential	65.0	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	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 Scarafier	No	20		89.5	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Night	Day	Calculated (dBA) Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck		78.8	74.8	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
Roller		80.0	73.0	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
Pavement Scarafier		89.5	82.5	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

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Residences	Residential	65.0	65.0	65.0

Equipment

	Spec	Actual	Receptor	Estimated

Description	Impact Device	Usage (%)	P Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	85.0	0.0
Paver	No	50		77.2	85.0	0.0
Roller	No	20		80.0	85.0	0.0
Tractor	No	40	84.0		85.0	0.0
Pavement Scarafier	No	20		89.5	85.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Mixer Truck	74.2	70.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	72.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	75.4	68.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	79.4	75.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	84.9	77.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84.9	80.9	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
Dooley Elementary School	Residential	65.0	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 Limits (dBA)

Noise Limit Exceedance (dBA)

P

Calculated (dBA)

Equipment	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Mixer Truck	69.3	65.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	67.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	70.5	63.5	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
Pavement Scarafier	80.0	73.0	N/A	N/A	N/A	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

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Del Amo Gardens (retirement)	Residential	65.0	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	350.0	0.0
Paver	No	50		77.2	350.0	0.0
Roller	No	20		80.0	350.0	0.0
Tractor	No	40	84.0		350.0	0.0
Pavement Scarafier	No	20		89.5	350.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)

Equipment	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Mixer Truck	61.9	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	60.3	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	63.1	56.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

P

N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			67.1	63.1	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Pavement Scarafier			72.6	65.6	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
	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				

AC

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/21/2018
Case Description: Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Residences	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Leq	Day Lmax	Evening Leq	Evening Lmax	Night Leq	Night Lmax	Day Leq	Day Lmax	Evening Leq	Evening Lmax	Night Leq	Night Lmax
Compressor (air)	77.7	N/A	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	77.7	N/A	73.7	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
Single-Family Residences	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	85.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

AC

Equipment	Calculated (dBA) Day Leq	Lmax	Evening Leq	Lmax	Night Leq	Lmax	Day Leq	Lmax	Evening Leq	Lmax	Night Leq	Lmax
Compressor (air)	73.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.1	N/A	69.1	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
Dooley Elementary School	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	150.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Leq	Lmax	Evening Leq	Lmax	Night Leq	Lmax	Day Leq	Lmax	Evening Leq	Lmax	Night Leq	Lmax
Compressor (air)	68.1	N/A	64.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.1	N/A	64.1	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
Del Amo Gardens (retirement)	Residential	65.0	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Compressor (air)	No	40	AC 77.7	350.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)											
Equipment	Day		Evening		Night		Day		Evening		Night	
	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compressor (air)	60.8	N/A	56.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	60.8	N/A	56.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A