

17th Street Properties

Initial Study and Mitigated Negative Declaration

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Lead Agency

City of Seal Beach
Community Development Department
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Seal Beach, California 90740

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Contents

| | | |
|-----|--|----|
| A. | Project Location and Surrounding Land Uses | 1 |
| B. | Project Description | 1 |
| C. | Proposed Actions..... | 1 |
| D. | Statutory Authority | 6 |
| E. | Incorporation by Reference | 6 |
| F. | Analysis..... | 6 |
| 1. | Aesthetics | 7 |
| 2. | Agriculture and Forest Resources | 8 |
| 3. | Air Quality | 9 |
| 4. | Biological Resources | 17 |
| 5. | Cultural Resources..... | 19 |
| 6. | Geology and Soils | 20 |
| 7. | Greenhouse Gas Emissions | 22 |
| 8. | Hazards and Hazardous Materials | 25 |
| 9. | Hydrology and Water Quality..... | 27 |
| 10. | Land Use and Planning..... | 30 |
| 11. | Mineral Resources | 31 |
| 12. | Noise..... | 31 |
| 13. | Population and Housing..... | 41 |
| 14. | Public Services | 42 |
| 15. | Recreation | 43 |
| 16. | Transportation/Traffic | 43 |
| 17. | Utilities and Service Systems | 44 |
| 18. | Mandatory Findings of Significance | 46 |

Tables

| | | |
|----------|---|----|
| Table 1 | - South Coast Air Basin Emissions Forecasts..... | 9 |
| Table 2 | - Daily Emissions Thresholds | 12 |
| Table 3 | - Construction Activity Equipment Fleet | 13 |
| Table 4 | - Construction Activity Emissions..... | 13 |
| Table 5 | - Localized Significance Thresholds and Project Emissions | 14 |
| Table 6 | - Daily Operational Impacts | 15 |
| Table 7 | - Construction Emissions | 24 |
| Table 8 | - Proposed Uses Operational Emissions..... | 24 |
| Table 9 | - Short-Term Noise Measurements (dB[A]) | 34 |
| Table 10 | - Human Response to Transient Vibration | 38 |
| Table 11 | - Estimated Vibration Levels During Project Construction | 39 |

Exhibits

| | | |
|-----------|---|----|
| Exhibit 1 | - Regional Location..... | 2 |
| Exhibit 2 | - Project Vicinity | 3 |
| Exhibit 3 | - Tentative Tract No. 17925..... | 4 |
| Exhibit 4 | - Site Plan, Tentative Parcel Map 17925..... | 5 |
| Exhibit 5 | - Noise Compatibility Guidelines, Seal Beach General Plan | 33 |
| Exhibit 6 | - Typical Construction Equipment Noise Generation Levels..... | 37 |

Appendices

Appendix A – Environmental Checklist

Appendix B – Mitigation Monitoring and Reporting Program

Appendix C – Air Quality/GHG Analysis

Appendix D – Noise Analysis

City of Seal Beach Environmental Analysis Checklist Explanations

17th Street Properties

A. Project Location and Surrounding Land Uses

The Project site for the proposed development is located at 232 through 244 17th Street in the City of Seal Beach (City). The site is within Planning Area 1, the Old Town area of the City. The proposed Project site is surrounded by residential uses.

The subject area is designated as High Density Residential per the City's General Plan and is zoned RHD-20 (Residential High Density).

Exhibit 1 shows the regional location of the Project. Exhibit 2 shows the Project site and the Project vicinity.

B. Project Description

The basic Project consists of a Tentative Tract Map proposed at 232 through 244 17th Street in the City of Seal Beach (Exhibit 3). The site is 0.52 acres. The proposed subdivision will consolidate three existing legal parcels and create five parcels out of existing odd-shaped lots that include a government-owned diagonal railroad easement through the properties. There will be four new 28.125-foot-wide lots and one 112.5-foot-wide lot (Exhibit 4). All lots are 100 feet deep. The Project site was sold at auction in 2014. The proposed map contemplates that one single-family residential structure will be built on each of four 28.125-foot-wide lots, with the fifth lot to be left as is. An existing duplex of 1,696 square feet of habitable space will be torn down, but the larger lot has a structure that will remain. The Project site is located in the RHD-20 Residential High Density Zone, and the Seal Beach General Plan Land Use Designation is High Density Residential.

C. Proposed Actions

The Project will require City approval of the Tentative Tract Map. The proposed Project requires compliance with environmental procedures (CEQA and CEQA Guidelines). The Project Plan will also require a Coastal Development Permit.

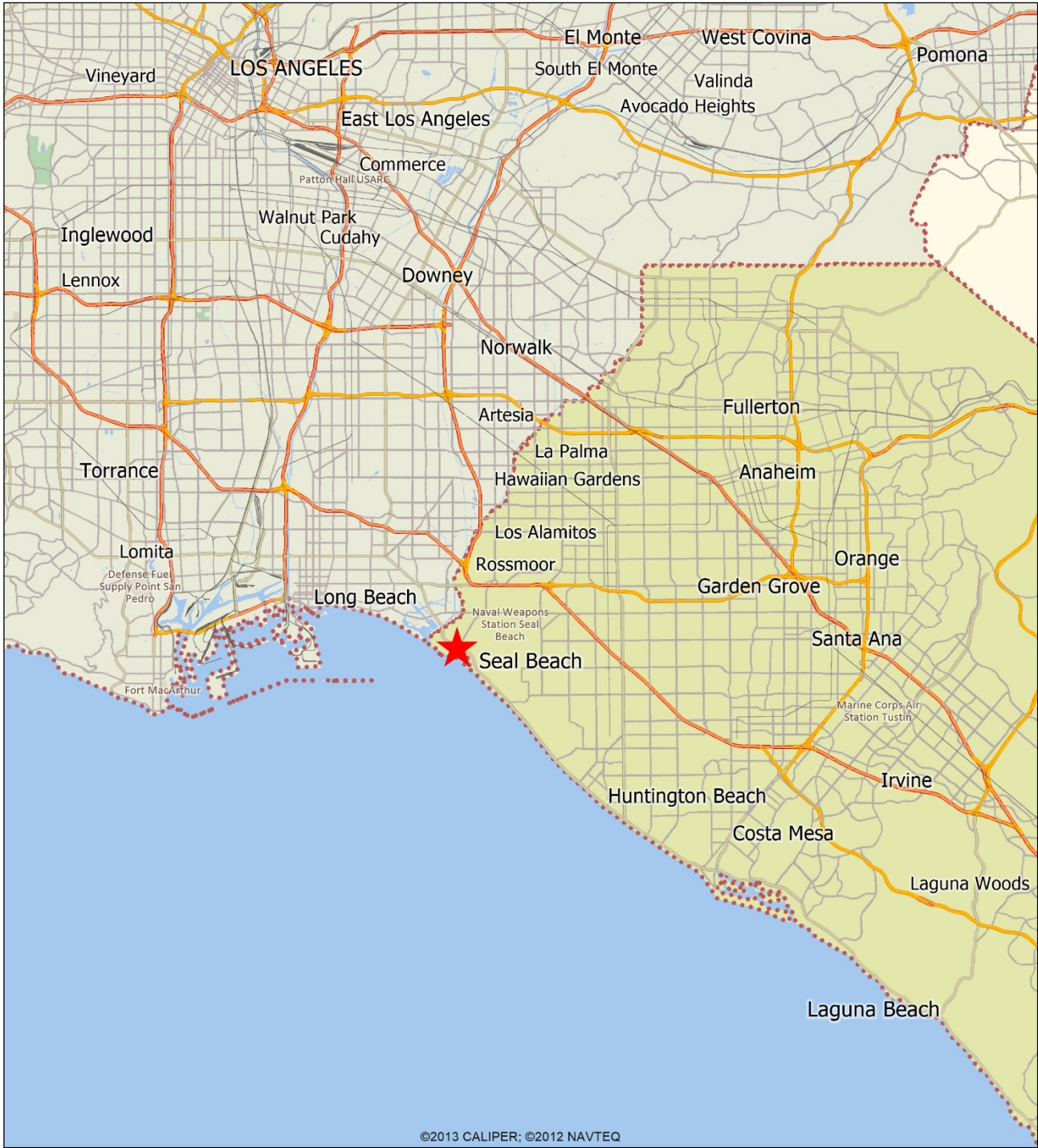
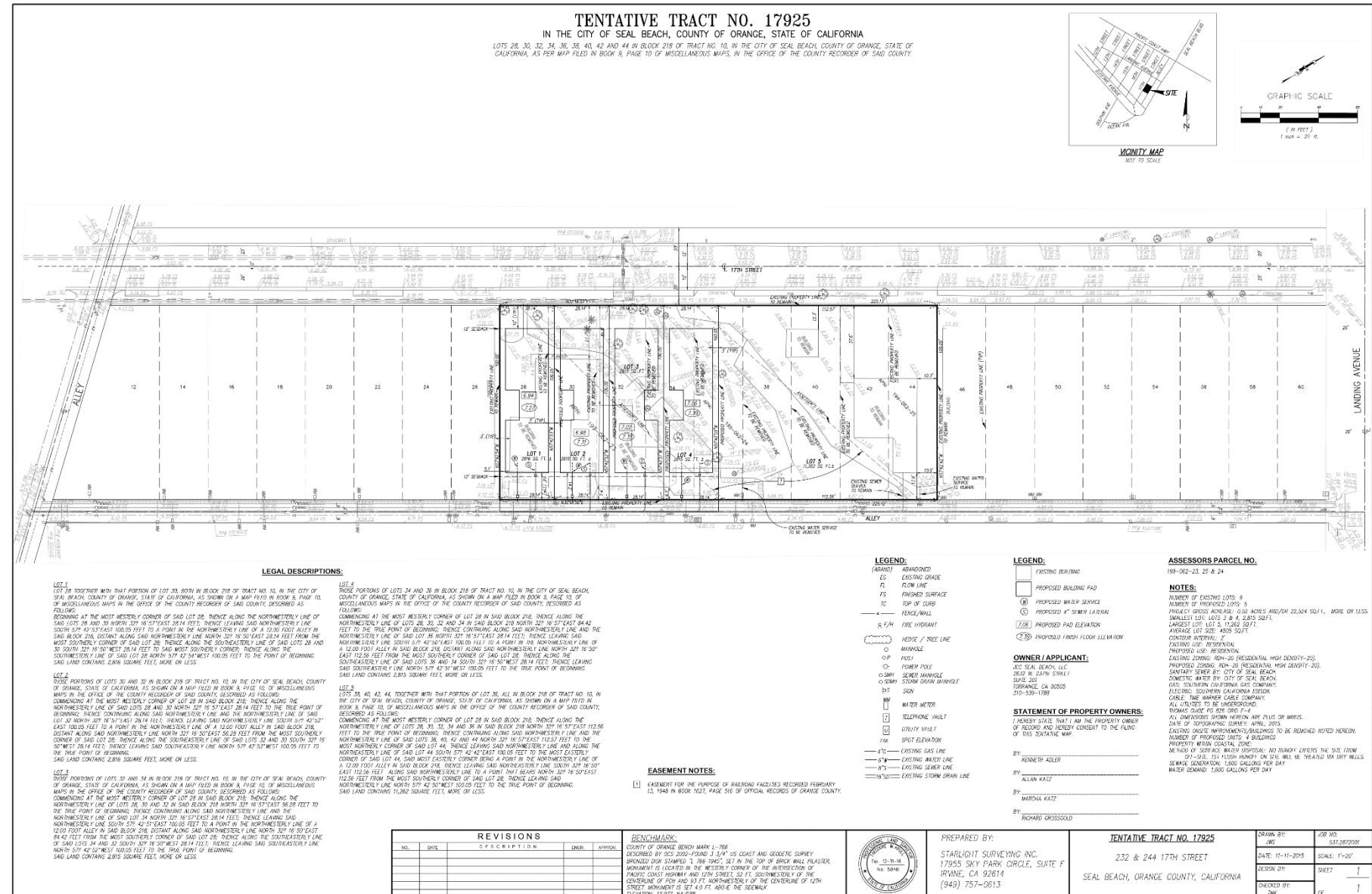


Exhibit 1 – Regional Location



Exhibit 2 – Project Vicinity



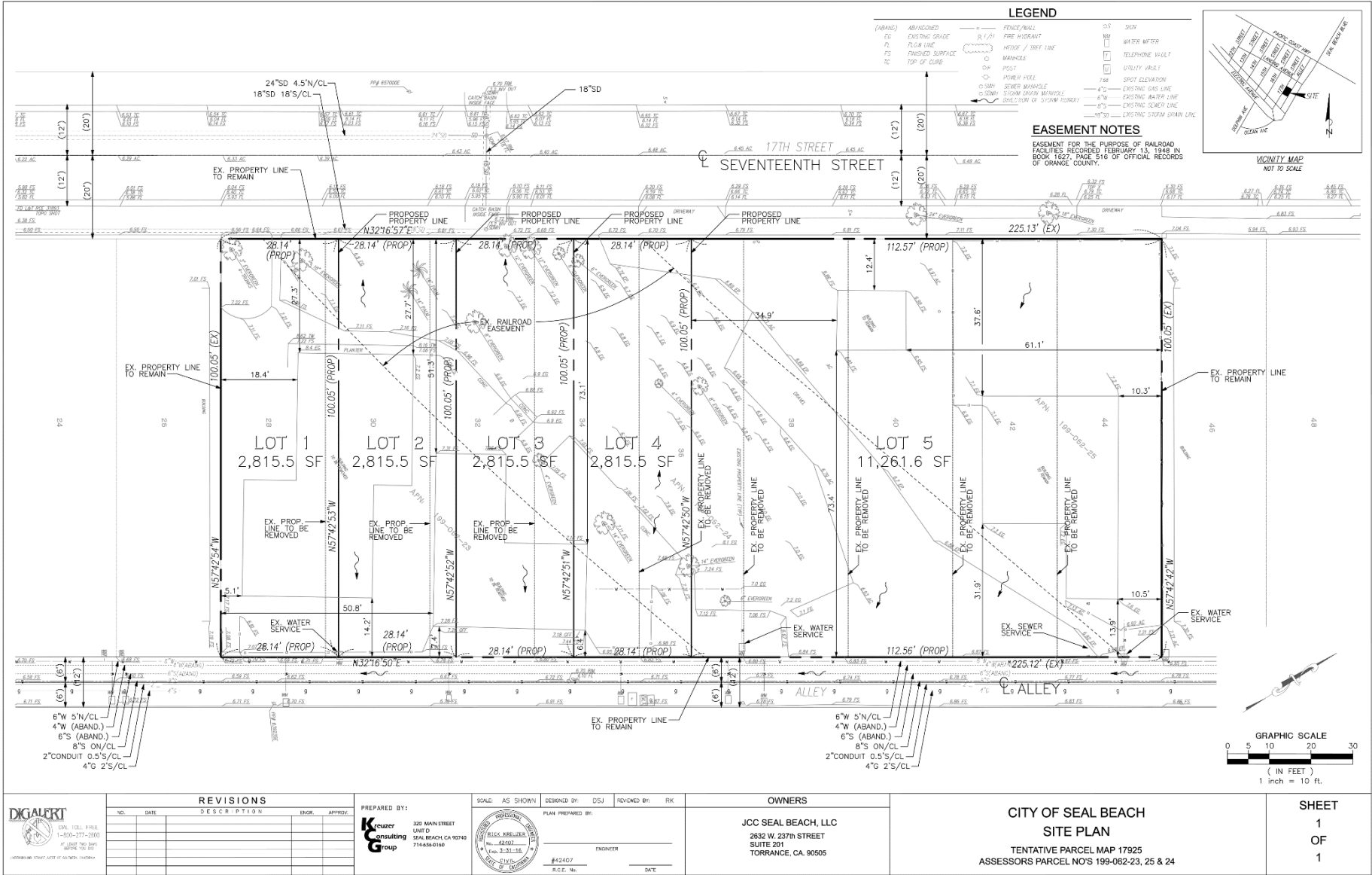


Exhibit 4 – Site Plan, Tentative Parcel Map 17925

D. Statutory Authority

The preparation of the Initial Study and Mitigated Negative Declaration is governed by two principal sets of documents: The California Environmental Quality Act (hereinafter “CEQA,” *California Public Resources Code* §21000, et seq.) and the CEQA Guidelines (*California Code of Regulations* §15000, et seq.). Additionally, City procedures and case law provide guidance to this Initial Study and Mitigated Negative Declaration. The environmental analysis presented in this document primarily focuses on the changes in the environment that would result from the Project. This environmental document also evaluates all phases of the Project, including construction and operation.

In compliance with state law and procedures, the City has determined that the Mitigated Negative Declaration is the appropriate environmental compliance for the proposed Project. Therefore, the City will not cause to be prepared an Environmental Impact Report (EIR). In compliance with §15063 of the CEQA Guidelines, the City conducted an Initial Study to determine if the Project may have a significant effect on the environment. The Initial Study checklist form and explanation discussion format meets the requirements of the CEQA. Section 15063(d)(3) requires that the entries on the Initial Study checklist identifying environmental effects be briefly explained to indicate that there is some evidence to support the entries. An Initial Study may rely upon expert opinion supported by facts, technical studies, or other substantial evidence to document its findings. An Initial Study is not intended or required to include a level of detail that would be provided in an EIR. Therefore, in compliance with CEQA and the CEQA Guidelines, the IS/MND is not intended to be a lengthy, detailed document.

E. Incorporation by Reference

Certain documents are incorporated by reference into this Initial Study and Mitigated Negative Declaration pursuant to CEQA Guidelines §15150. These documents and the locations where they can be inspected are identified in the Environmental Checklist (Appendix A of this Initial Study and MND). Where a document is referenced, its pertinent sections will be briefly summarized in the discussions in this environmental document.

F. Analysis

The initial step in the City’s environmental evaluation is the completion of an Environmental Checklist (also known as an “Initial Study”) to identify known or potential impacts and eliminate environmentally irrelevant issues. After each issue listed on the checklist, the City has marked “Potentially Significant Impact,” “Less Than Significant Impact with Mitigation Incorporated,” “Less Than Significant Impact,” or “No Impact” depending on the potential of the Project to have adverse impacts. The Environmental Checklist prepared for the proposed Project is presented in Appendix A of this environmental document.

The following discussion provides explanations for the conclusions contained in the Environmental Checklist regarding the proposed Project’s environmental impacts.

1. Aesthetics

The City of Seal Beach is a community located on the Pacific Ocean in northwest Orange County. The neighborhood where the Project is located contains primarily residences along 17th Street in the Old Town area of the City. Pacific Coast Highway is the nearest state highway to the Project, and views from Pacific Coast Highway would not be impacted by the Project. The topography of the neighborhood is flat.

Would the Project:

a) Have a substantial adverse effect on a scenic vista? (Less Than Significant Impact)

The Project site is located in a residential area that does not provide a scenic vista. Surrounding properties are developed with residential structures. The Project site is located in a developed area of the City known as Old Town. The Project is a tentative tract map that consolidates existing parcels into five lots, four of which would accommodate new residential structures (Exhibit 3). The fifth lot would remain as is. The residential structures are consistent with the surrounding development. Therefore, the Project will not result in 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? (Less Than Significant Impact)

See response to Item 1.a) above. The Project will not have a significant impact to any scenic resources such as trees, rock outcroppings, or historic buildings. However, some trees will be removed from the property as a result of the Project. However, these trees are not eucalyptus trees and, therefore, are not covered by the City ordinance protecting such trees. Additionally, 17th Street is not listed as a state scenic highway, and the proposed Project would not alter any views in the area. Therefore, the Project will not result in any significant impacts for this topical area.

c) Substantially degrade the existing visual character or quality of the site and its surroundings? (Less Than Significant Impact)

It is not anticipated that the Project will substantially impact the visual character or quality of the site and its surroundings. The consolidation of parcels will lead to four single-family residences proposed for the site, which is consistent with the surrounding uses. Surrounding and nearby land uses to the Project site include residential structures. Therefore, the proposed Project will not result in any significant impacts relative to visual character or quality of the site and its surroundings.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (Less Than Significant Impact)

The surrounding properties are already developed with existing residential structures. Lighting associated with the Project from the residential structures will be visible; however, the lighting is not considered substantial considering the urbanized location. Therefore, substantial light and/or glare impacts should not occur as a result of the Project.

2. Agriculture and Forestry Resources

The Agriculture and Forestry Resources section of this environmental document evaluates the impact the proposed Project would have on farmland or forest resources.

Would the Project:

- a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (No Impact)**

The proposed Project does not involve conversion of any farmland. The proposed Project does not call for rezoning of farmland, nor is it currently zoned for agriculture. Therefore, the proposed Project will not have any impacts on agriculture and forest resources.

- b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? (No Impact)**

See response to Item 2.a) above. The Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. The property is not under a Williamson Act contract. Therefore, no impacts to this topical area would occur as a result of the proposed Project.

- 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))? (No Impact)**

The Project does not involve land that is considered forest land or timberland zoned for timberland production. It is a residential project in a neighborhood zoned for residential. Therefore, no impacts to this topical area would occur as a result of the proposed Project.

- d) Result in the loss of forest land or conversion of forest land to non-forest use? (No Impact)**

The Project is located in an existing urban area and does not involve conversion of forest land to non-forest use. Therefore, no impacts to this topical area would occur as a result of the proposed Project.

- e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? (No Impact)**

The proposed Project will not have any impact on farmland or agricultural uses. The Project site is within a developed area surrounded by residential uses. Therefore, the Project will not have any impact that could result in the conversion of property to non-agricultural use.

3. Air Quality

The information and analysis presented in this Air Quality section are based on the air quality analysis dated August 5, 2016 prepared by Giroux & Associates. The analysis considers the requirements of the South Coast Air Quality Management District and the potential impacts of the Project on local and regional air quality.

Would the Project:

a) Conflict with or obstruct implementation of the applicable air quality plan? (Less Than Significant Impact)

An Air Quality Impact Analysis for the Project was performed by Giroux & Associates (August 5, 2016) and is included in its entirety as Appendix C to this document. The Project site is located in the South Coast Air Basin (SCAB). The federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM₁₀. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times, because earlier attainment forecasts were shown to be overly optimistic.

The 1990 Clean Air Act Amendment (CAAA) required that all states with airsheds with “serious” or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised, and approved over the past decade. The most current regional attainment emissions forecast for the ozone precursor NO_x and particulate matter are shown in Table 1 below. Substantial reductions in emissions of NO_x are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM₁₀ and PM_{2.5} are forecast to slightly increase.

Table 1 – South Coast Air Basin Emissions Forecasts

| Pollutant | Emissions (tons per day) | | | | |
|-------------------|-----------------------------|-------------------|-------------------|-------------------|------|
| | 2012 ^a | 2015 ^b | 2020 ^b | 2025 ^b | 2030 |
| NO _x | 512 | 451 | 357 | 289 | 266 |
| VOC | 466 | 429 | 400 | 393 | 393 |
| PM ₁₀ | 154 | 155 | 161 | 165 | 170 |
| PM _{2.5} | 68 | 67 | 67 | 68 | 170 |

^a2012 base year

^bWith current emissions reduction programs and adopted growth forecasts

Source: California Air Resources Board, 2013 Almanac of CEPAM

The Air Quality Management District (AQMD) adopted an updated clean air “blueprint” in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM₁₀) by 2006. The 2003 AQMP was based upon the federal 1-hour ozone standard, which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the 1-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to “slip” from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM_{2.5} standard.

Because projected attainment by 2021 requires control technologies that do not exist yet, the SCAQMD requested a voluntary “bump-up” from a “severe non-attainment” area to an “extreme non-attainment” designation for ozone. The extreme designation will allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on “black-box” measures, EPA would have been required to impose sanctions on the region if the bump-up request had not been approved. In April 2010, EPA approved the change in the non-attainment designation from “severe-17” to “extreme.” This reclassification sets a later attainment deadline (2024), but also requires the air basin to adopt even more stringent emissions controls.

In other air quality attainment plan reviews, EPA has disapproved part of the SCAB PM_{2.5} attainment plan included in the AQMP. EPA has stated that the current attainment plan relies on PM_{2.5} control regulations that have not yet been approved or implemented. It is expected that a number of rules that are pending approval will remove the identified deficiencies. If these issues are not resolved within the next several years, federal funding sanctions for transportation projects could result. The recently adopted 2012 AQMP being readied for ARB submittal to EPA as part of the California State Implementation Plan (SIP) is expected to remedy identified PM_{2.5} planning deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA-approved attainment plans in place. This requirement includes the federal 1-hour ozone standard even though that standard was revoked approximately 7 years ago. There was no approved attainment plan for the 1-hour federal standard at the time of revocation. Through a legal quirk, the SCAQMD is now forced to develop an AQMP for the long-since-revoked 1-hour federal ozone standard. Because the 2012 AQMP contains a number of control measures for the 8-hour ozone standard that are equally effective for 1-hour levels, the 2012 AQMP is believed to satisfy hourly attainment planning requirements.

AQMPs are required to be updated every 3 years. The 2012 AQMP was adopted in early 2013. An updated AQMP must therefore be adopted in 2016. Planning for the 2016 AQMP is currently ongoing. The current attainment deadlines for all federal non-attainment pollutants are now as follows:

- | | |
|---|---------------------------|
| • 8-hour ozone (70 ppb) | 2037 |
| • Annual PM _{2.5} (12 µg/m ³) | 2025 |
| • 8-hour ozone (80 ppb) | 2024 (old standard) |
| • 8-hour ozone (75 ppb) | 2032 (current standard) |
| • 1-hour ozone (120 ppb) | 2032 (rescinded standard) |
| • 24-hour PM _{2.5} (35 µg/m ³) | 2019 |

The key challenge is that NO_x emission levels, as a critical ozone precursor pollutant, are forecast to continue to exceed the levels that would allow the above deadlines to be met. Unless additional NO_x control measures are adopted and implemented, attainment goals may not be met.

The proposed Project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing residential development projects. Conformity with adopted plans, forecasts, and programs relative to population, housing, employment, and land use is the primary

yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less than significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed Project has therefore been analyzed on a Project-specific basis.

The proposed Project involves the consolidation of parcels at 232 through 244 17th Street in the City of Seal Beach through Tentative Tract Map 17925 in preparation for the development of four residential structures. The Project will not conflict with or obstruct implementation of the South Coast Air Basin's Air Quality Management Plan. Therefore, less than significant impacts will occur in this issue area.

b) Violate any air quality standard or contribute to an existing or projected air quality violation? (Less Than Significant Impact with Mitigation Incorporated)

The Project involves the consolidation of parcels at 232 through 244 on the east side of 17th Street in the City of Seal Beach through Tentative Tract Map 17925 in preparation for the development of four residential structures. Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

- a) Conflicts with or obstructs implementation of the applicable air quality plan.
- b) Violates any air quality standard or contributes substantially to an existing or projected air quality violation.
- c) Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- d) Exposes sensitive receptors to substantial pollutant concentrations.
- e) Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or a parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM₁₀, an aggressive dust control program is required to control fugitive dust during Project construction.

Secondary Pollutants

Many pollutants require time to transform from a benign contaminant form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of the significance of such emissions is based upon a specified amount of emissions (e.g., pounds, tons) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the emission thresholds in the following table are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 2 – Daily Emissions Thresholds

| Pollutant | Construction (pounds per day) | Operations (pounds per day) |
|-------------------|----------------------------------|--------------------------------|
| ROG | 75 | 55 |
| NO _x | 100 | 55 |
| CO | 550 | 550 |
| PM ₁₀ | 150 | 150 |
| PM _{2.5} | 55 | 55 |
| SO _x | 150 | 150 |
| Lead | 3 | 3 |

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional Indicators

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- The project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation.
- The project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.
- The project could generate vehicle trips that cause a CO hot spot.

Sensitive Receptors

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called "sensitive receptors." Sensitive population groups include young children, the elderly, and the acutely and chronically ill (especially those with cardio-respiratory disease).

Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. Schools are similarly considered to be sensitive receptors. The proposed Project is surrounded by residential uses.

Construction Activity Impacts

CalEEMod was developed by the SCAQMD to provide a model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

Although exhaust emissions will result from on and off-site equipment, the exact types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Estimated construction emissions were modeled using CalEEMod 2013.2.2 to identify maximum daily emissions for each pollutant during project construction.

The proposed Project entails construction of 4 single family homes and demolition of a 1,696 sf duplex. Construction was modeled in CalEEMod 2013.2.2 using default construction equipment and schedule for a project of this size as shown in Table 3.

Table 3 – Construction Activity Equipment Fleet

| Phase Name and Duration | Equipment |
|--|---|
| Demolition (10 days) 16,690 cubic feet debris | 1 concrete saw, 1 dozer, 2 loader/backhoes |
| Grading (2 days) | 1 concrete saw, 1 dozer, 2 loader/backhoes |
| Construction (100 days) | 1 small crane, 2 loader/backhoes, 2 forklifts |
| Paving (5 days) | 1 paver, 4 cement mixers, 1 loader/backhoe, 1 roller |

Utilizing this indicated equipment fleet and durations shown in Table 3, the following worst case daily construction emissions are calculated by CalEEMod and are listed in Table 4.

Table 4 – Construction Activity Emissions

| 2017 | Maximum Daily Emissions (pounds per day) | | | | | |
|--------------------------------|---|------|-----|-----------------|------------------|-------------------|
| | ROG | NOx | CO | SO ₂ | PM ₁₀ | PM _{2.5} |
| Maximum Construction Emissions | 11.6 | 12.7 | 9.3 | 0.0 | 1.6 | 1.1 |
| SCAQMD Thresholds | 75 | 100 | 550 | 150 | 150 | 55 |

Peak daily construction activity emissions are estimated to be below SCAQMD CEQA thresholds without the need for added mitigation.

Localized Significance Thresholds

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed Project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is

possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NO_x), carbon monoxide (CO), and particulate matter (PM₁₀ and PM_{2.5}). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST screening tables are available for 25-, 50-, 100-, 200-, and 500-meter source-receptor distances. For this Project the nearest sensitive receptors are the residential uses adjacent to the Project site such that the most conservative 25-meter distance was modeled.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1-, 2-, and 5-acre sites for varying distances. For this Project, the most stringent thresholds for a 1-acre site were applied.

The thresholds and emissions in Table 5 are therefore determined.

Table 5 – Localized Significance Thresholds and Project Emissions

| LST 1.0 acre/25 meters North Coastal Orange County | Emissions (pounds per day) | | | |
|---|-------------------------------|-----------------|------------------|-------------------|
| | CO | NO _x | PM ₁₀ | PM _{2.5} |
| Localized Significance Thresholds | 647 | 92 | 4 | 3 |
| Max On-Site Emissions | 9 | 13 | 2 | 1 |
| Exceeds Threshold? | No | No | No | No |

CalEEMod Output in Appendix

LSTs were compared to the maximum daily construction activities. As seen above, emissions will meet the LST for construction thresholds and are less-than-significant without the application of additional discretionary mitigation.

Operational Impacts

Operational emissions were calculated using CalEEMod 2013.2.2 for an assumed project build-out year of 2017 as a target for full occupancy. The Project would generate 38 daily weekday trips, 40 Saturday trips, and 35 Sunday trips using default traffic engineering data from CalEEMod. All emissions were evaluated as “new” sources without any credit for existing duplex residents. In addition to mobile sources from vehicles, general development causes smaller amounts of “area source” air pollution to be generated from on-site energy consumption (primarily space heating, hot water and landscaping). These sources represent a minimal percentage of the total Project NO_x and CO burdens, and a few percent for other pollutants. The inclusion of such emissions adds negligibly to the total significant Project-related emissions burden as shown in Table 6.

Table 6 – Daily Operational Impacts

| Source | Operational Emissions (pounds per day) | | | | | |
|--------------------|---|-----------------|------------|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO ₂ | PM ₁₀ | PM _{2.5} |
| Area | 1.2 | 0.0 | 2.3 | 0.0 | 0.3 | 0.3 |
| Energy | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Mobile | 0.1 | 0.4 | 1.7 | 0.0 | 0.3 | 0.1 |
| Total | 1.4 | 0.4 | 0.0 | 0.0 | 0.6 | 0.4 |
| SCAQMD Threshold | 55 | 55 | 550 | 150 | 150 | 55 |
| Exceeds Threshold? | No | No | No | No | No | No |

Source: CalEEMod 2013.2.2 Output in Appendix

As seen in Table 6, the Project would not cause any operational emissions to exceed their respective SCAQMD CEQA significance thresholds even without any credit for existing on-site uses. Operational emission impacts are judged to be less than significant. No impact mitigation for operational activity emissions is considered necessary to support this finding.

Construction Emissions Mitigation

Construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds. Nevertheless, mitigation through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin and because of the proximity of existing homes.

Similarly, ozone precursor emissions (ROG and NO_x) are calculated to be below SCAQMD CEQA thresholds during construction. However, because of the non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended.

Recommended mitigation includes:

Mitigation Measure 1 – During construction activities, the contractor shall ensure that measures are complied with to reduce short-term (construction) air quality impacts associated with the Project: a) controlling fugitive dust by regular watering or other dust palliative measures (such as covering stock piles with tarps) to meet South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust); b) maintaining equipment engines in proper tune and establishing a preference for contractors using Tier-3-rated or better heavy equipment; c) enforce 5-minute idling limits for both on-road trucks and off-road equipment; d) provide water spray during loading and unloading of earthen materials; e) cover all trucks hauling dirt, sand or loose material or require all trucks to maintain at least two feet of freeboard; and f) sweep streets daily if visible soil material is carried out from construction site.

Mitigation Measure 2 – During construction activities, the Project contractor shall ensure that the Project will comply with SCAQMD Rule 402 (Nuisance) Rule 402 prohibits the discharge from any source quantities of air contaminants or other material which would cause injury, detriment, nuisance, or annoyance to any considerable number of persons, the public, or damage to business or property.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)? (Less Than Significant with Mitigation Incorporated)

See response to Item 3.b) above and recommend mitigation in compliance with the SCAQMD for short-term construction related impacts. The Project site is located in the South Coast Air Basin that is a designated non-attainment area. The Project does not represent significant growth beyond that already previously evaluated and forecasted for air quality cumulative impacts of basin-wide growth and development. Therefore, the Project will not result in any significant impacts cumulatively to air quality with mitigation incorporated.

d) Expose sensitive receptors to substantial pollutant concentrations? (Less Than Significant with Mitigation Incorporated)

See response to Item 3.b) above and recommended mitigation in compliance with the SCAQMD for short-term construction related impacts. There may be some minor emissions during the construction phase of the Project due to the use of construction equipment; however, there will be minimal grading and soil disturbance connected with the Project. Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called “sensitive receptors.” Sensitive population groups include young children, the elderly, and the acutely and chronically ill (especially those with cardio-respiratory disease).

Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents (and school children) may be outdoors when exposure is highest. The proposed Project site is surrounded by residential uses.

Dust is typically the primary concern during construction of new infrastructure. Because such emissions are not amenable to collection and discharge through a controlled source, they are called “fugitive emissions.” Emissions rates vary as a function of many parameters, such as soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation. Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal “default” factor based on the area disturbed, assuming that all other input parameters into emission rate prediction fall into midrange average values.

Exhaust emissions will result from on-site heavy equipment. The types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. However, based upon the level of construction necessary to implement the Project, emissions are expected to be minor.

The small amount of Project-related emissions will also not result in a significant impact on regional particulate levels. Where construction operations are near existing residences, the dust generated by such activities is considered a local nuisance as opposed to an actual health hazard. If water or other soil stabilizers are used to control dust as required by the SCAQMD Rule 403 (Fugitive Dust), the emission can be reduced significantly. Any particulate disturbance or construction equipment emissions can be handled under appropriate mitigation measures established for short-term construction activities.

Mitigation measures are recommended (above) to further reduce short-term impacts associated with construction emissions in compliance with the SCAQMD. Therefore, no impacts to this topical area would result from the Project.

e) Create objectionable odors affecting a substantial number of people? (Less Than Significant with Mitigation Incorporated)

The proposed Tentative Tract Map leading to construction of four residences will not create any significant objectionable odors. A mitigation measure has been presented in Section 3.b) above requiring compliance with SCAQMD Rule 402 (Nuisance). Therefore, the proposed Project will not result in any significant impacts of objectionable odors affecting a substantial number of people.

4. Biological Resources

The Biological Resources section analyzes the potential impact of the Project on wildlife and plant resources within the Project area. The Project site is primarily partially developed in an existing residential neighborhood. There are trees on the property that would be removed, triggering a requirement to be certain there are no nesting birds in the trees when they are removed.

Would the Project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (Less Than Significant Impact)

The City's General Plan Open Space/Recreation/Conservation Element describes "open space land" as "any parcel or area of land or water that is essentially unimproved or contains only minor improvements and is devoted to an open space use."¹ The Project site includes parcels in a completely developed area included in the Old Town/Surfside Planning Area. The Project site has been previously graded in conjunction with the existing development on the property. The Project site does not contain any sensitive habitat or wildlife resources nor is it open space areas depicted in the City's General Plan. Therefore, the Project will not result in any significant impacts to biological resources.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (Less Than Significant Impact)

See response to Item 4.a) above. Sensitive natural communities called out by the City of Seal Beach General Plan are primarily located in open space and undeveloped areas of the community. There are no riparian habitats associated with the Project site. The Project site does not contain any riparian habitat or sensitive natural communities. Therefore, no impacts to riparian or other sensitive natural communities are anticipated.

1 City of Seal Beach Open Space/Recreation/Conservation Element Page OS-1

- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (Less Than Significant Impact)**

See response to Item 4.a) above. The site is located in an urbanized area of the City and does not contain wetlands. The Project does not propose any interruption of hydrological flow or increase in hard surface that would increase flows toward the ocean. Therefore, less than significant impacts to riparian habitats or wetlands will result from the proposed Project.

- 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? (Less Than Significant with Mitigation Incorporated)**

See response to Item 4.a) above. The site is located in an urbanized area. The site does not contain any sensitive habitat or wildlife resources. There are no migratory wildlife corridors on the Project site and the Project will not interfere with any native resident or migratory fish or wildlife species. However, the Project site contains several trees that will be removed per the site plan (Exhibit 4, page 5 above).

While the trees do not represent substantial biological resources and will be replaced by other kinds of trees on the site per the landscaping plan, the trees could contain migratory bird nests that are protected by the federal Migratory Bird Treaty Act of 1918 when occupied. Therefore, prior to removing the trees, a qualified biologist should determine that there are no active nests in the trees. Therefore, the Project will not conflict with any policies or ordinance pertaining to biological resources. Thus, with mitigation, the Project will not have any impact on fish and/or wildlife species.

Mitigation Measure 3 – If tree clearing is scheduled to begin during the nesting season (February 1 to September 15), a qualified biologist shall be retained to survey the trees to determine the presence of any active bird nests in the trees prior to their removal. If nests are identified, removal of the trees should not proceed until after the nesting season concludes on September 15.

- e) Conflict with any local policies or ordinance protecting biological resources, such as a tree preservation policy or ordinance? (No Impact)**

See response to Item 4.a) above. The Project site does not contain any biological resources. There is a local ordinance protecting eucalyptus trees, but the Project property has no such trees. Therefore, the Project will not conflict with any policies or ordinance pertaining to biological resources.

- 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? (No Impact)**

See responses to Items 4.a) and 4.e) above. The site is located in an urbanized area. The site does not include a Habitat Conservation Plan or Natural Community Conservation Plan. The processing of the tract map and subsequent development does not involve any activities that would impact biological resources that would be subject to a conservation plan.

5. Cultural Resources

The Cultural Resources section analyzes impacts on historical resources in the Project site. The Project site has been previously graded to support the development that currently exists on the parcels. None of the structures located on the parcels are listed as historical structures by the City of Seal Beach.

Would the Project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? (Less Than Significant Impact)

The City's General Plan/Historical Resources Element includes a comprehensive evaluation of historical resources citywide.² The Project proposes to consolidate existing lots into five lots, four of which would be developed with single family residences. Identified archeological resources within the City of Seal Beach are primarily located on the Naval Weapons Station, the Hellman Ranch property, and potentially on the Boeing property. This Project is located in the Old Town planning area of the City of Seal Beach. The Project site has previously been graded and developed with some residential uses. Additionally, the Project site is already developed and is surrounded by existing residential uses. Also, the City's Cultural Resources Element does not mention any recorded archeological sites in the Project area. Additionally, a notification letter required by AB 52 was sent to tribal representatives associated with the project area about the proposed project. No letters from tribal representatives were received and no one has requested consultation on the project. Therefore, due to the existing condition of the site, it is anticipated that the Project will not have any impacts on cultural (including historical) resources.

b) Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5? (Less Than Significant Impact)

See response to Item 5.a) above. The Project is proposed adjacent to properties that have already been graded in conjunction with the current uses (i.e., residential) and is located in an area that is a residential neighborhood. The proposed Project will require minimal grading due to the existing lot conditions and the nature of the Project. Grading activities are not anticipated to occur anywhere other than areas previously excavated and graded. Therefore, it is not anticipated that the Project will result in any significant impact to archaeological resources.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (Less Than Significant Impact)

See responses to Items 5.a) and 5.b) above. The General Plan Cultural Resources Element did not call out the Old Town area as a place with significant cultural resources. It is not anticipated that the Project will result in any direct or indirect impacts to unique paleontological resources or geologic features due to the type of Project and existing developed condition of the property.

2 City of Seal Beach General Plan/Cultural Resources Element, as amended 12/03, page CR-2.

d) Disturb any human remains, including those interred outside formal cemeteries? (No Impact)

See responses to Items 5.a) and 5.b) above. The site is located in an urbanized area with adjacent developed uses (residential facilities). Due to the developed condition of the site it is not anticipated that the Project would result in any impacts relative to disturbance of human remains, including those interred outside formal cemeteries.

6. Geology and Soils

The Geology section evaluates the potential impacts of Southern California's seismic events on the Project. The analysis is based largely on the City's General Plan/ Safety Element and regional mapping of fault lines and historical earthquake information. The analysis includes the range of geotechnical events that could impact the Project site.

Would the Project:

- a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**
- i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Less Than Significant Impact)**

The City's General Plan/Safety Element includes an evaluation of public safety that addresses geology and soils of the City and is herein incorporated by reference.³

The City, as well as most of Southern California, is located in a region of historic seismic activity. There have been many earthquakes throughout recorded history; some have been large. The 1933 Long Beach earthquake was the most powerful and closest shock to hit Seal Beach in living memory, and the 1994 Northridge quake was the most recent powerful shock. In October, 1969, a quake occurred that was felt predominantly in Seal Beach and Northwest Orange County. By way of comparison, the three quakes listed above had the following magnitudes: 1933 Long Beach, 6.3; 1994 Northridge, 6.8; 1969 Seal Beach, 4.3. The active faults of Southern California will continue to be subjected to stresses which produce movement that in turn cause earthquakes of varying magnitude and intensity.

There is a known active fault system located within the limits of the City. The Seal Beach Fault, a segment of the Newport-Inglewood Fault Zone, is located within the City and generally parallels the coastline, extending from Long Beach generally through the Hellman Ranch property and the Seal Beach Naval Weapons Station. This fault has been delineated on the Alquist-Priolo Earthquake Fault Zone. The principal seismic hazard which could affect the Project site is ground shaking resulting from an earthquake occurring along any of the major active faults in Southern California. The most significant known active faults include the Newport-Inglewood, Whittier, and Palos Verdes faults. The closest known active fault to the Project site includes Newport Inglewood (LA Basin) fault which is approximately one mile from the 17th Street Project site. Surface rupture occurs when there is a break in ground surface during or as a consequence of seismic activity. As indicated previously, the site is located near an Alquist-Priolo zone, but there are not any identified faults within the Project site

³ City of Seal Beach General Plan/Safety Element, adopted 12/03, pages S-30 to S-56.

property. Therefore, potential for surface rupture on site is considered low due to the lack of known active faults specifically on-site.

The potential for damage resulting from seismic-related events exists within the City as it does throughout Southern California. Seismic hazards include ground shaking, ground failure, ground displacement, tsunamis, and seiches. The site is located in an area of the City that is designated as having liquefaction potential per the State of California Seismic Hazard Zones Map, Seal Beach Quadrangle (1998).

The site is expected to be subject to moderate to severe ground shaking from a regional seismic event within the project life of the proposed enclosure. However, residential structures already exist on the site and the addition of four residences will not increase the site's susceptibility to geological issues. With the implementation of modern building codes designed to secure structures during seismic events, impacts in this area will be less than significant.

The topography of the site is relatively flat. The site is not located in an area of generally unique geologic or physical features.

ii. Strong seismic ground shaking? (Less Than Significant Impact)

See response to Item 6.a)i) above. Due to the nature of the Project, all potential impacts relative to geology and soils are less than significant.

iii. Seismic-related ground failure, including liquefaction? (Less Than Significant Impact)

See response to Item 6.a)i) above. The site is located in an area of the City that is designated as liquefaction hazard zone per the State's Seismic Hazard Zones Map. However, the Project will be designed to ameliorate the potential for liquefaction issues through modern construction techniques. Therefore, all potential impacts relative to geology and soils are at a less than significant level.

iv. Landslides? (No Impact)

The property is flat. The site is not subject to potential impacts associated with landslides. Therefore, it is not anticipated that Project activities will result in any impacts associated with landslides.

b) Result in substantial soil erosion or the loss of topsoil? (No Impact)

The Project will not result in any impacts to soil erosion or loss of topsoil. The site has been previously graded in conjunction with the existing uses. The site is relatively flat in topography and will not require extensive grading. Therefore, there are no impacts from the Project in the area of potential loss of topsoil.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (No Impact)

See response to Item 6.a)i) above. Due to the nature of the Project, all potential impacts relative to geology and soils are at a less than significant level.

- d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? (Less Than Significant Impact)**

See response to Item 6.a)i), which addresses geology and soils. The site includes the residential lots at 232 through 244 17th Street in the City of Seal Beach. The Project, consolidation of lots in anticipation of building four new residential structures, will involve minimal grading and all potential impacts relative to geology and soils will be at a less than significant level.

- 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? (No Impact)**

The Project site will be served by the local sewer and water system; as such, the Project does not involve issues pertaining to soils incapable of supporting septic tanks or alternative wastewater disposal systems.

7. Greenhouse Gas Emissions

The Greenhouse Gas Emissions section analyzes the impact the proposed Project would have on emissions suspected in the issue of climate change around the world. The Project was analyzed within the Air Quality Study conducted by Giroux & Associates and included as Appendix C of this document.

Would the Project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Less Than Significant Impact)**

“Greenhouse gases” (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as “global warming.” These greenhouse gases contribute to an increase in the temperature of the earth’s atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately one-half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statutes and executive orders (EO) include AB 32, SB 1368, SB 375, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California’s reputation as a “national and international leader on energy conservation and environmental stewardship.” It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.

- Requires immediate “early action” control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California’s GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25% to 40%, from business as usual, over the next 13 years (by 2020).
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is underway. Additionally, through the California Climate Registry (CCAR), general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (i.e., company owned) and indirect sources (i.e., not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the *California Code of Regulations* in March 2010. The CEQA Appendix G Guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,
- Conflicts with an applicable plan, policy, or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to “select the model or methodology it considers most appropriate.” The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans) of 10,000 metric tons (MT) CO₂ equivalent/year. In September 2010, the Working Group released revisions which recommended a threshold of 3,000 MT CO₂e for all land use types. This 3,000 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

Construction Activity GHG Emissions

The Project is assumed to require less than 1 year for construction. During Project construction, the CalEEMod 2013.2.2 computer model predicts that the construction activities will generate the annual CO₂e emissions identified in Table 7.

Table 7 – Construction Emissions

| | CO ₂ e (metric tons) |
|-----------|------------------------------------|
| Year 2017 | 64.3 |
| Amortized | 2.1 |

CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level is also provided. GHG impacts from construction are considered individually less-than-significant.

Project Operational GHG Emissions

The input assumptions for operational GHG emissions calculations, and the GHG conversion from consumption to annual regional CO₂e emissions are summarized in the CalEEMod 2013.2.2 output files found in the appendix of this report. As with the criteria air pollution calculations no GHG emissions credit was taken for any displaced duplex residents.

The total operational and annualized construction emissions for the proposed Project are identified in Table 8.

Table 8 – Proposed Uses Operational Emissions

| Consumption Source | CO ₂ e (metric tons) |
|------------------------|------------------------------------|
| Area Sources | 1.3 |
| Energy Utilization | 14.3 |
| Mobile Source | 55.8 |
| Solid Waste Generation | 2.1 |
| Water Consumption | 1.8 |
| Construction | 2.1 |
| Total | 77.4 |
| Guideline Threshold | 3,000 |
| Exceeds Threshold? | No |

Total Project GHG emissions would be substantially below the proposed significance threshold of 3,000 MT suggested by the SCAQMD. Hence, the Project would not result in generation of a significant level of greenhouse gases.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (Less Than Significant Impact)

The City of Seal Beach has not yet developed a Greenhouse Gas Reduction Plan. The applicable GHG planning document is AB-32. As discussed above, the Project is not expected to result in a significant increase in GHG emissions. As a result, the Project results in GHG emissions below the recommended

SCAQMD 3,000-ton threshold. Therefore, the Project would not conflict with any applicable plan, policy, or regulation to reduce GHG emissions.

8. Hazards and Hazardous Materials

The Hazards and Hazardous Materials section of this document evaluates any potential impacts from hazardous substances caused by the Project. The section analyzes any potential impacts from demolition of existing structures on the Project site and use of hazardous substances involved in construction activities such as storage of gasoline or oils related to construction equipment.

Would the Project:

- a) Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials? (No Impact)**

The proposed Project will be built within the four lots on 17th Street in the City of Seal Beach. The Project, consolidation of residential lots in anticipation of construction of four new residential units, does not generate the routine transport, use or disposal of hazardous materials that could create a significant hazard to the public or the environment. The Project involves the eventual construction of the four new residential structures on the property. Therefore, there is no impact to this issue area.

- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Less Than Significant Impact with Mitigation Incorporated)**

See response to 8.a) above. The Project will not be a generator of hazardous materials. However, the Project includes demolition of an older residential duplex structure on the site that could contain lead or other hazardous material associated with older development. A mitigation measure is proposed to cover any potential release of hazardous materials through the demolition of this structure. No significant hazardous materials would be stored or handled on-site associated with the operational characteristics of the Project once it is developed.

Mitigation Measure 4 – Prior to demolition of the existing residential structures on the Project site, the contractor shall survey the structures to determine the presence of any hazardous substances such as asbestos or lead-based paint. If such materials are present, they will be remediated using mandatory procedures specified by the SCAQMD (Rule 4102, Asbestos Emissions from Demolition/Renovation Activities) and state air toxics agencies.

Therefore, with the implementation of the above mitigation measures, impacts associated with this topical area are anticipated to be less than significant as a result of implementation of the proposed Project.

- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (Less Than Significant Impact)**

There are no existing or proposed schools within one-quarter mile of the Project site. There is a pre-school in the area at 233 Seal Beach Boulevard about one-quarter mile from the Project site. However,

there will be no on-going hazardous materials handled at the site and the above mitigation measure should contain emissions from demolition activities slated at the site. Therefore, there are less than significant impacts in this subject area.

- d) Be located on a site which is included on a list of hazardous materials sites which complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (No Impact)**

See response to 8.a) above. The Project is not listed as a site remediated for contamination by an underground storage tank on the property.⁴ There are sites located near the Project site at 1760 and 1780 Pacific Coast Highway known as the Jeong Property that have been assessed for leaking underground storage tanks (LUST). The facilities have been completed for cleanup and the cases are closed. Therefore, there are no impacts from existing hazardous materials sites.

- e) For a project within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? (No Impact)**

The Project site is located within the Airport Environs Land Use Plan height restriction area for the Los Alamitos Joint Forces Training Base. However, the Project will be well under the aviation height restriction in the area. Therefore, the Project is not anticipated to have any impacts associated with a public airport or the safety of people working within the airport environs.

- f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? (No Impact)**

See response to Item 8.e) above. Additionally, the Project would not result in a safety hazard for people residing in the Project area. Therefore, there are no impacts to this topical area from the Project.

- g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (No Impact)**

The Project will not result in any impacts to an adopted emergency response plan or emergency evacuation plan.

- h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (No Impact)**

The Project is located in a developed area and is not adjacent to wildland areas. Therefore, the Project itself (or location) will not be a significant risk involving wildland fires.

4 <https://geotracker.swrcb.ca.gov>

9. Hydrology and Water Quality

The Hydrology and Water Quality section of the document evaluates the impact of the proposed Project on water quality standards or waste discharge requirements. The section also considers any impacts to the drainage of the property and any potential impacts from storm water runoff to streams, rivers, or the Pacific Ocean.

Would the Project:

a) Violate any water quality standards or waste discharge requirements? (Less Than Significant with Mitigation Incorporated)

The City of Seal Beach (and the Project site) is located in the Santa Ana River Basin. The Project area is under the jurisdiction of the California Regional Water Quality Control Board (RWQCB) Santa Ana Region for issues related to water quality. The Santa Ana Region of the RWQCB is nearly 3,000 square miles in size, with a population of almost five million people. The Santa Ana Region includes cities and municipalities in a portion of Orange County (includes Seal Beach), and Riverside and San Bernardino counties. Each of the nine Regional Boards within California is required to adopt a Water Quality Control Plan, or Basin Plan. Each Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the Basin Plan: 1) designates beneficial uses for surface and ground waters; 2) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy; 3) describes implementation programs to meet the objectives and protect the beneficial uses of all waters in the region; and 4) describes surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan.

There is a Drainage Area Management Plan (DAMP) which is implemented by the cities (including Seal Beach), the County of Orange, and the Orange County Flood Control District. The DAMP was prepared in compliance with specific requirements of the National Pollutant Discharge Elimination System (NPDES) storm water program. The DAMP includes a wide range of Best Management Practices (BMPs) and control techniques to further reduce the amount of pollutants entering the storm drain system.

There are two primary types of source pollution: single-point source and nonpoint Source pollution. Single-point sources are water pollutants that originate from a single-point source such as factories. Potential impacts to water quality associated with this type of Project (residential facilities) are nonpoint source pollution. Nonpoint source pollution includes materials and/or chemicals (e.g., motor oils/grease, paint, pet wastes, garden chemicals, litter) that may be washed into the storm drain system from various sources. Nonpoint source pollutants are typically washed into the storm drain system by rainwater and other means from streets, parking areas, residential neighborhoods, commercial/retail centers, construction sites. Since storm drains flow directly into the ocean without treatment, potential pollution can have an impact on water quality and wildlife. The Project site is currently undeveloped. The proposed Project involves the consolidation of lots at 232 through 244 17th Street in Seal Beach in anticipation of building four new residential units. The proposed construction activities at the site will implement BMPs to reduce any potential impacts to water quality. Post-development activities have the potential to discharge contaminants into the storm water and urban runoff and into the municipal storm drain system of the City of Seal Beach.

Implementation of the Project will include compliance with the adopted Drainage Area Management Plan and adoption of Best Management Practices for handling any runoff from the proposed

residential buildings. The BMPs are construction devices, procedures and methods that are implemented to reduce (or eliminate) source pollution (runoff). Additionally, the Project will disturb less than 1 acre of the existing Project site, which does not require the preparation of a Storm Water Pollution Prevention Plan (SWPPP). However, a Water Quality Management Plan should be prepared to assure that post-construction run-off will not impact water quality. Therefore, potential impacts to water quality will be reduced to less than significant level.

Mitigation Measure 5– Prior to construction activities, a Water Quality Management Plan (WQMP) will be prepared pursuant to the requirements of the Orange County DAMP and the State Regional Water Quality Control Board.

- b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? (No Impact)**

See response to Item 9.a) above. The Project consolidates lots at 232 through 244 17th Street in the City of Seal Beach in anticipation of building four new residential units on the property that will be served by the existing local sewer and water system.

The Project implementation at this site does not involve any construction activities (or long-term Project operations) that would impact groundwater supplies or groundwater recharge. The proposed improvements at the site are also not anticipated to have any significant impacts relative to groundwater. Therefore, it is not anticipated that the Project will have any significant impact on groundwater. The Project will not impact groundwater supplies or interfere with groundwater recharge.

- c) Substantially alter existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? (No Impact)**

See response to Item 9.a) above. The Project will not result in a significant change to the drainage pattern of property. The development of the site will not alter the course of a stream or a river. The Project area will continue to drain as it does today. Therefore, it is not anticipated that the Project will result in any impacts to erosion or siltation on- or off-site.

- d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of a course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site? (Less Than Significant Impact)**

See response to Item 9.c) above. The Project does not involve any alteration of the existing and/or planned drainage system (pattern) of the area, including a substantial increase in the rate or amount of surface runoff. The Project property has been developed previously. The proposed Project will increase building coverage on the site, but is not anticipated to create runoff beyond that which could be handled by the existing storm drain system. Therefore, the runoff is not anticipated to significantly

increase in a manner that would have impacts relative to flooding on or offsite. Therefore, less than significant impacts to this topical area will occur as a result of the Project.

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

See responses to Items 9.a) and 9.c) above. The City of Seal Beach is primarily built-out and contains an existing storm water drainage system. Local drainage facilities are maintained by the City of Seal Beach and provide for the collection of surface storm water. Surface water is then deposited into regional drainage channels that are owned and maintained by the Orange County Flood Control District (OCFCD). The OCFCD plans its drainage facilities to accommodate a 100-year flood. The closest major channel (less than one mile away from the site) to the site is the Seal Beach Storm Drain Channel (OCFCD channel). The City's General Plan identified that the City's storm drain system is primarily built to 25-year storm event standards.

The Project is consistent with the capacity of the existing storm drain system in the City of Seal Beach and will be designed and constructed to comply with storm drain requirements. The project includes water quality treatment drains on each parcel where the single family dwellings will be constructed, which will eliminate polluted runoff from the properties beyond that which exists today. The project is consistent with the land use designation on the property and will not lead to substantially more runoff than anticipated in the Seal Beach General Plan. Therefore, impacts associated with runoff will be less than significant as a result of the proposed Project.

f) Otherwise substantially degrade water quality? (No Impact)

See responses to Items 9.a) and 9.c) above. The Project will comply with all existing requirements regarding water quality, and the Project does not propose any changes to the drainage of the facility. Therefore, it is not anticipated that the Project will substantially degrade water quality.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (No Impact)

The proposed Project includes the construction of housing. However, the Project site is located within Zone X per the Federal Emergency Management Agency (FEMA) and on the Federal Flood Insurance Rate Map Panel No. 06059C-0226J (2009). The site is located outside the 100-year flood plain. Therefore, no impacts relative to the 100-year flood hazard will occur as a result of the proposed Project.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (No Impact)

See responses to Items 9.a), 9.c) and 9.g) above. The Project site is not located within a 100-year flood plan and therefore will not result in any potential impacts associated with a 100-year flood hazard area.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (No Impact)

See responses to Items 9.a), 9.c) and 9.g) above. The Project is not located within a 100-year flood plan.

j) Inundation by seiche, tsunami, or mudflow? (Less Than Significant Impact)

See responses to Items 9.a) and 9.c) above. The Project site is located above the beach area that would be the most vulnerable to a potential tsunami from seismic activity. The Seal Beach General Plan Safety Element rates the chance of tsunamis occurring in the Project area to be low based upon existing data, but notes that an earthquake along the Newport-Inglewood fault would carry a higher tsunami potential in the area.⁵ Therefore, impacts associated with inundation by seiche, tsunami, or mudflow are less than significant with the proposed Project.

10. Land Use and Planning

The Land Use and Planning section evaluates any potential conflicts between the Project and the City's General Plan and Zoning Code or any habitat conservation plan established by the City of Seal Beach.

Would the Project:

a) Physically divide an established community? (No Impact)

The Project site is at 232 through 244 17th Street in the City of Seal Beach. The Project does not divide an established community. The Project proposes consolidation of lots leading to development of four residences. The Project site is located in an existing residential neighborhood and does not propose to divide the community in any way. Therefore, there are no impacts relative to this topic will result due to the implementation of the Project.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? (Less Than Significant Impact)

The Project does not conflict with any applicable land use plan. The Project is consistent with the General Plan Land Use Designation "Residential High Density" and Zoning "High Density Residential Zone" on the property. The Project is located in a residential neighborhood and the proposed Project is consistent with the surrounding residential uses.

The Project is located within the Coastal Zone. The Project is consistent with the zoning, the General Plan, Local Coastal Program, and the Circulation Element of the City of Seal Beach. Therefore, the Project's impacts are less than significant in this topical area.

5 City of Seal Beach General Plan Safety Element Page S-54

c) Conflict with any applicable habitat conservation plan or natural community conservation plan? (No Impact)

See responses to Items 10.a) and 10.b) above. The Project site is located in a developed area and the surrounding uses have already been graded and constructed with building uses. The site is not subject to any applicable habitat conservation plan or natural community conservation plan (NCCP). Therefore, no impacts relative to this topic will occur as a result of implementation of the Project.

11. Mineral Resources

The Mineral Resources section of the document analyzes any impacts the proposed Project might have on mineral resources in the City.

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? (No Impact)

The Project site is not located within a known and/or designated mineral resources area. Therefore, no significant decrease of natural resources is anticipated as a result of the Project.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? (No Impact)

See response to Item 11.a) above. The City's General Plan does not delineate any locally important mineral resources other than oil in the City. These oil resources are not located within the area of the proposed Project. Therefore, the proposed Project will not result in any significant impacts to a locally important mineral resource.

12. Noise

The Noise section of the environmental document evaluates the impact the Project will have on the neighborhood and the impact of the noise environment on the Project itself. The analysis is based on the Noise Analysis conducted by Giroux & Associates on August 5, 2016 and included as Appendix D of the document.

Noise Setting

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally considered to be unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

Loud or soft, noisy or quiet, high-pitch and low-pitch are all qualitative terms used to describe sound. These terms are relative descriptions. The science of acoustics attempts to quantify the human perception of sound into a quantitative and measurable basis. Amplitude is the measure of the pressure exerted by sound waves. Amplitude may be so small as to be inaudible by humans, or so great as to be painful. Frequency refers to pitch or tone. The unit of measure is in cycles per second

called “hertz.” Very low frequency bass tones and ultra-high frequency treble are difficult for humans to detect. Many noise generators in the ambient world are multi-spectral.

The decibel (dB) scale is used to quantify sound pressure levels. Although decibels are most commonly associated with sound, “dB” is a generic descriptor that is equal to ten times the logarithmic ratio of any physical parameter versus some reference quantity. For sound, the reference level is the faintest sound detectable by a young person with good auditory acuity.

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called “A-weighting,” written as dB(A). Any further reference in this discussion to decibels written as “dB” should be understood to be A-weighted.

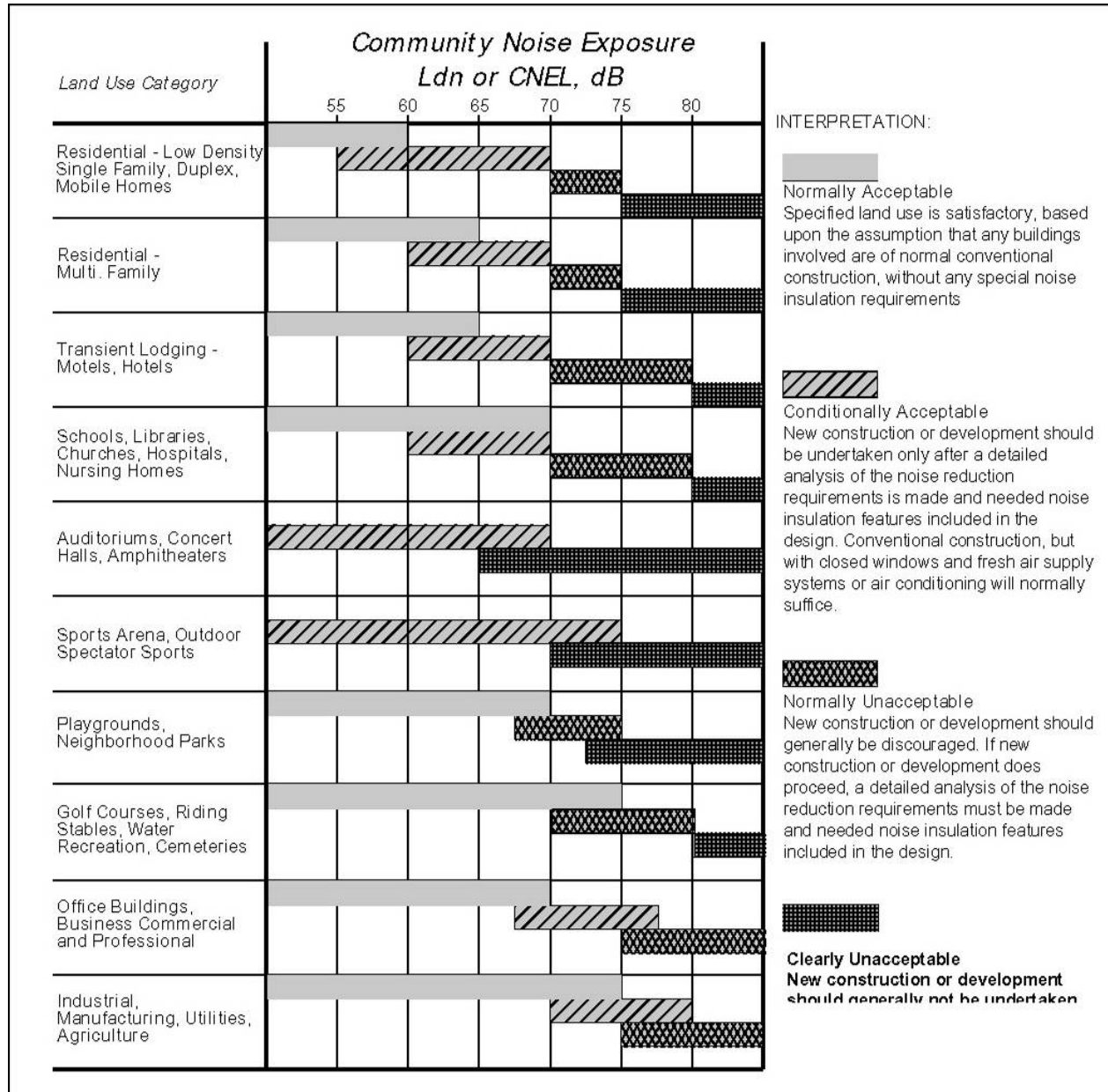
Leq is a time-averaged sound level; a single-number value that expresses the time-varying sound level for the specified period as though it were a constant sound level with the same total sound energy as the time-varying level. Its unit is the decibel (dB). The most common averaging period for Leq is hourly.

Because community receptors are more sensitive to unwanted noise intrusion during more sensitive evening and nighttime hours, state law requires that an artificial dBA increment be added to quiet time noise levels. The 24-hour noise descriptor with a specified evening and nocturnal penalty is called the Community Noise Equivalent Level (CNEL). CNELs are a weighted average of hourly Leq’s.

The City of Seal Beach has established guidelines for acceptable community noise levels that are based upon the CNEL rating scale to ensure that noise exposure is considered in any development. CNEL-based standards apply to noise sources whose noise generation is preempted from local control (such as from on-road vehicles, trains, and airplanes) and are used to make land use decisions as to the suitability of a given site for its intended use. These CNEL-based standards are articulated in the Noise Element of the city’s General Plan.

Exhibit 5 shows the noise compatibility guidelines for various uses. These guidelines would apply in usable outdoor space such as patios, yards, and spas. The guidelines indicate that an exterior noise level of 60 dB CNEL is considered to be a “normally acceptable” noise level for single-family, duplex, and mobile homes involving normal conventional construction, without any special noise insulation requirements. Exterior noise levels up to 65 dB CNEL are typically considered “conditionally acceptable,” and residential construction should only occur after a detailed analysis of the noise reduction requirements is made and needed noise attenuation features are included in the Project design. Exterior noise attenuation features include, but are not limited to, setbacks to place structures outside the conditionally acceptable noise contour, orienting structures so no windows open to the noise source, and/or installing noise barriers such as berms or solid walls.

An interior CNEL of 45 dB is mandated by the State of California Noise Insulation Standards (CCR, Title 24, Part 6, Section T25-28) for multiple-family dwellings and hotel and motel rooms. In 1988, the State Building Standards Commission expanded that standard to include all habitable rooms in residential use, included single-family dwelling units. Since normal noise attenuation within residential structures with closed windows is 20 to 30 dB, an exterior noise exposure of 65 to 75 dB CNEL allows the interior standard to be met without any specialized structural attenuation (e.g., dual paned windows), but with closed windows and fresh air supply systems or air conditioning in order to maintain a comfortable living environment.



Source: City of Seal Beach General Plan, <http://www.sealbeachca.gov/Portals/0/Documents/Noise%20Element.pdf> (accessed August 2016)

Exhibit 5 – Noise Compatibility Guidelines, Seal Beach General Plan

The City of Seal Beach limits construction activities to between the hours of 7:00 a.m. and 8:00 p.m., Mondays through Friday, and the hours of 8:00 a.m. and 8:00 p.m. on Saturday and never on Sundays or city-observed federal holidays. Construction activities that occur during allowable hours are exempt from compliance with numerical noise standards.

Seal Beach Noise Ordinance Standards

Planning standards generally apply to land use decisions made in response to noise sources pre-empted from local control such as motor vehicles, aircraft, etc. Noises from “stationary” sources are amenable to regulation through the Municipal Code. Chapter 7.15 of the City’s code governs noise from one property crossing the property line of an adjacent property. The residential noise standard is 55 dB by day and 50 dB at night for no more than 30 minutes in any hour. Deviations from the baseline are allowed for noise “spikes” for progressively shorter periods for more substantial deviations up to a maximum of 20 dB.

Seal Beach experiences two types of noise issues. In areas where residential uses abut commercial or recreational activities, noise impacts may be perceived as intrusive, especially during noise sensitive quiet hours. Complaints about restaurant music, swim school, auto-maintenance, drive-throughs, etc. may occur. There are no commercial/residential interfaces at the Project-site. Because of the small lot sizes in much of Seal Beach, mechanical equipment on one parcel may be located very close to the property line of an adjacent residential parcel. Motor hum and on/off cycling noise can be judged as intrusive. In recognition of this occasional conflict, a separate section of the Municipal Code directly addresses “Heating, Venting and Air Conditioning Equipment” (7.15.035). Modern equipment is typically quieter and less prone to causing problems. Compliance with the standards in this section of the code is nevertheless an important consideration in preventing possible noise nuisance.

Would the Project result in:

- a) **Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Less Than Significant With Mitigation Incorporated)**

A noise assessment of the Project was completed by Giroux and Associates on August 5, 2016 to determine noise impacts from the proposed Project. The noise study is included as Appendix D to this environmental document. The Project itself will not generate noise levels in excess of standards established in the General Plan.

Baseline Noise Levels

A noise study was conducted by Giroux & Associates on Monday, August 2, 2016 with short term noise readings at the Project site. Meter 1 was located along 17th Street and reflects existing traffic noise. Meter 2 was on the back of the site adjacent to the Alley. The measurement results are shown below.

Table 9 – Short-Term Noise Measurements (dB[A])

| Meter | Time | Leq | Lmax | Lmin | L ₁₀ | L ₃₃ | L ₅₀ | L ₉₀ |
|-------|-------------|-----|------|------|-----------------|-----------------|-----------------|-----------------|
| 1 | 14:45-15:00 | 49 | 56 | 42 | 51 | 48 | 47 | 45 |
| 2 | 15:05-15:20 | 52 | 60 | 45 | 54 | 52 | 50 | 47 |

The observed noise level was 49 Leq at Meter 1. Monitoring experience has shown that 24-hour weighted CNELs are typically 2-3 dB higher than mid-afternoon Leq readings shown above which would translate to 51-53 dB CNEL. The observed noise level was 52 dB Leq at Meter 2, which would correspond with a CNEL of 54-55. Both measurements are well within the recommended Seal Beach residential compatibility threshold.

Noise Significance Criteria

Noise impacts are considered significant if they result in:

- a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Standards of Significance

Noise impacts are considered significant if they expose persons to levels in excess of standards established in local general plans or noise ordinances. The exterior noise standard for the City of Seal Beach residential uses is 60 dBA CNEL in usable outdoor space such as backyards, decks, and patios. If required, attenuation through setback and project perimeter barriers is anticipated to be used to reduce traffic noise to the 60 dBA CNEL goal. However, an inability to achieve this goal through the application of reasonably available mitigation measures would be considered a significant impact.

Impacts may also be significant if they create either a substantial permanent or temporary increase. The term “substantial” is not quantified in CEQA guidelines. In most environmental analyses, “substantial” is taken to mean a level that is clearly perceptible to humans. In practice, this is at least a +3 dB increase. Some agencies, such as Caltrans, require substantial increases to be +10 dB or more if noise standards are not exceeded by the increase. For purposes of this analysis, a +3 dB increase is considered a substantial increase. The following noise impacts due to Project-related traffic would be considered significant:

1. If construction activities were to audibly intrude into adjacent residential areas during periods of heightened noise sensitivity.
2. If project traffic noise were to cause an increase by a perceptible amount (+3 dB CNEL) or expose receivers to levels exceeding city compatibility noise standards.
3. If future build-out noise levels were to expose Seal Beach sensitive receivers to levels exceeding compatibility standards of 60 dB CNEL exterior at any outdoor uses or 45 dB CNEL interior noise levels in any habitable space.

Construction Noise Impacts

The Seal Beach Noise Ordinance regulates construction noise by a prohibition against making “unnecessary” noise from construction during noise-sensitive weekday hours and all day on Sundays.

Temporary construction noise impacts will vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used and its activity level. Short-term construction noise impacts tend to occur in discrete phases dominated initially by demolition of roadway surfaces and earth-moving sources. Construction activities are treated separately in various community noise ordinances because they do not represent a chronic, permanent noise source.

Demolition and construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used which changes during the course of the Project. Construction noise tends to occur in discrete phases dominated initially by demolition and/or earth-moving sources and later for finish construction. Exhibit 6 shows the typical range of construction activity noise generation as a function of equipment used in various building phases. The earth-moving sources are seen to be the noisiest with equipment noise ranging up to about 90 dB(A) at 50 feet from the source. Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance, or about 20 dB in 500 feet of propagation. The loudest earth-moving noise sources may therefore sometimes be detectable above the local background beyond 1,000 feet from the construction area. An impact radius of 1,000 feet or more pre-supposes a clear line-of-sight and no other machinery or equipment noise that would mask Project construction noise. With buildings and other barriers to interrupt line-of-sight conditions, the potential "noise envelope" around individual construction sites is reduced. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions.

As discussed, the City's Municipal Code limits construction activities to between the hours of 7:00 a.m. and 8:00 p.m., Mondays through Friday, and the hours of 8:00 a.m. and 8:00 p.m. on Saturday and never on Sundays or city-observed federal holidays. Construction activities that occur during allowable hours are exempt from compliance with numerical noise standards during daytime hours.

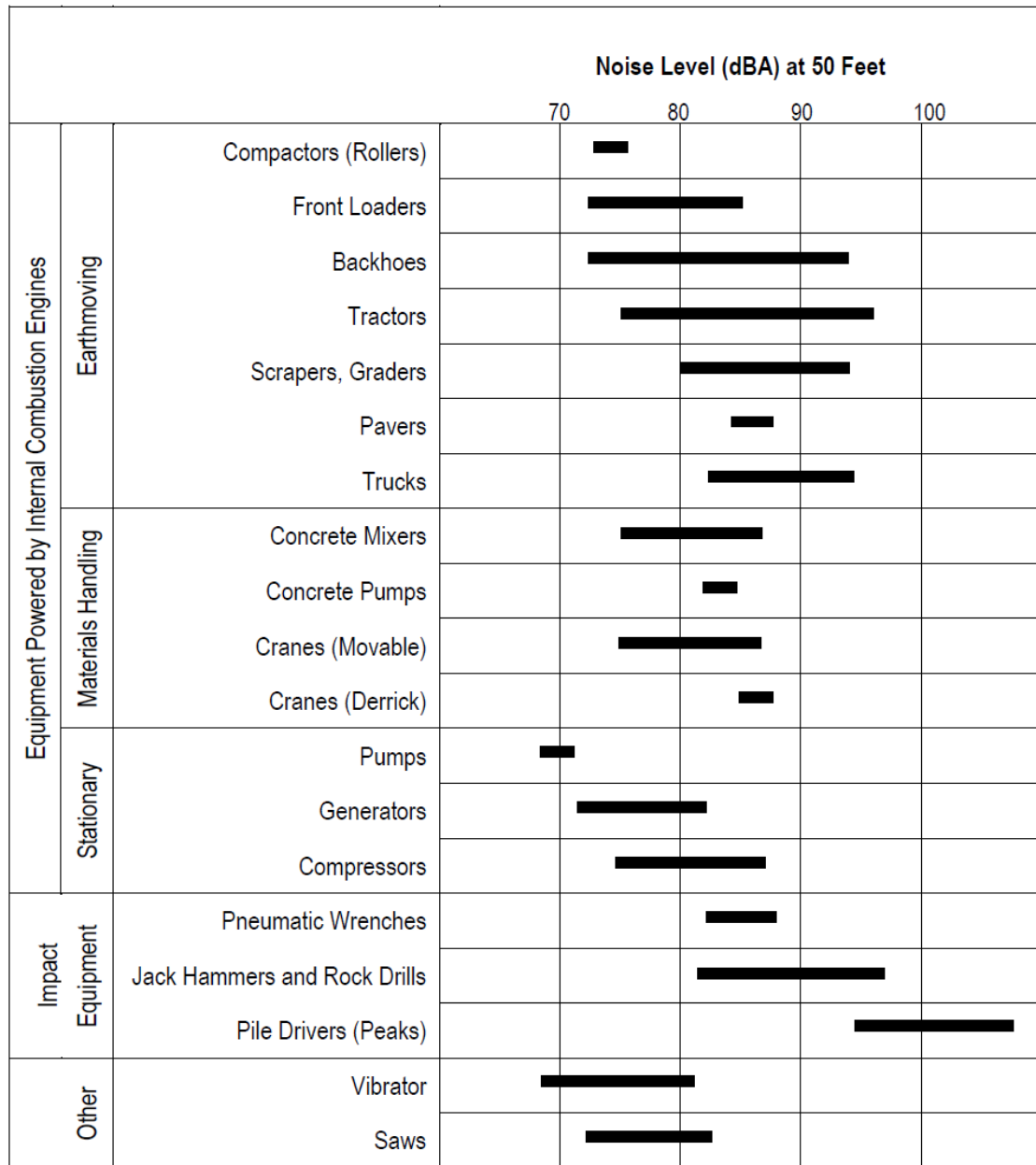
These time of day restrictions would be effective since it would prohibit construction noise during the hours when people normally sleep and would prohibit construction noise during the early morning and evening when people are typically within their home and more sensitive to noise effects. In addition, noise levels would be temporary and intermittent. Although construction noise impacts may be noticeable at the adjacent residences and viewed as a temporary nuisance, impacts would be less than significant.

Mitigation Measure 6– The City and the general contractor shall be responsible for limiting construction activities to 7:00 a.m. to 6:00 p.m. Monday through Friday. No noise-generating construction activities shall occur on Saturdays, Sundays and federal holidays.

Mitigation Measure 7 – The City and the general contractor shall ensure that stockpiling and staging activities should be located as far as practicable from dwellings and all mobile equipment shall have properly operating and maintained mufflers.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? (Less Than Significant Impact)

See response to Item 12.a) above and Mitigation Measure 6.



Source: EPA PB 206717, Environmental Protection Agency, December 31, 1971, "Noise from Construction Equipment and Operations."

Exhibit 6 – Typical Construction Equipment Noise Generation Levels

c) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the project? (Less Than Significant Impact)

Ground-borne vibration occurs when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the “soft” sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (FTA 2006).

Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

The vibration descriptor commonly used to determine structural damage is the peak particle velocity (ppv) which is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in inches per second. The range of such vibration is as follows in Table 10.

Table 10 – Human Response to Transient Vibration

| Average Human Response | Peak Particle Velocity (inches per second) |
|------------------------|---|
| Severe | 2.000 |
| Strongly perceptible | 0.900 |
| Distinctly perceptible | 0.240 |
| Barely perceptible | 0.035 |

Source: Caltrans Transportation and Construction Vibration Guidance Manual, 2013

Over the years, numerous vibration criteria and standards have been suggested by researchers, organizations, and governmental agencies. There are no Caltrans or Federal Highway Administration standards for vibration.

The American Association of State Highway and Transportation Officials (AASHTO) Standard R 8-96 describes three general categories of damage to buildings from vibration: 1) threshold cracking; 2) architectural or minor damage; and 3) major damage. Both “threshold” and “minor” damage include cracks in room interior surfaces that do not affect the strength or structural integrity of the structure. The term “threshold cracking” is defined as the highest vibration amplitude at which no cosmetic, minor, or major damage occurs. This may include “threshold cracks” as hairline cracks in room walls that occur at the lowest vibration amplitudes. Based on the AASHTO guidelines, a threshold damage criterion of 0.5 inches per second PPV is appropriate to evaluate vibration impacts by transient and irregular sources. This threshold is applied in this analysis for transient vibration.

The closest project structures on-site (Lot 1) could be located as little as 10 feet from an existing residential building. Maximum vibration levels that could be generated by construction equipment operating at the project boundary are presented in Table 11.

Table 11 – Estimated Vibration Levels During Project Construction

| Equipment | PPV at 25 feet (in/sec) | PPV at 10 feet (in/sec) | PPV at 40 feet (in/sec) | PPV at 100 feet (in/sec) | PPV at 150 feet (in/sec) |
|-----------------|----------------------------|----------------------------|----------------------------|-----------------------------|-----------------------------|
| Large Bulldozer | 0.089 | 0.352 | 0.044 | 0.011 | 0.006 |
| Loaded trucks | 0.076 | 0.300 | 0.038 | 0.010 | 0.005 |
| Jackhammer | 0.035 | 0.138 | 0.017 | 0.004 | 0.002 |
| Small Bulldozer | 0.003 | 0.012 | 0.001 | <0.001 | <0.001 |

Source: FHWA Transit Noise and Vibration Impact Assessment

The calculation to determine PPV at a given distance is:

$$PPV_{distance} = PPV_{ref} * (25/D)^{1.5}$$

Where:

PPV_{distance} = the peak particle velocity in inches/second of the equipment adjusted for distance,

PPV_{ref} = the reference vibration level in inches/second at 25 feet, and

D = the distance from the equipment to the receiver.

Based on the Federal Transit Administration (FTA) data, vibration velocities from typical heavy construction equipment operation that would be used during project construction would range from 0.003 to 0.089 inches per second (in/sec) peak particle velocity (PPV) at 25 feet from the source of activity. At 10 feet from the source activity, vibration velocities would range from 0.012 to 0.352 inches per second PPV. However, the size and density of the site and limited setback distance to the property line would not allow for a large bulldozer or loaded truck at the Project boundary. Similarly, a jackhammer would not likely be used directly at the site-boundary. A small bulldozer could create levels of up to 0.012 PPV at 10 feet. Therefore, vibration levels associated with operation of heavy construction equipment at the Project boundary are not expected to exceed the 0.5 inches per second PPV threshold for cosmetic damage from transient vibration. There is no significant impact and no need for mitigation.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (Less Than Significant Impact with Mitigation Incorporated)

There will be short-term increases in ambient noise levels above levels existing without the Project due to construction activities at the site. However, these temporary increases can be mitigated by limiting the hours of construction in accordance with City regulations. Mitigation is presented in Item 12.a).

The Project site is also exposed to traffic noise from 17th Street and the rear alley. Noise measurements demonstrated a CNEL of 52 dB CNEL along the 17th Street alignment. Although traffic may increase in the future, the area is mostly built out with only smaller infill projects planned. It would take a doubling of traffic volume to create a +3 dB increase in noise due to the logarithmic nature of noise. Therefore, even if traffic along 17th Street were to double, there still would not be an impediment to the proposed residential uses.

In addition to meeting the exterior noise compatibility standard the residences must also be able to achieve the 45 dB CNEL interior noise threshold. For typical wood-framed construction with stucco and gypsum board wall assemblies, the exterior to interior noise level reduction is as follows:

- Partly open windows – 12 dB
- Closed single-paned windows – 20 dB
- Closed dual-paned windows – 30 dB

Use of dual-paned windows is required by the California Building Code (CBC) for energy conservation in new residential construction. Interior standards will be met even with open windows. There is no need for mitigation to achieve the suggested 45 dB CNEL interior noise threshold.

HVAC Equipment

Section 7.15.035 of the Municipal Code contains the following HVAC noise restrictions:

- A. No building permit shall be issued for the installation of heating, venting and air conditioning ("HVAC") equipment in or adjacent to residential areas if the noise produced by the HVAC equipment exceeds an A-weighted exterior sound pressure level of 50 db(A). The method of computation used shall be that specified in the "Application of Sound Rating Levels of Outdoor Unitary Equipment," Standard 275, Air-Conditioning and Refrigeration Institute, 1997 ed. or the latest revision thereof.
- B. Notwithstanding subsection A of this section, a building permit may be issued for the installation of:
 1. HVAC equipment containing a timing device deactivating the HVAC equipment between the hours of 10:00 p.m. and 7:00 a.m. provided the noise produced by the HVAC equipment does not exceed an A-weighted exterior sound pressure level of 55 db(A).
 2. HVAC equipment generating noise that does not exceed an A-weighted exterior sound pressure level of 65 db(A), provided that the applicant obtains the prior written consent of the owner of each property where the exterior sound pressure level would exceed 55 db(A). (Ord. 1551; Ord. 1515).

Proposed HVAC equipment for the new residential buildings must meet these noise thresholds at the nearest property line.

The following mitigation measure is proposed to assure that HVAC equipment associated with the Project on 17th Street is compatible with City Code and neighborhood noise sensitivity.

Mitigation Measure 8 – The applicant shall submit documentation to the City of Seal Beach that any HVAC equipment installed on the proposed residential structures meets the requirements of Section 7.15.035 of the Seal Beach Municipal Code and that either a timing device has been placed on the equipment or the applicant has obtained prior written consent from each adjacent property owner where the exterior sound pressure level would exceed 55 db(A). (Ord. 1551; Ord. 1515).

With implementation of this mitigation measure, any impact from HVAC equipment on the new residential structures should be reduced to a less than significant level.

Site Operational Noise

The Project proposes residential uses. Residential noise is considered passive and is not expected to create a noise nuisance for any existing surrounding residential uses. Therefore, there will not be a substantial increase in ambient noise levels above the existing environment without the Project.

- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (No Impact)**

The Project is located within an airport environs land use plan for the Los Alamitos Joint Forces Training Center. However, the land use designation in this area relates to building height, and there will be no impact and to no people working at the Project site who will be exposed to excessive noise levels from aircraft.

- f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? (No Impact)**

The Project is not located within the vicinity of a private airstrip nor would the Project expose people to excessive noise levels. Therefore, there are no Project impacts associated with a private airstrip.

13. Population and Housing

The Population and Housing section considers the impact of the proposed Project on population growth within the Project area and whether the Project would displace substantial numbers of people necessitating construction of new housing elsewhere.

Would the Project:

- a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (Less Than Significant Impact)**

The Project consists of consolidation of lots leading to construction of four residential dwelling units at 232 through 244 17th Street in the City of Seal Beach. The Project would not induce substantial population growth in the Project area.

No new or unanticipated significant infrastructure will be required for the Project. Therefore, due to the limited nature of the Project it is not anticipated that the Project will induce substantial population growth in the area, either directly or indirectly. Impact to this area is, therefore, less than significant.

- b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? (No Impact)**

The Project proposes to remove an existing duplex on the Project site, which will be replaced by four new residential units. Therefore, the Project will not displace substantial numbers of existing housing.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? (No Impact)

See response to Item 13.b) above. The Project will not result in the displacement of substantial numbers of people and/or housing. The Project will not displace substantial numbers of people, necessitating the construction of replacement housing.

14. Public Services

The Public Services section of the document evaluates the impact of the proposed Project on public services provided by the City of Seal Beach or other agencies.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government 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:

i. Fire protection? (No Impact)

The Orange County Fire Authority provides fire protection and emergency response services for the City. Response times to the Project site are dependent on various factors. Response time is generally 5 minutes or less. Emergency calls receive the quickest response times with alarm calls and non-emergency calls having longer response times respectively. The availability of personnel and extenuating circumstances may further affect response times. The closest fire station to the property is located at 718 Central Avenue in Seal Beach, about one-half mile from the Project site in the downtown. The proposed Project will not result in any potential significant increase in the number of calls for service to the area beyond that anticipated per the build out of the City's General Plan. Therefore, it is not anticipated that the proposed Project will result in any significant impacts relative to fire protection services and/or facilities.

ii. Police protection? (No Impact)

The City of Seal Beach Police Department provides law enforcement services to the Project area. The Project involves consolidation of parcels at 232 through 244 17th Street in the City of Seal Beach. The improvements are not anticipated to result in an increase in calls for service beyond that anticipated in the City of Seal Beach General Plan. Therefore, there are no impacts from the Project.

iii. Schools? (No Impact)

The Project involves consolidation of parcels at 232 through 244 17th Street in the City of Seal Beach. The Project would not increase students in the area. The Project would minimally affect school population. Therefore, the Project is not anticipated to have an impact on schools.

iv. Parks? (No Impact)

The Project involves consolidation of parcels leading to the construction of four new residential units. The improvements will not necessitate new park requirements or impact park facilities in the City. Therefore, the Project will have no impact on park facilities.

v. Other public facilities? (No Impact)

See above responses under Public Services. Due to the type of Project, it is not anticipated that the Project will have any significant impact on public services and/or facilities.

15. Recreation

The Recreation section analyzes whether the proposed Project would trigger the need for additional recreational facilities within the community. The section also evaluates the impact on use of existing neighborhood or regional parks.

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? (No Impact)

The proposed Project consists of consolidating parcels in preparation for the development of four new residential units at 232 through 244 17th Street in the city of Seal Beach. It is not anticipated that the Project will have any impacts on recreation beyond that already projected for build out of the City per the General Plan. Additionally, the Project is ultimately only four new residential units and would not be expected to significantly increase usage of existing neighborhood and regional parks. Therefore, no impacts to park facilities will occur as a result of this Project.

b) Does the project include recreational facilities or require the construction of or expansion of recreational facilities which might have an adverse physical effect on the environment? (No Impact)

See response to Item 15.a) above. It is not anticipated that the Project will result in any significant impacts to recreational facilities.

16. Transportation/Traffic

The Transportation/Traffic section of the environmental document evaluates whether the Project creates conflicts with the effectiveness of the existing transportation network, any congestion management plan, or creates any design flaws that would substantially increase transportation hazards.

Would the Project:

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

The Project involves the consolidation of several parcels in anticipation of development of four new residential units at 232 through 244 17th Street in the City of Seal Beach. The Project area is a residential neighborhood and the Project is consistent with the General Plan Land Use Designation and Zoning on the properties. There are no applicable plans, ordinances, or policies establishing measures of effectiveness for the circulation system with which this Project would conflict.

Therefore, less than significant impacts are anticipated from this Project affecting the circulation system or any modes of transportation.

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

See response to Item 16.a) above. The Orange County Transportation Authority is the designated Congestion Management Agency for Orange County. The Congestion Management Program network includes State Route 1 (Pacific Coast Highway) in the City of Seal Beach. The proposed Project will not impact levels of services standards established by the Congestion Management Agency for Pacific Coast Highway. Therefore, less than significant impacts would result due to the implementation of the Project.

- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? (No Impact)**

See response to Item 16.a) above for analysis. Additionally, the Project does not have any impact on existing and/or planned air traffic (or safety risks) because it is under the height limit restriction imposed by its proximity to Los Alamitos Joint Forces Training Facility. Therefore, there are no impacts that would trigger a change in air traffic patterns.

- d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (No Impact)**

See response to Item 16.a) above. The Project does not propose any design features relative to curves, intersections, or incompatible uses.

- e) Result in inadequate emergency access? (No Impact)**

See response to Item 16.a) above. The Project does not propose to change any emergency access in the City of Seal Beach. Therefore, no significant impacts regarding emergency access are anticipated as a result of the Project.

- f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? (No Impact)**

See response to Item 16.a) above. The proposed Project will not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities.

The Orange County Transportation Authority (OCTA) provides public transportation services in Orange County, including Seal Beach. Bus routes (OCTA Bus Route 1) operate along State Route 1 (Pacific Coast Highway) and (Route 42A) operate along Seal Beach Boulevard and Pacific Coast Highway/Downtown. The Project is not expected to negatively impact any current facility, service or service expansion plans for the Project area and/or site. Therefore, the Project will not conflict with adopted policies, plans, or programs supporting alternative transportation.

17. Utilities and Service Systems

The Utilities and Service Systems section evaluates the proposed Project's impacts on utilities and provision of municipal waste management services. Specifically, the section analyzes whether the

proposed Project would trigger the need for additional facilities or whether capacity exists to support the Project.

Would the Project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (Less Than Significant Impact)

The Project is not anticipated to produce any significant wastewater since it is a consolidation of several parcels in anticipation of the construction of four new residential units. Any impacts of the four residential units are covered by the buildout capacity of the City of Seal Beach General Plan, which projected capacity to handle development within Zoning and General Plan designations. Therefore, it is not anticipated that the proposal will result in any significant impact relative to wastewater or treatment requirements.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (No Impact)

See response to Item 17.a) above. The Project will not result in the significant alteration or expansion of existing utility and service systems since the site is proposed for development of four residential units that would replace a duplex on the property slated for demolition as part of the Project. The Project does not create any additional burden on these facilities that would require construction or new or expanded facilities. Therefore, the Project will have no impact on existing new water or wastewater treatment facilities.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (Less Than Significant Impact)

The Project involves consolidation of several parcels at 232 through 244 17th Street in anticipation of developing four new residential units on a property that currently includes a triplex. The proposed Project is not expected to generate significant storm water due to the minimal change in the property's impervious surfaces. The Project will include reconstruction of catch basins and connector pipes, but would not expand existing off-site facilities. The properties drain to the alley behind the properties and then drain to Landing Avenue and the local storm drain system. Therefore, the Project will result in less than significant impacts to the storm water drainage facilities.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? (No Impact)

See response to Item 17.a) above. Water is supplied to the City of Seal Beach through the Municipal Water District of Orange County by imported water sources purchased from the Metropolitan Water District. The Project proposes only improvements to an existing residentially-zoned property. The Project does not represent any development that would significantly increase water use. The Project will comply with all applicable city, state and municipal laws pertaining to water conservation as required through City standard conditions of approval. Therefore, no impacts to this topical area will occur.

- e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (Less Than Significant Impact)**

See response to Item 17.a) above. The Project will not result in any significant impacts to wastewater treatment.

- f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (Less Than Significant Impact)**

The Project site is located at 232 through 244 17th Street in the City of Seal Beach. The Project is not anticipated to generate significant solid waste since it ultimately proposes four new residential units in place of an existing duplex slated for demolition. Minor solid waste generated on the site during construction will be handled through the traditional solid waste collection system in place in the City of Seal Beach and it is not expected to be significant. Republic Services provides solid waste collection and recycling services in the City of Seal Beach. Any solid waste generated during Project construction will be handled according to City solid waste disposal and recycling requirements. Therefore, the Project itself will not have any significant impact on solid waste disposal.

- g) Comply with federal, state, and local statutes and regulations related to solid waste? (Less Than Significant Impact)**

See response to Item 17.f) above. The Project itself will comply with federal, state and local statutes on solid waste disposal.

18. Mandatory Findings of Significance

This section includes questions designed to ferret out whether the proposed Project has effects significant enough to impact the environment negatively. It also addresses the issues of short-term versus long-term environmental goals and cumulative impacts of proposed projects.

- a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? (No Impact)**

On the basis of the foregoing analysis, the proposed Project does not have the potential to significantly degrade the quality of the environment. The Project site does not contain any habitat of fish or wildlife species that would be impacted by the Project. The site is located in an urbanized setting. The proposed Project consists of consolidation of parcels in anticipation of construction of four new residential units. The property is currently developed with the existing residences and sidewalks. The subject property is located in an area developed with existing uses including residential units. The Project is compatible with the surrounding land uses. The Project will not impact any sensitive nor special status habitat and/or wildlife species.

b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals? (No Impact)

The site is located in a developed area that already provides infrastructure to support the proposed Project. There are no long-term environmental goals that would be compromised by the Project. The Project does not have the potential to achieve short-term goals to the disadvantage of long-term goals.

c) 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)? (No Impact)

The Project is a consolidation of parcels at 232 through 244 17th Street in the City of Seal Beach. The ultimate proposed Project of four new residential units replaces an existing duplex on the property that will be torn down. The Project does not have impacts that are cumulatively considerable. The Project is consistent with the zoning on the property.

d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (No Impact)

There are no known substantial adverse effects on human beings that would be caused by the proposed Project. The Project is consistent with the land uses in the Project area and the environmental evaluation has concluded that no adverse significant environmental impacts will result from the Project.

Source List

The following enumerated documents are available at the offices of the City of Seal Beach, Community Development Department, 211 Eighth Street, Seal Beach, California 90740.

1. City of Seal Beach General Plan Policies, Adopted 12/03
2. California Environmental Quality Act as amended January 1, 2016. §§21000-21178 of the *California Public Resources Code*.
3. Guidelines for California Environmental Quality Act as amended January 1, 2016 §15000-15387 of the *California Code of Regulations*, Title 14, Chapter 3, State of California.
4. City of Seal Beach Land Use Element, Adopted 12/03.
5. City of Seal Beach Open Space/Conservation Element Adopted 12/03
6. City of Seal Beach Noise Element, Adopted 12/03
7. City of Seal Beach Circulation Element, Adopted 12/03
8. Zoning Map, City of Seal Beach.
9. Air Quality Impact Analysis, prepared by Giroux & Associates,
10. Noise Impact Analysis prepared by Giroux and Associates.
11. Federal Flood Insurance Rate Map, Panel No. 06059C-0226J, 2009.
12. <https://geotracker.swrcb.ca.gov>
13. City of Seal Beach Safety Element, Adopted 12/03

Appendix A – Environmental Checklist

Environmental Checklist Form

Introduction

This Initial Study has been prepared pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines as amended to determine if the proposed Project at 232 through 244 17th Street in the City of Seal Beach (City) will have the potential to cause significant effects on the environment. The City of Seal Beach will use the Initial Study in deciding whether to approve the Project and whether to prepare an Environmental Impact Report (EIR), approve a Negative Declaration (ND), or approve a Mitigated Negative Declaration (MND) with mitigation measures.

Project Background

- a) Project Title:
232 through 244 17th Street Properties
- b) Lead Agency Name and Address:
City of Seal Beach
211 Eighth Street
Seal Beach, CA 90740
- c) Contact Person and Phone Number:
Steven Fowler, Assistant Planner
City of Seal Beach
211 Eighth Street
Seal Beach, CA 90740
(562) 431-2527, ext. 1316
- d) Project Location:
The Project is located at 232 through 244 17th Street in the City of Seal Beach, Orange County, California.
- e) Project Sponsor's Name and Address:
JCC Seal Beach LLC
2632 W. 237th Street, Suite 201
Torrance, CA 90505
- f) General Plan Designation:
Residential High Density
- g) Zoning:
"RHD-20" Residential High Density Zone

- h) **Description of Project:** (Describe the whole action involved, including but not limited to later phases of the Project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

The basic Project consists of a Tentative Tract Map proposed at 232 through 244 17th Street in the City of Seal Beach. The site is 0.52 acres. The proposed subdivision will consolidate three existing legal parcels and create five parcels out of existing odd-shaped lots that included a government-owned diagonal railroad easement through the properties. There will be four new 28.125-foot-wide lots and one 112.5-foot-wide lot. All lots are 100 feet deep. The Project site was sold at auction in 2014. The proposed map contemplates that one single family residential structure will be built on each of four 28.125-foot-wide lots, with the fifth lot to be left as is. An existing triplex will be torn down, but the larger lot has a structure that will remain.

- i) **Surrounding Land Uses and Setting:**

Surrounding and nearby land uses to the Project site include residential areas and streets.

- j) **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)**

California Regional Water Quality Control Board
California Coastal Commission
Orange County Fire Authority

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

Determination

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

| | |
|---|-------------------------------------|
| I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. | <input type="checkbox"/> |
| I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. | <input checked="" type="checkbox"/> |
| I find that the proposed Project MAY have a significant effect on the environment, and ENVIRONMENTAL IMPACT REPORT is required. | <input type="checkbox"/> |
| I find that the proposed Project MAY have a significant effect(s) 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, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. | <input type="checkbox"/> |
| 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 all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required. | <input type="checkbox"/> |

Submitted by: City of Seal Beach

Prepared by: Hodge & Associates

William E. Hodge
Hodge & Associates

Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project screening analysis).
2. All answers must take account the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence then an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration, Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a. Earlier Analysis Used. Identify and state where they are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on earlier analysis.
 - c. Mitigation Measures. For effects that are “Less Than Significant With Mitigation Incorporated,” describes the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). References to a previously prepared or outside documents should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and the lead agencies are free to use different formats; however, lead agency should normally address the questions from the checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a. the significance criteria or threshold, if any, used to evaluate each question; and
 - b. the mitigation measure identified, if any, to reduce the impact to less than significance.

City of Seal Beach Environmental Checklist

| | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------------|---|-------------------------------------|-------------------------------------|
| I. AESTHETICS | | | | |
| Would the project: | | | | |
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| II. AGRICULTURE AND FORESTRY RESOURCES | | | | |
| Would the project: | | | | |
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| III. AIR QUALITY | | | | |
| Would the project: | | | | |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Violate any air quality standard or contribute to an existing or projected air quality violation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------------|---|-------------------------------------|-------------------------------------|
| IV. BIOLOGICAL RESOURCES | | | | |
| Would the project: | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| V. CULTURAL RESOURCES | | | | |
| Would the project: | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| VI. GEOLOGY AND SOILS | | | | |
| Would the project: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| ii) Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iii) Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iv) Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less than Significant Impact | No Impact |
|--|--------------------------------------|---|-------------------------------------|-------------------------------------|
| d) Be located on expansive soil, as defined in Table 18- 1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Have soils incapable of adequately supporting the use septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| VII. GREENHOUSE GAS EMISSIONS | | | | |
| Would the project: | | | | |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| VIII. HAZARDS AND HAZARDOUS MATERIALS | | | | |
| Would the project: | | | | |
| a) Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Be located on a site which is included on a list of hazardous materials sites which complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------------|---|-------------------------------------|-------------------------------------|
| IX. HYDROLOGY AND WATER QUALITY | | | | |
| Would the project: | | | | |
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of a course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f) Otherwise substantially degrade water quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| X. LAND USE AND PLANNING | | | | |
| Would the proposal: | | | | |
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XI. MINERAL RESOURCES | | | | |
| Would the project: | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------------|---|-------------------------------------|-------------------------------------|
| XII. NOISE | | | | |
| Would the project result in: | | | | |
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) A 1substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) For a project located within an airport land use land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XIII. POPULATION AND HOUSING | | | | |
| Would the project: | | | | |
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XIV. PUBLIC SERVICES | | | | |
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------------|---|-------------------------------------|-------------------------------------|
| XV. RECREATION | | | | |
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Does the project include recreational facilities or require the construction of or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XVI. TRANSPORTATION/TRAFFIC | | | | |
| Would the project: | | | | |
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XVII. UTILITIES AND SERVICE SYSTEMS | | | | |
| Would the project: | | | | |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|--------------------------------------|---|-------------------------------------|-------------------------------------|
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| XVIII. MANDATORY FINDINGS OF SIGNIFICANCE | | | | |
| A) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major period of California history or prehistory? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (<i>"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.</i>) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XIX. EARLIER ANALYSES

Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D).

In this case a discussion should identify the following on attached sheets:

- Earlier analyses used. Identify earlier analyses and state where they are available for review.
- Impacts adequately addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
- Mitigation measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

Source List

The following enumerated documents are available at the offices of the City of Seal Beach, Community Development Department, 211 Eighth Street, Seal Beach, California 90740.

1. City of Seal Beach General Plan Policies, Adopted 12/03
2. California Environmental Quality Act as amended January 1, 2016. §§21000-21178 of the *California Public Resources Code*.
3. Guidelines for California Environmental Quality Act as amended January 1, 2016 §15000-15387 of the *California Code of Regulations*, Title 14, Chapter 3, State of California.
4. City of Seal Beach Land Use Element, Adopted 12/03.
5. City of Seal Beach Open Space/Conservation Element Adopted 12/03
6. City of Seal Beach Noise Element, Adopted 12/03
7. City of Seal Beach Circulation Element, Adopted 12/03
8. Zoning Map, City of Seal Beach.
9. Air Quality Impact Analysis, prepared by Giroux & Associates,
10. Noise Impact Analysis prepared by Giroux and Associates.
11. Federal Flood Insurance Rate Map, Panel No. 06059C-0226J, 2009.
12. <https://geotracker.swrcb.ca.gov>
13. City of Seal Beach Safety Element, Adopted 12/03

Appendix B – Mitigation Monitoring and Reporting Program

City of Seal Beach
Mitigation Monitoring and Reporting Program Summary
232 through 244 17th Street Project

| No. | Mitigation Measures | Implementation Action | Method of Verification | Timing of Verification | Responsible Person | Verification Date |
|-----------------------------|--|-----------------------|--------------------------------|--------------------------------|--------------------|-------------------|
| Air Quality | | | | | | |
| 1 | During construction activities, the contractor shall ensure that measures are complied with to reduce short-term (construction) air quality impacts associated with the project: a) controlling fugitive dust by regular watering or other dust palliative measures (such as covering stock piles with tarps) to meet South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust); b) maintaining equipment engines in proper tune and establishing a preference for contractors using Tier-3-rated or better heavy equipment; c) enforce 5-minute idling limits for both on-road trucks and off-road equipment; d) provide water spray during loading and unloading of earthen materials; e) cover all trucks hauling dirt, sand or loose material or require all trucks to maintain at least two feet of freeboard; and f) sweep streets daily if visible soil material is carried out from construction site. | Condition of Approval | Field Inspections as necessary | During construction activities | Public Works Dept. | |
| 2 | During construction activities, the project contractor shall ensure that the project will comply with SCAQMD Rule 402 (Nuisance) Rule 402 prohibits the discharge from any source quantities of air contaminants or other material which would cause injury, detriment, nuisance, or annoyance to any considerable number of persons, the public, or damage to business or property. | Condition of Approval | Field Inspections as necessary | During construction activities | Public Works Dept. | |
| Biological Resources | | | | | | |
| 3 | If tree clearing is scheduled to begin during the nesting season (February 1 to September 15), a qualified biologist shall be retained to survey the trees to determine the presence of any active bird nests in the trees prior to their removal. If nests are identified, removal of the trees should not proceed until after the nesting season concludes on September 15. | Condition of Approval | Plan Check | Prior to demolition activities | Public Works Dept. | |

| No. | Mitigation Measures | Implementation Action | Method of Verification | Timing of Verification | Responsible Person | Verification Date |
|--|---|-----------------------|-----------------------------|------------------------|--------------------|-------------------|
| Hazards and Hazardous Materials | | | | | | |
| 4 | Prior to demolition of the existing residential structures on the Project site, the contractor shall survey the structures to determine the presence of any hazardous substances such as asbestos or lead-based paint. If such materials are present, they will be remediated using mandatory procedures specified by the SCAQMD (Rule 4102, Asbestos Emissions from Demolition/Renovation Activities) and state air toxics agencies. | Condition of Approval | Field Review | During construction | Public Works Dept | |
| Hydrology and Water Quality | | | | | | |
| 5 | Prior to construction activities, a Water Quality Management Plan (WQMP) will be prepared pursuant to the requirements of the Orange County DAMP and the State Regional Water Quality Control Board. | Condition of Approval | Plan Check and Field Review | Prior to construction | Public Works Dept. | |
| Noise | | | | | | |
| 6 | The City and the general contractor shall be responsible for limiting construction activities to 7:00 a.m. to 6:00 p.m. Monday through Friday. No noise-generating construction activities shall occur on Saturdays, Sundays and federal holidays. | Condition of Approval | Field Review | During construction | Public Works Dept. | |
| 7 | The City and the general contractor shall ensure that stockpiling and staging activities should be located as far as practicable from dwellings and all mobile equipment shall have properly operating and maintained mufflers. | Condition of Approval | Field Review | During construction | Public Works Dept. | |
| 8 | The applicant shall submit documentation to the City of Seal Beach that any HVAC equipment installed on the proposed residential structures meets the requirements of Section 7.15.035 of the Seal Beach Municipal Code and that either a timing device has been placed on the equipment or the applicant has obtained prior written consent from each adjacent property owner where the exterior sound pressure level would exceed 55 db(A). (Ord. 1551; Ord. 1515). | Condition of Approval | Field Review | During construction | Public Works Dept. | |

Appendix C – Air Quality/GHG Analysis

AIR QUALITY and GHG IMPACT ANALYSES

TPM 17925 (17TH ST)

SEAL BEACH, CALIFORNIA

Prepared by:

Giroux & Associates
1800 E Garry St., #205
Santa Ana, CA 92705

Prepared for:

Hodge & Associates
Attn: Bill Hodge
P. O. Box 2842
Palm Desert, CA 92261

Date:

August 5, 2016

Project No.: P16-052 A

ATMOSPHERIC SETTING

The project site's climate, as with all Southern California, is dominated by the strength and position of the semi-permanent high pressure pattern over the Pacific Ocean near Hawaii. It creates cool summers, mild winters, and infrequent rainfall. It drives the cool daytime sea breeze, and it maintains comfortable humidities and ample sunshine after the frequent morning clouds dissipate. Unfortunately, the same atmospheric processes that create the desirable living climate combine to restrict the ability of the atmosphere to disperse the air pollution generated by the large population attracted in part by the desirable climate. Portions of the Los Angeles Basin therefore experience some of the worst air quality in the nation for certain pollutants.

Temperatures in the City of Seal Beach average 61 degrees annually. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby oceanic thermal reservoir. In contrast to the steady temperature regime, rainfall is highly variable. Measurable precipitation occurs mainly from early November to mid-April, but total amounts are generally small. Seal Beach averages 12 inches of rain annually with January as the wettest month.

Winds in the project vicinity display several characteristic regimes. During the day, especially in summer, winds are from the south in the morning and from the west in the afternoon. Daytime wind speeds are 7 – 9 miles per hour on average. At night, especially in winter, the land becomes cooler than the ocean, and an off-shore wind of 3-5 miles per hour develops. Early morning winds are briefly from the south-east parallel to the coastline before the daytime on-shore flow becomes well established again. One other important wind regime occurs when high pressure occurs over the western United States that creates hot, dry and gusty Santa Ana winds from the north and northeast across Seal Beach.

The net effect of the wind pattern on air pollution is that any locally generated emissions will be carried offshore at night, and toward inland Orange County by day. Daytime ventilation is much more vigorous. Unless daytime winds rotate far into the north and bring air pollution from developed areas of the air basin into Seal Beach, warm season air quality is much better in the project vicinity than in inland valleys of the air basin. Both summer and winter air quality in the project area is generally good.

In addition to winds that control the rate and direction of pollution dispersal, Southern California is notorious for strong temperature inversions that limit the vertical depth through which pollution can be mixed. In summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a giant lid over the basin. Air starting onshore at the beach is relatively clean, but becomes progressively more polluted as sources continue to add pollution from below without any dilution from above. Because of Seal Beach's location relative to the ocean, the incoming marine air during warm season onshore flow contains little air pollution. Local air quality is not substantially affected by the regional subsidence inversions.

A second inversion type forms on clear, winter nights when cold air off the mountains sinks to the surface while the air aloft remains warm. This process forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as automobile exhaust near their source. During the long nocturnal drainage flow from land to sea, the exhaust pollutants continually accumulate within the shallow, cool layer of air near the ground. Some areas of Orange County thus may experience elevated levels of carbon monoxide and nitrogen oxides because of this winter radiation inversion condition. However, the coastal areas of Orange County have not substantially been affected by limited nocturnal mixing effects (no elevated levels of CO) in approximately 10 years. Both types of inversions occur throughout the year to some extent, but the marine inversions are very dominant during the day in summer, and radiation inversions are much stronger on winter nights when nights are long and air is cool. The governing role of these inversions in atmospheric dispersion leads to a substantially different air quality environment in summer in the South Coast Air Basin than in winter.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the proposed project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule, which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to "non-attainment" for the 8-hour ozone standard.

Table 1

| Ambient Air Quality Standards | | | | | | |
|--|-------------------------|------------------------------------|--|---|-----------------------------------|---|
| Pollutant | Averaging Time | California Standards ¹ | | National Standards ² | | |
| | | Concentration ³ | Method ⁴ | Primary ^{3,5} | Secondary ^{3,6} | Method ⁷ |
| Ozone (O ₃) ⁸ | 1 Hour | 0.09 ppm (180 µg/m ³) | Ultraviolet Photometry | — | Same as Primary Standard | Ultraviolet Photometry |
| | 8 Hour | 0.070 ppm (137 µg/m ³) | | 0.070 ppm (137 µg/m ³) | | |
| Respirable Particulate Matter (PM ₁₀) ⁹ | 24 Hour | 50 µg/m ³ | Gravimetric or Beta Attenuation | 150 µg/m ³ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 20 µg/m ³ | | — | | |
| Fine Particulate Matter (PM _{2.5}) ⁹ | 24 Hour | — | — | 35 µg/m ³ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 12 µg/m ³ | Gravimetric or Beta Attenuation | 12.0 µg/m ³ | 15 µg/m ³ | |
| Carbon Monoxide (CO) | 1 Hour | 20 ppm (23 mg/m ³) | Non-Dispersive Infrared Photometry (NDIR) | 35 ppm (40 mg/m ³) | — | Non-Dispersive Infrared Photometry (NDIR) |
| | 8 Hour | 9.0 ppm (10 mg/m ³) | | 9 ppm (10 mg/m ³) | — | |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m ³) | | — | — | |
| Nitrogen Dioxide (NO ₂) ¹⁰ | 1 Hour | 0.18 ppm (339 µg/m ³) | Gas Phase Chemiluminescence | 100 ppb (188 µg/m ³) | — | Gas Phase Chemiluminescence |
| | Annual Arithmetic Mean | 0.030 ppm (57 µg/m ³) | | 0.053 ppm (100 µg/m ³) | Same as Primary Standard | |
| Sulfur Dioxide (SO ₂) ¹¹ | 1 Hour | 0.25 ppm (655 µg/m ³) | Ultraviolet Fluorescence | 75 ppb (196 µg/m ³) | — | Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method) |
| | 3 Hour | — | | — | 0.5 ppm (1300 µg/m ³) | |
| | 24 Hour | 0.04 ppm (105 µg/m ³) | | 0.14 ppm (for certain areas) ¹⁰ | — | |
| | Annual Arithmetic Mean | — | | 0.030 ppm (for certain areas) ¹⁰ | — | |
| Lead ^{12,13} | 30 Day Average | 1.5 µg/m ³ | Atomic Absorption | — | — | High Volume Sampler and Atomic Absorption |
| | Calendar Quarter | — | | 1.5 µg/m ³ (for certain areas) ¹² | Same as Primary Standard | |
| | Rolling 3-Month Average | — | | 0.15 µg/m ³ | | |
| Visibility Reducing Particles ¹⁴ | 8 Hour | See footnote 13 | Beta Attenuation and Transmittance through Filter Tape | No National Standards | | |
| Sulfates | 24 Hour | 25 µg/m ³ | Ion Chromatography | | | |
| Hydrogen Sulfide | 1 Hour | 0.03 ppm (42 µg/m ³) | Ultraviolet Fluorescence | | | |
| Vinyl Chloride ¹² | 24 Hour | 0.01 ppm (26 µg/m ³) | Gas Chromatography | | | |

See footnotes on next page ...

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (10/1/15)

Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu\text{g}/\text{m}^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from $15 \mu\text{g}/\text{m}^3$ to $12.0 \mu\text{g}/\text{m}^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at $35 \mu\text{g}/\text{m}^3$, as was the annual secondary standard of $15 \mu\text{g}/\text{m}^3$. The existing 24-hour PM10 standards (primary and secondary) of $150 \mu\text{g}/\text{m}^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard ($1.5 \mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (10/1/15)

Table 2
Health Effects of Major Criteria Pollutants

| Pollutants | Sources | Primary Effects |
|-------------------------------------|--|---|
| Carbon Monoxide (CO) | <ul style="list-style-type: none"> • Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter. | <ul style="list-style-type: none"> • Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina). |
| Nitrogen Dioxide (NO ₂) | <ul style="list-style-type: none"> • Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions. | <ul style="list-style-type: none"> • Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain. |
| Ozone (O ₃) | <ul style="list-style-type: none"> • Atmospheric reaction of organic gases with nitrogen oxides in sunlight. | <ul style="list-style-type: none"> • Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury. |
| Lead (Pb) | <ul style="list-style-type: none"> • Contaminated soil. | <ul style="list-style-type: none"> • Impairment of blood function and nerve construction. • Behavioral and hearing problems in children. |
| Fine Particulate Matter (PM-10) | <ul style="list-style-type: none"> • Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions. | <ul style="list-style-type: none"> • Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility. |
| Fine Particulate Matter (PM-2.5) | <ul style="list-style-type: none"> • Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NO_x, sulfur oxides, and organics. | <ul style="list-style-type: none"> • Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling. |
| Sulfur Dioxide (SO ₂) | <ul style="list-style-type: none"> • Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes. | <ul style="list-style-type: none"> • Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc. |

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the exposure period for the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide (NO₂) that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO₂ standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted. In December, 2012, the federal annual standard for PM-2.5 was reduced from 15 µg/m³ to 12 µg/m³ which matches the California AAQS. The severity of the basin's non-attainment status for PM-2.5 may be increased by this action and thus require accelerated planning for future PM-2.5 attainment.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. A new 8-hour ozone standard was adopted in 2015 after extensive analysis and public input. The adopted national 8-hour ozone standard is 0.07 ppm which matches the current California standard. It will require three years of ambient data collection, then 2 years of non-attainment findings and planning protocol adoption, then several years of plan development and approval. Final air quality plans for the new standard are likely to be adopted around 2022. Ultimate attainment of the new standard in ozone problem areas such as Southern California might be after 2030.

In 2010 a new federal one-hour primary standard for nitrogen dioxide (NO₂) was adopted. This standard is more stringent than the existing state standard. Based upon air quality monitoring data in the South Coast Air Basin, the California Air Resources Board has requested the EPA to designate the basin as being in attainment for this standard. The federal standard for sulfur dioxide (SO₂) was also recently revised. However, with minimal combustion of coal and mandatory use of low sulfur fuels in California, SO₂ is typically not a problem pollutant.

BASELINE AIR QUALITY

Existing and probable future levels of air quality around the project area can best be best inferred from ambient air quality measurements conducted by the SCAQMD at the Anaheim monitoring station. This station measures both regional pollution levels such as smog, as well as primary vehicular pollution levels near busy roadways such as carbon monoxide and nitrogen oxides. Pollutants such as particulates (PM-10 and PM-2.5) are also monitored at Anaheim. Because of proximity to the ocean with clean on-shore flow, Seal Beach air quality may be slightly better than Anaheim. Given the small number of violations of clean air standards at Anaheim, the number at Seal Beach is close to zero. Table 3 is a 6-year summary of monitoring data for the major air pollutants compiled from this air monitoring station. From this data the following conclusions regarding air quality trends can be drawn:

- a. Photochemical smog (ozone) levels occasionally exceed standards. All state and federal ozone standards have been exceeded 1 percent or less of all days in the past six years. Measurements from more recent years demonstrate progressively improved ozone levels in the area except perhaps for some temporary “backsliding” in 2014. While ozone levels are still occasionally elevated, they are much lower than 10 to 20 years ago.
- b. Respirable dust (PM-10) levels occasionally exceed the state standard on approximately two percent of measured days. The less stringent federal PM-10 standard has not been exceeded in the last six years.
- c. The federal ultra-fine particulate (PM-2.5) standard of 35 $\mu\text{g}/\text{m}^3$ has been exceeded on less than one percent of measurement days in the last six years.
- d. More localized pollutants such as carbon monoxide, nitrogen oxides, etc. are very low near the project site. There is substantial excess dispersive capacity to accommodate localized vehicular air pollutants such as NO_x or CO without any threat of violating applicable AAQS. Data from a recent “near roadway” monitoring study directly along the I-5 shoulder (<50 feet) in Anaheim showed noticeably elevated levels of NO_x and CO, but even at this close distance federal clean air standards were not exceeded.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table 3
Air Quality Monitoring Summary (2009-2014)
(Number of Days Standards Were Exceeded, and
Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

| Pollutant/Standard | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Ozone | | | | | | |
| 1-Hour > 0.09 ppm (S) | 0 | 1 | 0 | 0 | 0 | 2 |
| 8-Hour > 0.07 ppm (S) | 2 | 1 | 1 | 0 | 0 | 6 |
| 8- Hour > 0.075 ppm (F) | 1 | 1 | 0 | 0 | 0 | 4 |
| Max. 1-Hour Conc. (ppm) | 0.093 | 0.104 | 0.088 | 0.079 | 0.084 | 0.111 |
| Max. 8-Hour Conc. (ppm) | 0.077 | 0.088 | 0.072 | 0.067 | 0.070 | 0.081 |
| Carbon Monoxide | | | | | | |
| 8- Hour > 9. ppm (S,F) | 0 | 0 | 0 | 0 | 0 | 0 |
| Max 8-hour Conc. (ppm) | 2.7 | 2.0 | 2.1 | 2.3 | 2.6 | 2.1 |
| Nitrogen Dioxide | | | | | | |
| 1-Hour > 0.18 ppm (S) | 0 | 0 | 0 | 0 | 0 | 0 |
| Max. 1-Hour Conc. (ppm) | 0.068 | 0.073 | 0.074 | 0.067 | 0.082 | 0.076 |
| Inhalable Particulates (PM-10) | | | | | | |
| 24-hour > 50 µg/m ³ (S) | 1/56 | 0/57 | 2/57 | 0/61 | 1/59 | 2/61 |
| 24-hour > 150 µg/m ³ (F) | 0/56 | 0/57 | 0/57 | 0/61 | 0/59 | 0/61 |
| Max. 24-Hr. Conc. (µg/m ³) | 62. | 43. | 53. | 48. | 77. | 85. |
| Ultra-Fine Particulates (PM-2.5) | | | | | | |
| 24-Hour > 35 µg/m ³ (F) | 4/334 | 0/331 | 2/352 | 4/347 | 1/331 | 6/334 |
| Max. 24-Hr. Conc. (µg/m ³) | 64.5 | 31.7 | 39.2 | 50.1 | 37.8 | 56.2 |

Source: South Coast AQMD Air Monitoring Station Data Summary, Anaheim Station (3176)

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with “serious” or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NO_x) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NO_x and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air “blueprint” in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. The attainment date was anticipated to “slip” from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 requires control technologies that do not exist yet, the SCAQMD requested a voluntary “bump-up” from a “severe non-attainment” area to an “extreme non-attainment” designation for ozone. The extreme designation will allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on “black-box” measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from “severe-17” to “extreme.” This reclassification sets a later attainment deadline (2024), but also requires the air basin to adopt even more stringent emissions controls.

Table 4

South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

| Pollutant | 2012^a | 2015^b | 2020^b | 2025^b | 2030 |
|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------|
| NO_x | 512 | 451 | 357 | 289 | 266 |
| VOC | 466 | 429 | 400 | 393 | 393 |
| PM-10 | 154 | 155 | 161 | 165 | 170 |
| PM-2.5 | 68 | 67 | 67 | 68 | 170 |

^a2012 Base Year.

^bWith current emissions reduction programs and adopted growth forecasts.

Source: California Air Resources Board, 2013 Almanac of CEPAM

In other air quality attainment plan reviews, EPA has disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA has stated that the current attainment plan relies on PM-2.5 control regulations that have not yet been approved or implemented. It is expected that a number of rules that are pending approval will remove the identified deficiencies. If these issues are not resolved within the next several years, federal funding sanctions for transportation projects could result. The 2012 AQMP included in the ARB submittal to EPA as part of the California State Implementation Plan (SIP) is expected to remedy identified PM-2.5 planning deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked almost ten years ago. There was no approved attainment plan for the one-hour federal standard at the time of revocation. Through a legal quirk, the SCAQMD is now required to develop an AQMP for the long since revoked one-hour federal ozone standard. Because the 2012 AQMP contains a number of control measures for the 8-hour ozone standard that are equally effective for one-hour levels, the 2012 AQMP is believed to satisfy hourly attainment planning requirements.

AQMPs are required to be updated every three years. The 2012 AQMP was adopted in early 2013. An updated AQMP must therefore be adopted in 2016. Planning for the 2016 AQMP is currently on-going. The current attainment deadlines for all federal non-attainment pollutants are now as follows:

| | |
|--|---------------------------|
| 8-hour ozone (70 ppb) | 2037 |
| Annual PM-2.5 (12 µg/m ³) | 2025 |
| 8-hour ozone (80 ppb) | 2024 (old standard) |
| 8-hour ozone (75 ppb) | 2032 (current standard) |
| 1-hour ozone (120 ppb) | 2032 (rescinded standard) |
| 24-hour PM-2.5 (35 µg/m ³) | 2019 |

The key challenge is that NO_x emission levels, as a critical ozone precursor pollutant, are forecast to continue to exceed the levels that would allow the above deadlines to be met. Unless additional NO_x control measures are adopted and implemented, attainment goals may not be met.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing residential projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered “significant” if they cause clean air standards to be violated where they are currently met, or if they “substantially” contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

- a. Conflicts with or obstructs implementation of the applicable air quality plan.
- b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation.
- c. Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- d. Exposes sensitive receptors to substantial pollutant concentrations.
- e. Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based

upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 5
Daily Emissions Thresholds

| Pollutant | Construction | Operations |
|------------------|---------------------|-------------------|
| ROG | 75 | 55 |
| NO _x | 100 | 55 |
| CO | 550 | 550 |
| PM-10 | 150 | 150 |
| PM-2.5 | 55 | 55 |
| SO _x | 150 | 150 |
| Lead | 3 | 3 |

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional Indicators

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.
- Project could generate vehicle trips that cause a CO hot spot.

CONSTRUCTION ACTIVITY IMPACTS

CalEEMod was developed by the SCAQMD to provide a model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

Although exhaust emissions will result from on and off-site equipment, the exact types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Estimated construction emissions were modeled using CalEEMod2013.2.2 to identify maximum daily emissions for each pollutant during project construction.

The proposed project entails construction of 4 single family homes and demolition of a 1,696 sf duplex. Construction was modeled in CalEEMod2013.2.2 using default construction equipment and schedule for a project of this size as shown in Table 6.

Table 6
Construction Activity Equipment Fleet

| Phase Name and Duration | Equipment |
|--|-------------------|
| Demolition (10 days) 16,690 cubic feet debris | 1 Concrete Saw |
| | 1 Dozer |
| | 2 Loader/Backhoes |
| Grading (2 days) | 1 Concrete Saw |
| | 1 Dozer |
| | 2 Loader/Backhoes |
| Construction (100 days) | 1 Small Crane |
| | 2 Loader/Backhoes |
| | 2 Forklifts |
| Paving (5 days) | 1 Paver |
| | 4 Cement Mixers |
| | 1 Loader/Backhoe |
| | 1 Roller |

Utilizing this indicated equipment fleet and durations shown in Table 6 the following worst case daily construction emissions are calculated by CalEEMod and are listed in Table 7.

Table 7
Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

| 2017 | ROG | NO_x | CO | SO₂ | PM-10 | PM-2.5 |
|---------------------------------------|------------|-----------------------|-----------|-----------------------|--------------|---------------|
| Maximal Construction Emissions | 11.6 | 12.7 | 9.3 | 0.0 | 1.6 | 1.1 |
| SCAQMD Thresholds | 75 | 100 | 550 | 150 | 150 | 55 |

Peak daily construction activity emissions are estimated to be below SCAQMD CEQA thresholds without the need for added mitigation.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NO_x), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distances. For this project the nearest sensitive receptors are the residential uses adjacent to the project site such that the most conservative 25 meter distance was modeled.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1, 2 and 5 acre sites for varying distances. For this project, the most stringent thresholds for a 1 acre site were applied.

The following thresholds and emissions in Table 8 are therefore determined (pounds per day):

Table 8
LST and Project Emissions (pounds/day)

| LST 1.0 acre/25 meters North Coastal Orange County | CO | NOx | PM-10 | PM-2.5 |
|---|-----------|------------|--------------|---------------|
| LST Threshold | 647 | 92 | 4 | 3 |
| Max On-Site Emissions | 9 | 13 | 2 | 1 |
| Exceeds Threshold? | No | No | No | No |

CalEEMod Output in Appendix

LSTs were compared to the maximum daily construction activities. As seen above, emissions will meet the LST for construction thresholds and are less-than-significant without the application of additional discretionary mitigation.

OPERATIONAL IMPACTS

Operational emissions were calculated using CalEEMod2013.2.2 for an assumed project build-out year of 2017 as a target for full occupancy. The project would generate 38 daily weekday trips, 40 Saturday trips and 35 Sunday trips using default traffic engineering data from CalEEMod. All emissions were evaluated as “new” sources without any credit for existing duplex residents. In addition to mobile sources from vehicles, general development causes smaller amounts of “area source” air pollution to be generated from on-site energy consumption (primarily space heating, hot water and landscaping). These sources represent a minimal percentage of the total project NOx and CO burdens, and a few percent other pollutants. The inclusion of such emissions adds negligibly to the total significant project-related emissions burden as shown in Table 9.

Table 9
Daily Operational Impacts

| | Operational Emissions (lbs/day) | | | | | |
|-----------------------------|--|------------|------------|-----------------------|--------------|---------------|
| Source | ROG | NOx | CO | SO₂ | PM-10 | PM-2.5 |
| Area | 1.2 | 0.0 | 2.3 | 0.0 | 0.3 | 0.3 |
| Energy | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Mobile | 0.1 | 0.4 | 1.7 | 0.0 | 0.3 | 0.1 |
| Total | 1.4 | 0.4 | 0.0 | 0.0 | 0.6 | 0.4 |
| SCAQMD Threshold | 55 | 55 | 550 | 150 | 150 | 55 |
| Exceeds Threshold? | No | No | No | No | No | No |

Source: CalEEMod2013.2.2 Output in Appendix

As seen in Table 9 the project would not cause any operational emissions to exceed their respective SCAQMD CEQA significance thresholds even without any credit for existing on-site uses. Operational emission impacts are judged to be less than significant. No impact mitigation for operational activity emissions is considered necessary to support this finding.

CONSTRUCTION EMISSIONS MINIMIZATION

Construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds. Nevertheless, emissions minimization through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin and proximity to existing residential uses. Recommended measures include:

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 2-3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

Similarly, ozone precursor emissions (ROG and NO_x) are calculated to be below SCAQMD CEQA thresholds. However, because of the regional non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control options include:

Exhaust Emissions Control

- Utilize well-tuned off-road construction equipment.
- Establish a preference for contractors using Tier 3 or better rated heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

GREENHOUSE GAS EMISSIONS

“Greenhouse gases” (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as “global warming.” These greenhouse gases contribute to an increase in the temperature of the earth’s atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statutes and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California’s reputation as a “national and international leader on energy conservation and environmental stewardship.” It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate “early action” control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California’s GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been

developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

THRESHOLDS OF SIGNIFICANCE

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,
- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to “select the model or methodology it considers most appropriate.” The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO₂ equivalent/year CO₂e. In September 2010, the SCAQMD CEQA Significance Thresholds GHG Working Group released revisions which recommended a threshold of 3,000 MT CO₂e for all land use projects. This 3,000 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

PROJECT RELATED GHG EMISSIONS GENERATION

Construction Activity GHG Emissions

The project is assumed to require less than one year for construction. During project construction, the CalEEMod2013.2.2 computer model predicts that the construction activities will generate the annual CO₂e emissions identified in Table 10.

Table 10
Construction Emissions (Metric Tons CO₂e)

| | CO₂e |
|------------------|------------------------|
| Year 2017 | 64.3 |
| Amortized | 2.1 |

CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level is also provided. GHG impacts from construction are considered individually less-than-significant.

Project Operational GHG Emissions

The input assumptions for operational GHG emissions calculations, and the GHG conversion from consumption to annual regional CO₂e emissions are summarized in the CalEEMod2013.2.2 output files found in the appendix of this report. As with the criteria air pollution calculations no GHG emissions credit was taken for any displaced duplex residents.

The total operational and annualized construction emissions for the proposed project are identified in Table 11.

Table 11
Proposed Uses Operational Emissions

| Consumption Source | |
|---------------------------|-------------|
| Area Sources | 1.3 |
| Energy Utilization | 14.3 |
| Mobile Source | 55.8 |
| Solid Waste Generation | 2.1 |
| Water Consumption | 1.8 |
| Construction | 2.1 |
| Total | 77.4 |
| Guideline Threshold | 3,000 |
| Exceeds Threshold? | No |

Total project GHG emissions would be substantially below the proposed significance threshold of 3,000 MT suggested by the SCAQMD. Hence, the project would not result in generation of a significant level of greenhouse gases.

CONSISTENCY WITH GHG PLANS, PROGRAMS AND POLICIES

The City of Seal Beach has not yet developed a Greenhouse Gas Reduction Plan. The applicable GHG planning document is AB-32. As discussed above, the project is not expected to result in a significant increase in GHG emissions. As a result, the project results in GHG emissions below the recommended SCAQMD 3,000 ton threshold. Therefore, the project would not conflict with any applicable plan, policy, or regulation to reduce GHG emissions.

CALEEMOD2013.2.2 COMPUTER MODEL OUTPUT

- **DAILY EMISISONS**
- **ANNUAL EMISSIONS**

Seal Beach 17th St South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|-----------------------|------|---------------|-------------|--------------------|------------|
| Single Family Housing | 4.00 | Dwelling Unit | 0.52 | 7,200.00 | 11 |

1.2 Other Project Characteristics

| | | | | | |
|--------------|-------|------------------|-----|---------------------------|------|
| Urbanization | Urban | Wind Speed (m/s) | 2.2 | Precipitation Freq (Days) | 31 |
| Climate Zone | 8 | | | Operational Year | 2017 |

Utility Company Southern California Edison

| | | | | | |
|-----------------------------|--------|-----------------------------|-------|-----------------------------|-------|
| CO2 Intensity (lb/MW/hr) | 630.89 | CH4 Intensity (lb/MW/hr) | 0.029 | N2O Intensity (lb/MW/hr) | 0.006 |
|-----------------------------|--------|-----------------------------|-------|-----------------------------|-------|

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Used actual lot size

Construction Phase - Demo: 10 days, Grading: 2 days, Construction: 100 days, Paving: 5 days

Demolition - Demo: 1696 sf triplex

| Table Name | Column Name | Default Value | New Value |
|---------------------------|------------------|---------------|-----------|
| tblConstructionPhase | PhaseEndDate | 1/17/2017 | 1/18/2017 |
| tblConstructionPhase | PhaseStartDate | 1/14/2017 | 1/17/2017 |
| tblLandUse | LotAcreage | 1.30 | 0.52 |
| tblProjectCharacteristics | Operational Year | 2014 | 2017 |

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

| Year | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------|---------|---------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|
| lb/day | | | | | | | | | | | | | | | | |
| 2017 | 11.5954 | 12.6785 | 9.3188 | 0.0140 | 0.8645 | 0.8554 | 1.5920 | 0.4434 | 0.7870 | 1.1372 | 0.0000 | 1,356.7675 | 1,356.7675 | 0.3558 | 0.0000 | 1,364.2401 |
| Total | 11.5954 | 12.6785 | 9.3188 | 0.0140 | 0.8645 | 0.8554 | 1.5920 | 0.4434 | 0.7870 | 1.1372 | 0.0000 | 1,356.7675 | 1,356.7675 | 0.3558 | 0.0000 | 1,364.2401 |

Mitigated Construction

| Year | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------|---------|---------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|
| lb/day | | | | | | | | | | | | | | | | |
| 2017 | 11.5954 | 12.6785 | 9.3188 | 0.0140 | 0.8645 | 0.8554 | 1.5920 | 0.4434 | 0.7870 | 1.1372 | 0.0000 | 1,356.7675 | 1,356.7675 | 0.3558 | 0.0000 | 1,364.2401 |
| Total | 11.5954 | 12.6785 | 9.3188 | 0.0140 | 0.8645 | 0.8554 | 1.5920 | 0.4434 | 0.7870 | 1.1372 | 0.0000 | 1,356.7675 | 1,356.7675 | 0.3558 | 0.0000 | 1,364.2401 |

2.2 Overall Operational

Unmitigated Operational

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-----------------|-----------------|---------------|--------------------|-----------------|
| lb/day | | | | | | | | | | | | | | | | |
| Area | 1.2165 | 0.0305 | 2.3439 | 3.2200e-003 | | 0.3074 | 0.3074 | | 0.3073 | 0.3073 | 37.4677 | 72.5942 | 110.0619 | 0.1123 | 2.5400e-003 | 113.2092 |
| Energy | 3.4100e-003 | 0.0292 | 0.0124 | 1.9000e-004 | | 2.3600e-003 | 2.3600e-003 | | 2.3600e-003 | 2.3600e-003 | | 37.2390 | 37.2390 | 7.1000e-004 | 6.8000e-004 | 37.4656 |
| Mobile | 0.1424 | 0.4144 | 1.6865 | 4.3600e-003 | 0.2922 | 6.0700e-003 | 0.2982 | 0.0781 | 5.5800e-003 | 0.0837 | | 371.1428 | 371.1428 | 0.0140 | | 371.4369 |
| Total | 1.3624 | 0.4741 | 4.0428 | 7.7700e-003 | 0.2922 | 0.3158 | 0.6080 | 0.0781 | 0.3153 | 0.3933 | 37.4677 | 480.9760 | 518.4437 | 0.1270 | 3.2200e-003 | 522.1117 |

Mitigated Operational

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-----------------|-----------------|---------------|--------------------|-----------------|
| lb/day | | | | | | | | | | | | | | | | |
| Area | 1.2165 | 0.0305 | 2.3439 | 3.2200e-003 | | 0.3074 | 0.3074 | | 0.3073 | 0.3073 | 37.4677 | 72.5942 | 110.0619 | 0.1123 | 2.5400e-003 | 113.2092 |
| Energy | 3.4100e-003 | 0.0292 | 0.0124 | 1.9000e-004 | | 2.3600e-003 | 2.3600e-003 | | 2.3600e-003 | 2.3600e-003 | | 37.2390 | 37.2390 | 7.1000e-004 | 6.8000e-004 | 37.4656 |
| Mobile | 0.1424 | 0.4144 | 1.6865 | 4.3600e-003 | 0.2922 | 6.0700e-003 | 0.2982 | 0.0781 | 5.5800e-003 | 0.0837 | | 371.1428 | 371.1428 | 0.0140 | | 371.4369 |
| Total | 1.3624 | 0.4741 | 4.0428 | 7.7700e-003 | 0.2922 | 0.3158 | 0.6080 | 0.0781 | 0.3153 | 0.3933 | 37.4677 | 480.9760 | 518.4437 | 0.1270 | 3.2200e-003 | 522.1117 |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

3.0 Construction Detail

Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1 | Demolition | Demolition | 1/1/2017 | 1/13/2017 | 5 | 10 | |
| 2 | Grading | Grading | 1/17/2017 | 1/18/2017 | 5 | 2 | |
| 3 | Building Construction | Building Construction | 1/19/2017 | 6/7/2017 | 5 | 100 | |
| 4 | Paving | Paving | 6/8/2017 | 6/14/2017 | 5 | 5 | |
| 5 | Architectural Coating | Architectural Coating | 6/15/2017 | 6/21/2017 | 5 | 5 | |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 14,580; Residential Outdoor: 4,860; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 4 | 6.00 | 9 | 0.56 |
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Grading | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Building Construction | Cranes | 1 | 4.00 | 226 | 0.29 |
| Building Construction | Forklifts | 2 | 6.00 | 89 | 0.20 |
| Paving | Pavers | 1 | 7.00 | 125 | 0.42 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Demolition | Rubber Tired Dozers | 1 | 1.00 | 255 | 0.40 |
| Grading | Rubber Tired Dozers | 1 | 1.00 | 255 | 0.40 |
| Building Construction | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Demolition | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |

Trips and VMT

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition | 4 | 10.00 | 0.00 | 8.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 5 | 1.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 7 | 18.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 0.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

3.2 Demolition - 2017**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 | | | | | | | | | | | | | | | |
| Fugitive Dust | .. | .. | .. | .. | 0.1670 | 0.0000 | 0.1670 | 0.0253 | 0.0000 | 0.0253 | .. | .. | 0.0000 | .. | .. | 0.0000 |
| Off-Road | 1.2049 | 10.4761 | 8.5825 | 0.0120 | .. | 0.7266 | 0.7266 | .. | 0.6930 | 0.6930 | .. | 1,183.813 | 1,183.813 | 0.2333 | .. | 1,188.711 |
| | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 8 |
| Total | 1.2049 | 10.4761 | 8.5825 | 0.0120 | 0.1670 | 0.7266 | 0.8935 | 0.0253 | 0.6930 | 0.7183 | .. | 1,183.813 | 1,183.813 | 0.2333 | .. | 1,188.711 |
| | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 8 |

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 | | | | | | | | | | | | | | | |
| Hauling | 0.0130 | 0.2032 | 0.1493 | 5.9000e-004 | 0.0139 | 3.1300e-003 | 0.0171 | 3.8200e-003 | 2.8800e-003 | 6.7000e-003 | .. | 58.5486 | 58.5486 | 4.2000e-004 | .. | 58.5573 |
| 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 | 0.0374 | 0.0470 | 0.5870 | 1.4200e-003 | 0.1118 | 9.0000e-004 | 0.1127 | 0.0296 | 8.3000e-004 | 0.0305 | .. | 114.4058 | 114.4058 | 5.6300e-003 | .. | 114.5239 |
| Total | 0.0505 | 0.2502 | 0.7363 | 2.0100e-003 | 0.1257 | 4.0300e-003 | 0.1298 | 0.0335 | 3.7100e-003 | 0.0372 | .. | 172.9543 | 172.9543 | 6.0500e-003 | .. | 173.0813 |

3.2 Demolition - 2017**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 | | | | | | | | | | | | | | | |
| Fugitive Dust | .. | .. | .. | .. | 0.1670 | 0.0000 | 0.1670 | 0.0253 | 0.0000 | 0.0253 | .. | .. | 0.0000 | .. | .. | 0.0000 |
| Off-Road | 1.2049 | 10.4761 | 8.5825 | 0.0120 | .. | 0.7266 | 0.7266 | .. | 0.6930 | 0.6930 | 0.0000 | 1,183.813 | 1,183.813 | 0.2333 | .. | 1,188.711 |
| | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 8 |
| Total | 1.2049 | 10.4761 | 8.5825 | 0.0120 | 0.1670 | 0.7266 | 0.8935 | 0.0253 | 0.6930 | 0.7183 | 0.0000 | 1,183.813 | 1,183.813 | 0.2333 | .. | 1,188.711 |
| | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 8 |

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 | | | | | | | | | | | | | | | |
| Hauling | 0.0130 | 0.2032 | 0.1493 | 5.9000e-004 | 0.0139 | 3.1300e-003 | 0.0171 | 3.8200e-003 | 2.8800e-003 | 6.7000e-003 | .. | 58.5486 | 58.5486 | 4.2000e-004 | .. | 58.5573 |
| 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 | 0.0374 | 0.0470 | 0.5870 | 1.4200e-003 | 0.1118 | 9.0000e-004 | 0.1127 | 0.0296 | 8.3000e-004 | 0.0305 | .. | 114.4058 | 114.4058 | 5.6300e-003 | .. | 114.5239 |
| Total | 0.0505 | 0.2502 | 0.7363 | 2.0100e-003 | 0.1257 | 4.0300e-003 | 0.1298 | 0.0335 | 3.7100e-003 | 0.0372 | .. | 172.9543 | 172.9543 | 6.0500e-003 | .. | 173.0813 |

3.3 Grading - 2017

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 | | | | | | | | | | | | | | | |
| Fugitive Dust | .. | .. | .. | .. | 0.7528 | 0.0000 | 0.7528 | 0.4138 | 0.0000 | 0.4138 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.2049 | 10.4761 | 8.5825 | 0.0120 | | 0.7266 | 0.7266 | | 0.6930 | 0.6930 | | 1,183.813 | 1,183.813 | 0.2333 | | 1,188.711 |
| | .. | .. | .. | .. | | | | | | | | 1 | 1 | | | 8 |
| Total | 1.2049 | 10.4761 | 8.5825 | 0.0120 | 0.7528 | 0.7266 | 1.4794 | 0.4138 | 0.6930 | 1.1068 | | 1,183.813 | 1,183.813 | 0.2333 | | 1,188.711 |
| | | | | | | | | | | | | 1 | 1 | | | 8 |

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 | | | | | | | | | | | | | | | |
| 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 | 0.0374 | 0.0470 | 0.5870 | 1.4200e-003 | 0.1118 | 9.0000e-004 | 0.1127 | 0.0296 | 8.3000e-004 | 0.0305 | | 114.4058 | 114.4058 | 5.6300e-003 | | 114.5239 |
| Total | 0.0374 | 0.0470 | 0.5870 | 1.4200e-003 | 0.1118 | 9.0000e-004 | 0.1127 | 0.0296 | 8.3000e-004 | 0.0305 | | 114.4058 | 114.4058 | 5.6300e-003 | | 114.5239 |

3.3 Grading - 2017

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 | | | | | | | | | | | | | | | |
| Fugitive Dust | .. | .. | .. | .. | 0.7528 | 0.0000 | 0.7528 | 0.4138 | 0.0000 | 0.4138 | .. | .. | 0.0000 | .. | .. | 0.0000 |
| Off-Road | 1.2049 | 10.4761 | 8.5825 | 0.0120 | .. | 0.7266 | 0.7266 | .. | 0.6930 | 0.6930 | 0.0000 | 1,183.813 | 1,183.813 | 0.2333 | .. | 1,188.711 |
| | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 8 |
| Total | 1.2049 | 10.4761 | 8.5825 | 0.0120 | 0.7528 | 0.7266 | 1.4794 | 0.4138 | 0.6930 | 1.1068 | 0.0000 | 1,183.813 | 1,183.813 | 0.2333 | .. | 1,188.711 |
| | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 8 |

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 | | | | | | | | | | | | | | | |
| 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 | 0.0374 | 0.0470 | 0.5870 | 1.4200e-003 | 0.1118 | 9.0000e-004 | 0.1127 | 0.0296 | 8.3000e-004 | 0.0305 | .. | 114.4058 | 114.4058 | 5.6300e-003 | .. | 114.5239 |
| Total | 0.0374 | 0.0470 | 0.5870 | 1.4200e-003 | 0.1118 | 9.0000e-004 | 0.1127 | 0.0296 | 8.3000e-004 | 0.0305 | .. | 114.4058 | 114.4058 | 5.6300e-003 | .. | 114.5239 |

3.4 Building Construction - 2017

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 | | | | | | | | | | | | | | | |
| Off-Road | 1.2740 | 12.6738 | 8.0395 | 0.0113 | | 0.8553 | 0.8553 | | 0.7869 | 0.7869 | | 1,159.5310 | 1,159.5310 | 0.3553 | | 1,166.9919 |
| Total | 1.2740 | 12.6738 | 8.0395 | 0.0113 | | 0.8553 | 0.8553 | | 0.7869 | 0.7869 | | 1,159.5310 | 1,159.5310 | 0.3553 | | 1,166.9919 |

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 | | | | | | | | | | | | | | | |
| 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 | 3.7400e-003 | 4.7000e-003 | 0.0587 | 1.4000e-004 | 0.0112 | 9.0000e-005 | 0.0113 | 2.9600e-003 | 8.0000e-005 | 3.0500e-003 | | 11.4406 | 11.4406 | 5.6000e-004 | | 11.4524 |
| Total | 3.7400e-003 | 4.7000e-003 | 0.0587 | 1.4000e-004 | 0.0112 | 9.0000e-005 | 0.0113 | 2.9600e-003 | 8.0000e-005 | 3.0500e-003 | | 11.4406 | 11.4406 | 5.6000e-004 | | 11.4524 |

3.4 Building Construction - 2017

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 | | | | | | | | | | | | | | | |
| Off-Road | 1.2740 | 12.6738 | 8.0395 | 0.0113 | | 0.8553 | 0.8553 | 0.7869 | 0.7869 | 0.7869 | 0.0000 | 1,159.5310 | 1,159.5310 | 0.3553 | | 1,166.9919 |
| Total | 1.2740 | 12.6738 | 8.0395 | 0.0113 | | 0.8553 | 0.8553 | 0.7869 | 0.7869 | 0.7869 | 0.0000 | 1,159.5310 | 1,159.5310 | 0.3553 | | 1,166.9919 |

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 | | | | | | | | | | | | | | | |
| 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 | 3.7400e-003 | 4.7000e-003 | 0.0587 | 1.4000e-004 | 0.0112 | 9.0000e-005 | 0.0113 | 2.9600e-003 | 8.0000e-005 | 3.0500e-003 | | 11.4406 | 11.4406 | 5.6000e-004 | | 11.4524 |
| Total | 3.7400e-003 | 4.7000e-003 | 0.0587 | 1.4000e-004 | 0.0112 | 9.0000e-005 | 0.0113 | 2.9600e-003 | 8.0000e-005 | 3.0500e-003 | | 11.4406 | 11.4406 | 5.6000e-004 | | 11.4524 |

3.5 Paving - 2017**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 | | | | | | | | | | | | | | | |
| Off-Road | 1.0406 | 9.8344 | 7.2432 | 0.0111 | | 0.6018 | 0.6018 | 0.5572 | | 0.5572 | | 1,068.936 ₆ | 1,068.936 ₆ | 0.2968 | | 1,075.169 ₈ |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | | | 0.0000 | | | 0.0000 |
| Total | 1.0406 | 9.8344 | 7.2432 | 0.0111 | | 0.6018 | 0.6018 | 0.5572 | | 0.5572 | | 1,068.936₆ | 1,068.936₆ | 0.2968 | | 1,075.169₈ |

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 | | | | | | | | | | | | | | | |
| 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 | 0.0674 | 0.0846 | 1.0567 | 2.5500e-003 | 0.2012 | 1.6200e-003 | 0.2028 | 0.0534 | 1.4900e-003 | 0.0549 | | 205.9304 | 205.9304 | 0.0101 | | 206.1431 |
| Total | 0.0674 | 0.0846 | 1.0567 | 2.5500e-003 | 0.2012 | 1.6200e-003 | 0.2028 | 0.0534 | 1.4900e-003 | 0.0549 | | 205.9304 | 205.9304 | 0.0101 | | 206.1431 |

3.5 Paving - 2017**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 | | | | | | | | | | | | | | | |
| Off-Road | 1.0406 | 9.8344 | 7.2432 | 0.0111 | | 0.6018 | 0.6018 | 0.5572 | 0.5572 | 0.5572 | 0.0000 | 1,068.936 6 | 1,068.936 6 | 0.2968 | | 1,075.169 8 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Total | 1.0406 | 9.8344 | 7.2432 | 0.0111 | | 0.6018 | 0.6018 | 0.5572 | | 0.5572 | 0.0000 | 1,068.936 6 | 1,068.936 6 | 0.2968 | | 1,075.169 8 |

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 | | | | | | | | | | | | | | | |
| 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 | 0.0674 | 0.0846 | 1.0567 | 2.5500e-003 | 0.2012 | 1.6200e-003 | 0.2028 | 0.0534 | 1.4900e-003 | 0.0549 | | 205.9304 | 205.9304 | 0.0101 | | 206.1431 |
| Total | 0.0674 | 0.0846 | 1.0567 | 2.5500e-003 | 0.2012 | 1.6200e-003 | 0.2028 | 0.0534 | 1.4900e-003 | 0.0549 | | 205.9304 | 205.9304 | 0.0101 | | 206.1431 |

3.6 Architectural Coating - 2017

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 | | | | | | | | | | | | | | | |
| Archit. Coating | 11.2631 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.3323 | 2.1850 | 1.8681 | 2.9700e-003 | | 0.1733 | 0.1733 | | 0.1733 | 0.1733 | | 281.4481 | 281.4481 | 0.0297 | | 282.0721 |
| Total | 11.5954 | 2.1850 | 1.8681 | 2.9700e-003 | | 0.1733 | 0.1733 | | 0.1733 | 0.1733 | | 281.4481 | 281.4481 | 0.0297 | | 282.0721 |

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 | | | | | | | | | | | | | | | |
| 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 | 0.0000 | 0.0000 | 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 |

3.6 Architectural Coating - 2017

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 | | | | | | | | | | | | | | | |
| Archit. Coating | 11.2631 | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.3323 | 2.1850 | 1.8681 | 2.9700e-003 | | 0.1733 | 0.1733 | 0.1733 | 0.1733 | 0.1733 | 0.0000 | 281.4481 | 281.4481 | 0.0297 | | 282.0721 |
| Total | 11.5954 | 2.1850 | 1.8681 | 2.9700e-003 | | 0.1733 | 0.1733 | 0.1733 | 0.1733 | 0.1733 | 0.0000 | 281.4481 | 281.4481 | 0.0297 | | 282.0721 |

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 | | | | | | | | | | | | | | | |
| 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 | 0.0000 | 0.0000 | 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 |

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 | 0.1424 | 0.4144 | 1.6865 | 4.3600e-003 | 0.2922 | 6.0700e-003 | 0.2982 | 0.0781 | 5.5800e-003 | 0.0837 | | 371.1428 | 371.1428 | 0.0140 | | 371.4369 |
| Unmitigated | 0.1424 | 0.4144 | 1.6865 | 4.3600e-003 | 0.2922 | 6.0700e-003 | 0.2982 | 0.0781 | 5.5800e-003 | 0.0837 | | 371.1428 | 371.1428 | 0.0140 | | 371.4369 |

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated Annual VMT | Mitigated Annual VMT |
|-----------------------|-------------------------|----------|--------|------------------------|----------------------|
| | Weekday | Saturday | Sunday | | |
| Single Family Housing | 38.28 | 40.32 | 35.08 | 130,242 | 130,242 |
| Total | 38.28 | 40.32 | 35.08 | 130,242 | 130,242 |

4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | | Trip Purpose % | | |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Single Family Housing | 14.70 | 5.90 | 8.70 | 40.20 | 19.20 | 40.60 | 86 | 11 | 3 |

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.513125 | 0.060112 | 0.180262 | 0.139218 | 0.042100 | 0.006630 | 0.016061 | 0.030999 | 0.001941 | 0.002506 | 0.004348 | 0.000594 | 0.002104 |

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|------------------------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|---------|
| | lb/day | | | | | | | | | | | | | | | |
| NaturalGas Mitigated | 3.4100e-003 | 0.0292 | 0.0124 | 1.9000e-004 | | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | | 37.2390 | 37.2390 | 7.1000e-004 | 6.8000e-004 | 37.4656 |
| NaturalGas Unmitigated | 3.4100e-003 | 0.0292 | 0.0124 | 1.9000e-004 | | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | | 37.2390 | 37.2390 | 7.1000e-004 | 6.8000e-004 | 37.4656 |

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 | | | | | | | | | | | | | | | |
| Single Family Housing | 316.532 | 3.4100e-003 | 0.0292 | 0.0124 | 1.9000e-004 | | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | 2.3600e-003 | | 37.2390 | 37.2390 | 7.1000e-004 | 6.8000e-004 | 37.4656 |
| Total | | 3.4100e-003 | 0.0292 | 0.0124 | 1.9000e-004 | | 2.3600e-003 | 2.3600e-003 | | 2.3600e-003 | 2.3600e-003 | | 37.2390 | 37.2390 | 7.1000e-004 | 6.8000e-004 | 37.4656 |

5.2 Energy by Land Use - NaturalGas

Mitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|----------------|----------------|--------------------|--------------------|----------------|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | | | | | | |
| Single Family Housing | 0.316532 | 3.4100e-003 | 0.0292 | 0.0124 | 1.9000e-004 | | 2.3600e-003 | 2.3600e-003 | | 2.3600e-003 | 2.3600e-003 | | 37.2390 | 37.2390 | 7.1000e-004 | 6.8000e-004 | 37.4656 |
| Total | | 3.4100e-003 | 0.0292 | 0.0124 | 1.9000e-004 | | 2.3600e-003 | 2.3600e-003 | | 2.3600e-003 | 2.3600e-003 | | 37.2390 | 37.2390 | 7.1000e-004 | 6.8000e-004 | 37.4656 |

6.0 Area Detail

6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|-------------|----------|
| Category | lb/day | | | | | | | | | | | | | | | |
| Mitigated | 1.2165 | 0.0305 | 2.3439 | 3.2200e-003 | | 0.3074 | 0.3074 | | 0.3073 | 0.3073 | 37.4677 | 72.5942 | 110.0619 | 0.1123 | 2.5400e-003 | 113.2092 |
| Unmitigated | 1.2165 | 0.0305 | 2.3439 | 3.2200e-003 | | 0.3074 | 0.3074 | | 0.3073 | 0.3073 | 37.4677 | 72.5942 | 110.0619 | 0.1123 | 2.5400e-003 | 113.2092 |

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 | 0.0154 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.1426 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 1.0481 | 0.0266 | 2.0106 | 3.2000e-003 | | 0.3056 | 0.3056 | | 0.3055 | 0.3055 | 37.4677 | 72.0000 | 109.4677 | 0.1117 | 2.5400e-003 | 112.6025 |
| Landscaping | 0.0104 | 3.8900e-003 | 0.3333 | 2.0000e-005 | | 1.8100e-003 | 1.8100e-003 | | 1.8100e-003 | 1.8100e-003 | | 0.5942 | 0.5942 | 6.0000e-004 | | 0.6067 |
| Total | 1.2165 | 0.0305 | 2.3439 | 3.2200e-003 | | 0.3074 | 0.3074 | | 0.3073 | 0.3073 | 37.4677 | 72.5942 | 110.0619 | 0.1123 | 2.5400e-003 | 113.2092 |

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 | 0.0154 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.1426 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 1.0481 | 0.0266 | 2.0106 | 3.2000e-003 | | 0.3056 | 0.3056 | | 0.3055 | 0.3055 | 37.4677 | 72.0000 | 109.4677 | 0.1117 | 2.5400e-003 | 112.6025 |
| Landscaping | 0.0104 | 3.8900e-003 | 0.3333 | 2.0000e-005 | | 1.8100e-003 | 1.8100e-003 | | 1.8100e-003 | 1.8100e-003 | | 0.5942 | 0.5942 | 6.0000e-004 | | 0.6067 |
| Total | 1.2165 | 0.0305 | 2.3439 | 3.2200e-003 | | 0.3074 | 0.3074 | | 0.3073 | 0.3073 | 37.4677 | 72.5942 | 110.0619 | 0.1123 | 2.5400e-003 | 113.2092 |

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Seal Beach 17th St South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|-----------------------|------|---------------|-------------|--------------------|------------|
| Single Family Housing | 4.00 | Dwelling Unit | 0.52 | 7,200.00 | 11 |

1.2 Other Project Characteristics

| | | | | | |
|--------------|-------|------------------|-----|---------------------------|------|
| Urbanization | Urban | Wind Speed (m/s) | 2.2 | Precipitation Freq (Days) | 31 |
| Climate Zone | 8 | | | Operational Year | 2017 |

Utility Company Southern California Edison

| | | | | | |
|-----------------------------|--------|-----------------------------|-------|-----------------------------|-------|
| CO2 Intensity (lb/MW/hr) | 630.89 | CH4 Intensity (lb/MW/hr) | 0.029 | N2O Intensity (lb/MW/hr) | 0.006 |
|-----------------------------|--------|-----------------------------|-------|-----------------------------|-------|

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Used actual lot size

Construction Phase - Demo: 10 days, Grading: 2 days, Construction: 100 days, Paving: 5 days

Demolition - Demo: 1696 sf triplex

| Table Name | Column Name | Default Value | New Value |
|---------------------------|------------------|---------------|-----------|
| tblConstructionPhase | PhaseEndDate | 1/17/2017 | 1/18/2017 |
| tblConstructionPhase | PhaseStartDate | 1/14/2017 | 1/17/2017 |
| tblLandUse | LotAcreage | 1.30 | 0.52 |
| tblProjectCharacteristics | Operational Year | 2014 | 2017 |

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

| Year | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|---------|
| tons/yr | | | | | | | | | | | MT/yr | | | | | |
| 2017 | 0.1031 | 0.7285 | 0.4857 | 7.0000e-004 | 3.3600e-003 | 0.0491 | 0.0525 | 1.0100e-003 | 0.0454 | 0.0464 | 0.0000 | 63.8991 | 63.8991 | 0.0182 | 0.0000 | 64.2814 |
| Total | 0.1031 | 0.7285 | 0.4857 | 7.0000e-004 | 3.3600e-003 | 0.0491 | 0.0525 | 1.0100e-003 | 0.0454 | 0.0464 | 0.0000 | 63.8991 | 63.8991 | 0.0182 | 0.0000 | 64.2814 |

Mitigated Construction

| Year | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|---------|
| tons/yr | | | | | | | | | | | MT/yr | | | | | |
| 2017 | 0.1031 | 0.7285 | 0.4857 | 7.0000e-004 | 3.3600e-003 | 0.0491 | 0.0525 | 1.0100e-003 | 0.0454 | 0.0464 | 0.0000 | 63.8990 | 63.8990 | 0.0182 | 0.0000 | 64.2813 |
| Total | 0.1031 | 0.7285 | 0.4857 | 7.0000e-004 | 3.3600e-003 | 0.0491 | 0.0525 | 1.0100e-003 | 0.0454 | 0.0464 | 0.0000 | 63.8990 | 63.8990 | 0.0182 | 0.0000 | 64.2813 |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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 | 0.0432 | 8.2000e-004 | 0.0668 | 4.0000e-005 | | 4.0500e-003 | 4.0500e-003 | | 4.0500e-003 | 4.0500e-003 | 0.4249 | 0.8839 | 1.3087 | 1.3300e-003 | 3.0000e-005 | 1.3457 |
| Energy | 6.2000e-004 | 5.3200e-003 | 2.2700e-003 | 3.0000e-005 | | 4.3000e-004 | 4.3000e-004 | | 4.3000e-004 | 4.3000e-004 | 0.0000 | 14.2807 | 14.2807 | 4.9000e-004 | 1.9000e-004 | 14.3499 |
| Mobile | 0.0241 | 0.0765 | 0.2874 | 7.2000e-004 | 0.0494 | 1.0400e-003 | 0.0504 | 0.0132 | 9.6000e-004 | 0.0142 | 0.0000 | 55.7371 | 55.7371 | 2.1800e-003 | 0.0000 | 55.7830 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.9155 | 0.0000 | 0.9155 | 0.0541 | 0.0000 | 2.0517 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0827 | 1.4935 | 1.5762 | 8.5600e-003 | 2.1000e-004 | 1.8225 |
| Total | 0.0679 | 0.0826 | 0.3565 | 7.9000e-004 | 0.0494 | 5.5200e-003 | 0.0549 | 0.0132 | 5.4400e-003 | 0.0187 | 1.4231 | 72.3951 | 73.8181 | 0.0667 | 4.3000e-004 | 75.3528 |

2.2 Overall Operational

Mitigated Operational

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|----------------|----------------|---------------|--------------------|----------------|
| | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0432 | 8.2000e-004 | 0.0668 | 4.0000e-005 | | 4.0500e-003 | 4.0500e-003 | | 4.0500e-003 | 4.0500e-003 | 0.4249 | 0.8839 | 1.3087 | 1.3300e-003 | 3.0000e-005 | 1.3457 |
| Energy | 6.2000e-004 | 5.3200e-003 | 2.2700e-003 | 3.0000e-005 | | 4.3000e-004 | 4.3000e-004 | | 4.3000e-004 | 4.3000e-004 | 0.0000 | 14.2807 | 14.2807 | 4.9000e-004 | 1.9000e-004 | 14.3499 |
| Mobile | 0.0241 | 0.0765 | 0.2874 | 7.2000e-004 | 0.0494 | 1.0400e-003 | 0.0504 | 0.0132 | 9.6000e-004 | 0.0142 | 0.0000 | 55.7371 | 55.7371 | 2.1800e-003 | 0.0000 | 55.7830 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.9155 | 0.0000 | 0.9155 | 0.0541 | 0.0000 | 2.0517 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0827 | 1.4935 | 1.5762 | 8.5600e-003 | 2.1000e-004 | 1.8224 |
| Total | 0.0679 | 0.0826 | 0.3565 | 7.9000e-004 | 0.0494 | 5.5200e-003 | 0.0549 | 0.0132 | 5.4400e-003 | 0.0187 | 1.4231 | 72.3951 | 73.8181 | 0.0667 | 4.3000e-004 | 75.3526 |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

3.0 Construction Detail

Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1 | Demolition | Demolition | 1/1/2017 | 1/13/2017 | 5 | 10 | |
| 2 | Grading | Grading | 1/17/2017 | 1/18/2017 | 5 | 2 | |
| 3 | Building Construction | Building Construction | 1/19/2017 | 6/7/2017 | 5 | 100 | |
| 4 | Paving | Paving | 6/8/2017 | 6/14/2017 | 5 | 5 | |
| 5 | Architectural Coating | Architectural Coating | 6/15/2017 | 6/21/2017 | 5 | 5 | |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 14,580; Residential Outdoor: 4,860; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 4 | 6.00 | 9 | 0.56 |
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Grading | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Building Construction | Cranes | 1 | 4.00 | 226 | 0.29 |
| Building Construction | Forklifts | 2 | 6.00 | 89 | 0.20 |
| Paving | Pavers | 1 | 7.00 | 125 | 0.42 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Demolition | Rubber Tired Dozers | 1 | 1.00 | 255 | 0.40 |
| Grading | Rubber Tired Dozers | 1 | 1.00 | 255 | 0.40 |
| Building Construction | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Demolition | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |

Trips and VMT

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 5 | 1.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 7 | 18.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 0.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

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 | | | | | | | | | | | | | | | |
| Fugitive Dust | 6.0200e-003 | 0.0524 | 0.0429 | 6.0000e-005 | 8.3000e-004 | 0.0000 | 8.3000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 6.0200e-003 | 0.0524 | 0.0429 | 6.0000e-005 | 8.3000e-004 | 0.0000 | 8.3000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 6.0200e-003 | 0.0524 | 0.0429 | 6.0000e-005 | 8.3000e-004 | 0.0000 | 8.3000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

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 | | | | | | | | | | | | | | | |
| Hauling | 7.0000e-005 | 1.0700e-003 | 8.4000e-004 | 0.0000 | 7.0000e-005 | 2.0000e-005 | 8.0000e-005 | 2.0000e-005 | 1.0000e-005 | 3.0000e-005 | 0.0000 | 0.2653 | 0.2653 | 0.0000 | 0.0000 | 0.2654 |
| 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 | 1.8000e-004 | 2.7000e-004 | 2.7600e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4942 | 0.4942 | 3.0000e-005 | 0.0000 | 0.4948 |
| Total | 2.5000e-004 | 1.3400e-003 | 3.6000e-003 | 1.0000e-005 | 6.2000e-004 | 2.0000e-005 | 6.3000e-004 | 1.7000e-004 | 1.0000e-005 | 1.8000e-004 | 0.0000 | 0.7595 | 0.7595 | 3.0000e-005 | 0.0000 | 0.7601 |

3.2 Demolition - 2017

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | .. | .. | .. | .. | 8.3000e-004 | 0.0000 | 8.3000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 6.0200e-003 | 0.0524 | 0.0429 | 6.0000e-005 | .. | 3.6300e-003 | 3.6300e-003 | 3.4600e-003 | .. | 3.4600e-003 | 0.0000 | 5.3697 | 5.3697 | 1.0600e-003 | 0.0000 | 5.3919 |
| Total | 6.0200e-003 | 0.0524 | 0.0429 | 6.0000e-005 | 8.3000e-004 | 3.6300e-003 | 4.4600e-003 | 1.3000e-004 | 3.4600e-003 | 3.5900e-003 | 0.0000 | 5.3697 | 5.3697 | 1.0600e-003 | 0.0000 | 5.3919 |

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 | 7.0000e-005 | 1.0700e-003 | 8.4000e-004 | 0.0000 | 7.0000e-005 | 2.0000e-005 | 8.0000e-005 | 2.0000e-005 | 1.0000e-005 | 3.0000e-005 | 0.0000 | 0.2653 | 0.2653 | 0.0000 | 0.0000 | 0.2654 |
| 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 | 1.8000e-004 | 2.7000e-004 | 2.7600e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4942 | 0.4942 | 3.0000e-005 | 0.0000 | 0.4948 |
| Total | 2.5000e-004 | 1.3400e-003 | 3.6000e-003 | 1.0000e-005 | 6.2000e-004 | 2.0000e-005 | 6.3000e-004 | 1.7000e-004 | 1.0000e-005 | 1.8000e-004 | 0.0000 | 0.7595 | 0.7595 | 3.0000e-005 | 0.0000 | 0.7601 |

3.3 Grading - 2017

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 | | | | | | | | | | | | | | | |
| Fugitive Dust | .. | .. | .. | .. | 7.5000e-004 | 0.0000 | 7.5000e-004 | 4.1000e-004 | 0.0000 | 4.1000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.2000e-003 | 0.0105 | 8.5800e-003 | 1.0000e-005 | .. | 7.3000e-004 | 7.3000e-004 | 6.9000e-004 | 6.9000e-004 | 6.9000e-004 | 0.0000 | 1.0739 | 1.0739 | 2.1000e-004 | 0.0000 | 1.0784 |
| Total | 1.2000e-003 | 0.0105 | 8.5800e-003 | 1.0000e-005 | 7.5000e-004 | 7.3000e-004 | 1.4800e-003 | 4.1000e-004 | 6.9000e-004 | 1.1000e-003 | 0.0000 | 1.0739 | 1.0739 | 2.1000e-004 | 0.0000 | 1.0784 |

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 | | | | | | | | | | | | | | | |
| 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 | 4.0000e-005 | 5.0000e-005 | 5.5000e-004 | 0.0000 | 1.1000e-004 | 0.0000 | 1.1000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0988 | 0.0988 | 1.0000e-005 | 0.0000 | 0.0990 |
| Total | 4.0000e-005 | 5.0000e-005 | 5.5000e-004 | 0.0000 | 1.1000e-004 | 0.0000 | 1.1000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0988 | 0.0988 | 1.0000e-005 | 0.0000 | 0.0990 |

3.3 Grading - 2017

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 | | | | | | | | | | | | | | | |
| Fugitive Dust | .. | .. | .. | .. | 7.5000e-004 | 0.0000 | 7.5000e-004 | 4.1000e-004 | 0.0000 | 4.1000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.2000e-003 | 0.0105 | 8.5800e-003 | 1.0000e-005 | .. | 7.3000e-004 | 7.3000e-004 | .. | 6.9000e-004 | 6.9000e-004 | 0.0000 | 1.0739 | 1.0739 | 2.1000e-004 | 0.0000 | 1.0784 |
| Total | 1.2000e-003 | 0.0105 | 8.5800e-003 | 1.0000e-005 | 7.5000e-004 | 7.3000e-004 | 1.4800e-003 | 4.1000e-004 | 6.9000e-004 | 1.1000e-003 | 0.0000 | 1.0739 | 1.0739 | 2.1000e-004 | 0.0000 | 1.0784 |

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 | | | | | | | | | | | | | | | |
| 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 | 4.0000e-005 | 5.0000e-005 | 5.5000e-004 | 0.0000 | 1.1000e-004 | 0.0000 | 1.1000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0988 | 0.0988 | 1.0000e-005 | 0.0000 | 0.0990 |
| Total | 4.0000e-005 | 5.0000e-005 | 5.5000e-004 | 0.0000 | 1.1000e-004 | 0.0000 | 1.1000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0988 | 0.0988 | 1.0000e-005 | 0.0000 | 0.0990 |

3.4 Building Construction - 2017

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 | 0.0637 | 0.6337 | 0.4020 | 5.7000e-004 | | 0.0428 | 0.0428 | 0.0394 | 0.0394 | 0.0394 | 0.0000 | 52.5954 | 52.5954 | 0.0161 | 0.0000 | 52.9339 |
| Total | 0.0637 | 0.6337 | 0.4020 | 5.7000e-004 | | 0.0428 | 0.0428 | 0.0394 | 0.0394 | 0.0394 | 0.0000 | 52.5954 | 52.5954 | 0.0161 | 0.0000 | 52.9339 |

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 | 1.8000e-004 | 2.7000e-004 | 2.7600e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4942 | 0.4942 | 3.0000e-005 | 0.0000 | 0.4948 |
| Total | 1.8000e-004 | 2.7000e-004 | 2.7600e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4942 | 0.4942 | 3.0000e-005 | 0.0000 | 0.4948 |

3.4 Building Construction - 2017

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 | 0.0637 | 0.6337 | 0.4020 | 5.7000e-004 | | 0.0428 | 0.0428 | | 0.0394 | 0.0394 | 0.0000 | 52.5954 | 52.5954 | 0.0161 | 0.0000 | 52.9338 |
| Total | 0.0637 | 0.6337 | 0.4020 | 5.7000e-004 | | 0.0428 | 0.0428 | | 0.0394 | 0.0394 | 0.0000 | 52.5954 | 52.5954 | 0.0161 | 0.0000 | 52.9338 |

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 | 1.8000e-004 | 2.7000e-004 | 2.7600e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4942 | 0.4942 | 3.0000e-005 | 0.0000 | 0.4948 |
| Total | 1.8000e-004 | 2.7000e-004 | 2.7600e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4942 | 0.4942 | 3.0000e-005 | 0.0000 | 0.4948 |

3.5 Paving - 2017

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 | | | | | | | | | | | | | | | |
| Off-Road | 2.6000e-003 | 0.0246 | 0.0181 | 3.0000e-005 | | 1.5000e-003 | 1.5000e-003 | 1.3900e-003 | 1.3900e-003 | 1.3900e-003 | 0.0000 | 2.4243 | 2.4243 | 6.7000e-004 | 0.0000 | 2.4384 |
| Paving | 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 | 2.6000e-003 | 0.0246 | 0.0181 | 3.0000e-005 | | 1.5000e-003 | 1.5000e-003 | 1.3900e-003 | 1.3900e-003 | 1.3900e-003 | 0.0000 | 2.4243 | 2.4243 | 6.7000e-004 | 0.0000 | 2.4384 |

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 | | | | | | | | | | | | | | | |
| 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 | 1.6000e-004 | 2.4000e-004 | 2.4900e-003 | 1.0000e-005 | 4.9000e-004 | 0.0000 | 5.0000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.4448 | 0.4448 | 2.0000e-005 | 0.0000 | 0.4453 |
| Total | 1.6000e-004 | 2.4000e-004 | 2.4900e-003 | 1.0000e-005 | 4.9000e-004 | 0.0000 | 5.0000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.4448 | 0.4448 | 2.0000e-005 | 0.0000 | 0.4453 |

3.5 Paving - 2017

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 | | | | | | | | | | | | | | | |
| Off-Road | 2.6000e-003 | 0.0246 | 0.0181 | 3.0000e-005 | | 1.5000e-003 | 1.5000e-003 | 1.3900e-003 | 1.3900e-003 | 1.3900e-003 | 0.0000 | 2.4243 | 2.4243 | 6.7000e-004 | 0.0000 | 2.4384 |
| Paving | 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 | 2.6000e-003 | 0.0246 | 0.0181 | 3.0000e-005 | | 1.5000e-003 | 1.5000e-003 | 1.3900e-003 | | 1.3900e-003 | 0.0000 | 2.4243 | 2.4243 | 6.7000e-004 | 0.0000 | 2.4384 |

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 | | | | | | | | | | | | | | | |
| 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 | 1.6000e-004 | 2.4000e-004 | 2.4900e-003 | 1.0000e-005 | 4.9000e-004 | 0.0000 | 5.0000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.4448 | 0.4448 | 2.0000e-005 | 0.0000 | 0.4453 |
| Total | 1.6000e-004 | 2.4000e-004 | 2.4900e-003 | 1.0000e-005 | 4.9000e-004 | 0.0000 | 5.0000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.4448 | 0.4448 | 2.0000e-005 | 0.0000 | 0.4453 |

Unmitigated Construction On-Site

[illegible]

3.6 Architectural Coating - 2017

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 | 0.0282 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.3000e-004 | 5.4600e-003 | 4.6700e-003 | 1.0000e-005 | | 4.3000e-004 | 4.3000e-004 | | 4.3000e-004 | 4.3000e-004 | 0.0000 | 0.6383 | 0.6383 | 7.0000e-005 | 0.0000 | 0.6397 |
| Total | 0.0290 | 5.4600e-003 | 4.6700e-003 | 1.0000e-005 | | 4.3000e-004 | 4.3000e-004 | | 4.3000e-004 | 4.3000e-004 | 0.0000 | 0.6383 | 0.6383 | 7.0000e-005 | 0.0000 | 0.6397 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 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 | 0.0000 | 0.0000 |

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 | 0.0241 | 0.0765 | 0.2874 | 7.2000e-004 | 0.0494 | 1.0400e-003 | 0.0504 | 0.0132 | 9.6000e-004 | 0.0142 | 0.0000 | 55.7371 | 55.7371 | 2.1800e-003 | 0.0000 | 55.7830 |
| Unmitigated | 0.0241 | 0.0765 | 0.2874 | 7.2000e-004 | 0.0494 | 1.0400e-003 | 0.0504 | 0.0132 | 9.6000e-004 | 0.0142 | 0.0000 | 55.7371 | 55.7371 | 2.1800e-003 | 0.0000 | 55.7830 |

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated Annual VMT | Mitigated Annual VMT |
|-----------------------|-------------------------|----------|--------|------------------------|----------------------|
| | Weekday | Saturday | Sunday | | |
| Single Family Housing | 38.28 | 40.32 | 35.08 | 130,242 | 130,242 |
| Total | 38.28 | 40.32 | 35.08 | 130,242 | 130,242 |

4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | | Trip Purpose % | | |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Single Family Housing | 14.70 | 5.90 | 8.70 | 40.20 | 19.20 | 40.60 | 86 | 11 | 3 |

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.513125 | 0.060112 | 0.180262 | 0.139218 | 0.042100 | 0.006630 | 0.016061 | 0.030999 | 0.001941 | 0.002506 | 0.004348 | 0.000594 | 0.002104 |

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|--------|
| | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 8.1153 | 8.1153 | 3.7000e-004 | 8.0000e-005 | 8.1471 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 8.1153 | 8.1153 | 3.7000e-004 | 8.0000e-005 | 8.1471 |
| Natural Gas Mitigated | 6.2000e-004 | 5.3200e-003 | 2.2700e-003 | 3.0000e-005 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 0.0000 | 6.1653 | 6.1653 | 1.2000e-004 | 1.1000e-004 | 6.2029 |
| Natural Gas Unmitigated | 6.2000e-004 | 5.3200e-003 | 2.2700e-003 | 3.0000e-005 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 0.0000 | 6.1653 | 6.1653 | 1.2000e-004 | 1.1000e-004 | 6.2029 |

5.2 Energy by Land Use - Natural Gas

Unmitigated

| | Natural Gas 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 | | | | | |
| Single Family Housing | 115534 | 6.2000e-004 | 5.3200e-003 | 2.2700e-003 | 3.0000e-005 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 0.0000 | 6.1653 | 6.1653 | 1.2000e-004 | 1.1000e-004 | 6.2029 |
| Total | | 6.2000e-004 | 5.3200e-003 | 2.2700e-003 | 3.0000e-005 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 4.3000e-004 | 0.0000 | 6.1653 | 6.1653 | 1.2000e-004 | 1.1000e-004 | 6.2029 |

5.2 Energy by Land Use - NaturalGas

Mitigated

| Land Use | 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 | | | | | |
| Single Family Housing | 115534 | 6.2000e-004 | 5.3200e-003 | 2.2700e-003 | 3.0000e-005 | | 4.3000e-004 | 4.3000e-004 | | 4.3000e-004 | 4.3000e-004 | 0.0000 | 6.1653 | 6.1653 | 1.2000e-004 | 1.1000e-004 | 6.2029 |
| Total | | 6.2000e-004 | 5.3200e-003 | 2.2700e-003 | 3.0000e-005 | | 4.3000e-004 | 4.3000e-004 | | 4.3000e-004 | 4.3000e-004 | 0.0000 | 6.1653 | 6.1653 | 1.2000e-004 | 1.1000e-004 | 6.2029 |

5.3 Energy by Land Use - Electricity

Unmitigated

| Land Use | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|-----------------|---------------|--------------------|--------------------|---------------|
| Land Use | kWh/yr | MT/yr | | | |
| Single Family Housing | 28358.7 | 8.1153 | 3.7000e-004 | 8.0000e-005 | 8.1471 |
| Total | | 8.1153 | 3.7000e-004 | 8.0000e-005 | 8.1471 |

5.3 Energy by Land Use - Electricity

Mitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|-----------------|---------------|--------------------|--------------------|---------------|
| Land Use | kWh/yr | MT/yr | | | |
| Single Family Housing | 28358.7 | 8.1153 | 3.7000e-004 | 8.0000e-005 | 8.1471 |
| Total | | 8.1153 | 3.7000e-004 | 8.0000e-005 | 8.1471 |

6.0 Area Detail

6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|---------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|--------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.0432 | 8.2000e-004 | 0.0668 | 4.0000e-005 | | 4.0500e-003 | 4.0500e-003 | | 4.0500e-003 | 4.0500e-003 | 0.4249 | 0.8839 | 1.3087 | 1.3300e-003 | 3.0000e-005 | 1.3457 |
| Unmitigated | 0.0432 | 8.2000e-004 | 0.0668 | 4.0000e-005 | | 4.0500e-003 | 4.0500e-003 | | 4.0500e-003 | 4.0500e-003 | 0.4249 | 0.8839 | 1.3087 | 1.3300e-003 | 3.0000e-005 | 1.3457 |

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 | 2.8200e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0260 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0131 | 3.3000e-004 | 0.0251 | 4.0000e-005 | | 3.8200e-003 | 3.8200e-003 | | 3.8200e-003 | 3.8200e-003 | 0.4249 | 0.8165 | 1.2413 | 1.2700e-003 | 3.0000e-005 | 1.2769 |
| Landscaping | 1.3000e-003 | 4.9000e-004 | 0.0417 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | 0.0000 | 0.0674 | 0.0674 | 7.0000e-005 | 0.0000 | 0.0688 |
| Total | 0.0432 | 8.2000e-004 | 0.0668 | 4.0000e-005 | | 4.0500e-003 | 4.0500e-003 | | 4.0500e-003 | 4.0500e-003 | 0.4249 | 0.8839 | 1.3087 | 1.3400e-003 | 3.0000e-005 | 1.3457 |

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 | 2.8200e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0260 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0131 | 3.3000e-004 | 0.0251 | 4.0000e-005 | | 3.8200e-003 | 3.8200e-003 | | 3.8200e-003 | 3.8200e-003 | 0.4249 | 0.8165 | 1.2413 | 1.2700e-003 | 3.0000e-005 | 1.2769 |
| Landscaping | 1.3000e-003 | 4.9000e-004 | 0.0417 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | 0.0000 | 0.0674 | 0.0674 | 7.0000e-005 | 0.0000 | 0.0688 |
| Total | 0.0432 | 8.2000e-004 | 0.0668 | 4.0000e-005 | | 4.0500e-003 | 4.0500e-003 | | 4.0500e-003 | 4.0500e-003 | 0.4249 | 0.8839 | 1.3087 | 1.3400e-003 | 3.0000e-005 | 1.3457 |

7.0 Water Detail

7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|-------------|-----------|-------------|-------------|--------|
| Category | MT/yr | | | |
| Mitigated | 1.5762 | 8.5600e-003 | 2.1000e-004 | 1.8224 |
| Unmitigated | 1.5762 | 8.5600e-003 | 2.1000e-004 | 1.8225 |

7.2 Water by Land Use

Unmitigated

| | Indoor/Outdoor Use | Total CO ₂ | CH ₄ | N ₂ O | CO ₂ e |
|-----------------------|---------------------|-----------------------|--------------------|--------------------|-------------------|
| Land Use | Mgal | MT/yr | | | |
| Single Family Housing | 0.260616 / 0.164301 | 1.5762 | 8.5600e-003 | 2.1000e-004 | 1.8225 |
| Total | | 1.5762 | 8.5600e-003 | 2.1000e-004 | 1.8225 |

Mitigated

| | Indoor/Outdoor Use | Total CO ₂ | CH ₄ | N ₂ O | CO ₂ e |
|-----------------------|---------------------|-----------------------|--------------------|--------------------|-------------------|
| Land Use | Mgal | MT/yr | | | |
| Single Family Housing | 0.260616 / 0.164301 | 1.5762 | 8.5600e-003 | 2.1000e-004 | 1.8224 |
| Total | | 1.5762 | 8.5600e-003 | 2.1000e-004 | 1.8224 |

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

| | Total CO2 | CH4 | N2O | CO2e |
|-------------|-----------|--------|--------|--------|
| | MT/yr | | | |
| Mitigated | 0.9155 | 0.0541 | 0.0000 | 2.0517 |
| Unmitigated | 0.9155 | 0.0541 | 0.0000 | 2.0517 |

8.2 Waste by Land Use

Unmitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|----------------|-----------|--------|--------|--------|
| Land Use | tons | MT/yr | | | |
| Single Family Housing | 4.51 | 0.9155 | 0.0541 | 0.0000 | 2.0517 |
| Total | | 0.9155 | 0.0541 | 0.0000 | 2.0517 |

8.2 Waste by Land Use

Mitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|----------------|-----------|--------|--------|--------|
| Land Use | tons | MT/yr | | | |
| Single Family Housing | 4.51 | 0.9155 | 0.0541 | 0.0000 | 2.0517 |
| Total | | 0.9155 | 0.0541 | 0.0000 | 2.0517 |

9.0 Operational Offroad

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

10.0 Vegetation

Appendix D – Noise Analysis

NOISE IMPACT ANALYSIS
TPM 17925 (17TH ST)
SEAL BEACH, CALIFORNIA

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Date:

August 5, 2016

Project No.: P16-052 N

NOISE SETTING

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally considered to be unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

Loud or soft, noisy or quiet, high-and-low pitch are all qualitative terms used to describe sound. These terms are relative descriptions. The science of acoustics attempts to quantify the human perception of sound into a quantitative and measurable basis. Amplitude is the measure of the pressure exerted by sound waves. Amplitude may be so small as to be inaudible by humans, or so great as to be painful. Frequency refers to pitch or tone. The unit of measure is in cycles per second called "hertz". Very low frequency bass tones and ultra-high frequency treble are difficult for humans to detect. Many noise generators in the ambient world are multi-spectral.

The decibel (dB) scale is used to quantify sound pressure levels. Although decibels are most commonly associated with sound, "dB" is a generic descriptor that is equal to ten times the logarithmic ratio of any physical parameter versus some reference quantity. For sound, the reference level is the faintest sound detectable by a young person with good auditory acuity.

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called "A-weighting," written as dB(A). Any further reference in this discussion to decibels written as "dB" should be understood to be A-weighted.

Leq is a time-averaged sound level; a single-number value that expresses the time-varying sound level for the specified period as though it were a constant sound level with the same total sound energy as the time-varying level. Its unit is the decibel (dB). The most common averaging period for Leq is hourly.

Because community receptors are more sensitive to unwanted noise intrusion during more sensitive evening and nighttime hours, state law requires that an artificial dBA increment be added to quiet time noise levels. The 24-hour noise descriptor with a specified evening and nocturnal penalty is called the Community Noise Equivalent Level (CNEL). CNEL's are a weighted average of hourly Leq's.

PLANNING STANDARDS

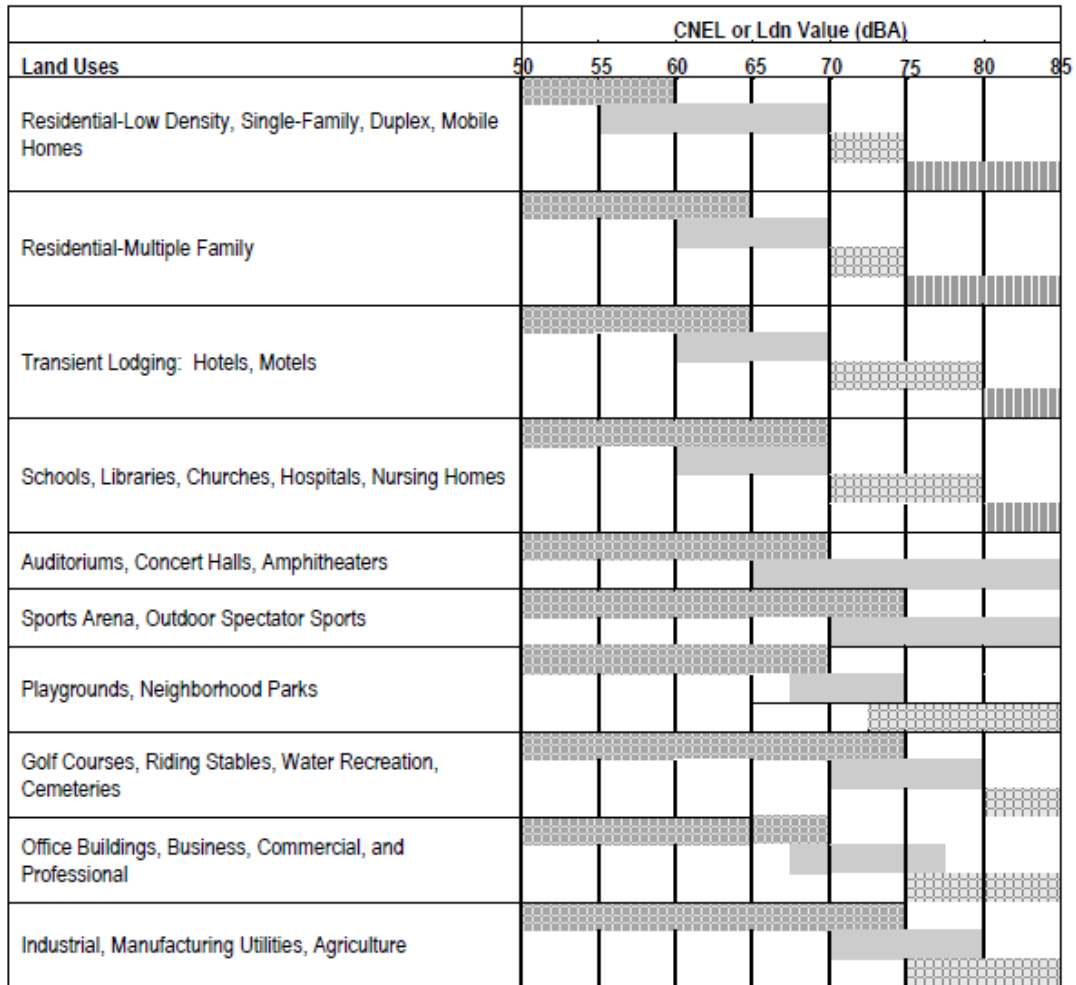
The City of Seal Beach has established guidelines for acceptable community noise levels that are based upon the CNEL rating scale to insure that noise exposure is considered in any development. CNEL-based standards apply to noise sources whose noise generation is preempted from local control (such as from on-road vehicles, trains, airplanes, etc.) and are used to make land use decisions as to the suitability of a given site for its intended use. These CNEL-based standards are articulated in the Noise Element of the General Plan.

Figure 1 shows the noise compatibility guidelines for various uses. These guidelines would apply in usable outdoor space such as patios, yards, spas, etc. The guidelines indicate that an exterior noise level of 60 dB CNEL is considered to be a “normally acceptable” noise level for single family, duplex and mobile homes involving normal conventional construction, without any special noise insulation requirements. Exterior noise levels up to 65 dB CNEL are typically considered “conditionally acceptable”, and residential construction should only occur after a detailed analysis of the noise reduction requirements is made and needed noise attenuation features are included in the project design. Exterior noise attenuation features include, but are not limited to, setbacks to place structures outside the conditionally acceptable noise contour, orienting structures so no windows open to the noise source, and /or installing noise barriers such as berms or solid walls.

An interior CNEL of 45 dB is mandated by the State of California Noise Insulation Standards (CCR, Title 24, Part 6, Section T25-28) for multiple family dwellings and hotel and motel rooms. In 1988, the State Building Standards Commission expanded that standard to include all habitable rooms in residential use, included single-family dwelling units. Since normal noise attenuation within residential structures with closed windows is 20-30 dB, an exterior noise exposure of 65-75 dB CNEL allows the interior standard to be met without any specialized structural attenuation (dual paned windows, etc.), but with closed windows and fresh air supply systems or air conditioning in order to maintain a comfortable living environment.

The City of Seal Beach limits construction activities to between the hours of 7:00 a.m. and 8:00 p.m., Mondays through Friday, and the hours of 8:00 a.m. and 8:00 p.m. on Saturday and never on Sundays or city-observed federal holidays. Construction activities that occur during allowable hours are exempt from compliance with numerical noise standards.

**Figure 1 Noise Compatibility Guidelines
(Seal Beach General Plan)**



Legend:



Normally Acceptable: Specified land use as satisfactory based upon the assumption that any buildings involved are of normal environmental construction, without any special noise insulation requirements.



Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.



Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor area must be shielded.



Clearly Unacceptable: New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

NOISE ORDINANCE STANDARDS

Planning standards generally apply to land use decisions made in response to noise sources pre-empted from local control such as motor vehicles, aircraft, etc. Noises from “stationary” sources are amenable to regulation through the Municipal Code. Chapter 7.15 of the City’s code governs noise from one property crossing the property line of an adjacent property. The residential noise standard is 55 dB by day and 50 dB at night for no more than 30 minutes in any hour. Deviations from the baseline are allowed for noise “spikes” for progressively shorter periods for more substantial deviations up to a maximum of 20 dB.

Seal Beach experiences two types of noise issues. In areas where residential uses abut commercial or recreational activities, noise impacts may be perceived as intrusive, especially during noise sensitive quiet hours. Complaints about restaurant music, swim school, auto-maintenance, drive-throughs, etc. may occur. There are no commercial/residential interfaces at the project-site. Because of the small lot sizes in much of Seal Beach, mechanical equipment on one parcel may be located very close to the property line of an adjacent residential parcel. Motor hum and on/off cycling noise can be judged as intrusive. In recognition of this occasional conflict, a separate section of the Municipal Code directly address “Heating, Venting and Air Conditioning Equipment” (7.15.035). Modern equipment is typically quieter and less prone to causing problems. Compliance with the standards in this section of the code is nevertheless an important consideration in preventing possible noise nuisance.

BASELINE NOISE LEVELS

A noise study was conducted by Giroux & Associates on Monday, August 2, 2016 with short term noise readings at the project site. Meter 1 was located along 17th Street and reflects existing traffic noise. Meter 2 was on the back of the site adjacent to the Alley. The measurement results are shown below.

Short-Term Noise Measurements (dB[A])

| Meter | Time | Leq | Lmax | Lmin | L10 | L33 | L50 | L90 |
|--------------|-------------|------------|-------------|-------------|------------|------------|------------|------------|
| 1 | 14:45-15:00 | 49 | 56 | 42 | 51 | 48 | 47 | 45 |
| 2 | 15:05-15:20 | 52 | 60 | 45 | 54 | 52 | 50 | 47 |

The observed noise level was 49 Leq at Meter 1. Monitoring experience has shown that 24-hour weighted CNELs are typically 2-3 dB higher than mid-afternoon Leq readings shown above which would translate to 51-53 dB CNEL. The observed noise level was 52 dB Leq at Meter 2 which would correspond with a CNEL of 54-55. Both measurements are well within the recommended Seal Beach residential compatibility threshold.

NOISE IMPACTS

NOISE SIGNIFICANCE CRITERIA

Noise impacts are considered significant if they result in:

- a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

STANDARDS OF SIGNIFICANCE

Noise impacts are considered significant if they expose persons to levels in excess of standards established in local general plans or noise ordinances. The exterior noise standard for the City of Seal Beach residential uses is 65 dBA CNEL in usable outdoor space such as backyards, decks, patios, etc. If required, attenuation through setback and project perimeter barriers is anticipated to be used to reduce traffic noise to the 65 dBA CNEL goal. However, an inability to achieve this goal through the application of reasonably available mitigation measures would be considered a significant impact.

Impacts may also be significant if they create either a substantial permanent or temporary increase. The term "substantial" is not quantified in CEQA guidelines. In most environmental analyses, "substantial" is taken to mean a level that is clearly perceptible to humans. In practice, this is at least a +3 dB increase. Some agencies, such as Caltrans, require substantial increases to be +10 dB or more if noise standards are not exceeded by the increase. For purposes of this analysis, a +3 dB increase is considered a substantial increase. The following noise impacts due to project-related traffic would be considered significant:

1. If construction activities were to audibly intrude into adjacent uses surrounding the site.
2. If project traffic noise were to cause an increase by a perceptible amount (+3 dB CNEL) or expose receivers to levels exceeding city compatibility noise standards.
3. If future build-out noise levels were to expose Seal Beach sensitive receivers to levels exceeding compatibility standards of 65 dB CNEL exterior at any outdoor uses or 45 dB CNEL interior noise levels in any habitable space.

CONSTRUCTION NOISE SIGNIFICANCE

The Seal Beach Noise Ordinance regulates construction noise by a prohibition against making “unnecessary” noise from construction during noise-sensitive weekday hours and all day on Sundays.

CONSTRUCTION NOISE IMPACTS

Temporary construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used and its activity level. Short-term construction noise impacts tend to occur in discrete phases dominated by large, earth-moving equipment sources. Construction activities are treated separately in various community noise ordinances because they do not represent a chronic, permanent noise source.

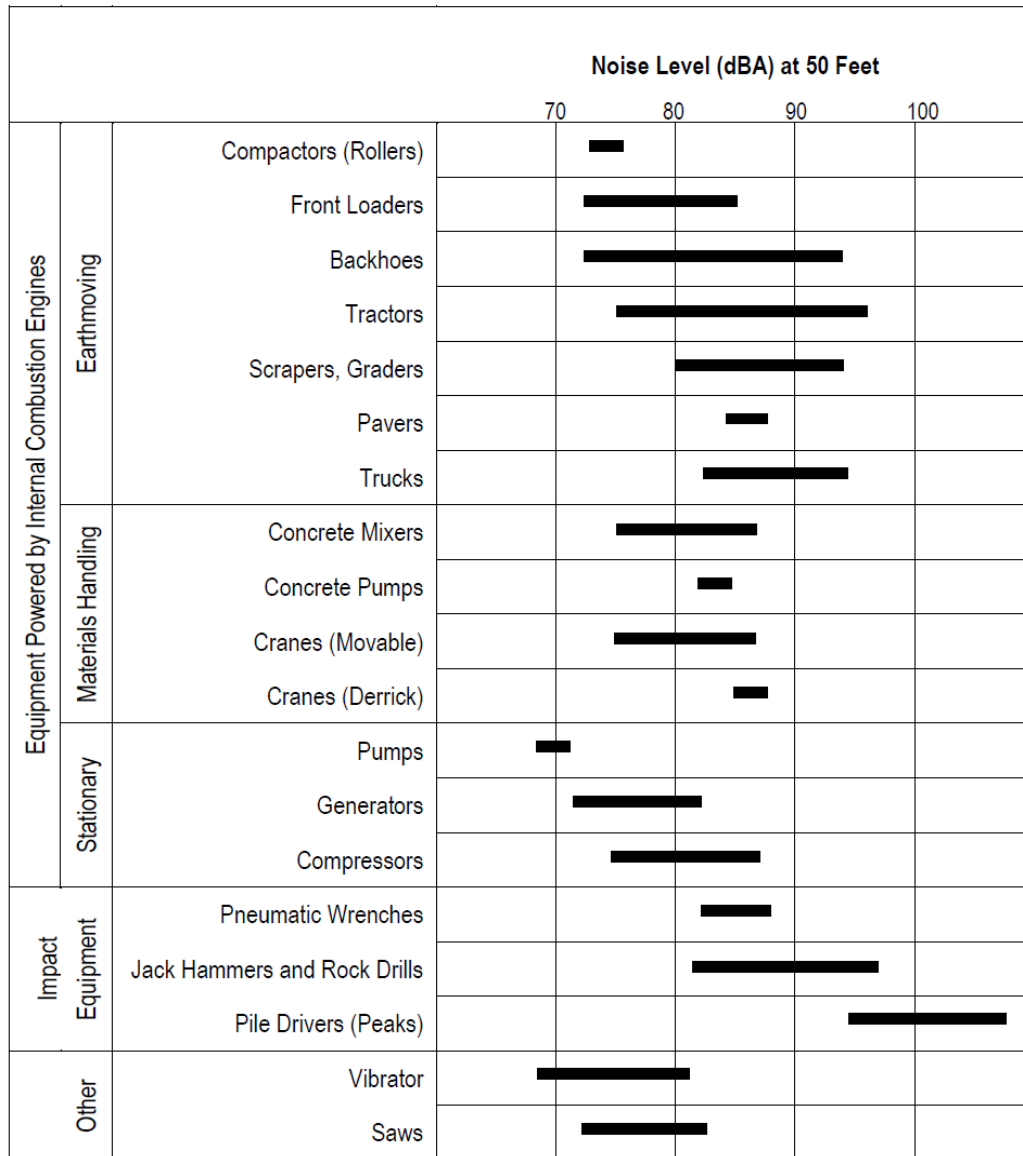
Demolition and construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used which changes during the course of the project. Construction noise tends to occur in discrete phases dominated initially by demolition and/or earth-moving sources and later for finish construction. Figure 2 shows the typical range of construction activity noise generation as a function of equipment used in various building phases. The earth-moving sources are seen to be the noisiest with equipment noise ranging up to about 90 dB(A) at 50 feet from the source. Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance, or about 20 dB in 500 feet of propagation. The loudest earth-moving noise sources may therefore sometimes be detectable above the local background beyond 1,000 feet from the construction area. An impact radius of 1,000 feet or more pre-supposes a clear line-of-sight and no other machinery or equipment noise that would mask project construction noise. With buildings and other barriers to interrupt line-of-sight conditions, the potential “noise envelope” around individual construction sites is reduced. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions.

As discussed, the City’s Municipal Code limits construction activities to between the hours of 7:00 a.m. and 8:00 p.m., Mondays through Friday, and the hours of 8:00 a.m. and 8:00 p.m. on Saturday and never on Sundays or city-observed federal holidays. Construction activities that occur during allowable hours are exempt from compliance with numerical noise standards during daytime hours.

These time of day restrictions would be effective since it would prohibit construction noise during the hours when people normally sleep and would prohibit construction noise during the early morning and evening when people are typically within their home and more sensitive to noise effects. In addition, noise levels would be temporary and intermittent. Although construction noise impacts may be noticeable at the adjacent residences and viewed as a temporary nuisance, impacts would be less than significant.

Figure 2

Typical Construction Equipment Noise Generation Levels



Source: EPA PB 206717, Environmental Protection Agency, December 31, 1971, "Noise from Construction Equipment and Operations."

CONSTRUCTION ACTIVITY VIBRATION

Ground-borne vibration occurs when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernable movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the “soft” sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (FTA 2006).

Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

The vibration descriptor commonly used to determine structural damage is the peak particle velocity (ppv) which is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in in/sec. The range of such vibration is as follows in Table 1.

Table 1
Human Response To Transient Vibration

| Average Human Response | ppv (in/sec) |
|------------------------|--------------|
| Severe | 2.00 |
| Strongly perceptible | 0.90 |
| Distinctly perceptible | 0.24 |
| Barely perceptible | 0.03 |

Source: Caltrans Transportation and Construction Vibration Guidance Manual, 2013.

Over the years, numerous vibration criteria and standards have been suggested by researchers, organizations, and governmental agencies. There are no Caltrans or Federal Highway Administration standards for vibration.

The American Association of State Highway and Transportation Officials (AASHTO) Standard R 8-96 (AASHTO, 2004) describes three general categories of damage to buildings from vibration: 1) Threshold cracking; 2) Architectural or Minor Damage; and 3) Major Damage. Both Threshold and Minor damage include cracks in room interior surfaces that do not affect the strength or structural integrity of the structure. The term “threshold cracking” is defined as the highest vibration amplitude at which no cosmetic, minor, or major damage occurs. This may include “threshold cracks” as hairline cracks in room walls that occur at the lowest vibration amplitudes. Based on the AASHTO guidelines, a threshold damage criterion of 0.5 in/sec PPV is

appropriate to evaluate vibration impacts by transient and irregular sources. This threshold is applied in this analysis for transient vibration.

The closest project structures on-site (Lot 1) could be located as little as 10 feet from an existing residential building. Maximum vibration levels that could be generated by construction equipment operating at the project boundary are presented in Table 2.

Table 2
Estimated Vibration Levels During Project Construction

| Equipment | PPV at 25 ft (in/sec) | PPV at 10 ft (in/sec) | PPV at 40 ft (in/sec) | PPV at 100 ft (in/sec) | PPV at 150 ft (in/sec) |
|------------------|----------------------------------|----------------------------------|----------------------------------|---------------------------------------|---------------------------------------|
| Large Bulldozer | 0.089 | 0.352 | 0.044 | 0.011 | 0.006 |
| Loaded trucks | 0.076 | 0.300 | 0.038 | 0.010 | 0.005 |
| Jackhammer | 0.035 | 0.138 | 0.017 | 0.004 | 0.002 |
| Small Bulldozer | 0.003 | 0.012 | 0.001 | <0.001 | <0.001 |

Source: FHWA Transit Noise and Vibration Impact Assessment

The calculation to determine PPV at a given distance is:

$$PPV_{distance} = PPV_{ref} * (25/D)^{1.5}$$

Where:

PPV_{distance} = the peak particle velocity in inches/second of the equipment adjusted for distance,

PPV_{ref} = the reference vibration level in inches/second at 25 feet, and

D = the distance from the equipment to the receiver.

Based on the Federal Transit Administration (FTA) data, vibration velocities from typical heavy construction equipment operation that would be used during project construction would range from 0.003 to 0.089 inches per second (in/sec) peak particle velocity (PPV) at 25 feet from the source of activity. At 10 feet from the source activity, vibration velocities would range from 0.012 to 0.352 in/sec PPV. However, the size and density of the site and limited setback distance to the property line would not allow for a large bulldozer or loaded truck at the project boundary. Similarly a jackhammer would not likely be used directly at the site-boundary. A small bulldozer could create levels of up to 0.012 PPV at 10 feet. Therefore, vibration levels associated with operation of heavy construction equipment at the project boundary are not expected to exceed the 0.5 in/sec PPV threshold for cosmetic damage from transient vibration. There is no significant impact and no need for mitigation.

ON-SITE NOISE EXPOSURE

The project site is exposed to traffic noise from 17th Street and the rear alley. Noise measurements demonstrated a CNEL of 52 dB CNEL along the 17th Street alignment. Although traffic may increase in the future, the area is mostly built out with only smaller infill projects planned. It would take a doubling of traffic volume to create a +3 dB increase in noise due to the logarithmic nature of noise. Therefore, even if traffic along 17th Street were to double, there still would not be an impediment to the proposed residential uses.

In addition to meeting the exterior noise compatibility standard the residences must also be able to achieve the 45 dB CNEL interior noise threshold. For typical wood-framed construction with stucco and gypsum board wall assemblies, the exterior to interior noise level reduction is as follows:

Partly open windows – 12 dB

Closed single-paned windows – 20 dB

Closed dual-paned windows – 30 dB

Use of dual-paned windows is required by the California Building Code (CBC) for energy conservation in new residential construction. Interior standards will be met even with open windows. There is no need for mitigation to achieve the suggested 45 dB CNEL interior noise threshold.

HVAC EQUIPMENT

Section 7.15.035 of the Municipal Code contains the following HVAC noise restrictions:

- A. No building permit shall be issued for the installation of heating, venting and air conditioning (“HVAC”) equipment in or adjacent to residential areas if the noise produced by the HVAC equipment exceeds an A-weighted exterior sound pressure level of 50 db(A). The method of computation used shall be that specified in the “Application of Sound Rating Levels of Outdoor Unitary Equipment,” Standard 275, Air-Conditioning and Refrigeration Institute, 1997 ed. or the latest revision thereof.
- B. Notwithstanding subsection A of this section, a building permit may be issued for the installation of:
 - 1. HVAC equipment containing a timing device deactivating the HVAC equipment between the hours of 10:00 p.m. and 7:00 a.m. provided the noise produced by the HVAC equipment does not exceed an A-weighted exterior sound pressure level of 55 db(A).
 - 2. HVAC equipment generating noise that does not exceed an A-weighted exterior sound pressure level of 65 db(A), provided that the applicant obtains the prior written consent of the owner of each property where the exterior sound pressure level would exceed 55 db(A). (Ord. 1551; Ord. 1515).

Proposed HVAC equipment for the new residential buildings must meet these noise thresholds at the nearest property line.

SITE OPERATIONAL NOISE

The project proposes residential uses. Residential noise is considered passive and is not expected to create a noise nuisance for any existing surrounding residential uses.

SUMMARY AND MITIGATION

Noise from temporary construction activities is exempt from noise ordinances as long as the construction activities are between the hours of 7:00 a.m. and 8:00 p.m., Mondays through Friday, and the hours of 8:00 a.m. and 8:00 p.m. on Saturday and never on Sundays or city-observed federal holidays. In addition the following construction practices are recommended:

- Stockpiling and staging activities must be located as far as practicable from dwellings.
- All mobile equipment shall have properly operating and maintained mufflers.

Vibration levels from heavy construction equipment may be noticeable at times at the nearest residences, but will not cause any structural damage.

On-site noise readings suggest that the proposed uses will meet the recommended interior and exterior noise compatibility thresholds for residential use without the application of any mitigation measures.

HVAC and any other mechanical equipment must be selected and installed to meet the noise standards in Section 7.15.035 of the Seal Beach Municipal Code.