

**ATTACHMENT I  
ESA CLASS 32 SUMMARY REPORT  
(WITH NOISE AND AIR TECHNICAL REPORTS)**

# 127 AND 141 NORTH MADISON AVENUE MADISON MIXED-USE PROJECT

CEQA Class 32 Categorical Exemption Report

Prepared for  
City of Pasadena  
175 N Garfield Avenue  
Pasadena, CA 91101

July 2019



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# CATEGORICAL EXEMPTION REPORT

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This report serves as the summary of the environmental analysis performed by ESA for the proposed Madison Mixed-Use Project (Project) located at 127 and 141 North Madison Avenue in the City of Pasadena (City). The intent of the analysis is to document whether the Project is eligible for a Class 32 Categorical Exemption (CE) pursuant to the State *California Environmental Quality Act (CEQA) Guidelines* §15332. The report provides an introduction, project description, and evaluation of the Project's consistency with the requirements for a Class 32 exemption. This includes an analysis of the project's potential impacts in the areas of habitat for endangered, rare or threatened species, traffic, noise, air quality, water, and historic resources. This report concludes that the Project is eligible for a Class 32 CE pursuant to the *State CEQA Guidelines* §15332.

# 1.0

## Introduction

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The State *California Environmental Quality Act (CEQA) Guidelines* §15332 states that a Class 32 Categorical Exemption (CE) is allowed when an in-fill development project meets the following conditions:

- a. The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.
- b. The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.
- c. The project site has no value as habitat for endangered, rare or threatened species.
- d. Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.
- e. The site can be adequately served by all required utilities and public services.

Additionally, State *CEQA Guidelines* Section 15300.2 lists six exceptions to a categorical exemption. These exemptions include the following conditions:

- a. **Location.** Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located – a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply all instances, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.
- b. **Cumulative Impact.** All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.
- c. **Significant Effect.** A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.
- d. **Scenic Highways.** A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state

scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.

- e. Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.
- f. Historical Resources. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.

ESA evaluated the proposed Madison Mixed-Use Project (Project) located at 127 and 141 North Madison Avenue in the City of Pasadena (City) with respect to consistency with the above requirements, including its potential impacts in the areas of habitat for endangered, rare or threatened species, traffic, noise, air quality, water quality and historic resources, as well as the six exceptions to a categorical exemption, to confirm the Project's eligibility for the Class 32 CE pursuant to the State *CEQA Guidelines* §15332.



## 2.0

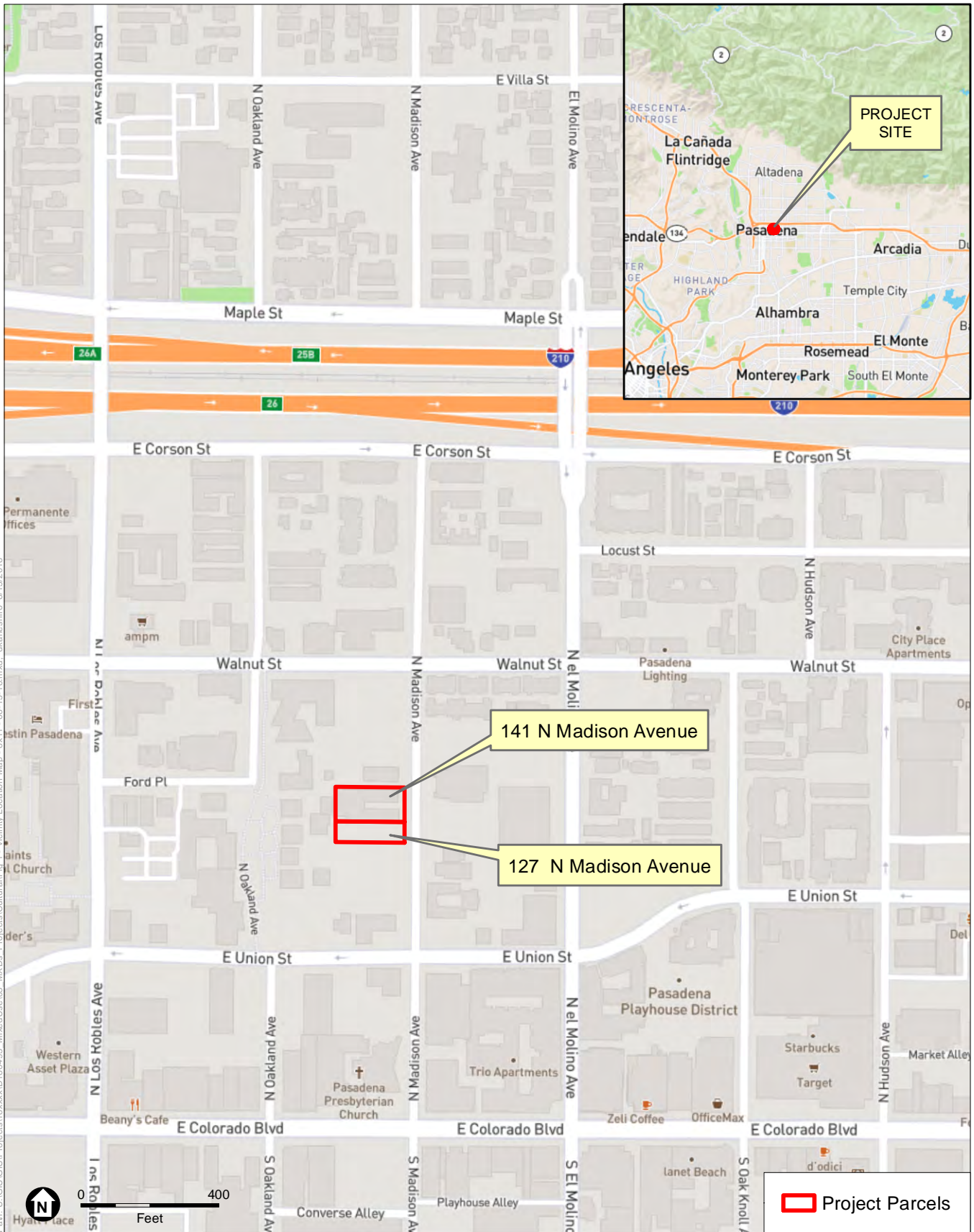
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# Project Description

MBC Enterprises, LLC (the Applicant) proposes to develop the proposed Project located at 127 and 141 North Madison Avenue in the City of Pasadena. The Project would consist of a 72,000 SF, five-story, mixed-use building. Overall, the Project would consist of 49 residential units, two office spaces totaling 4,210 SF, 26,296 SF of open space including a 1<sup>st</sup> Floor Central Courtyard and four Terraces, one on the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Floor. The Project would provide two levels of parking (one level at grade and one level subterranean) with 101 spaces and totaling 41,546 SF (with 20 spaces totaling 11,079 SF at grade, and 81 spaces totaling 30,467 SF subterranean). The Project includes demolition of all existing on-site buildings and features, excavation to accommodate the subterranean parking levels, and the construction of the new mixed-use building.

The Project Site is located in the CD-3 (Central District Specific Plan, Walnut Housing sub-district) zoning district in the City of Pasadena and is currently developed with one four-story, 27,579 SF office building and a 16,115 SF surface parking lot. An Affordable Housing Concession Permit and design review approval is required for the Project. The Project Site is shown in **Figure 1**, *Vicinity Location Map*. The proposed Project site plans are provided in **Attachment A** of this report.

Construction of the Project is anticipated to begin in the second quarter of 2019, pending Project consideration and approval, and would be completed in the second quarter of 2021. Construction of the Project is estimated to require approximately 25 months. Construction activities would include demolition, excavation, foundations and concrete pouring, building construction, and architectural coatings. Heavy-duty equipment, vendor supply trucks and concrete trucks would be used during construction of foundations, parking structures, and buildings. Landscaping and architectural coating would occur during the finishing activities. Demolition activities would include the removal of the existing office building and existing surface parking lot. Approximately 3,370 cubic yards of debris would be exported from the Project Site. The Project would require the excavation of approximately 13,500 cubic yards of earth for the proposed two-level subterranean parking garage (one level at grade and one level subterranean).



SOURCE: Open Street Map, 2018

127 and 141 N Madison Avenue Mixed-Use Project

**Figure 1**  
Vicinity Location Map



## 3.0

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# Existing Site Conditions

The Project Site is an approximately 0.735 acre (32,000 SF) rectangular-shaped site (Project Site) located on the west side of North Madison Avenue, south of East Walnut Street and North of Union Street. The Project Site is also located near public transportation options, including bus stops that are within walking distance of the Project Site and are located approximately 0.25 mile northwest of the Project Site at North Los Robles Avenue and East Walnut Street, approximately 0.16 mile south of the Project Site at North Madison Avenue and East Colorado Boulevard, approximately 0.25 mile west of the Project Site at North Los Robles Avenue and Union Street, and approximately 0.33 mile southwest of the Project Site at North Los Robles Avenue and East Colorado Boulevard. The Metro Gold Line Lake Station, which is also located within walking distance of the Project Site, is located approximately 0.6 mile northeast of the Project Site, and the Metro Gold Line Memorial Park Station is located approximately 0.7 mile west of the Project Site.

The Project Site is currently developed with a four-story office building totaling 27,579 SF and a 16,115 SF surface parking lot. **Figure 2, *Aerial Photograph of Project Site and Vicinity***, shows the Project Site and surrounding land uses. The Project Site is bordered by a two-story office building to the north, dining and lecture halls of Fuller Theological Seminary School directly west of the Project Site, the Scottish Rite Cathedral to the east across North Madison Avenue the medical uses southeast of the project site along North Madison Avenue and the residential uses south of the Project Site at the northwest corner of Union Street and North Madison Avenue.



SOURCE: Open Street Map, 2018

127 and 141 N Madison Avenue Mixed-Use Project

**Figure 2**  
Aerial Photograph of Project Site and Vicinity

## 4.0

# Consistency Analysis

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### **Criterion (a): The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.**

According to the City of Pasadena General Plan Land Use Diagram, the Project Site is designated for Medium Mixed Use development, which specifically allows for exclusively commercial or exclusively residential, or with buildings vertically integrating housing with non-residential uses.<sup>1</sup> The proposed Project is mixed-used, including residential and office uses, and would be consistent with the General Plan designation. The Project Site is located within the Central District Specific Plan area, which operates as the city's urban core and encourages urban villages, work-live spaces, in-town housing, and cultural and entertainment opportunities. The Central District Specific Plan area encompasses 960 acres corresponding to the areas recognized by Pasadena residents as "Downtown." The Central District Specific Plan includes a vision statement and objectives that are intended to support the Guiding Principles of the General Plan. To implement this vision, the Central District Specific Plan provides District-Wide Land Use, Mobility, and Urban Design Concepts, which together offer a comprehensive vision for the physical design and development of Downtown Pasadena. Included within the District-Wide Land Use, Mobility, and Urban Design Concepts are specific development standards for permitted land use types, maximum housing density, maximum FAR, minimum and maximum building heights, required setbacks, open space, signage, and parking. The development standards of the Central District Specific Plan are codified in Chapter 17.30 of the Zoning Code, discussed below.

Thus, a project that is consistent with the Zoning Code is in turn consistent with the development standards of the Central District Specific Plan. The Project Site is located within the CD-3 (Central District, Walnut Housing sub-district). The subdistrict serves as Downtown's main residential area north of Colorado Boulevard. Therefore, residential use at urban densities should be encouraged as a priority, where commercial activity will be limited to the ground floor. The City's Zoning Code (Title 17 of the Pasadena Municipal Code [PMC]) implements the General Plan's Land Use Element and its policies. The intent of the Zoning Code is to protect public health, safety, and the general welfare of residents and visitors in the City. The Zoning Code identifies particular uses permitted on each parcel of land in the City and sets forth regulations and standards for development to ensure that the policies, goals, and objectives of the General Plan are implemented. The current zoning designation on the Project Site is CD-3 (Central

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<sup>1</sup> City of Pasadena, General Plan, Land Use Element, Adopted August 18, 2015, Amended January 25, 2016, p. 5, <http://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2017/07/Land-Use-Element-2016-01-25.pdf>. Accessed December 2018.

District, Walnut Housing sub-district) and mixed-use is a permitted use pursuant to Section 17.30.030 of the City's Zoning Code (see Table 3-1 and Figure 3-4 [Area 1]). The purpose of the CD district is to implement the goals and development standards of the Central District Specific Plan. According to Section 17.30.040 – CD, the maximum FAR of 1.5 is permitted on the subject site. The developer is requesting an Affordable Housing Concession Permit that would allow for a 2.25 FAR in order to provide the affordable housing on-site. In addition, the maximum permitted height on the subject site is 50'-0", or 65'-0' when utilizing height averaging. The developer is requesting a height of 62'-0" without using height averaging, exceeding the provisions of height averaging.

The General Plan and Central District Specific Plan have several land-use policies that are relevant to the proposed Project, including the following specifically applicable policies related to community character and quality and economic sustainability. **Table 1, Consistency with Applicable General Plan Land Use Element Goals and Policies for the Central District**, presents an evaluation of the Project's consistency with applicable City General Plan and Central District Specific policies.

**TABLE 1  
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE ELEMENT GOALS AND POLICIES FOR THE  
CENTRAL DISTRICT**

Goals and Policies	Consistency Analysis
<b>Goal 31. Central District.</b> Central District. The primary civic, business, financial, retail, entertainment, and cultural center of Pasadena with supporting housing enabling residents to live close and walk to these uses and access regional transit.	<b>Consistent.</b> The Project would provide residential uses in addition to commercial uses that enables residents to walk to nearby public transit and to the civic, business, financial, retail, entertainment, and cultural amenities of Pasadena's Central District.
<b>Policy 31.1 Focus Growth.</b> Focus growth in the Central District into key sub-areas including the Pasadena Playhouse, Civic Center/Midtown, Lake, Northwest Gateway, and Walnut Districts, and in proximity to the three Metro Gold Line stations, to support economic vitality while preserving and complementing the historic core.	<b>Consistent.</b> The Project is consistent with increasing employment and residential growth in a location targeted by the General Plan and the Central District Specific Plan.
<b>Policy 31.2 Sub-District Identity.</b> Enhance the distinctive, yet complementary nature of the Central District's sub-areas by recognizing and building on their unique attributes and features through signage, streetscape designs, design guidelines and encouraging new uses and infill development that fits with the vision of each sub-area.	<b>Consistent.</b> The goal of the Central District, Walnut Housing sub-district is serving as Downtown's main residential area north of Colorado Boulevard. Therefore, residential use at urban densities should be encouraged as a priority, where commercial activity will be limited to the ground floor. The Project is consistent with this by increasing the diversity of uses in the sub-district by providing a mixed-use development that is supportive of the primary goal of the sub-district.
<b>Policy 31.3 Del Mar, Memorial Park and Lake Transit Villages.</b> Concentrate higher intensity development with a mix of retail, office, and multi-family housing uses that are compatible with one another expanding the customer base for local retail uses and supporting Metro Gold Line ridership.	<b>Consistent.</b> The Project would intensify development by increasing commercial uses and multi-family housing in an area directly served by the Metro Lake Station that is served by the Gold Line as the Project Site is located 0.6 miles northeast (walking distance) of the Metro Lake Station.
<b>Policy 31.4 Contextual Development in Historic Districts.</b> Require new development within and adjacent to the historic districts to be compatible with the scale, density, and urban design features of existing historic buildings and districts	<b>Consistent.</b> The City Design Commission Completed a design review of the project plans in October 2017 and made comments regarding the analysis and changes to the design in order to be more sensitive to the historic context of the Project vicinity. Project plans were submitted to the City in May 2018 in response to the City Design Commission review.

Goals and Policies	Consistency Analysis
<b>Policy 31.5 Transit Options.</b> Increase the network of transit, walking, and bicycling opportunities between sub-areas within the Central District through expanded services, additional rights of way/pathways with corresponding signage.	<b>Not Applicable.</b> The policy refers to transit service and rights-of-way. The Project would not conflict with this policy as it would make no changes to, nor interfere with, transit facilities or rights-of-way.
<b>Policy 31.6 Connections to Other Community Places.</b> Establish and maintain pedestrian walkways that provide access to the other Community Places and encourage people to move freely between each subarea within the Central District through a unifying/connected network of public areas.	<b>Consistent.</b> The Project would maintain the sidewalk system along the perimeter of the site and would incorporate pedestrian pathways that would connect to the existing sidewalk network which in turn connect with the other places in the Central District area. The Project would improve pedestrian circulation and pedestrian safety in the Project vicinity by including a pedestrian walkway that would provide direct access to North Madison Ave.
<b>Policy 31.7 Expanded Economic Opportunities.</b> Strengthen the Central District's economic vitality by supporting existing businesses and providing opportunities for new commercial development in underutilized areas with higher development capacity.	<b>Consistent.</b> The Project would locate residential and commercial uses into the Central District and introduce a new residential and employee population that would utilize the surrounding businesses of the Central District.
<b>Policy 31.8 Street Vitality During Evenings and On Weekends.</b> Sustain a vibrant pedestrian atmosphere in traditionally civic and office dominant sub-areas on evenings and weekends by encouraging additional residential and mixed-use development.	<b>Consistent.</b> The Project would locate residential and commercial uses into the Central District and introduce a new residential and employee population that would utilize the dining, retail and cultural amenities of the Central District.
<b>Policy 31.9 Housing Choice.</b> Provide a wide variety of housing options in the Central District in terms of the type, location, size and price.	<b>Consistent.</b> The Project would locate new residential uses into the Central District and introduce a new housing options, including 4 affordable housing units.
<b>Policy 31.10 Building Orientation.</b> Require businesses to be oriented primarily to pedestrian streets and urban spaces and secondarily to parking lots and to provide visibility and accessibility to customers arriving on foot, by bicycle, and by automobile.	<b>Consistent.</b> The Project would be oriented to the public streets and parking would be provided on the ground floor and in one subterranean level.

SOURCE: ESA, 2018.

As discussed in **Table 1**, the proposed project would be consistent with applicable General Plan and Central District Specific Plan policies. Furthermore, as discussed above, the proposed Project would be consistent with the City's General Plan designation, which allows for medium mixed-use projects, and the City's zoning code designation, which allows for mixed-use as a permitted use. Therefore, the proposed Project would meet this criterion.

**Criterion (b): The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.**

The Project Site is located on a 0.735-acre parcel within a developed urban neighborhood. It is directly surrounded by urban uses in all directions, as shown in **Figure 1**, above. Therefore, the proposed Project would meet this criterion.

**Criterion (c): The project site has no value as habitat for endangered, rare, or threatened species.**

Since it located within a highly developed area, the Project Site lacks habitat that would be suitable for sensitive animal or plant species. In addition, the Project Site is currently developed with an office building and associated parking lot surrounded by minimal vegetation. This

vegetation does not provide habitat for sensitive species due to its small size, lack of native vegetation, and highly urban context. Therefore, the proposed Project would meet this criterion.

**Criterion (d): Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.**

**I. Traffic**

The Mobility Element of the City’s General Plan sets forth goals and policies to improve overall transportation in Pasadena. The Mobility Element is based on approaches that address the needs of multimodal corridors and streets as well as community neighborhoods that are affected by traffic. The City’s Transportation Impact Analysis Guidelines (“Guidelines”) have been developed to ensure that transportation system improvements necessary to support new development while maintaining quality of life within the community are identified prior to project approval and funded prior to construction.

The Guidelines, which are implemented by the City of Pasadena Department of Transportation (PasDOT), include two processes for reviewing a proposed project’s transportation impacts, based on project size, consisting of below or equal to communitywide significance thresholds and above communitywide significance thresholds. Communitywide significance projects are defined as 50,000 SF of new commercial use, 50 residential units, or any combination of the two. Residential uses with a net new dwelling unit count of 11 to 49 dwelling units or non-residential uses with net new floor area of 10,001 to 49,999 SF, or any combination of the two, would be a Category 1 project, which would be below communitywide significance.<sup>2</sup>

The Project’s trip generating uses would consist of 49 residential units and two office spaces totaling 4,210 SF. Therefore, the Project would be a Category 1 project and below communitywide significance. Thus, in accordance with the City’s Guidelines, a CEQA Transportation Impact Analysis is not required and transportation impacts are considered less than significant pursuant to CEQA.

**Conclusion:** The Project would be a Category 1 project and below communitywide significance in accordance with the City’s Transportation Impact Analysis Guidelines and would not significantly impact the City transportation system. Approval of the project would not result in any significant effects relating to traffic.

**II. Noise**

The following review of potential noise impacts is based on the Noise Technical Report prepared by ESA (included as **Attachment B** of this report) for the proposed Project. In accordance with Appendix G of the State *CEQA Guidelines*, the proposed Project would result in potentially significant impacts related to noise if it would result in:

<sup>2</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis Current Practices & Guidelines, Section 2, 2015.



- 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;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the vicinity of the project above levels existing without the project; or
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

A summary of findings of the Noise Technical Report is provided below:

ESA conducted an acoustical study (included as **Attachment B** of this report) to evaluate the potential noise and vibration impacts associated with construction activities, surface transportation, and other aspects of Project construction and operations that have the potential to impact noise sensitive land uses. The findings of the analyses are as follows:

- Construction of the Project would not exceed the City's construction noise standards. Thus, the Project would not result in a substantial temporary or periodic increase in noise and impacts would be less than significant.
- Operation of the Project would not exceed the City's traffic or operational stationary source noise standards. Thus, the Project would not result in a substantial permanent increase in ambient noise levels in the vicinity of the Project above levels existing without the Project and impacts would be less than significant.
- The Project would not result in the generation of excessive groundborne vibration or groundborne noise levels from construction or operational activities. Thus, the Project would result in a less than significant impact from groundborne vibration and groundborne noise.

**Conclusion:** Construction of the Project has the potential to generate an increase in temporary or periodic noise through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the Project Site. However, use of construction equipment equipped with industry standard noise minimization strategies and compliance with the City's Noise Ordinance would minimize the potential for noise generation. Noise from construction of the Project would not exceed the City's standards. Therefore, impacts related to construction noise would be less than significant. Construction activities would generate vibration from the use of heavy equipment and haul trucks. However, vibration levels at sensitive receptors would be below the thresholds. As a result, construction vibration impacts would be less than significant.

Project operations would generate an increase in ambient noise from roadway traffic and stationary noise. The Project would not result in a substantial increase in roadway traffic noise and would not exceed the significance thresholds. Stationary noise sources would be designed in accordance with City standards and would not exceed the allowable noise levels. As a result, operational noise impacts would be less than significant. The Project's operations would include

typical residential-grade stationary mechanical and electrical equipment for multi-family residential buildings, such as air handling units, condenser units, and exhaust fans, which would produce vibration. In addition, the primary sources of transient vibration would include passenger vehicle circulation within the proposed parking area. The potential vibration levels from Project operational sources at the closest existing and future sensitive receptor locations would be less than the significance threshold. As a result, operational vibration impacts would be less than significant.

Consistent with the City's General Plan requirements, the Project will incorporate general industry standard best practices to minimize noise and vibration impacts described in PDF-NOISE-1 and PDF-NOISE-2. Specifically, with respect to vibration, the garage building located to the east of main Edmund Blinn House building is more than 20 feet to the northwest of the Project Site and the main Edmund Blinn House building is approximately 60 feet to the northwest of the Project Site, which provides more than sufficient buffer distance to ensure that Project-related vibration levels would not exceed the applicable vibration thresholds for historic buildings for both buildings. Therefore, with implementation of PDF-NOISE-1 and PDF-NOISE-2 and accounting for the buffer distances, noise and vibration impacts to sensitive receptors, including the historic buildings located on the Fuller Theological Seminary campus directly west of the Project Site (inclusive of the Edmund Blinn House property) would be less than significant.

For additional details, refer to the full Noise Technical Report provided in **Attachment B** of this report.

### III. Air Quality

The following review of potential air quality impacts is based on the Air Quality Technical Report prepared by ESA (included as **Attachment C** of this report) for the proposed Project. In accordance with Appendix G of the State *CEQA Guidelines*, the proposed Project would result in potentially significant impacts related to air quality if it would:

- Conflict with or obstruct the implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The CEQA Guidelines Section 15064.7 provides the significance criteria established by the applicable air quality management district or air pollution control district, when available, may be relied upon to make determinations of significance. The potential air quality impacts of the

Project are, therefore, evaluated according to thresholds developed by the South Coast Air Quality Management District (SCAQMD) in their *CEQA Air Quality Handbook, Air Quality Analysis Guidance Handbook*, and subsequent guidance.

A summary of findings of the Air Quality Technical Report is provided below.

ESA conducted an air quality assessment (included as **Attachment C** of this report) to evaluate the potential air quality impacts associated with construction activities, mobile sources, building energy demand, and other aspects of Project construction and operations that have the potential to generate criteria air pollutant emissions. The findings of the analyses are as follows:

- The incremental increase in emissions from construction and operation of the Project would be below the regional daily emission thresholds set forth by the South Coast Air Quality Management District (SCAQMD). Thus, the Project would not result in a regional violation of applicable air quality standards or jeopardize the timely attainment of such standards in the South Coast Air Basin (the Air Basin).
- The incremental increase in on-site emissions from construction and operation of the Project would be below the localized significance thresholds set forth by the SCAQMD. Thus, the Project would not result in a localized violation of applicable air quality standards or expose off-site receptors to substantial levels of regulated air contaminants.
- Emissions from the increase in traffic due to operation of the Project would not have a significant impact upon 1-hour or 8-hour local carbon monoxide (CO) concentrations due to mobile source emissions.
- Project construction and operations would not result in significant levels of odors.
- The Project would be consistent with air quality policies set forth by the City of Pasadena, the SCAQMD, and the Southern California Association of Governments (SCAG).
- The Project would not result in a significant cumulative air quality impact.

**Conclusion:** Construction of the Project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the Project Site. In addition, fugitive dust emissions would result from grading and construction activities. However, use of typical construction equipment (in terms of size and age/emission standards) and compliance with Rule 403 requirements (regarding dust control measures such as watering twice daily and track out prevention measures), minimizes air emissions to the extent warranted. Regional construction emissions would not exceed the SCAQMD daily significance thresholds. Therefore, impacts related to regional construction emissions would be less than significant. Localized construction emissions would not exceed the SCAQMD localized significance thresholds. Therefore, impacts related to localized construction emissions would be less than significant. As a result, Project-related construction impacts would be less than significant.

Air pollutant emissions associated with Project operations would be generated by the consumption of natural gas and by the operation of on-road vehicles. Regional and localized

operational emissions associated with the Project would not exceed the SCAQMD daily significance thresholds. In addition, the Project would result in less-than-significant CO hotspot and odor impacts. Furthermore, the Project would be consistent with applicable air quality plans and policies and would not generate odors affecting a substantial number of people. Therefore, impacts related to Project operational emissions and consistency with applicable air quality management plans, policies, or regulations would be less than significant.

For additional details, refer to the full Air Quality Technical Report provided in **Attachment C** of this report.

## **IV. Water Quality**

Urban runoff can have a variety of detrimental effects. For instance, heavy metals such as cadmium, chromium, copper and lead can be washed off of paved roads and parking lots and are the most common metals found in urban stormwater runoff. These metals may be toxic to aquatic organisms, and have the potential to contaminate drinking water supplies. Nitrogen and phosphorous from fertilizers can serve as nutrients for algae and vegetation, resulting in accelerated growth and potential oxygen depletion and hypoxic conditions in receiving waters and additional impaired uses of water.

Currently, the Project Site is almost entirely covered with impervious surfaces, although a few trees and street plantings are located along N. Madison Avenue. Stormwater runoff currently enters storm drains on along N. Madison Avenue and Union Street to existing City drainage facilities. Neither the permeability nor the hydrology of the site would substantially change with project implementation, as the amount of impervious surfaces with the proposed project would be comparable to existing conditions.

Pasadena lies within the greater Los Angeles River watershed, and thus, within the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB). The LARWQCB adopted water quality objectives in its Stormwater Quality Management Plan (SQMP), which is designed to ensure stormwater achieves compliance with receiving water limitations. Thus, stormwater generated by a development that complies with the SQMP does not exceed the limitations of receiving waters, and therefore does not exceed water quality standards. Compliance with the SQMP is enforced by application of Section 402 of the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES). Under this section, municipalities are required to obtain permits for the water pollution generated by stormwater in their jurisdiction. These permits are known as Municipal Separate Storm Sewer Systems (MS4) permits. The City of Pasadena is a co-permittee in the Los Angeles County MS4 permit (Order No 01-182; NPDES No. CAS0041 as amended by Orders R4-2006-0074 and R4-2007-0042). Under this MS4, each permitted municipality is required to implement the SQMP. In accordance with the countywide MS4 permit, all new developments must comply with the SQMP. In addition, as required by the MS4 permit, the City of Pasadena has adopted a Standard Urban Stormwater Mitigation Plan (SUSMP) ordinance, which includes low impact development (LID) design standards, to ensure new developments comply with SQMP. This ordinance requires most new developments to submit a plan to the City that demonstrates how the project would comply with the City's SUSMP.

The Project proposes a 72,000 square feet (SF), five-story, 49-unit, mixed-use building, which includes two office spaces totaling 4,210 SF, 26,296 SF of open space including a 1<sup>st</sup> Floor Central Courtyard and four Terraces, one on the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Floor. The Project would provide two levels of parking (one level at grade and one level subterranean) with 101 spaces and totaling 41,546 SF (with 20 spaces totaling 11,079 SF at grade, and 81 spaces totaling 30,467 SF subterranean). None of the proposed uses would be point source generators of water pollutants. Therefore, no quantifiable water quality standards apply to the project. As an urban development, the proposed project would add typical, urban, nonpoint-source pollutants to storm water runoff. These pollutants are permitted by the countywide MS4 permit, and would not exceed any receiving water limitations. The City requires, pursuant to PMC Chapter 8.70, that redevelopment projects that involve more than 5,000 SF comply with the SUSMP.<sup>3</sup> Thus, the applicant is required to submit and implement a SUSMP compliance plan. Compliance with the MS4 permit and SUSMP would ensure that the proposed project would not violate any water quality standards or waste discharge requirements, and would have no related significant impacts.

As construction of the Project would involve grading, including the export of 13,500 cubic yards of soil, on an approximately 0.735-acre site, the applicant would not be required to submit a Storm Water Pollution Prevention Plan (SWPPP) to the City of Pasadena Public Works Department as the Project would disturb less than one acre of soil and is not part of a larger common plan of development which in total disturbs one acre or more. However, the Project would be required to manage storm water drainage during construction through one or more of the following methods: (1) Retention basins of sufficient size shall be utilized to retain storm water on the site. (2) Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency, (3) compliance with a lawfully enacted storm water management ordinance in order to avoid discharging pollutants into waterways. Therefore, development of the proposed project would not result in any significant effects relating to water quality.

Related projects in the vicinity of the Project Site, which include the Union Street Court Project, the Olivewood North Project and the Olivewood South Project. Construction of these related projects would be required to comply with SWPPP requirements if disturbing 1 acre or more of soil. Like the proposed Project, these related projects would add typical, urban, nonpoint-source pollutants to storm water runoff. These pollutants are permitted by the countywide MS4 permit, and would not exceed any receiving water limitations. These related projects would also be required, pursuant to PMC Chapter 8.70, comply with the applicable SUSMP and MS4 permit requirements, which would ensure that these related projects would not violate any water quality standards or waste discharge requirements, and would have no related significant impacts.

**Conclusion:** The proposed Project would not adversely affect underground aquifers, drainage patterns, or surface water quality. Impacts related to water quality would be less than significant.

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<sup>3</sup> Significant redevelopment means land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site.

## V. Summary for Criterion (d)

As the Project would result in less than significant impacts with respect to traffic, noise, air quality, and water quality, the proposed Project would meet this criterion.

### **Criterion (e): The site can be adequately served by all required utilities and public services.**

The Project would be located in an existing highly urban area served by existing public utilities and services. A considerable increase in demand for services or utilities would not be anticipated with the implementation of the proposed Project since it is located on an existing urban infill location previously developed with an office building. The City of Pasadena Department of Water and Power provides electricity and water, and the City of Pasadena Department of Public Works provides solid waste collection and sewer services. SoCal gas provides natural gas services to the City of Pasadena and would be expected to serve the Project. Thus, the Project meets this criterion.

### **Exceptions to Categorical Exemption**

State *CEQA Guidelines* Section 15300.2 lists six exceptions to a categorical exemption. As discussed below, none of the exceptions apply to the proposed Project.

#### ***Location (State CEQA Guidelines §15300.2(a))***

This exception applies to Classes 3, 4, 5, 6, and 11. This exception does not apply to a Class 32 exemption. Therefore, this exception does not apply to the Project. Furthermore, the Project Site is not located in a particularly sensitive environment and is located in a previously developed urban infill location and is surrounded by existing urban uses.

#### ***Cumulative Impact (State CEQA Guidelines §15300.2(b))***

Under this exception, exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant. There is no evidence of a potential significant cumulative impact because successive projects of the same type in the same place have not been approved and are not currently proposed. The related projects in the vicinity of the proposed Project, which include the Union Street Court Project, the Olivewood North Project and the Olivewood South Project, would not result in project-level or cumulatively significant impacts.<sup>4,5,6,7</sup> As discussed above, the proposed Project would be a

<sup>4</sup> City of Pasadena, Air Quality Impact Assessment, Union Street Court, November 2017, <https://ww5.cityofpasadena.net/commissions/wp-content/uploads/sites/28/2017/12/2017-12-12-635-E.-Union-Street-Air-Quality-Study.pdf>. Accessed December 2018.

<sup>5</sup> City of Pasadena, Environmental Noise Report, <https://ww5.cityofpasadena.net/commissions/wp-content/uploads/sites/28/2017/12/2017-12-12-635-E.-Union-Street-Noise-Vibration-Study.pdf>

<sup>6</sup> City of Pasadena, Planning and Community Development Department, Staff Report, Conditional Use Permit #6449, 54 North Oakland Avenue (Olivewood North Project), March 21, 2018, [https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Reports-CUP\\_6449.pdf](https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Reports-CUP_6449.pdf). Accessed December 2018.

<sup>7</sup> City of Pasadena, Planning and Community Development Department, Staff Report, Conditional Use Permit #6452, 535 East Union Street (Olivewood South Project), March 21, 2018, [https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Report-CUP\\_6452.pdf](https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Report-CUP_6452.pdf). Accessed December 2018.

Category 1 project and below communitywide significance in accordance with the City's Transportation Impact Analysis Guidelines; thus, approval of the Project would not result in significant cumulative traffic impacts with regards to the Project and buildout of the related projects. The proposed Project would not contribute to significant cumulative noise impacts with regards to the Project and buildout of the related projects. In addition, the proposed Project would not result in significant cumulative air quality or water quality impacts with regards to the Project and buildout of the related projects. As a result, there is no evidence of significant cumulative impacts from successive projects of the same type in the same place, over time. Therefore, this exception does not apply to the Project.

### ***Significant Effect (State CEQA Guidelines §15300.2(c))***

This exception applies when there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances. As described above, the proposed Project would consist of a 72,000 square feet (SF), five-story, 49-unit, mixed-use building, which includes two office spaces totaling 4,210 SF, 26,296 SF of open space including a 1<sup>st</sup> Floor Central Courtyard and four Terraces, one on the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Floor. The Project would provide two levels of parking (one level at grade and one level subterranean) with 101 spaces and totaling 41,546 SF (with 20 spaces totaling 11,079 SF at grade, and 81 spaces totaling 30,467 SF subterranean). The Project is consistent with the General Plan land use designation and zoning code designation and is similar in size and scale to other developments in the area and is not unusual for the location. The Project is located in a developed urban neighborhood and is directly surrounded by urban uses in all directions, including existing multi-family housing. There are no unusual circumstances for the Project which may lead to a significant effect on the environment. Therefore, this exception does not apply to the Project.

### ***Scenic Highways (State CEQA Guidelines §15300.2(d))***

This exception applies to a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. Based on a review of the California Scenic Highway Mapping System,<sup>8</sup> the proposed Project Site is not located on or near an officially designated scenic highway. The Project would have no impacts on an officially designated scenic highway. Therefore, this exception does not apply to the Project.

### ***Hazardous Waste Sites (State CEQA Guidelines §15300.2(e))***

This exception applies to a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code. Government Code Section 65962.5 refers specifically to a list of hazardous waste facilities compiled by the Department of Toxic Substances Control (DTSC). The Project Site is not included on the DTSC's hazardous waste facilities list.<sup>9</sup> Thus, the Project Site has not been included on a list of hazardous materials sites

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<sup>8</sup> California Department of Transportation, California Scenic Highway Mapping System, Updated: September 7, 2011, [http://www.dot.ca.gov/hq/LandArch/16\\_livability/scenic\\_highways/](http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/). Accessed December 2018.

<sup>9</sup> Department of Toxic Substances Control, Hazardous Waste and Substance Site List (CORTESE), [http://www.envirostor.dtsc.ca.gov/public/mandated\\_reports.asp](http://www.envirostor.dtsc.ca.gov/public/mandated_reports.asp). Accessed December 2018.

compiled pursuant to Government Code Section 65962.5. Therefore, this exception does not apply to the Project.

### ***Historic Resources (State CEQA Guidelines §15300.2(f))***

State *CEQA Guidelines* §15300.2 states that a categorical exemption “shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.” A Cultural Resources Assessment Report was prepared by ESA (March 2019). The analysis of historical resources indicated that The Madison Professional Building was evaluated for listing in the National Register, California Register, and for local designation and is recommended not eligible. As such, the Madison Professional Building does not meet the definition of an historical resources as outlined in CEQA Guidelines Section 15064.5(a)(1) or (2), and the Project would not have a direct impact on historical resources.

In addition, Indirect impacts were analyzed to determine if the Project would result in a substantial material change to the integrity of historical resources outside of the Project Site such that the resources significance would be materially impaired, which is the CEQA threshold for determining significant impacts. In other words, would it still be eligible following construction and operation of the project? Would it still be able to convey the historical significance? The indirect impacts study area was defined as the immediate Project vicinity. Four historical resources were identified in this area, including two that would have direct views (; Playhouse Historic District [NR#94000462] and the Scottish Rite Cathedral (also a contributor to the Playhouse Historic District)) and two that would have indirect views (Ford Place Historic District [NR #10000496] and the Edmund Blinn House [NR #01000329]). A portion of the Ford Place Historic District abuts the rear property line of the proposed Project Site. The Ford Place Historic District is significant architecturally for its distinctive examples of intact period architectural styles that have a common relationship of site plan, scale and materials, and were constructed between 1902 and 1916. The proposed Project would not alter any of the character-defining features identified in the nomination of the Ford Place Historic District. The fourth, the Edmund Blinn House, which is both a contributor to the Ford Place Historic District and individually eligible, is located approximately 60 feet to the northwest of the Project Site, abuts the rear property line of the Project site, and would have indirect views of the rear of the proposed building. In summary, while the Project would alter the surrounding setting of the Ford Place Historic District by constructing a taller building on the Project Site, affecting one of the seven aspects of integrity, this would not constitute a substantial adverse change to the resource resulting in it no longer being able to convey its significance. The character-defining features would remain intact and it would still be an eligible resource. The Scottish Rite Cathedral and the Playhouse Historic District are further away from the Project Site and would not be indirectly impacted by the Project because primary views would not be impacted. Views of the proposed Project building would be partially screened by mature landscaping located in the Ford Place Historic District along the boundary line that abuts the Project Site. Other modern buildings visible from the Edmund Blinn House property include 490 E. Walnut Street, to the west across Oakland Avenue, and the Fuller Theological Seminary Graduate School of Psychology Building to the north (180 N. Oakland Avenue). The Project would not result in a substantial adverse change to the Edmund Blinn House and would not materially impact its integrity.



ESA's Noise Technical Report (December 2018) fully considers noise and vibration impacts to the historic buildings located on the Fuller Theological Seminary campus directly west of the Project Site (inclusive of the Edmund Blinn House property), which is denoted as R3 in Figure 3 of the Noise Technical Report. As discussed on page 23 of the Noise Technical Report, consistent with the City's General Plan requirements, the Project will incorporate general industry standard best practices to minimize noise and vibration impacts described in PDF-NOISE-1 and PDF-NOISE-2. The Noise Technical Report analyzed and disclosed the maximum noise and vibration impacts to sensitive receptors. Noise and vibration impacts to sensitive receptors, including the historic buildings located on the Fuller Theological Seminary campus directly west of the Project Site (inclusive of the Edmund Blinn House property) would be less than significant.

As such, no indirect impacts are anticipated to historical resources.

The Project Site was determined to be sensitive for subsurface historic-period archaeological resources related to the early domestic development on the Project Site. There is potential for features underneath existing buildings that will be demolished, especially deeper features such as privies and cisterns that could have been buried and preserved. Should historic-period features be discovered, they may qualify as historical resources under CEQA. The Project consists of substantial ground disturbance and excavation that would extend up to 12 feet bgs for subterranean parking. Therefore, the Project has the potential to unearth, expose, or disturb subsurface archaeological resources. Discovery of archaeological resources that qualify as historical resources under CEQA could result in a significant impact to historical resources.

The Pasadena General Plan for the City of Pasadena includes the Mitigation Monitoring and Reporting Program (MMRP) in fulfillment of Section 21081.6 of the State of California Public Resources Code which requires a lead agency to adopt a reporting or monitoring program for adopted or require changes to mitigate or avoid significant environmental effects (City of Pasadena, 2015). The following Mitigation Measure (MM) 4-1 is provided for Cultural Resources in the MMRP.

Mitigation Measure: MM 4-1. If cultural resources are discovered during construction of land development projects in Pasadena that may be eligible for listing in the California Register for Historic Resources, all ground disturbing activities in the immediate vicinity of the find shall be halted until the find is evaluated by a Registered Professional Archaeologist. If testing determines that significance criteria are met, then the project shall be required to perform data recovery, professional identification, radiocarbon dates as applicable, and other special studies; and provide a comprehensive final report including site record to the City and the South Central Coastal Information Center at California State University Fullerton. No further grading shall occur in the area of the discovery until Planning Department approves the report.

**Responsibility for Implementation and Implementation Action:** Project applicants shall conduct onsite monitoring during grading.

**In order to implement MM 4-1 of the General Plan and comply with the General Plan MMRP, the following Conditions of Approval are recommended for the project:**

- At the Applicant's expense and prior to earthmoving activities, a qualified archaeologist (Qualified Archaeologist) meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior, 2008) shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of cultural resources that may be encountered, and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources.
- In the event of the discovery of archaeological materials, the construction foreman shall immediately halt all work activities in the vicinity (within approximately 25 feet) of the discovery until it can be evaluated by a Qualified Archaeologist. After cessation of earthmoving activities, the construction foreman shall immediately contact City of Pasadena Planning & Community Development Department. Work shall not resume until authorized by City of Pasadena Planning & Community Development Department and the Qualified Archaeologist.
- If the Qualified Archaeologist determines that the discovery is eligible for listing on the California Register of Historical Resources or is a unique archaeological resource pursuant to Public Resources Code Section 21083.2, preservation in place is the preferred manner of treatment. In the event preservation in place is demonstrated to be infeasible, and data recovery is determined to be the only feasible mitigation option, a detailed Cultural Resources Treatment Plan shall be prepared and implemented by a qualified archaeologist in consultation with City of Pasadena Planning & Community Development Department at the project proponent's expense. In the unlikely event that archaeological resources of a Native American origin are unearthed during ground-disturbing activities, the qualified archaeologist and the City of Pasadena Planning & Community Development Department shall contact an appropriate Native American representative identified on the NAHC's contact list to consider the need for Native American monitoring and coordination regarding the discovery. Archaeological materials recovered shall be curated at an accredited facility. The report(s) documenting implementation of the Cultural Resources Treatment Plan shall be submitted to City of Pasadena Planning & Community Development Department and SCCIC.

## 5.0

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### Summary

A project qualifies for a Class 32 CE if it is developed on an infill site and meets the conditions described in this report. The five (5) conditions which the project must meet in order to qualify for the Class 32 CE are as follows: (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with the applicable zoning designation and regulations; (b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses; (c) The project site has no value as habitat for endangered, rare or threatened species; (d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality; and (e) The site can be adequately served by all required utilities and public services.

In accordance with the City's Transportation Impact Analysis Guidelines, and the Air Quality, and Noise Technical Reports prepared by ESA, as well as the consistency analysis with respect to the criteria specified in the State *CEQA Guidelines* §15332, the proposed Madison Mixed-Use Project meets the criteria for a Class 32 CE. The Project Site will be adequately served by required utilities. Furthermore, none of the exceptions to a CE listed in the State *CEQA Guidelines* §15300.2 apply to the Project. Therefore, it can be found that the project meets the qualifications of the Class 32 CE.

**Attachment B**  
**ESA, Noise Technical Report**

# 127 AND 141 NORTH MADISON AVENUE MIXED-USE PROJECT

## Noise Technical Report

Prepared for  
City of Pasadena  
175 N Garfield Avenue  
Pasadena, CA 91101

July 2019



# 127 AND 141 NORTH MADISON AVENUE MIXED-USE PROJECT

## Noise Technical Report

Prepared for  
City of Pasadena  
175 N Garfield Avenue  
Pasadena, CA 91101

July 2019

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# EXECUTIVE SUMMARY

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MBC Enterprises, LLC (the Applicant) proposes to develop the Madison Mixed-Use Project (Project), a mixed-use building containing 49 residential units, 4,210 square feet of commercial use, and 101 parking spaces in two levels of parking (one level at grade and one level subterranean), located at 127 and 141 North Madison Avenue in the City of Pasadena (City). The Project Site is an approximately 0.735-acre (32,000-square-foot [SF]) rectangular site (Project Site) located on the west side of North Madison Avenue, between East Walnut Street and Union Street. In accordance with the requirements under the California Environmental Quality Act (CEQA), this Technical Report provides an estimate of the potential for noise and vibration impacts from Project construction and operational activities.

The Project would consist of a 72,000 SF, five-story, mixed-use building. Overall, the Project would consist of 49 residential units, two office spaces totaling 4,210 SF, 26,296 SF of open space, including a 1<sup>st</sup> Floor Central Courtyard and four Terraces, one on the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Floor. The Project would provide two levels of parking (one level at grade and one level subterranean) with 101 spaces and totaling 41,546 SF (with 20 spaces totaling 11,079 SF at grade, and 81 spaces totaling 30,467 SF subterranean). The Project includes demolition of the existing on-site building and features, excavation to accommodate the subterranean parking levels, and the construction of the new mixed-use building.

The report summarizes the potential for the Project to conflict with applicable noise and vibration regulations, standards, and thresholds. The findings of the analyses are as follows:

- Construction of the Project would not exceed the City's construction noise standards. Thus, the Project would not result in a substantial temporary or periodic increase in noise, and impacts would be less than significant.
- Operation of the Project would not exceed the City's traffic or operational stationary source noise standards. Thus, the Project would not result in a substantial permanent increase in ambient noise levels in the vicinity of the Project above levels existing without the Project, and impacts would be less than significant.
- The Project would not result in the generation of excessive ground-borne vibration or ground-borne noise levels from construction or operational activities. Thus, the Project would result in a less-than-significant impact from ground-borne vibration and ground-borne noise.

# 1.0

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## Introduction

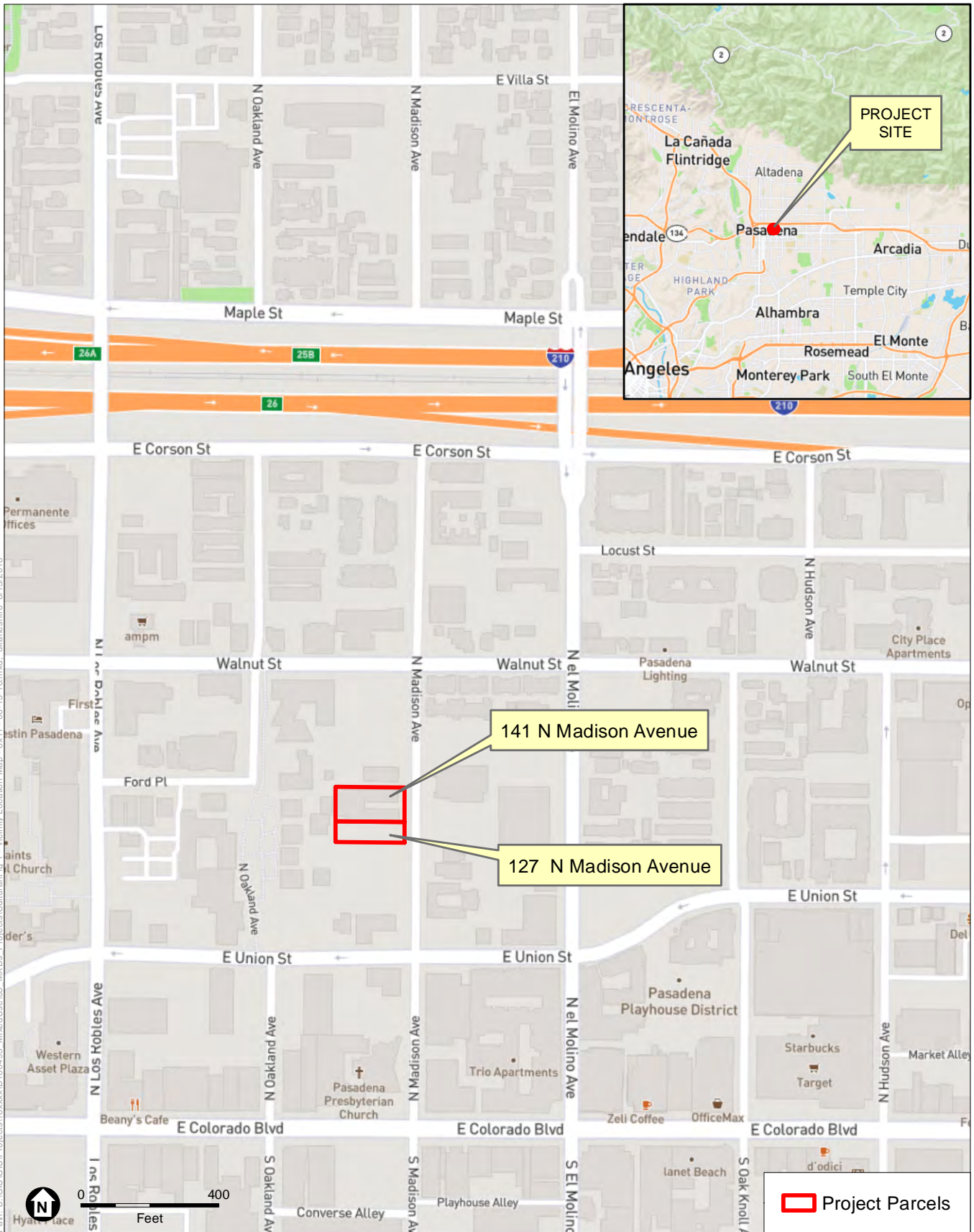
ESA has conducted an acoustical study to evaluate the potential noise and vibration impacts associated with construction activities, surface transportation, and other aspects of Project construction and operations that have the potential to impact noise sensitive land uses. The objectives of this noise study are to:

- Quantify the existing ambient noise environment at the Project Site;
- Evaluate the construction and operational noise and vibration impacts to noise sensitive receptors (i.e., residential uses) based on applicable standards and thresholds;
- Provide, if needed, noise mitigation measures as required to meet applicable noise regulations and standards as specified by the City of Pasadena.

## 1.1 Existing Conditions

The Project Site is an approximately 0.735-acre (32,000-SF) rectangular-shaped site (Project Site) located on the west side of North Madison Avenue, south of East Walnut Street and north of Union Street. The Project Site is also located near public transportation options, including bus stops that are within walking distance of the Project Site and are located approximately 0.25 mile northwest of the Project Site at North Los Robles Avenue and East Walnut Street, approximately 0.16 mile south of the Project Site at North Madison Avenue and East Colorado Boulevard, approximately 0.25 mile west of the Project Site at North Los Robles Avenue and East Union Street, and approximately 0.33 mile southwest of the Project Site at North Los Robles Avenue and East Colorado Boulevard. The Metro Gold Line Lake Station, which is also located within walking distance of the Project Site, is located approximately 0.6 mile northeast of the Project Site, and the Metro Gold Line Memorial Park Station is located approximately 0.7 mile west of the Project Site. The Project Site is shown in **Figure 1**, *Vicinity Location Map*. The Project Site abuts a mix of residential uses, commercial uses, medical uses and a seminary.

The Project Site is currently developed with a four-story office building totaling 27,579 SF and a 16,115-SF surface parking lot. **Figure 2**, *Aerial Photograph of Project Site and Vicinity*, shows the Project Site and surrounding land uses.



SOURCE: Open Street Map, 2018

127 and 141 N Madison Avenue Mixed-Use Project

**Figure 1**  
Vicinity Location Map





SOURCE: Open Street Map, 2018

127 and 141 N Madison Avenue Mixed-Use Project

**Figure 2**  
Aerial Photograph of Project Site and Vicinity

## 1.2 Project Description

The Project would consist of a 72,000-SF, five-story, 49-unit, mixed-use building, which includes two office spaces totaling 4,210 SF, 26,296 SF of open space, including a 1<sup>st</sup> Floor Central Courtyard and four Terraces, one on the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Floors. The Project would provide two levels of parking (one level at grade and one level subterranean) with 101 spaces and totaling 41,546 SF (with 20 spaces totaling 11,079 SF at grade, and 81 spaces totaling 30,467 SF subterranean). Project construction would include the demolition of current structures, grading to prepare the Site for new development, excavation to accommodate the subterranean parking and basement levels, and the construction and architectural coating of the mixed-use building.

The Project Site is located in the CD-3 (Central District Specific Plan, Walnut Housing sub-district) zoning district in the City of Pasadena and is currently developed with one four-story office building and surface parking lot. An Affordable Housing Concession Permit for floor area and building height is requested to achieve the density bonus. In addition, a vesting Tentative Tract Map for condominium purposes and Design Review approval are required.

## 1.3 Noise and Vibration Descriptors

### 1.3.1 Noise

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perceptibility of sound is subjective, and the physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms, such as “noisiness” or “loudness.” Sound pressure magnitude is measured and quantified using a logarithmic ratio of pressures, the scale of which gives the level of sound in decibels (dB). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate the human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The A-weighted sound level (dBA), typically applied to community noise measurements,<sup>1</sup> de-emphasizes low frequencies to which human hearing is less sensitive and focuses on mid- to high-range frequencies. The range of human hearing is approximately 3 to 140 dBA, with 110 dBA considered intolerable or painful to the human ear. In a non-controlled environment, a change in sound level of 3 dB is considered “just perceptible,” a change in sound level of 5 dB is considered “clearly noticeable,” and a change in 10 dB is perceived as a doubling of sound volume.<sup>2</sup> Although the A-weighted scale accounts for a range of people’s responses and is, therefore, commonly used to quantify individual event or general community sound levels, the degree of annoyance or other response effects also depends on several other factors. These factors include:

- Ambient (background) sound level;
- Magnitude of sound event with respect to the background noise level;

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<sup>1</sup> M David Egan, *Architectural Acoustics*, Chapter 1, March 1988.

<sup>2</sup> Bies & Hansen, *Engineering Noise Control*, 1988.

- Duration of the sound event;
- Number of event occurrences and their repetitiveness; and
- Time of day that the event occurs.

In an outdoor environment, sound levels attenuate with distance. Such attenuation is called “distance loss” or “geometric spreading” and is influenced by the noise source configuration (i.e., point source or line source). For a point source, such as stationary equipment, the rate of sound attenuation is usually 6 dB per doubling of distance from the noise source at urban, acoustically “hard” sites, or highly acoustically reflective settings that preserve sound energy (water, asphalt, and concrete). Within such environments, a sound level of 50 dBA at a distance of 25 feet from the noise source would attenuate to 44 dBA at a distance of 50 feet. For a line source within an acoustically hard environment, such as a roadway with a constant flow of traffic, the rate of sound attenuation is 3 dB per doubling of distance.<sup>3</sup> In addition, structures (e.g., buildings and solid walls) and natural topography (e.g., hills) that obstruct the line-of-sight between a noise source and a receptor further reduce the noise level if the receptor is located within the “shadow” of the obstruction, such as behind a sound wall. This type of sound attenuation is known as “barrier insertion loss.” If a receptor is located behind the wall but still has a view of the source (i.e., line-of-sight not fully blocked), some barrier insertion loss would still occur but to a lesser extent. A receptor located on the same side of the wall as a noise source may actually experience an increase in the perceived noise level as the wall reflects noise back to the receptor, thereby compounding the noise. Noise barriers can provide noise level reductions ranging from approximately 5 dBA (where the barrier just breaks the line-of-sight between the source and receiver) up to 20 dBA with a more substantial barrier.<sup>4</sup>

Community noise levels usually change continuously during the day. The equivalent sound level ( $L_{eq}$ ) is normally used to describe community noise. The  $L_{eq}$  is the equivalent steady-state A-weighted sound level that would contain the same acoustical energy as the time-varying A-weighted sound level during the same time interval. For intermittent noise sources, the maximum noise level ( $L_{max}$ ) is normally used to represent the maximum noise level measured during the measurement. Maximum and minimum noise levels, as compared to the  $L_{eq}$ , are a function of the characteristics of the noise source. As an example, sources, such as generators, have maximum and minimum noise levels that are similar to  $L_{eq}$  since noise levels for steady-state noise sources do not substantially fluctuate. However, as another example, vehicular noise levels along local roadways result in substantially different minimum and maximum noise levels when compared to the  $L_{eq}$  since noise levels fluctuate during pass-by events.

To assess noise levels over a given 24-hour time period, the Community Noise Equivalent Level (CNEL) descriptor is used in land use planning. CNEL is the time average of all A-weighted sound levels for a 24-hour period with a 10-dBA adjustment (upward) added to the sound levels which occur in the night (10:00 P.M. to 7:00 A.M.) and a 5-dBA adjustment (upward) added to the sound levels which occur in the evening 7:00 P.M. to 10:00 P.M.). These penalties attempt to

<sup>3</sup> Caltrans, Technical Noise Supplement (TeNS), 2013.

<sup>4</sup> Ibid.

account for increased human sensitivity to noise during the quieter nighttime periods, particularly where sleep is the most probable activity. CNEL has been adopted by the State of California to define the community noise environment for development of a community noise element of a General Plan and is also used by the City of Pasadena for land use planning in the City's General Plan Noise Element (Noise Element).<sup>5</sup>

## 1.3.2 Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The response of humans, buildings, and equipment to vibration is more accurately described using velocity or acceleration.<sup>6</sup> Vibration amplitudes are usually described in terms of peak levels, as in peak particle velocity (PPV). The peak level represents the maximum instantaneous peak of the vibration signal. In addition, vibrations can be measured in the vertical, horizontal longitudinal, or horizontal transverse directions. Ground vibrations are most often greatest and can damage buildings, when they propagate in the vertical direction.<sup>7</sup> Therefore, the analysis of ground-borne vibration associated with the Project was evaluated in the vertical direction. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are, therefore, usually confined to short distances from the source (i.e., 50 feet or less). The vibration attenuation equation is presented below.

$PPV_{equip} = PPV_{ref}(25/D)^n$  where ,  $PPV_{ref}$  = reference source vibration,  $D$  = Distance, and  $n$  = factor for soil attenuation (typically  $n = 1.5$ ).

## 1.4 Existing Noise Conditions

### 1.4.1 Noise-Sensitive Receptor Locations

Some land uses are considered more sensitive to noise than others due to the amount of noise exposure and the types of activities typically involved at the receptor location. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, nursing homes, and parks are generally more sensitive to noise than commercial and industrial land uses. Existing noise-sensitive uses in the vicinity of the Project Site are summarized below:

- **R1** – Residential: Single-family townhouses located approximately 225 feet northeast of the Project Site across North Madison Avenue.
- **R2** – Medical: Pasadena Urological Medical Group located approximately 100 feet southeast of the Project Site across North Madison Avenue.

<sup>5</sup> State of California, General Plan Guidelines, 2002.

<sup>6</sup> Federal Transit Administration, Transit Noise and Vibration Impact Assessment, page 7-3, May 2006.

<sup>7</sup> California Department of Transportation (Caltrans), Transportation Related Earthborne Vibrations, page 4, February 2002.



- **R3** – School: The Fuller Theological Seminary located immediately adjacent to the west of the Project Site.
- **R4** – Library/School: The David Allan Hubbard Library of the Fuller Theological Seminary located approximately 325 feet southwest of the Project Site.
- **R5** – Residential: Barcelona of Pasadena multi-family residential building located approximately 225 feet south of the Project Site along North Madison Avenue.

The nearest sensitive land uses to the Project Site are shown in **Figure 3**, *Sensitive Receptor Locations Nearest to the Project Site*. Other noise-sensitive uses in the vicinity of the Project Site are located further away than those listed above and would be less impacted by Project-related noise and vibration.

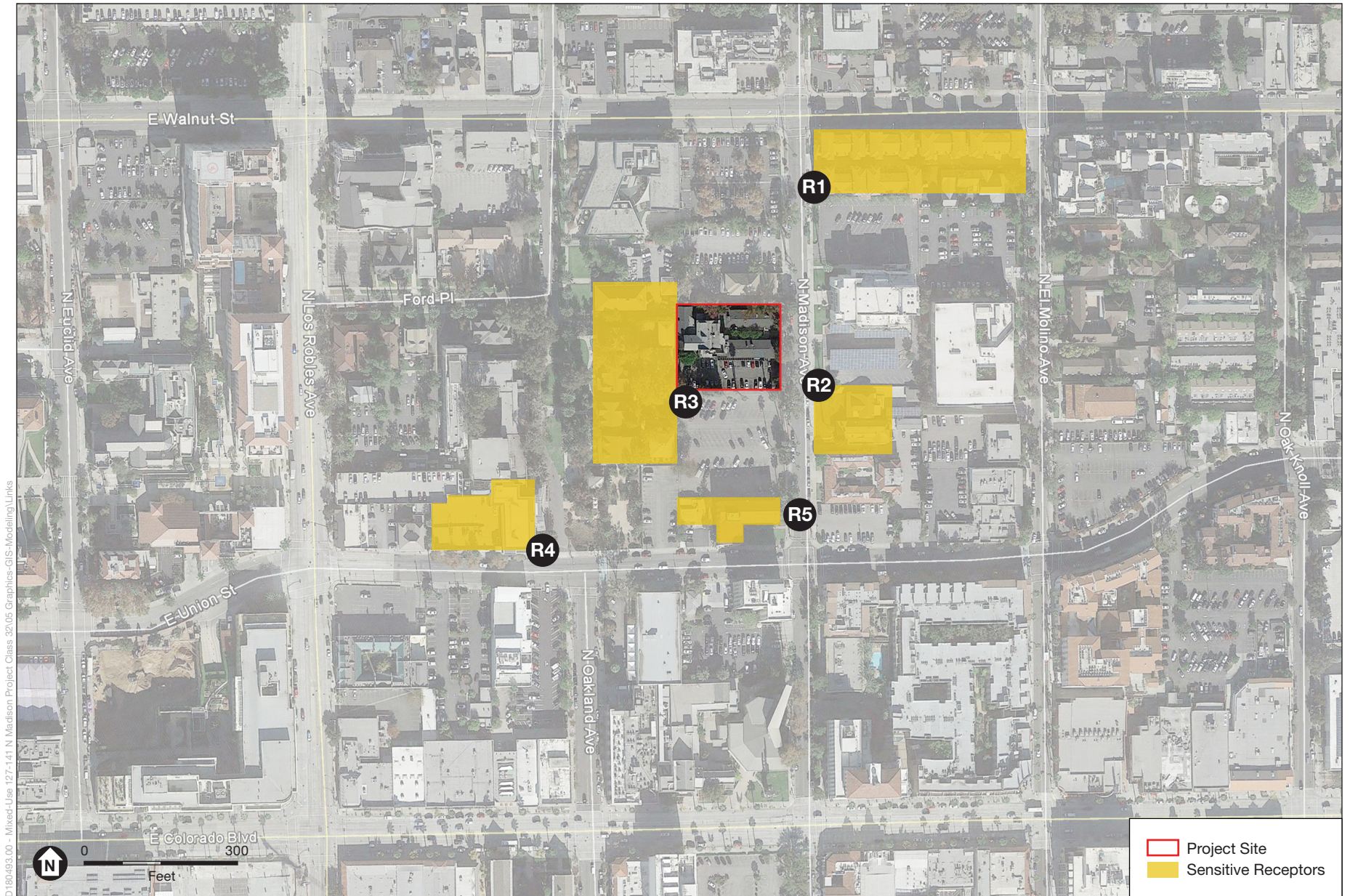
## 1.4.2 Local Noise Sources

The Project Site is located in the CD-3 (Central District Specific Plan, Walnut Housing sub-district) zoning district in the City of Pasadena and is currently developed with a general office building and a parking lot, which would be demolished and removed from the Project Site. The current building, which consists of office space, generates noise typically associated with commercial building operations, such as vehicle trips and stationary equipment.

To establish conservative ambient noise levels, ambient noise measurements were conducted at five locations, representing the nearby sensitive receptor land uses, described above, in the vicinity of the Project Site. The measurement locations, along with existing development, are shown in **Figure 3**.

The ambient noise measurements were conducted using the Larson-Davis LxT1 Sound Level Meter (SLM). The Larson-Davis LxT1 SLM is a Type 1 standard instrument as defined in the American National Standard Institute S1.4. All instruments were calibrated and operated according to the applicable manufacturer specification. The microphone was placed at a height of 5 feet above the local grade, at the following locations as shown in **Table 1**, *Summary of Ambient Noise Measurements*, and described in detail under Section 1.4.2, *Noise-Sensitive Receptor Locations*, below.

Short-term (15-minute) noise measurements were conducted at all locations. Short-term ambient noise measurements were conducted between 7:52 a.m. to 9:17 a.m. on Tuesday, August 14, to characterize the existing noise environment in the Project vicinity. A summary of noise measurement data is provided in **Table 1**. Noise levels ranged from 50.8 dBA to 62.4 dBA  $L_{eq}$  at off-site sensitive receptor locations.



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SOURCE: ESA, 2018

127-141 N Madison Project

**Figure 3**  
 Noise Measurement Locations and  
 Sensitive Receptor Locations Nearest to the Project Site



**TABLE 1**  
**SUMMARY OF AMBIENT NOISE MEASUREMENTS**

Location, Duration, Existing Land Uses and, Date of Measurements	Measured Ambient Noise Levels <sup>a</sup> (dBA L <sub>eq</sub> )
<b>R1</b> 8/14/18 (7:52 a.m. to 8:07 a.m.) Tuesday	59.1
<b>R2</b> 8/14/18 (9:02 a.m. to 9:17 a.m.) Tuesday	59.2
<b>R3</b> 8/14/18 (8:26 a.m. to 8:41 a.m.) Tuesday	50.8
<b>R4</b> 8/14/18 (8:43 a.m. to 8:58 a.m.) Tuesday	62.4
<b>R5</b> 8/14/18 (8:09 a.m. to 8:24 a.m.) Tuesday	59.5

## NOTES:

<sup>a</sup> Detailed measured noise data, including hourly L<sub>eq</sub> levels, are included in Appendix A.

SOURCE: ESA 2018.

## 1.4.2 Existing Roadway Noise Levels Off-site

Existing roadway noise levels were calculated for one roadway segment located in the vicinity of the Project Site. The roadway segment selected for analysis is considered to be one that is expected to be most directly impacted by Project-related traffic; which, for the purpose of this analysis, includes the roadway that is located near and immediately adjacent to the Project Site. This roadway, when compared to roadways located further away from the Project Site, would experience the greatest percentage increase in traffic generated by the Project.

Calculation of the existing roadway noise levels was accomplished using the California Department of Transportation (Caltrans) Technical Noise Supplement (TeNS) and traffic volumes at the study intersection analyzed in the Project's traffic study prepared by Pasadena Department of Transportation.<sup>8</sup> The model calculates the average noise level in CNEL at specific locations based on traffic volumes, average speeds, and site environmental conditions. The calculated CNEL (at a distance of 100 feet from the roadway right-of-way) from existing traffic volumes on the analyzed roadway segment is shown in **Table 2**, *Existing Roadway Noise Levels*.

<sup>8</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis – Outside of CEQA Analysis, 127-141 North Madison Avenue, 2018.

**TABLE 2**  
**EXISTING ROADWAY NOISE LEVELS**

Roadway Segment	Calculated Traffic Noise Levels along the Roadway (dBA CNEL at 100 feet) <sup>a</sup>
N Madison Ave between E Walnut St & Union St	57.8

<sup>a</sup> The noise level is modeled at 100 feet from the centerline of the roadway segment, consistent with the distance used in the Certified Environmental Impact Report for the City's General Plan.

SOURCE: ESA 2018.

### 1.4.3 Vibration-Sensitive Receptor Locations

Typically, ground-borne vibration generated by man-made activities (i.e., rail and roadway traffic, mechanical equipment and typical construction equipment) diminishes rapidly as the distance from the source of the vibration become greater. The Federal Transportation Association (FTA) uses a screening distance of 100 feet for high vibration sensitive buildings (e.g., hospital with vibration sensitive equipment) and 50 feet for residential uses. When vibration-sensitive uses are located within those distances from a project site, vibration impact analysis may be warranted. With respect to structures, vibration-sensitive receptors generally include historic buildings with construction susceptible to damage, buildings in poor structural condition, and uses that require precision instruments (e.g., hospital operating rooms or scientific research laboratories). There are historic buildings located on the Fuller Theological Seminary campus directly west of the Project Site that are susceptible to damage. The building located at 155 North Madison Avenue is approximately 25 feet directly north of the Project Site and could also be affected by Project-related construction vibration. There are other buildings in the surrounding area but are at distances that would not be affected by vibration impacts from Project construction.

## 2.0

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# Regulatory Setting

## 2.1 Regulatory Setting

Many government agencies have established noise regulations and policies to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise and ground-borne vibration. The City of Pasadena has adopted a number of policies, which are based in part on federal and State regulations, that are intended to control, minimize, or mitigate environmental noise effects. There are no City-adopted policies or standards that relate to ground-borne vibration, but the FTA and Caltrans do have such standards and/or policies that can provide guidance for this analysis but are not regulatory requirements for the Project. The regulations and policies that are relevant to Project construction and operational noise levels are discussed below.

### 2.1.1 City of Pasadena Noise Element of the General Plan

The Noise Element of the General Plan is primarily used by the Planning and Community Development Department as a guideline for siting noise-sensitive land uses in the vicinity of preemptive noise sources unless adequate noise abatement is incorporated into the encroaching development. The City of Pasadena Noise Element contains a noise compatibility matrix that shows acceptable and unacceptable ranges of noise for various land uses. The noise compatibility matrix is shown in **Table 3, *City of Pasadena Guidelines for Noise Compatible Land Use*** (appears as Figure 1 in the City’s Noise Element).<sup>9</sup>

These guidelines are set forth in the *City of Pasadena Revised Noise Element of the General Plan (2002)* in terms of the CNEL metric. CNEL guidelines for specific land uses are classified into four categories: (1) “clearly acceptable,” (2) “normally acceptable,” (3) “conditionally acceptable,” and (4) “normally unacceptable.” As shown in Table 1, CNEL values of 75 dBA and 80 dBA are the upper limits of what is considered a “conditionally acceptable” noise environment for residential and school uses, respectively, although the upper limits of what is considered “normally acceptable” for residential and school uses are set at 70 dBA CNEL.<sup>10</sup>

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<sup>9</sup> City of Pasadena, Revised Noise Element of the General Plan, December 2002.

<sup>10</sup> *Ibid.*

**TABLE 3  
CITY OF PASADENA GUIDELINES FOR NOISE COMPATIBLE LAND USE**

<i>Land Use Category</i>	<i>Community Noise Exposure L<sub>dn</sub> or CNEL, dBA</i>						
	55	60	65	70	75	80	85
Residential – Low Density Single Family, Duplex, Mobile Homes	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Residential – Multi- Family and Mixed Commercial/Residential Use	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Transient Lodging – Motels, Hotels	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Schools, Libraries, Churches, Hospitals, Nursing Homes	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Auditoriums, Concert Halls, Amphitheatres	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Sports Arena, Outdoor Spectator Sports	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Playgrounds, Neighborhood Parks	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Golf Courses, Riding Stables, Water Recreation, Cemeteries	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Office Buildings, Business Commercial and Professional	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Industrial, Manufacturing, Utilities, Agriculture	██████████	██████████	██████████	██████████	██████████	██████████	██████████
██████████	<i>CLEARLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.</i>						
██████████	<i>NORMALLY ACCEPTABLE: New construction or development should be undertaken after an analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.</i>						
██████████	<i>CONDITIONALLY ACCEPTABLE: If new construction or development proceeds, an analysis of the noise reduction requirement should be made and needed noise insulation features included in the design.</i>						
██████████	<i>NORMALLY UNACCEPTABLE: New construction or development should generally not be undertaken, unless it can be demonstrated that an interior level of 45 dBA can be achieved.</i>						

SOURCE: California, General Plan Guidelines 1998, as modified by the City of Pasadena 2002

The Certified Environmental Impact Report for the City’s General Plan identifies mitigation measures to minimize or reduce noise and vibration impacts from individual development projects in the City. General Plan mitigation measures that are relevant to the proposed Project include Mitigation Measure 9-5, which recommends best management practices to reduce

construction noise from new development projects within 500 feet of noise-sensitive receptors, and Mitigation Measures 9-3 and 9-4, which recommends individual projects that involve vibration-intensive construction activities conduct a vibration analysis and implement measures to reduce potential human annoyance and structural damage vibration impacts at vibration-sensitive receptors, as applicable.<sup>11</sup>

## 2.1.2 City of Pasadena Noise Restrictions Ordinance

The Pasadena Noise Ordinance is contained in Title 9, Article IV, and is titled “Noise Restrictions Ordinance.” The following sections of the current City of Pasadena Municipal Code (PMC) are particularly applicable to this study:

### **Section 9.36.020 – Declaration of Policy**

It is declared to be the policy of the city to prohibit unnecessary, excessive and annoying noises from all sources subject to its police power. Noise at certain levels is detrimental to the health and welfare of the general public. Consequently, it shall be systematically proscribed in the public interest.

### **Section 9.36.040 – Ambient Noise Level**

- A. When “ambient noise level” is referred to in this chapter, it means the actual measured ambient noise level.
- B. Any sound level measurement made pursuant to the provisions of this chapter shall be measured with a sound level meter using the A weighting.
  - 1. Where the sound alleged to be offending is of a type or character set forth below, the following values shall be added to the sound level measurement of the offending noise:
    - a. Except for noise emanating from any electrical transformer or gas metering and pressure control equipment existing and installed prior to the effective date of the ordinance codified herein, any steady audible tone: +5;
    - b. Repeated impulsive noise: +5;
    - c. Noise occurring more than 5 but less than 15 minutes per hour: -5;
    - d. Noise occurring more than 1 but less than 5 minutes per hour: -10;
    - e. Noise occurring less than 1 minute per hour: -20.

<sup>11</sup> City of Pasadena, Pasadena General Plan for the City of Pasadena, Environmental Impact Report, State Clearinghouse No. 2013091009, pages 5.9-37 and -38, January 2015.

2. Values of subsections (B)(1)(c), (B)(1)(d) and (B)(1)(e) of this section shall be added to the sound level measurements during daytime (6 a.m. to 11 p.m.) periods only.

### **Section 9.36.050 - General Noise Sources.**

- A. It is unlawful for any person to create, cause, make or continue to make or permit to be made or continued any noise or sound which exceeds the ambient noise level at the property line of any property by more than 5 decibels.
- B. Notwithstanding any other provision of this chapter and in addition thereto it shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary or unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area. The standards which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:
  1. The level of the noise;
  2. The intensity of the noise;
  3. Whether the nature of the noise is usual or unusual;
  4. Whether the origin of the noise is natural or unnatural;
  5. The level and intensity of the background noise, if any;
  6. The proximity of the noise to residential sleeping facilities;
  7. The nature and zoning of the area within which the noise emanates;
  8. The density of the inhabitation of the area within which the noise emanates;
  9. The time of the day or night the noise occurs;
  10. The duration of the noise;
  11. Whether the noise is recurrent, intermittent or constant; and
  12. Whether the noise is produced by a commercial or noncommercial activity.

### **Section 9.36.070 – Construction Projects**

- A. No person shall operate any pile driver, power shovel, pneumatic hammer, derrick power hoist, forklift, cement mixer or any other similar construction equipment within a



- residential district or within a radius of 500 feet therefrom at any time other than as listed below:
1. From 7:00 a.m. to 7:00 p.m. Monday through Friday;
  2. From 8:00 a.m. to 5:00 p.m. on Saturday;
  3. Operation of any of the listed construction equipment is prohibited on Sundays and holidays.
- B. No person shall perform any construction or repair work on buildings, structures or projects within a residential district or within a radius of 500 feet therefrom in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance at any time other than as listed below:
1. From 7:00 a.m. to 7:00 p.m. Monday through Friday;
  2. From 8:00 a.m. to 5:00 p.m. on Saturday;
  3. Performance of construction or repair work is prohibited on Sundays and holidays.
- C. The prohibition against construction on Sundays and Holidays as set forth in subsection B of this section shall not apply under either of the following conditions:
1. The construction is actually performed by an individual who is the owner or lessor of the premises and who is assisted by not more than two individuals;
  2. The person performing the construction shall have provided the building official with a petition which indicates the consent of 65 percent of the households residing within 500 feet of the construction site and the unanimous consent of the households adjacent to the construction site. Said petition shall be on a form promulgated by said building official and shall be accompanied by a fee, the amount of which shall be established by resolution by the city council.
- D. The prohibitions of this section shall not apply to the performance of emergency work as defined in Section 9.36.030.
- E. For purposes of this section, holidays are New Year's Day, Martin Luther King Jr. Day, Lincoln's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Day after Thanksgiving, and Christmas.

### **Section 9.36.080 – Construction Equipment**

It is unlawful for any person to operate any powered construction equipment if the operation of such equipment emits noise at a level in excess of 85 dBA when measured within a radius of 100 feet from such equipment.

## Section 9.36.090 – Machinery, Equipment, Fans and Air Conditioning

Except for emergency work, as defined in this chapter it is unlawful for any person to operate any machinery, equipment, pump, fan, air conditioning apparatus or similar mechanical device in any manner so as to create any noise which would cause the noise level at the property line of any property to exceed the ambient noise level by more than 5 decibels.

## 2.2 Ground-Borne Vibration Guidelines

The City has not adopted policies or guidelines relative to ground-borne vibration. As such, the following is a summary of Caltrans ground-borne vibration policies and guidelines. With respect to ground-borne vibration from construction activities, Caltrans has adopted guidelines/recommendations to limit ground-borne vibration based on the age and/or condition of the structures that are located in close proximity to construction activity. Caltrans' technical publication titled "Transportation and Construction Vibration Guidance Manual" September 2013,<sup>12</sup> provides a vibration damage potential threshold criteria for continuous sources of vibration of 0.12 inch-per-second PPV for Class IV buildings typically historic and very sensitive to vibration, 0.2 inch-per-second PPV for Class III buildings typically with wooden ceilings and walls in masonry, 0.3 inch-per-second PPV for Class II buildings typically built with foundation, floors, and walls in concrete or masonry, and 0.5 inch-per-second PPV for Class I buildings typically built from reinforced steel or reinforced concrete. Caltrans has provided guidance<sup>13</sup> for evaluating human annoyance from ground-borne vibration resulting from construction equipment and is identified as barely perceptible, distinctly perceptible, strongly perceptible, or severe. For continuous/frequent intermittent sources of vibration, Caltrans defines barely perceptible vibration as 0.01 inch-per-second PPV, distinctly perceptible as 0.04 inch-per-second PPV, strongly perceptible as 0.10 inch-per-second PPV, and severe as 0.4 inches-per-second. These Caltrans guidance criteria are used to evaluate the potential for human annoyance vibration impacts.

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<sup>12</sup> California Department of Transportation, Transportation and Construction Vibration Guidance Manual, Table 10, 2013, [http://www.dot.ca.gov/hq/env/noise/pub/TCVGM\\_Sep13\\_FINAL.pdf](http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf). Accessed July 2018.

<sup>13</sup> California Department of Transportation, Transportation and Construction Vibration Guidance Manual, Table 20, 2013, [http://www.dot.ca.gov/hq/env/noise/pub/TCVGM\\_Sep13\\_FINAL.pdf](http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf). Accessed July 2018.

## 3.0

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# Significance Thresholds

In accordance with Appendix G of the State *CEQA Guidelines*, the proposed Project would result in potentially significant impacts if it would result in:

- NOISE-1:** 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;
- NOISE-2:** Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;
- NOISE-3:** A substantial permanent increase in ambient noise levels in the vicinity of the project above levels existing without the project; or
- NOISE-4:** A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The paragraphs below provide guidance for evaluating the Project against these thresholds.

### 3.1 Construction (NOISE-1, NOISE-4)

Based on the City of Pasadena Noise Element of the General Plan and Noise Restrictions Ordinance, Project construction would normally be considered to exceed thresholds NOISE-1 and/or NOISE-4 if:

- Construction equipment emits noise at a level in excess of 85 dBA when measured within a radius of 100 feet of such equipment; or
- Construction activities would occur outside the hours of 7:00 A.M. to 7:00 P.M. Monday through Friday day, from 8:00 A.M. to 5:00 P.M. on Saturday, or anytime on Sunday or holidays (City-observed) within a residential district or within a radius of 500 feet therefrom and such construction would generate noise that would substantially affect sensitive receptors.

### 3.2 Operation (NOISE-1, NOISE-3, NOISE-4)

Project operational noise would normally be considered to exceed thresholds NOISE-1, NOISE-3 and/or NOISE-4 if:

- Project-related operational activities cause ambient noise levels to increase by 5 dBA or more at the property line. In accordance with Pasadena Municipal Code Section 9.36.040, where the sound alleged to be offending is of a type or character set forth below, the following values shall be added to the sound level measurement of the offending noise:
  - a. Except for noise emanating from any electrical transformer or gas metering and pressure control equipment existing and installed prior to the effective date of the ordinance codified herein, any steady audible tone: +5;
  - b. Repeated impulsive noise: +5;
  - c. Noise occurring more than 5 but less than 15 minutes per hour during daytime (6 a.m. to 11 p.m.) periods only: -5;
  - d. Noise occurring more than 1 but less than 5 minutes per hour during daytime (6 a.m. to 11 p.m.) periods only: -10;
  - e. Noise occurring less than 1 minute per hour during daytime (6 a.m. to 11 p.m.) periods only: -20; or
- Project-related off-site noise sources (i.e., roadway traffic noise) cause the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 3 dBA in CNEL to or within the “normally unacceptable” category.

### 3.3 Ground-Borne Vibration (NOISE-2)

Project vibrations would normally be considered to exceed threshold NOISE-2 if Project-induced vibrations would cause structural damage and/or disrupt the operations of vibration sensitive land uses.

The CEQA Guidelines do not define the levels at which groundborne vibration or groundborne noises are considered “excessive.” The City of Pasadena currently does not have a significance threshold to assess vibration impacts during construction. Additionally, there are no federal, state, or local vibration regulations or guidelines directly applicable to the Project. However, publications of the FTA and Caltrans are two of the seminal works for the analysis of vibration relating to transportation and construction-induced vibration. The Project is not subject to FTA or Caltrans regulations; nonetheless, these guidelines serve as useful tools to evaluate vibration impacts. For the purpose of this analysis, the vibration criteria for structural damage and human annoyance established in Tables 10 and 20 of the most recent Caltrans’ *Transportation and Construction Vibration Guidance Manual*<sup>14</sup> and Table 12-3 of the FTA’s *Transit Noise and Vibration Impact Assessment*<sup>15</sup> are used to evaluate the potential vibration impacts of the Project on nearby sensitive receptors. The vibration-sensitive receptors nearest to the Project Site are

<sup>14</sup> California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2013, [http://www.dot.ca.gov/hq/env/noise/pub/TCVGM\\_Sep13\\_FINAL.pdf](http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf). Accessed July 2018.

<sup>15</sup> Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006, [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA\\_Noise\\_and\\_Vibration\\_Manual.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf). Accessed April 2017.

located adjacent to the west of the Project Site at the Fuller Theological Seminary, and the buildings analyzed are considered Class IV historic buildings. Thus, Project construction and operational ground-borne vibration would normally be considered to exceed threshold NOISE-2 if:

- Project construction activities cause ground-borne vibration levels to exceed 0.12 in/sec PPV for Class IV buildings and 0.2 in/sec PPV for Class III buildings for structural damage or exceed 0.4 in/sec PPV for human annoyance.

## 4.0

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# Methodology

## 4.1 Methodology

### 4.1.1 On-Site Construction Noise

On-site construction noise impacts were evaluated by determining the noise levels generated by the different types of construction activity anticipated (i.e., demolition, grading, building construction, architectural coating, and paving), calculating the construction-related noise level at nearby sensitive receptor locations as identified in Section 1.4 of this Technical Report, and comparing these construction-related noise levels to existing ambient noise levels (i.e., noise levels without construction noise) at those receptors. More, specifically, the following steps were undertaken to assess construction-period noise impacts:

1. Typical noise levels for each type of construction equipment were obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model;
2. Distances between construction site locations (noise sources) and surrounding sensitive receptors were measured using Project architectural drawings and site plans;
3. Using the FHWA Roadway Construction Noise Model, construction noise levels were then calculated, in terms of hourly  $L_{eq}$ , for sensitive receptor locations based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance; and
4. Construction noise levels were then compared to the construction noise significance thresholds identified previously in Section 3.0 of this Technical Report.

During demolition, construction equipment would be expected to operate primarily at a distance of 25 feet or more from the Project boundary to the nearest sensitive receptors, as there is an existing school adjacent to the Project Site. Asphalt removal may require a tractor/loader/backhoe; therefore, it was assumed a tractor/loader/backhoe could be used in close proximity to sensitive receptors within 25 feet of R3. During grading/excavation, a tractor/loader/backhoe and drill rig may temporarily operate as close as 25 feet of R3 when grading/excavation is occurring at the southwestern end of the Project Site. Similarly, during building construction, and architectural coating, construction equipment, including a crane and air compressor, may temporarily operate as close as 25 feet of R3. However, it is not physically possible for all construction associated with a particular construction activity to be in use simultaneously at the same location. Construction equipment cannot operate in close quarters at a single location in given physical construction site constraints and on-site safety and accident prevention best

practices. Therefore, for the purposes of this analysis, it is reasonably expected that equipment associated with a particular construction activity would operate at various distances from sensitive receptors, with some equipment temporarily in use as close as 25 feet from sensitive receptors while other equipment is in use elsewhere on the Project Site (e.g., 75 feet or greater from sensitive receptors).

## 4.1.2 Off-Site Roadway Noise

Roadway noise impacts have been evaluated based on the FHWA TNM method described in FHWA Traffic Noise Model Technical Manual<sup>16</sup> and based on data from the Project's Traffic Impact Analysis.<sup>17</sup> This method allows for the definition of roadway configurations, barrier information (if any), and receiver locations. Roadway noise attributable to Project development was calculated and compared to baseline noise levels that would occur under the "Without Project" condition, which accounts for the current uses on the Project Site.

## 4.1.3 Stationary Point-Source Noise (Operations)

Stationary point-source noise impacts were evaluated by identifying the noise levels generated by outdoor stationary noise sources for the Project, which includes rooftop mechanical equipment, parking structure, and at-grade enclosed parking area. Evaluating noise from these point sources included calculating the hourly  $L_{eq}$  noise level from each noise source at sensitive receptor property lines and comparing such noise levels to existing ambient noise levels. More specifically, the following steps were undertaken to calculate outdoor stationary point-source noise impacts:

1. Distances between stationary noise sources and surrounding sensitive receptor locations were measured using Project architectural drawings and site plans;
2. Stationary-source noise levels were then calculated for each sensitive receptor location based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance;
3. Noise level increases were compared to the stationary source noise significance thresholds identified above; and
4. For outdoor mechanical equipment, the maximum allowable noise emissions from any and all outdoor mechanical equipment were specified such that noise levels would not exceed the significance threshold identified previously.

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<sup>16</sup> Federal Highway Administration, Traffic Noise Model, [https://www.fhwa.dot.gov/environment/noise/traffic\\_noise\\_model/](https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/). Accessed March 2017.

<sup>17</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis – Outside of CEQA Analysis, 127-141 North Madison Avenue, 2018.

For the purpose of providing a quantitative estimate of the noise levels that would be generated from the Project's parking structure, the methodology recommended by the FTA for the general assessment of parking structure noise is used. Based on this methodology, the Project's peak hourly noise level that would be generated by the on-site parking structure was estimated using the following FTA equation for a parking lot:<sup>18</sup>

$$L_{eq}(h) = SEL_{ref} + 10 \log(NA/1000) - 35.6$$

Where:  $L_{eq}(h)$  = hourly  $L_{eq}$  noise level at 50 feet

$SEL_{ref}$  = reference noise level for stationary noise source represented in sound exposure level (SEL) at 50 feet

$NA$  = number of automobiles per hour

#### 4.1.4 Ground-Borne Vibration

Ground-borne vibration impacts were evaluated by identifying potential vibration sources, measuring the distance between vibration sources and surrounding structure locations, and making a significance determination based on the significance thresholds identified previously. Vibration levels are estimated using the vibration attenuation equation provided above in Section 1.3.2.

## 4.2 Project Characteristics and Project Design Features

### 4.2.1 Project Characteristics

Several Project characteristics and common best practices that are included as Project design features (PDFs) (see Section 4.2.2 below) have the potential to reduce noise and vibration generation and were taken into account in the analysis of potential impacts. In accordance with the City's Noise Ordinance requirements, construction hours for exterior construction and hauling activities would be expected to occur between the hours of 7:00 A.M. and 7:00 P.M, Monday through Friday, and 8:00 A.M. to 5:00 P.M on Saturday. The Project contractor(s) would equip all construction equipment, fixed or mobile, with properly operating and maintained noise mufflers, consistent with manufacturers' standards and general industry standard best practices. In addition, contractor(s) would comply with existing State of California regulations that limit engine idling to five minutes or less at any location from construction equipment such as haul trucks.

With respect to Project operation, building outdoor mounted mechanical and electrical equipment would be designed in accordance with general industry standard best practices to meet the

<sup>18</sup> Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Table 5-6, May 2006.



requirements of the City’s Noise Ordinance to prevent any adjoining unit to exceed the ambient noise level by more than five (5) decibels.

## 4.2.2 Project Design Features

Consistent with the City’s General Plan mitigation measures applicable and relevant to the proposed Project and consistent with the City’s Noise Ordinance for stationary noise sources, the Project will incorporate—and the analysis assumes implementation of—the following general industry standard best practices to minimize noise and vibration impacts, including the Applicant’s vibration management plan provided in Appendix B:

**PDF-NOISE-1, Construction Equipment Noise Control:** The Project contractor(s) will employ industry standard noise minimization strategies, as feasible, when using mechanized construction equipment. The contractor(s) will not use pile drivers, vibratory rollers, pavement breakers, or blasting equipment. The contractor(s) will strive to use other electric equipment if commercially available. The contractor(s) will limit unnecessary idling of equipment on or near the site in accordance with idling limits specified in Title 13 California Code of Regulations (CCR), Section 2485. The contractor(s) will strive to place noisy construction equipment as far from the Project Site edges as practicable. The Project contractor(s) will equip all construction equipment, fixed or mobile, with properly operating and maintained noise mufflers, consistent with manufacturers’ standards. For example, absorptive mufflers are generally considered commercially available, industry standard noise reduction for heavy duty equipment.<sup>19</sup>

**PDF-NOISE-2, Construction Equipment Vibration Control:** Consistent with the Certified Environmental Impact Report for the City’s General Plan, Mitigation Measures 9-3 and 9-4, which are incorporated herein and recommends individual projects that involve vibration-intensive construction activities conduct a vibration analysis and implement measures to reduce potential human annoyance and structural damage vibration impacts at vibration-sensitive receptors, as applicable, the Applicant will require contractors to comply with a vibration management plan and implement minimum allowable setbacks from vibration sensitive receptors for heavy machinery. The potential vibration conflict areas for new construction for the proposed project are the following:

- The eastern wall of the northern 2- story office building at Fuller Seminary sits within the very edge of the 11-foot setback zone.
- The eastern wall of the southern 2- story office building at Fuller Seminary sits within 18-foot setback zone.

For all new construction, the contractor(s) will not use pile drivers, vibratory rollers, pavement breakers, or blasting equipment. For a radius around the Fuller Seminary, the contractor(s) will observe the following minimum allowable setbacks:

<sup>19</sup> United muffler Corp: <https://www.unitedmuffler.com/> P) 866-229-3402; Auto-jet Muffler Corp: <http://mandrelbending-tubefabrication.com/index.php>, P) 800-247-5391; AP Exhaust Technologies: <http://www.apexhaust.com/>, P) 800-277-2787.

- For the Fuller Seminary, the contractor(s) will observe the 3-foot, 11-foot, 18-foot and 20-foot restrictions for small bulldozers, jackhammers, loading trucks, and large bulldozers, respectively.
- Other equipment that may be used on this site beyond the 20-foot restriction zone includes large excavators, large drilling rigs, large bulldozers, large loaders and loading trucks, in addition to small loaders. The excavator to be used will have a 30-foot reach to pull dirt out of the restricted zones.

**PDF-NOISE-3, Stationary Equipment Noise Control:** Air conditioners, fans, generators, and related equipment will be designed to not to exceed the ambient noise levels by more than five (5) dBA at off-site residential uses.

## 5.0

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# Environmental Impacts

## 5.1 Construction Noise (NOISE-1, NOISE-4)

### 5.1.1 On-Site Construction Noise

Noise impacts from construction activities are generally a function of the noise generated by construction equipment, equipment locations, the sensitivity of nearby land uses, and the timing and duration of the noise-generating activities. Construction would include the following activities: demolition, grading/excavation, drainage/utilities/trenching, foundation/concrete pour, building construction, and architectural coating. Each activity would involve the use of different types of construction equipment and, therefore, has its own distinct noise characteristics. Demolition would typically involve the use of an excavator, tractor/loader/backhoe, front end loader, and haul trucks for the removal and transport of demolished material. Grading/excavation would involve the use of an auger drill rig, dumper/tender, excavator, grader, dump/haul truck, pump, tractor/loader/backhoe, water truck, and haul trucks for the removal and transport of excavated soil. Drainage/utilities/trenching would involve the use of a tractor/loader/backhoe. Foundation/concrete pour would typically involve the use of a cement and mortar mixer, tractor/loader/backhoe, and pump. Building construction would typically involve the use of a ground compactor, forklift, tractor/loader/backhoe, and crane. Architectural coatings would typically involve the use of an air compressor. The Project would be constructed using typical construction techniques; the no pile drivers, vibratory rollers, pavement breakers, or blasting equipment would be used.

Project construction would require the use of mobile heavy equipment with high noise-level characteristics. With implementation of PDF-NOISE-1, individual pieces of construction equipment anticipated during Project construction equipped with properly operating and maintained noise mufflers could produce maximum noise levels of 76 dBA to 90 dBA at a reference distance of 50 feet from the noise source, as shown in **Table 4, Construction Equipment Noise Levels**. These maximum noise levels would occur when equipment is operating under full power conditions. The estimated usage factors for the equipment are also shown in Table 4. The usage factors are based on FHWA's *Roadway Construction Noise Model User's Guide*.<sup>20</sup> To more accurately characterize construction-period noise levels, the average (Hourly  $L_{eq}$ ) noise level associated with each construction stage is calculated based on the quantity, type, and usage

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<sup>20</sup> Federal Highway Administration, *Roadway Construction Noise Model User's Guide*, 2006.

factors for each type of equipment used during each construction stage and are typically attributable to multiple pieces of equipment operating simultaneously.

Construction noise levels were estimated based on an industry standard sound attenuation rate of 6 dBA per doubling of distance (from the 50-foot reference distance) for point sources (e.g., construction equipment). For the purposes of providing a conservative analysis, the noisiest construction equipment was assumed to operate simultaneously with an estimated usage factor at the construction area nearest to potentially affected sensitive receptors (at the fence line). These assumptions represent a worst-case noise scenario as the noisiest construction equipment used in a given phase would not typically operate concurrently and at full power, and the location of activities are routinely spread across the construction site, rather than concentrated close to the nearest noise-sensitive receptors. In practice, equipment is used on construction sites intermittently over the course of a construction day and generally do not operate in close quarters at a single location in order to provide for on-site safety and accident prevention. In addition, noise from different construction stages that could occur simultaneously were added together to provide a conservative composite construction noise level.

**TABLE 4**  
**CONSTRUCTION EQUIPMENT NOISE LEVELS**

<b>Equipment</b>	<b>Estimated Usage Factor, %</b>	<b>Maximum Noise Level at 50 feet from Equipment, dBA (L<sub>max</sub>)</b>
Air Compressor	50	78
Auger Drill Rig	20	85
Cement and Mortar Mixers	40	79
Compactor	20	83
Concrete Saw	20	90
Crane	40	81
Dump/Haul Truck	20	76
Dumper/Tender	40	76
Excavator	40	81
Forklift	10	75
Generator Sets	50	81
Grader	40	85
Jackhammer	20	89
Paver	50	77
Pumps	50	81
Rubber Tired Loader	50	79
Tractor/Loader/Backhoe	25	80
Trencher	50	80
Front End Loader	40	79

SOURCE: FHWA Roadway Construction Noise Model User's Guide, 2006.

A summary of construction noise impacts at the existing nearby sensitive receptors is provided in **Table 5, Estimated Construction Noise Levels ( $L_{eq}$ ) at Off-Site Sensitive Receptors**. Detailed noise calculations for construction activities are provided in Appendix A. As shown in **Table 5**, construction noise levels are estimated to reach a maximum noise level of up to approximately 71 dBA  $L_{eq}$  at the off-site receptor locations R1 and R5, up to approximately 76 dBA  $L_{eq}$  at the off-site receptor location R2, up to approximately 89 dBA  $L_{eq}$  at the off-site receptor location R3, and up to approximately 68 dBA  $L_{eq}$  at the off-site receptor R4 with equipment operating at the specified distances. Accounting for distance attenuation, maximum construction activity noise levels would be up to approximately 79 dBA at a reference distance of 100 feet. As a result, since the maximum construction-related noise level would be 79 dBA measured at a distance of 100 feet, construction activity would not generate noise levels in excess of the City's Noise Ordinance of 85 dBA at 100 feet. Furthermore, construction related activity would be expected to only occur during the hours of 7:00 a.m. to 7:00 p.m. in compliance with the City's Noise Ordinance. As such, the Project would not exceed the significance thresholds, and construction noise impacts would be less than significant.

**TABLE 5  
ESTIMATED CONSTRUCTION NOISE LEVELS ( $L_{eq}$ ) AT OFF-SITE SENSITIVE RECEPTORS**

Noise-Sensitive Receptor	Distance between Nearest Receptor and Construction Equipment (feet)	Construction Noise Levels at the Noise-Sensitive Receptor by Construction Phase, <sup>a</sup> Hourly $L_{eq}$ (dBA)	Exceed Significance Threshold	Exceed Significance Threshold
<b>R1</b> Residential to the northeast	225 to 425 feet	71	–	–
<b>R2</b> Medical to the southeast	100 to 350 feet	77	–	–
<b>R3</b> School to the west	25 to 200 feet	89	–	–
<b>R4</b> Library and school to the southwest	325 to 550 feet	68	–	–
<b>R5</b> Residential to the south	225 to 380 feet	71	–	–
<b>Maximum Projected Noise Level at Threshold Distance of 100 feet</b>	<b>100 feet</b>	<b>79</b>	<b>85</b>	<b>No</b>

NOTES:

<sup>a</sup> Estimated construction noise levels represent the worst-case condition when the noisiest construction equipment would be located closest to the sensitive receptors and are expected to last the entire duration of each construction phase.

SOURCE: ESA 2018.

## 5.1.2 Off-Site Haul Truck Noise

Delivery and soil hauling truck trips would occur throughout the construction period. An estimated maximum of approximately 3,120 total haul truck trips would occur during the grading and excavation phase of construction. This would result in approximately 40 truck trips per day (over an estimated 78-day grading and excavation period). Haul truck traffic would take the most direct route to the appropriate freeway ramp. Construction-related truck traffic is assumed to use northbound Madison Avenue to eastbound Walnut Street to northbound Lake Avenue to access Interstate 210 (I-210). As shown in **Table 4**, haul trucks are estimated to generate a peak instantaneous noise level of up to 76 dBA at 50 feet as a truck passes by a noise receiver. This peak instantaneous noise level represents the maximum noise as a truck passes by a stationary receiver (i.e., such as a stationary sound level meter) and would only be experienced by that stationary receiver for a few seconds per truck movement. As the haul truck moves away from that stationary receiver, the noise level drops substantially with increasing distance between the truck and the stationary receiver.

Based on roadway truck traffic noise modeling using the FHWA TNM method, the noise level from Project haul trucks traveling along the haul route at 50 feet would be approximately 53.1 dBA  $L_{eq}$  based on 5 truck trips in a peak hour and 40 truck trips per day. Since construction of the Project would generate approximately 40 truck trips spread out over an entire work day, the dBA  $L_{eq}$  noise metric is a better representation of the overall sound environment from construction haul trucks and is the appropriate noise metric for comparison with the City's significance threshold. As shown previously in **Table 1**, existing noise levels in the Project area range from approximately 50.8 dBA  $L_{eq}$  to 62.4 dBA  $L_{eq}$ . Although Project-related construction trucks would generate a noise level greater than the existing levels, Project-related construction truck noise would not increase existing noise levels by more than 3 dBA, which is less than the perceptible level. While it is expected that instantaneous sound levels from passing haul trucks may generate noise over the ambient noise levels, such increases are expected to be sporadic and temporary with durations typically substantially less than one minute as a truck passes by a noise receiver and would not substantially contribute to an increase in existing roadway noise levels. Therefore, haul truck noise impacts would result in a less-than-significant impact.

## 5.1.3 Off-Site Construction Worker Trip Noise

In addition to soil haul trucks, construction of the Project would result in construction worker trips to and from the Project Site. The largest number of worker and vendor trips would occur during the building construction phase and would result in an estimated 60 worker trips per day and 19 vendor trips per day. An increase of 79 trips per day would not result in a doubling of traffic volumes on local roadways and would not temporarily result in a 3-dBA or more increase in roadway noise levels. This temporary noise level increase would not result in a substantial increase in roadway noise levels, and impacts would be less than significant impact.

## 5.2 Operational Noise (NOISE-1, NOISE-3, NOISE-4)

### 5.2.1 Fixed Mechanical Equipment

The operation of mechanical equipment typically installed for developments like the Project, such as air conditioners, fans, generators, and related equipment, may generate audible noise levels. The mechanical equipment would generate noise distributed across all frequencies (i.e., white noise) and would not generate noise at a specific frequency. As such, the noise would not be characterized as a steady audible tone or as repeated impulsive noise. Therefore, no noise adjustment or noise penalty is required per PMC Section 9.36.040(B).

Project mechanical equipment, including air conditioning condensers, would be installed on the building rooftop, with other equipment contained within the building. Project mechanical equipment would be designed with appropriate noise control devices, such as sound attenuators, acoustic louvers, or sound screens/parapet walls to comply with noise limitation requirements provided in the City's Noise Ordinance, which prevents the noise from such equipment from causing an increase in the ambient noise level of more than five decibels. To ensure the ability to meet this standard, the Project would implement PDF-NOISE-3 to ensure that Project-related stationary sources of noise are consistent with City standards. Therefore, operation of rooftop mechanical equipment on the Project building would not exceed the City's thresholds of significance, and impacts would be less than significant.

### 5.2.2 Parking Structure

Automobile movements within parking structures could generate noise levels with the potential to adversely impact adjacent land uses during Project operations. The Project would be designed to have a parking structure with one level below-grade and one at-grade. Noise levels at 50 feet from the parking structure were calculated using the FTA's parking structure formula provided in Section 4.1, *Methodology*. The reference level (at 50 feet) for parking structures is 92 dBA.<sup>21</sup> Peak hour traffic volumes totaled 39 trips and were taken from the Project's traffic study prepared by Pasadena Department of Transportation.<sup>22</sup> The noise level from parking structure activity would be approximately 42 dBA  $L_{eq}$  at 50 feet. The calculated noise level is below the measured ambient noise levels, and, therefore, impacts would be less than significant.

### 5.2.3 Refuse Collection Area

Refuse service area-related activities would be accessed from the driveway near the southeast corner of the property. Refuse collection trucks would generate noise levels of approximately 70 dBA  $L_{eq}$  at a 50-foot distance.<sup>23</sup> The nearest noise sensitive uses to the Project Site are represented by measurement locations R2 and R3 (medical and school uses) and would be located

<sup>21</sup> Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Table 5-5, May 2006.

<sup>22</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis – Outside of CEQA Analysis, 127-141 North Madison Avenue, (2018).

<sup>23</sup> Refer to: City of Moreno Valley, Moreno Valley Walmart Noise Impact Analysis, Table 9-1, pg. 71, February 10, 2015; and City of Pomona, Pomona Ranch Plaza Walmart Expansion Project, Table 4.4-5, pg. 4.4-33, August 2014.

approximately 200 feet and 125 feet, respectively, as measured from the refuse collection areas. The refuse collection area would be inside the proposed Project building and would be shielded by the Project structures. Based on a noise level source strength of 70 dBA at a reference distance of 50 feet, and accounting for barrier-insertion loss by Project structures (minimum 10 dBA insertion loss), refuse service area noise would be approximately 48 dBA at R2 and 52 dBA at R3 and, therefore, would increase the daytime average ambient noise levels of 59.2 dBA  $L_{eq}$  by 0.3 dBA at R2, and the noise level of 50.8 dBA  $L_{eq}$  by 3.7 dBA at R3, when combined with the ambient noise levels and noise from the refuse service areas. Because the refuse service area noise would not increase ambient noise levels at the noise sensitive receptor locations R2 and R3 by the applicable 5-dBA threshold, respectively, impacts would be less than significant, and no mitigation measures are required.

## 5.2.4 Project-Related Traffic Noise

Future roadway noise levels were calculated along the segment adjacent to the Project. Roadway noise attributable to Project development was calculated using the traffic noise model previously described and was compared to baseline noise levels that would occur under the “No Project” condition.

Project impacts are shown in **Table 6**, *Estimated Operational Traffic Noise Levels*. As indicated, operation of the Project would not result in a substantial increase in Project-related traffic noise levels over existing traffic noise levels. The increase in noise level would be substantially less than threshold of a 3-dBA increase in CNEL to or within the “normally unacceptable” category (see **Table 2**). The Project traffic noise levels would be generally similar to the existing traffic noise levels because the Project would not generate substantially different traffic volumes compared to existing conditions. In particular, the Project’s peak morning and afternoon traffic volumes would be essentially the same as existing conditions, with only a difference of 4 fewer trips in the morning and 3 additional trips in the afternoon.<sup>24</sup> As a result, Project-related traffic noise would be less than significant.

**TABLE 6**  
**ESTIMATED OPERATIONAL TRAFFIC NOISE LEVELS**

Roadway Segment		Calculated Traffic Noise Levels at 100 feet from Roadway (dBA CNEL) <sup>a</sup>			
		Existing <sup>b</sup> (A)	Existing with Project (B)	Project Increment (B - A)	Exceed Threshold?
<b>N Madison Ave</b>	Between E Walnut St & Union St	57.8	58.0	+0.2	<b>No</b>

<sup>24</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis – Outside of CEQA Analysis, 127-141 North Madison Avenue, page 10, 2018.



Roadway Segment	Calculated Traffic Noise Levels at 100 feet from Roadway (dBA CNEL) <sup>a</sup>			
	Existing <sup>b</sup> (A)	Existing with Project (B)	Project Increment (B - A)	Exceed Threshold?

## NOTES:

<sup>a</sup> The noise level is modeled at 100 feet from the centerline of the roadway segment, consistent with the distance used in the Certified Environmental Impact Report for the City's General Plan.

<sup>b</sup> Existing data is taken from **Table 1**.

SOURCE: ESA 2018.

## 5.3 Ground-Borne Vibration (NOISE-2)

### 5.3.1 Construction Vibration

#### Structural Impacts

Construction activities can generate varying degrees of ground vibration, depending on the construction procedures and the construction equipment used. The operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site varies depending on soil type, ground strata, and construction characteristics of the receptor buildings. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibration from construction activities rarely reaches levels that damage structures. The Caltrans guidance manual incorporates FTA standard vibration velocities for construction equipment operations (Table 18 of the Caltrans guidance manual).<sup>25</sup> The PPV for construction equipment pieces anticipated to be used during Project construction are listed in **Table 7, Typical Vibration Velocities for Potential Project Construction Equipment**. The vibration velocities take into account compliance with the Certified Environmental Impact Report for the City's General Plan, Mitigation Measures 9-3 and 9-4, which are incorporated into the Project design, and will be implemented via the Applicant's vibration management plan as discussed above in PDF-NOISE-2.

<sup>25</sup> California Department of Transportation, Transportation and Construction Vibration Guidance Manual, Table 12, 2013, [http://www.dot.ca.gov/hq/env/noise/pub/TCVGM\\_Sep13\\_FINAL.pdf](http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf). Accessed July 2018.

**TABLE 7**  
**TYPICAL VIBRATION VELOCITIES FOR PROJECT CONSTRUCTION EQUIPMENT**

Equipment	Reference Vibration Velocity Levels at 25 feet, PPV (inch/second) <sup>a, b</sup>	Construction Setback Distance to Sensitive Buildings (ft)	At Minimum Setback Distance PPV (inch/second)	PPV (inch/second) at 50 feet
Large bulldozer	0.089	20	0.12	0.031
Loaded trucks	0.076	18	0.12	0.027
Jackhammers	0.035	11	0.12	0.012
Small Bulldozer	0.003	3	0.07	0.001

## NOTES:

<sup>a</sup> PPV = Peak particle velocity.<sup>b</sup> FTA, Transit Noise and Vibration Impact Assessment, Table 12-2.

SOURCE: USDOT Federal Transit Administration, 2006.

Construction of the Project would generate ground-borne construction vibration during site demolition and grading/excavation activities. Based on the vibration data provided in **Table 7**, vibration velocities from operation of commonly used construction equipment would range from approximately 0.003 to 0.089 inch-per-second PPV at 25 feet from the source of activity.

The nearest vibration-sensitive receptors to the Project Site are located adjacent to the west of the Project Site at Fuller Theological Seminary and the building directly north of the Project Site at 155 North Madison Avenue. The closest sensitive receptors are considered historical and are located within the Ford Place Historic District. The sensitive receptors to the west are assumed to be Class IV that are very sensitive to vibration and have a significance threshold of 0.12-inch-per-second.<sup>26</sup> As stated in PDF-NOISE-2, above, the Project would implement equipment-specific minimum allowable setbacks to protect adjacent historical buildings (see **Table 7**, above). Based on the above analysis, none of the anticipated vibration levels would exceed the 0.12-inch-per-second significance threshold at the closest historical buildings. The sensitive receptor to the north is considered a Class III building with a vibration threshold of 0.2 inch-per-second. The building is approximately 25 feet from the Project Site and would experience maximum vibration levels of 0.089 inch-per-second and would be less than the vibration threshold. Therefore, vibration impacts would be less than significant.

## Human Annoyance

Residences, schools, motels and hotels, libraries, religious institutions, hospitals, nursing homes, and parks are considered particularly sensitive uses for vibration annoyance. The nearest vibration-sensitive uses with the potential for human annoyance impacts in the Project vicinity is the adjacent Fuller Theological Seminary (R3) to the west of the Project Site. As discussed above, these structures could be exposed to vibration velocities from construction activities that would

<sup>26</sup> California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2013, [http://www.dot.ca.gov/hq/env/noise/pub/TCVGM\\_Sep13\\_FINAL.pdf](http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf). Accessed July 2018.

be up to approximately 0.12 inch-per-second PPV when equipment would be in use within 3 to 20 feet of any sensitive receptor based on the equipment type and compliance with PDF-NOISE-2 (see **Table 7**, above), which would not exceed the 0.4-inch-per-second PPV significance threshold for potential human annoyance. The sensitive use to the north would result in even lower levels of vibration since it is slightly farther away from the Project Site and would not exceed the threshold for human annoyance. As a result, Project-related construction would result in less-than-significant vibration impacts related to potential human annoyance.

### 5.3.2 Operational Vibration

The Project's operations would include typical residential-grade stationary mechanical and electrical equipment for multi-family residential buildings, such as air handling units, condenser units, and exhaust fans, which would produce vibration. In addition, the primary sources of transient vibration would include passenger vehicle circulation within the proposed parking area. Ground-borne vibration generated by each of the above-mentioned activities would generate approximately up to 0.005 inch-per-second PPV adjacent to the Project Site.<sup>27</sup> The potential vibration levels from Project operational sources at the closest sensitive receptor locations would be less than the threshold of perceptibility of 0.4 inch-per-second PPV. As such, vibration impacts associated with operation of the Project would be below the significance threshold, and impacts would be less than significant.

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<sup>27</sup> This vibration estimate is based on data presented in the USDOT Federal Transit Administration, 2006.

## 6.0

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# Cumulative Impacts

## 6.1 Construction

Cumulative construction impacts could occur when multiple construction projects are occurring simultaneously with the proposed Project. There are three planned projects that are near the Project Site to the south and southeast. The Union Street Court Project at 635 Union Street would be a 40-unit mixed-use building located approximately 300 feet to the southeast of the proposed Project. The Olivewood North Project at 535 Union Street would be an 86-unit mixed-use building located approximately 135 feet to the south of the proposed Project. The Olivewood South Project at 54 North Oakland Avenue would be a 55-unit mixed-use building located approximately 360 feet to the south of the proposed Project. Concurrent noise impacts could occur if the projects were being constructed on overlapping schedules. The City's noise threshold for construction is 85 dBA at 100 feet for each piece of equipment. As a conservative approach for this cumulative construction noise analysis, this threshold of 85 dBA at 100 feet was applied to the aggregate noise from concurrent construction activities for the proposed Project and the three nearby projects (i.e., multiple pieces of construction equipment operating simultaneously on separate but adjacent sites).

The Olivewood North Project would be approximately four times the distance from the closest sensitive receptor to the proposed Project and consists of multi-family residential uses, similar to the proposed Project. The Olivewood South Project and Union Street Court Project would be located farther away from the proposed Project's most affected noise-sensitive receptor and would also consist of multi-family residential uses. Thus, the Olivewood South Project and the Union Street Court Project would contribute less noise at the proposed Project's most affected sensitive receptor than the proposed Project and the Olivewood North Project given the increase in noise attenuation from the increased distance. Environmental documents prepared for the Olivewood North Project and the Olivewood South Project concluded that the maximum construction noise would be 81 dBA at 100 feet.<sup>28</sup> At a distance of 135 feet for the Olivewood North Project, the noise level would be approximately 78 dBA accounting for distance attenuation. At a distance of 360 feet for the Olivewood South Project, the noise level would be approximately 70 dBA accounting for distance attenuation. Environmental documents prepared for the Union Street Court Project concluded that the maximum construction noise would be 84

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<sup>28</sup> City of Pasadena, Noise & Vibration Assessment Technical Report for the Olivewood Village Project Pasadena, California, March 2018.

dBa at 100 feet.<sup>29</sup> However, as explained above, the Union Street Court Project is 300 feet to the southeast of the proposed Project. Accounting for this additional noise attenuation distance, the Union Street Court Project would contribute a maximum of up to approximately 75 dBA at the proposed Project's most affected noise-sensitive receptor.

Conservatively assuming that, for the proposed Project's most affected noise-sensitive receptor, the Olivewood North and Olive South related projects each contribute 78 and 70 dBA, respectively, during concurrent construction phases and that the Union Street Court Project contributes 75 dBA during concurrent construction phases, the combined noise level from these related projects and the proposed Project's construction noise level of 79 dBA at 100 feet would be approximately 83 dBA at 100 feet, which would not exceed the 85-dBA threshold at 100 feet.

The combined haul truck noise from the proposed Project and the three related projects was calculated by conservatively assuming that all three related projects would generate concurrent construction haul truck trips with the proposed Project. The Union Street Court Project, the Olivewood North Project, and the Olivewood South Project are approximately four times the size of the proposed Project (i.e.,  $55 + 86 + 40 = 181$  total units compared to the proposed Project's 49 units). The proposed Project is expected to include 40 haul truck trips per day and a peak hour volume of 5 trucks. Assuming that the three related projects would contribute approximately four times the number of haul trucks as the proposed Project, the total number of concurrent truck trips would be approximately 200 trips per day and 25 peak hour trips. Based on roadway truck traffic noise modeling using the FHWA TNM method, the combined noise levels would be 60.1 dBA  $L_{eq}$ . As shown previously in **Table 1**, existing noise levels in the Project area range from approximately 50.8 dBA  $L_{eq}$  to 62.4 dBA  $L_{eq}$ . Cumulative haul truck noise levels would not exceed the existing noise levels by more than 3 dBA at R1, R2, R4, and R5. The noise measurement taken at Fuller Theological Seminary (R3) was set back 225 feet from the closest street that the haul trucks would travel on. Accounting for distance attenuation, the perceived noise level at R3 would be 47 dBA and would be less than the existing level of 50.8 dBA. Since cumulative construction trucks would generate a noise level less than the existing levels, cumulative construction truck noise would not increase existing noise levels by more than 3 dBA, which would be less than the perceptible level and less than significant.

With respect to worker and vendor trips, based on this same analysis method, the number of worker and vendor trips would result in an increase from approximately 60 worker trips per day (8 peak hour trips) and 19 vendor trips per day (2 peak hour trips) from the proposed Project to approximately 300 worker trips per day (38 peak hour trips) and 95 vendor trips per day (12 peak hour trips) from the proposed Project and the three related projects. Based on roadway truck traffic noise modeling using the FHWA TNM method, the combined noise levels would be 54.9 dBA  $L_{eq}$ . As shown previously in **Table 1**, existing noise levels in the Project area range from approximately 50.8 dBA  $L_{eq}$  to 62.4 dBA  $L_{eq}$ . Cumulative worker and vendor trip noise levels would not exceed the existing noise levels by more than 3 dBA at R1, R2, R4, and R5. The noise measurement taken at Fuller Theological Seminary (R3) was set back 225 feet from the closest

<sup>29</sup> City of Pasadena, Environmental Noise Report, Union Street Court, November 2017, <https://ww5.cityofpasadena.net/commissions/wp-content/uploads/sites/28/2017/12/2017-12-12-635-E.-Union-Street-Noise-Vibration-Study.pdf>. Accessed September 2018.

street on which the worker vehicles and vendor trucks would travel. Accounting for distance attenuation, the perceived noise level at R3 would be 42 dBA and would be less than the existing level of 50.8 dBA. Since cumulative construction worker and vendor trucks would generate a noise level less than the existing levels, cumulative worker and vendor truck noise would not increase existing noise levels by more than 3 dBA, which would be less than the perceptible level and less than significant.

The cumulative construction noise levels would be intermittent, temporary, and would cease at the end of the respective project construction periods. It is not likely that maximum construction noise impacts from related projects would occur simultaneously as the proposed Project since construction noise levels vary from day to day depending on the construction activity performed that day and its location on the development site. Although there would be an increase in temporary ambient sound levels, each construction project would be expected to comply with the City's Noise Ordinance with construction equipment operating between the hours of 7:00 A.M. to 7:00 P.M. Monday through Friday, and 8:00 A.M. to 5:00 P.M. on Saturday. As a result, the Project's contribution to cumulative construction impacts would not be cumulatively considerable, and impacts would be less than significant.

## 6.2 Operations

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to operation of the Project and cumulative projects, as traffic is the greatest source of operational noise in the Project area. The trip generation from the Project is not anticipated to result in a measurable or an perceptible noise increase. As shown in **Table 6**, the Project would generate a noise level generally similar to the existing traffic noise levels because the Project would not generate substantially different traffic volumes compared to existing conditions. The three related projects, the Union Street Court Project, the Olivewood North Project, and the Olivewood South Project, would consist of multi-family residential uses, similar to the proposed Project. The related projects include a total of 181 units ( $55 + 86 + 40 = 181$  total units), which is approximately four times the size of the proposed Project's 49 units. Thus, considered together, the traffic noise increase from the three related projects is estimated to be up to a maximum of 1 dBA CNEL in total (i.e., assuming the proposed Project contributes a 0.2-dBA increase in traffic noise levels and the related projects were four times the proposed Project's increase). A change in noise level of 1 dBA is not perceptible by the human ear in a non-controlled environment, such as in an urban environment. Therefore, when the related projects' traffic noise levels are combined with the proposed Project's traffic noise levels, the cumulative traffic noise level increase would be less than 3 dBA, and, therefore, cumulative traffic noise impacts would be less than significant.

Stationary-source noise is generally localized to the immediate area. The Project's stationary noise sources (i.e., fixed mechanical equipment, parking structure, and loading dock) would not contribute to a perceptible increase in ambient noise levels at adjacent properties and would not exceed City standards. Although each related project could potentially impact an adjacent sensitive use, that potential impact would be localized to that specific area and would not contribute to cumulative noise conditions at or adjacent to the proposed Project Site. Therefore,

cumulative stationary source noise would be less than significant. As the Project's contribution to cumulative traffic impacts and stationary-source noise impacts would not be cumulatively considerable, cumulative operational noise impacts would be less than significant.

### **6.3 Ground-Borne Vibration**

Ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are, therefore, usually confined to short distances from the source (i.e., 50 feet or less). Due to the rapid attenuation characteristics of ground-borne vibration, there is no expected potential for cumulative construction- or operational-period impacts with respect to ground-borne vibration from related projects. Therefore, cumulative vibration impacts would be less than significant.

## 7.0

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# Summary of Results

Noise and vibration levels associated with the Project have been evaluated to determine the level of impact from construction activities and future operations of the Project.

## 7.1 Construction

Construction of the Project has the potential to generate an increase in temporary or periodic noise through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the Project Site. However, use of construction equipment equipped with industry standard noise minimization strategies (PDF-NOISE-1) and compliance with the City's Noise Ordinance would minimize the potential for noise generation. As shown in **Table 5**, noise from construction of the Project would not exceed the City's standards. Therefore, impacts related to construction noise would be less than significant.

Construction activities would generate vibration from the use of heavy equipment and haul trucks. However, with implementation of vibration minimization strategies (PDF-NOISE-2), consistent with the Certified Environmental Impact Report for the City's General Plan, Mitigation Measures 9-3 and 9-4, incorporated into the Project, vibration levels at sensitive receptors would be below the thresholds. As a result, construction vibration impacts would be less than significant.

## 7.2 Operation

Project operations would generate an increase in ambient noise from roadway traffic and stationary noise. As shown in **Table 6**, the Project would not result in a substantial increase in roadway traffic noise and would not exceed the significance thresholds. Stationary noise sources would be designed in accordance with City standards and would not exceed the allowable noise levels (PDF-NOISE-3). As a result, operational noise impacts would be less than significant.

The Project's operations would include typical residential-grade stationary mechanical and electrical equipment for multi-family residential buildings, such as air handling units, condenser units, and exhaust fans, which would produce vibration. In addition, the primary sources of transient vibration would include passenger vehicle circulation within the proposed parking area. The potential vibration levels from Project operational sources at the closest existing and future sensitive receptor locations would be less than the significance threshold. As a result, operational vibration impacts would be less than significant.







Attachment C  
**ESA, Air Quality Technical  
Report**

# 127 AND 141 NORTH MADISON AVENUE MIXED-USE PROJECT

## Air Quality Technical Report

Prepared for  
City of Pasadena  
175 N Garfield Avenue  
Pasadena, CA 91101

July 2019



# 127 AND 141 NORTH MADISON AVENUE MIXED-USE PROJECT

## Air Quality Technical Report

Prepared for  
City of Pasadena  
175 N Garfield Avenue  
Pasadena, CA 91101

July 2019

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# EXECUTIVE SUMMARY

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MBC Enterprises, LLC (the Applicant) proposes to develop the Madison Mixed-Use Project (Project), a mixed-use building containing 49 residential units, 4,210 square feet of commercial use, and 101 parking spaces in two levels of parking (one level at grade and one level subterranean), located at 127 and 141 North Madison Avenue in the City of Pasadena (City). The Project Site is an approximately 0.735-acre (32,000-square-foot [SF]) rectangular site (Project Site) located on the west side of North Madison Avenue, between East Walnut Street and Union Street. In accordance with the requirements under the California Environmental Quality Act (CEQA), this Technical Report provides an estimate of air pollutant emissions for the Project and the potential impacts to air quality from associated construction and operational activities. The report includes the categories and types of emission sources resulting from the Project, the calculation procedures used in the analysis, and assumptions or limitations.

The Project would consist of a 72,000-SF, five-story, mixed-use building. Overall, the Project would consist of 49 residential units, two office spaces totaling 4,210 SF, 26,296 SF of open space, including a 1<sup>st</sup> Floor Central Courtyard and four Terraces, one on the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Floors. The Project would provide two levels of parking (one level at grade and one level subterranean) with 101 spaces and totaling 41,546 SF (with 20 spaces totaling 11,079 SF at grade, and 81 spaces totaling 30,467 SF subterranean). The Project includes demolition of the existing on-site building and features, excavation to accommodate the subterranean parking levels, and the construction of the new mixed-use building.

This report summarizes the potential for the Project to conflict with an applicable air quality plan, to violate an air quality standard or threshold, to result in a cumulatively considerable net increase of criteria pollutant emissions, to expose sensitive receptors to substantial pollutant concentrations, or to create objectionable odors affecting a substantial number of people. The findings of the analyses are as follows:

- The incremental increase in emissions from construction and operation of the Project would not exceed the regional daily emission thresholds set forth by the South Coast Air Quality Management District (SCAQMD). Thus, the Project would not result in a regional violation of applicable air quality standards or jeopardize the timely attainment of such standards in the South Coast Air Basin (the Air Basin).
- The incremental increase in on-site emissions from construction and operation of the Project would not exceed the localized significance thresholds set forth by the SCAQMD. Thus, the Project would not result in a localized violation of applicable air quality standards or expose off-site receptors to substantial levels of regulated air contaminants.

- Emissions from the increase in traffic due to operation of the Project would not have a significant impact upon 1-hour or 8-hour local carbon monoxide (CO) concentrations due to mobile source emissions.
- Project construction and operations would not result in significant levels of odors.
- The Project would be consistent with air quality policies set forth by the City of Pasadena, the SCAQMD, and the Southern California Association of Governments (SCAG). The Project would not result in a significant cumulative air quality impact

# 1.0

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## Introduction

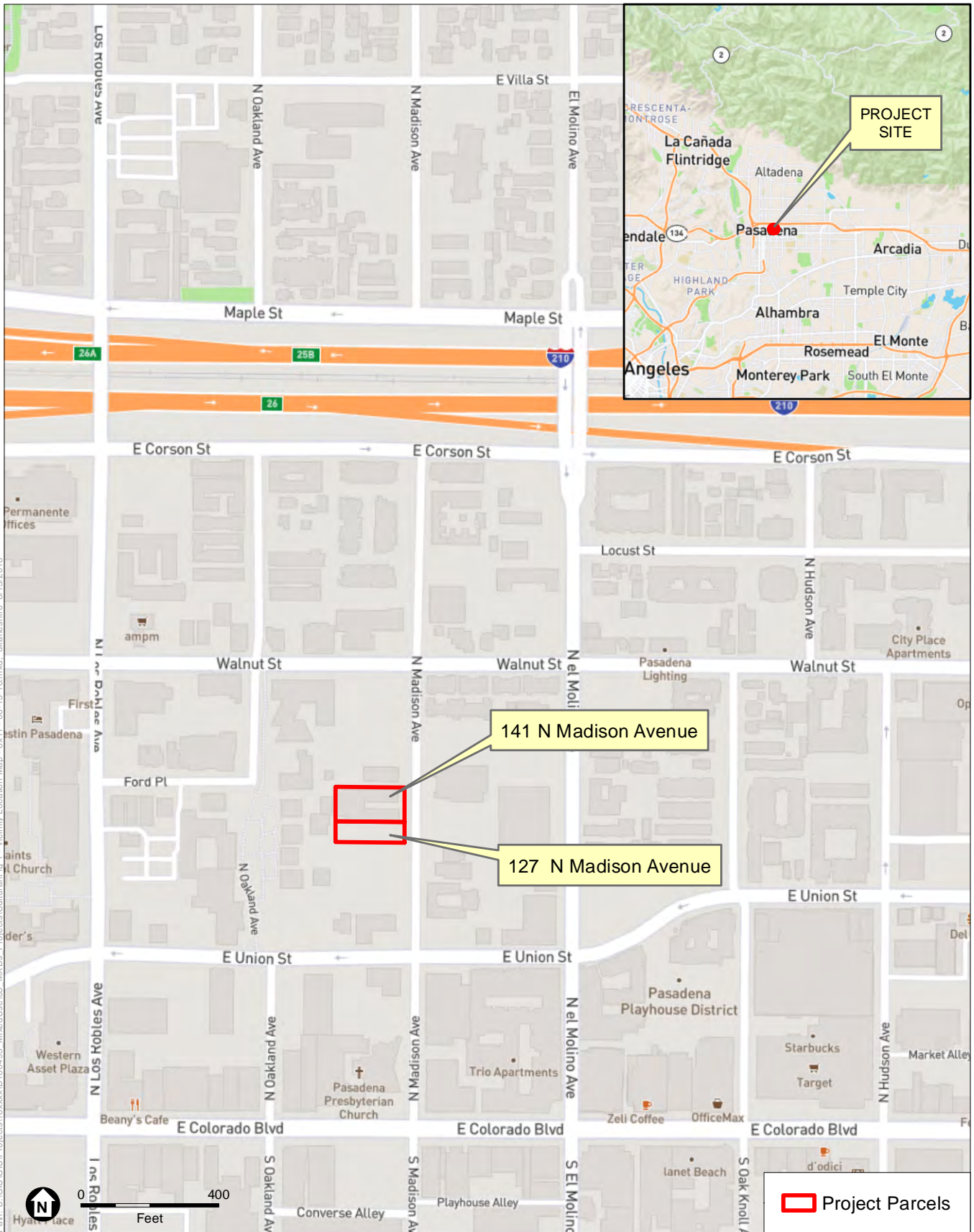
ESA has conducted an air quality assessment to evaluate the potential air quality impacts associated with construction activities, mobile sources, building energy demand, and other aspects of Project construction and operations that have the potential to generate criteria air pollutant emissions. The objectives of this Air Quality Technical Report are to:

- Evaluate the construction and operational criteria air pollutant emissions associated with Project development and the potential for regional and localized air quality impacts based on applicable standards and thresholds;
- Provide, if needed, air quality mitigation measures as required to meet applicable air quality standards and thresholds as specified by the SCAQMD.

### 1.1 Existing Conditions

The Project Site is an approximately 0.735-acre (32,000-SF) rectangular-shaped site (Project Site) located on the west side of North Madison Avenue, south of East Walnut Street and north of Union Street. The Project Site is also located near public transportation options, including bus stops that are within walking distance of the Project Site and are located approximately 0.25 mile northwest of the Project Site at North Los Robles Avenue and East Walnut Street, approximately 0.16 mile south of the Project Site at North Madison Avenue and East Colorado Boulevard, approximately 0.25 mile west of the Project Site at North Los Robles Avenue and East Union Street, and approximately 0.33 mile southwest of the Project Site at North Los Robles Avenue and East Colorado Boulevard. The Metro Gold Line Lake Station, which is also located within walking distance of the Project Site, is located approximately 0.6 mile northeast of the Project Site, and the Metro Gold Line Memorial Park Station is located approximately 0.7 mile west of the Project Site. The Project Site is shown in **Figure 1**, *Vicinity Location Map*. The Project Site abuts a mix of residential uses, commercial uses, medical uses and a seminary.

The Project Site is currently developed with a four-story office building totaling 27,579 SF and a 16,115-SF surface parking lot. **Figure 2**, *Aerial Photograph of Project Site and Vicinity*, shows the Project Site and surrounding land uses.



SOURCE: Open Street Map, 2018

127 and 141 N Madison Avenue Mixed-Use Project

**Figure 1**  
Vicinity Location Map





SOURCE: Open Street Map, 2018

127 and 141 N Madison Avenue Mixed-Use Project

**Figure 2**  
Aerial Photograph of Project Site and Vicinity

## 1.2 Project Description

The Project would consist of a 72,000-SF, five-story, 49-unit, mixed-use building, which includes two office spaces totaling 4,210 SF, 26,296 SF of open space, including a 1<sup>st</sup> Floor Central Courtyard and four Terraces, one on the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Floors. The Project would provide two levels of parking (one level at grade and one level subterranean) with 101 spaces and totaling 41,546 SF (with 20 spaces totaling 11,079 SF at grade, and 81 spaces totaling 30,467 SF subterranean). Project construction would include the demolition of current structures, grading to prepare the Site for new development, excavation to accommodate the subterranean parking and basement levels, and the construction and architectural coating of the mixed-use building.

The Project Site is located in the CD-3 (Central District Specific Plan, Walnut Housing sub-district) zoning district in the City of Pasadena and is currently developed with one four-story office building and surface parking lot. An Affordable Housing Concession Permit for floor area and building height is requested to achieve the density bonus. In addition, a vesting Tentative Tract Map for condominium purposes and Design Review approval are required.

## 1.3 Existing Air Quality Conditions

### 1.3.1 Regional Air Quality

The distinctive climate of the Air Basin is determined primarily by its terrain and geographical location. Regional meteorology is dominated by a persistent high-pressure area, which commonly resides over the eastern Pacific Ocean. Seasonal variations in the strength and position of this pressure cell cause changes in the weather patterns of the area. Warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and moderate humidity characterize local climatic conditions. This normally mild climatic condition is occasionally interrupted by periods of hot weather, winter storms, and hot easterly Santa Ana winds.

The Air Basin is an area of high air pollution potential, particularly from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Air Basin vary with location, season, and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Air Basin and adjacent desert.

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in air quality. The following pollutants are regulated by the United States Environmental Protection Agency (USEPA) and are subject to emissions control requirements adopted by federal, state and local regulatory agencies. These pollutants are referred to as “criteria air pollutants” as a result of the specific standards, or criteria, which have been adopted for them. A brief description of the health effects of these criteria air pollutants is provided below.

**Ozone (O<sub>3</sub>):** O<sub>3</sub> is a secondary pollutant formed by the chemical reaction of VOCs and NO<sub>x</sub> under favorable meteorological conditions, such as high temperature and stagnation episodes. O<sub>3</sub> concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable. An elevated level of O<sub>3</sub> irritates the lungs and breathing passages, causing coughing and pain in the chest and throat, thereby increasing susceptibility to respiratory infections and reducing the ability to exercise. Effects are more severe in people with asthma and other respiratory ailments. Long-term exposure may lead to scarring of lung tissue and may lower the lung efficiency.<sup>1</sup>

**Nitrogen Dioxide (NO<sub>2</sub>) and Nitrogen Oxides (NO<sub>x</sub>):** NO<sub>x</sub> is a term that refers to a group of compounds containing nitrogen and oxygen. The primary compounds of air quality concern include NO<sub>2</sub> and nitric oxide (NO), which can quickly oxidize in the atmosphere to form NO<sub>2</sub>. Ambient air quality standards have been promulgated for NO<sub>2</sub>, which is a reddish-brown, reactive gas. The principle form of NO<sub>x</sub> produced by combustion is NO, but NO reacts quickly in the atmosphere to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> referred to as NO<sub>x</sub>. Major sources of NO<sub>x</sub> emissions include power plants, large industrial facilities, and motor vehicles. Emissions of NO<sub>x</sub> are a precursor to the formation of ground-level ozone. NO<sub>2</sub> can potentially irritate the nose and throat, aggravate lung and heart problems, and may increase susceptibility to respiratory infections, especially in people with asthma. According to the California Air Resources Board (CARB), “NO<sub>2</sub> is an oxidizing gas capable of damaging cells lining the respiratory tract. Exposure to NO<sub>2</sub> along with other traffic-related pollutants, is associated with respiratory symptoms, episodes of respiratory illness and impaired lung functioning. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO<sub>2</sub> above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO<sub>2</sub> exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.”<sup>2</sup> NO<sub>2</sub> also contributes to the formation of particulate matter. The terms “NO<sub>x</sub>” and “NO<sub>2</sub>” are sometimes used interchangeably. However, the term “NO<sub>x</sub>” is primarily used when discussing emissions, usually from combustion-related activities. The term “NO<sub>2</sub>” is primarily used when discussing ambient air quality standards. More specifically, NO<sub>2</sub> is regulated as a criteria air pollutant under the Clean Air Act and subject to the ambient air quality standards, whereas NO<sub>x</sub> and NO are not. In cases where the thresholds of significance or impact analyses are discussed in the context of NO<sub>x</sub> emissions, it is based on the conservative assumption that all NO<sub>x</sub> emissions would oxidize in the atmosphere to form NO<sub>2</sub>.

**Carbon Monoxide (CO):** CO is primarily emitted from combustion processes and motor vehicles due to incomplete combustion of fuel. Elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. It is especially dangerous for people with chronic heart disease. Inhalation of CO can cause nausea, dizziness, and headaches at moderate concentrations and can be fatal at high concentrations.

<sup>1</sup> California Air Resources Board. Ozone and Ambient Air Quality Standards, 2015. <https://www.arb.ca.gov/research/aaqs/caaqs/ozone/ozone.htm>. Accessed September 2018.

<sup>2</sup> California Air Resources Board, “Nitrogen Dioxide – Overview,” <http://www.arb.ca.gov/research/aaqs/caaqs/no2-1/no2-1.htm>. Accessed September 2018.

**Sulfur Dioxide (SO<sub>2</sub>):** Major sources of SO<sub>2</sub> include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO<sub>2</sub> aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in asthmatics and people involved in moderate to heavy exercise. SO<sub>2</sub> potentially causes wheezing, shortness of breath, and coughing. High levels of particulates appear to worsen the effect of SO<sub>2</sub>, and long-term exposures to both pollutants leads to higher rates of respiratory illness.

**Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>):** The human body naturally prevents the entry of larger particles into the body. However, small particles, including fugitive dust with an aerodynamic diameter equal to or less than ten microns (PM<sub>10</sub>) and even smaller particles with an aerodynamic diameter equal to or less than 2.5 microns (PM<sub>2.5</sub>), can enter the body and are trapped in the nose, throat, and upper respiratory tract. These small particulates could potentially aggravate existing heart and lung diseases, change the body's defenses against inhaled materials, and damage lung tissue. The elderly, children, and those with chronic lung or heart disease are most sensitive to PM<sub>10</sub> and PM<sub>2.5</sub>. Lung impairment can persist for two to three weeks after exposure to high levels of particulate matter. Some types of particulates could become toxic after inhalation due to the presence of certain chemicals and their reaction with internal body fluids. The elderly, children, and those with chronic lung or heart disease are most sensitive to PM<sub>10</sub> and PM<sub>2.5</sub>. In children, studies have shown associations between particulate matter exposure and reduced lung function and increased respiratory symptoms and illnesses.<sup>3</sup> Some types of particulates could become toxic after inhalation due to the presence of certain chemicals and their reaction with internal body fluids.

**Lead (Pb):** Pb is emitted from industrial facilities and from the sanding or removal of old lead-based paint. Smelting or processing the metal is the primary source of Pb emissions, which is primarily a regional pollutant. Pb affects the brain and other parts of the body's nervous system. Exposure to Pb in very young children impairs the development of the nervous system, kidneys, and blood forming processes in the body.

**Volatile Organic Compounds (VOCs).** Emissions of VOCs themselves are not “criteria” pollutants; however, they contribute (along with NO<sub>x</sub>) to formation of O<sub>3</sub> and are regulated as O<sub>3</sub> precursor emissions. VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids and internal combustion associated with motor vehicle usage and use of consumer products (e.g., architectural coatings, etc.) are the major sources of VOCs.<sup>4</sup> Some VOCs are also classified by the State as toxic air contaminants (TACs).<sup>5</sup> These are compounds comprised primarily of atoms of hydrogen and carbon.

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<sup>3</sup> California Air Resources Board, “Particulate Matter – Overview,” <http://www.arb.ca.gov/research/aaqs/caaqs/pm/pm.htm>. Accessed September 2018.

<sup>4</sup> California Air Resources Board. Toxic Air Contaminants Monitoring. 2017, <https://www.arb.ca.gov/aaqm/toxics.htm>. Accessed September 2018.

<sup>5</sup> California Air Resources Board. Toxic Air Contaminants Monitoring. 2017, <https://www.arb.ca.gov/aaqm/toxics.htm>. Accessed September 2018.



## 1.3.2 Local Air Quality

### Existing Ambient Air Quality in the Surrounding Area

The SCAQMD maintains a network of air quality monitoring stations located throughout the Air Basin to measure ambient pollutant concentrations. The monitoring station most representative of the Project Site is the West San Gabriel Monitoring Station, located at 752 South Wilson Avenue, Pasadena, CA 91702. Criteria pollutants monitored at this station include O<sub>3</sub>, NO<sub>2</sub>, CO, and PM<sub>2.5</sub>. The monitoring station that is most representative of the Project Site for PM<sub>10</sub> is the East San Gabriel Monitoring Station, located at 803 North Loren Avenue, Azusa, CA 91702 and for SO<sub>2</sub> is the Central Los Angeles Monitoring Station located at 1630 North Main Street, Los Angeles, CA 90012. The most recent data available from the SCAQMD for these monitoring stations are from years 2012 to 2016.<sup>6</sup> The pollutant concentration data for these years are summarized in **Table 1, Pollutant Standards and Ambient Air Quality Data from Representative Monitoring Stations.**

**TABLE 1**  
**POLLUTANT STANDARDS AND AMBIENT AIR QUALITY DATA FROM REPRESENTATIVE MONITORING STATIONS**

Pollutant/Standard <sup>a</sup>	2012	2013	2014	2015	2016
<b>O<sub>3</sub> (1-hour)</b>					
Maximum Concentration (ppm)	0.111	0.099	0.124	0.111	0.126
Days > CAAQS (0.09 ppm)	8	2	6	12	12
<b>O<sub>3</sub> (8-hour)</b>					
Maximum Concentration (ppm)	0.086	0.075	0.096	0.084	0.090
4 <sup>th</sup> High 8-hour Concentration (ppm)	0.080	0.070	0.086	0.082	0.082
Days > CAAQS (0.070 ppm)	20	2	13	18	19
Days > NAAQS (0.075 ppm)	9	0	7 <sup>b</sup>	18 <sup>b</sup>	18 <sup>b</sup>
<b>NO<sub>2</sub> (1-hour)</b>					
Maximum Concentration (ppm)	0.071	0.067	0.075	0.075	0.072
Days > CAAQS (0.180 ppm)	0	0	0	0	0
98 <sup>th</sup> Percentile Concentration (ppm)	0.056	0.060	0.060	0.055	0.058
Days > NAAQS (0.100 ppm)	0	0	0	0	0
<b>NO<sub>2</sub> (Annual)</b>					
Annual Arithmetic Mean (0.030 ppm)	0.017	0.019	0.017	0.015	0.015
<b>CO (1-hour)</b>					
Maximum Concentration (ppm)	2.4	2.5	3.0	2.6	1.5
Days > CAAQS (20 ppm)	0	0	0	0	0
Days > NAAQS (35 ppm)	0	0	0	0	0
<b>CO (8-hour)</b>					
Maximum Concentration (ppm)	1.6	1.7	1.8	1.6	1.0
Days > CAAQS (9.0 ppm)	0	0	0	0	0
Days > NAAQS (9 ppm)	0	0	0	0	0

<sup>6</sup> South Coast Air Quality Management District, Historical Data by Year, <http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year>. Accessed September 2018.

Pollutant/Standard <sup>a</sup>	2012	2013	2014	2015	2016
<b>SO<sub>2</sub> (1-hour)</b>					
Maximum Concentration (ppm)	0.007	0.011	0.005	0.012	0.013
Days > CAAQS (0.25 ppm)	0	0	0	0	0
99 <sup>th</sup> Percentile Concentration (ppm)	0.003	0.004	0.004	0.006	0.003
Days > NAAQS (0.075 ppm)	0	0	0	0	0
<b>PM<sub>10</sub> (24-hour)</b>					
Maximum Concentration (µg/m <sup>3</sup> )	78	76	60	101	74
Samples > CAAQS (50 µg/m <sup>3</sup> )	6	6	1	12	12
Samples > NAAQS (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>PM<sub>10</sub> (Annual Average)</b>					
Annual Arithmetic Mean (20 µg/m <sup>3</sup> )	30.3	33.0	31.2	37.1	33.7
<b>PM<sub>2.5</sub> (24-hour)</b>					
Maximum Concentration (µg/m <sup>3</sup> )	30.5	25.7	38.8	48.5	29.2
98 <sup>th</sup> Percentile Concentration (µg/m <sup>3</sup> )	24.2	30.4	26.3	32.4	25.4
Samples > NAAQS (35 µg/m <sup>3</sup> )	0	0	1	2	0
<b>PM<sub>2.5</sub> (Annual)</b>					
Annual Arithmetic Mean (12 µg/m <sup>3</sup> )	10.1	10.1	11.3	9.9	9.6

## NOTES:

<sup>a</sup> ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter

<sup>b</sup> The year 2014, 2015, and 2016 number of days over the NAAQS is based on the 0.070 ppm federal 8-hour ozone standard, which was adopted by the U.S. Environmental Protection Agency in October 2015.

SOURCE: South Coast Air Quality Management District, Historical Data by Year, <https://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year>. Accessed July 2018; California Air Resources Board, Air Quality Data Statistics, <http://www.arb.ca.gov/adam/>. Accessed July 2018; U.S. Environmental Protection Agency, AirData, [http://www.epa.gov/airdata/ad\\_rep\\_mon.html](http://www.epa.gov/airdata/ad_rep_mon.html). Accessed July 2018.

## Sensitive Receptors

Certain population groups, such as children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases), are considered more sensitive to the potential effects of air pollution than others. The nearest sensitive land uses to the Project Site are shown in **Figure 3, Sensitive Receptor Locations Nearest to the Project Site**, and include the following:

- Medical: Pasadena Urological Medical Group located approximately 100 feet southeast of the Project Site across North Madison Avenue.
- Residential: Single family townhouses located approximately 225 feet northeast of the Project Site across North Madison Avenue.
- Residential: Barcelona of Pasadena multi-family residential building located approximately 225 feet south of the Project Site along North Madison Avenue.
- Residential: Trio Apartments multi-family residential building located 430 feet southeast of the Project Site.
- Residential: Multi-family residences located approximately 450 feet northwest of the Project Site across Ford Place.

Other air quality sensitive receptors in the vicinity of the Project Site include the Hudson Apartments multi-family residential building at the southeast corner of East Walnut Street and North El Molino Avenue approximately 540 feet northeast from the Project Site, the Casa

Treatment Center along North El Molino Avenue approximately 560 feet east from the Project site, and the multi-family residential buildings at 140 North El Molino Avenue and 170 North El Molino approximately 540 feet southeast and 570 feet northeast of the Project Site, respectively, across North El Molino Avenue; however, these air quality sensitive receptors are located at greater distances from the Project Site and would be less impacted by Project emissions. Localized air quality impacts are quantified for the above sensitive receptors.

## 1.4 Existing Site Emissions

The Project Site is currently developed with a four-story office building totaling 27,579 SF that and a 16,115 SF surface parking lot. These existing uses would be demolished and removed to allow for development of the Project. Air pollutant emissions are currently associated with vehicle trips to and from the existing Project Site, on-site combustion of natural gas for heating, and area source emissions from the use of consumer products, architectural coatings, and landscaping. Air pollutant emissions are estimated using the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2), which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions from a variety of land use projects.

Existing operational emissions for the Project Site are presented in **Table 2, Existing Site Operational Emissions**, identifies the existing estimated emissions of VOCs, NO<sub>x</sub>, CO, SO<sub>2</sub>, PM10, and PM2.5 from the commercial building. Details regarding the calculation of the existing Project Site emissions are provided in **Appendix A** of this Technical Report.

**TABLE 2**  
**EXISTING SITE OPERATIONAL EMISSIONS (POUNDS PER DAY) <sup>a</sup>**

Source	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM10	PM2.5
Area	<1	<1	<1	0	<0.1	<0.1
Energy (Natural Gas)	<1	<1	<1	<1	<0.1	<0.1
Motor Vehicles	<1	2	6	<1	1.3	0.4
<b>Total Existing Emissions</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>&lt;1</b>	<b>1.3</b>	<b>0.4</b>

<sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix A** of this Technical Report.

SOURCE: ESA, 2018



DT80493.00 - Mixed-Use 127-141 N Madison Project Class 32/05 Graphics-GIS-Modeling/Illustrator

SOURCE: ESA, 2018; Open Street Map, 2018

127-141 N Madison Project

**Figure 3**  
 Sensitive Receptor Locations Nearest to Project Site



## 2.0

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# Regulatory Setting

A number of statutes, regulations, plans and policies have been adopted which address air quality concerns. The Project Site and vicinity are subject to air quality regulations developed and implemented at the federal, State, and local levels. At the federal level, the USEPA is responsible for implementation of the federal Clean Air Act. Some portions of the Clean Air Act (e.g., certain mobile source requirements and other requirements) are implemented directly by the USEPA. Other portions of the Clean Air Act (e.g., stationary source requirements) are implemented through delegation of authority to State and local agencies.

A number of plans and policies have been adopted by various agencies that address air quality concerns. Those plans and policies that are relevant to the Project are discussed below.

## 2.1 Federal

The federal Clean Air Act of 1963 was the first federal legislation regarding air pollution control and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990. At the federal level, the USEPA is responsible for implementation of certain portions of the Clean Air Act including mobile source requirements. Other portions of the Clean Air Act, such as stationary source requirements, are implemented by state and local agencies.

The Clean Air Act establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) and specifies future dates for achieving compliance. The 1990 Amendments to the Clean Air Act identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions) of the Clean Air Act are most applicable to the development and operations of the Project. Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants: (1) O<sub>3</sub>; (2) NO<sub>2</sub>; (3) CO; (4) SO<sub>2</sub>; (5) PM<sub>10</sub>; and (6) Pb. The NAAQS were updated in 1997 to include separate standards for PM<sub>2.5</sub>, which is a subset of PM<sub>10</sub> emissions. **Table 3, *Ambient Air Quality Standards***, shows the NAAQS currently in effect for each criteria pollutant.

**TABLE 3  
AMBIENT AIR QUALITY STANDARDS**

Pollutant	Average Time	California Standards <sup>a</sup>		National Standards <sup>b</sup>		
		Concentration <sup>c</sup>	Method <sup>d</sup>	Primary <sup>c,e</sup>	Secondary <sup>c,f</sup>	Method <sup>g</sup>
O <sub>3</sub> <sup>h</sup>	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )		
NO <sub>2</sub> <sup>i</sup>	1 Hour	0.18 ppm (339 µg/m <sup>3</sup> )	Gas Phase Chemi- luminescence	100 ppb (188 µg/m <sup>3</sup> )	None	Gas Phase Chemi- luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )		53 ppb (100 µg/m <sup>3</sup> )	Same as Primary Standard	
CO	1 Hour	20 ppm (23 mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m <sup>3</sup> )	None	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10mg/m <sup>3</sup> )		9 ppm (10 mg/m <sup>3</sup> )		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—	—	
SO <sub>2</sub> <sup>j</sup>	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )	Ultraviolet Fluorescence	75 ppb (196 µg/m <sup>3</sup> )	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method) <sup>g</sup>
	3 Hour	—		—	0.5 ppm (1300 µg/m <sup>3</sup> )	
	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (for certain areas) <sup>j</sup>	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) <sup>j</sup>	—	
PM <sub>10</sub> <sup>k</sup>	24 Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		—		
PM <sub>2.5</sub> <sup>k</sup>	24 Hour	No Separate State Standard		35 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	12.0 µg/m <sup>3</sup> <sup>k</sup>	15 µg/m <sup>3</sup>	
Pb <sup>l,m</sup>	30 Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m <sup>3</sup> (for certain areas) <sup>m</sup>	Same as Primary Standard	
	Rolling 3- Month Average <sup>m</sup>	--		0.15 µg/m <sup>3</sup>		

Pollutant	Average Time	California Standards <sup>a</sup>		National Standards <sup>b</sup>		
		Concentration <sup>c</sup>	Method <sup>d</sup>	Primary <sup>c,e</sup>	Secondary <sup>c,f</sup>	Method <sup>g</sup>
Visibility Reducing Particles <sup>n</sup>	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		<b>No Federal Standards</b>		
Sulfates (SO <sub>4</sub> )	24 Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			
Vinyl Chloride <sup>l</sup>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			

## NOTES:

- <sup>a</sup> California standards for O<sub>3</sub>, CO (except 8-hour Lake Tahoe), SO<sub>2</sub> (1 and 24 hour), NO<sub>2</sub>nitrogen dioxide, and particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, 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.
- <sup>b</sup> National standards (other than O<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O<sub>3</sub> 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 PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, 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.
- <sup>c</sup> 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.
- <sup>d</sup> Any equivalent procedure which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.
- <sup>e</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- <sup>f</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- <sup>g</sup> Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.
- <sup>h</sup> On October 1, 2015, the national 8-hour O<sub>3</sub> primary and secondary standards were lowered from 0.075 to 0.070 ppm.
- <sup>i</sup> 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.
- <sup>j</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> 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<sub>2</sub> 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 non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
- <sup>k</sup> On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>.
- <sup>l</sup> CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- <sup>m</sup> The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m<sup>3</sup> as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- <sup>n</sup> In 1989, CARB 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.

SOURCE: California Air Resources Board, Ambient Air Quality Standards (5/4/16), <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed September 2018.

The Project is located within the South Coast Air Basin, which is an area designated as non-attainment because it does not currently meet NAAQS for certain pollutants regulated under the Clean Air Act. In the past, the Air Basin previously exceeded the NAAQS for PM<sub>10</sub> but has met the NAAQS at all monitoring stations, and the USEPA has since approved the request for re-designation to attainment effective July 26, 2013.<sup>7</sup> Currently, the Air Basin does not meet the NAAQS for O<sub>3</sub> and PM<sub>2.5</sub> and is classified as being in non-attainment for these pollutants. The Los Angeles County portion of the Air Basin is designated as non-attainment for the lead NAAQS; however, this was due to localized emissions from two previously operating lead-acid battery recycling facilities located in the City of Vernon and the City of Industry.<sup>8</sup> These facilities are no longer operating and would not affect the Project Site, and there are no other lead-acid battery recycling facilities in Los Angeles County. **Table 4, *South Coast Air Basin Attainment Status (Los Angeles County)***, lists the criteria pollutants and their relative attainment status.

The Clean Air Act also specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards would be met. The 1990 amendments to the Clean Air Act identify specific emission reduction goals for basins not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones.

Title II of the Clean Air Act pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have strengthened in recent years to improve air quality. For example, the standards for NO<sub>x</sub> emissions have been lowered substantially, and the specification requirements for cleaner burning gasoline are more stringent.

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<sup>7</sup> Federal Register, Vol. 78, No. 123, June 26, 2013, 38223-38226.

<sup>8</sup> South Coast Air Quality Management District, Board Meeting, Agenda No. 30, Adopt the 2012 Lead State Implementation Plan for Los Angeles County, May 4, 2012.



**TABLE 4**  
**SOUTH COAST AIR BASIN ATTAINMENT STATUS (LOS ANGELES COUNTY)**

<b>Pollutant</b>	<b>National Standards (NAAQS)</b>	<b>California Standards (CAAQS)</b>
O <sub>3</sub> (1-hour standard)	N/A <sup>a</sup>	Non-attainment – Extreme
O <sub>3</sub> (8-hour standard)	Non-attainment – Extreme	Non-attainment
CO	Attainment	Attainment
NO <sub>2</sub>	Attainment	Attainment
SO <sub>2</sub>	Attainment	Attainment
PM10	Attainment	Non-attainment
PM2.5	Non-attainment – Serious	Non-attainment
Lead (Pb)	Non-attainment (Partial) <sup>b</sup>	Attainment
Visibility Reducing Particles	N/A	Unclassified
Sulfates	N/A	Attainment
Hydrogen Sulfide	N/A	Unclassified
Vinyl Chloride <sup>c</sup>	N/A	N/A

NOTES: N/A = not applicable

<sup>a</sup> The NAAQS for 1-hour ozone was revoked on June 15, 2005, for all areas except Early Action Compact areas.

<sup>b</sup> Partial Non-attainment designation – Los Angeles County portion of the Air Basin only for near-source monitors.

<sup>c</sup> In 1990, the California Air Resources Board identified vinyl chloride as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, the California Air Resources Board does not monitor or make status designations for this pollutant.

SOURCE: United States Environmental Protection Agency, The Green Book Non-Attainment Areas for Criteria Pollutants. Available: <https://www.epa.gov/green-book>. Accessed July 2018; California Air Resources Board, Area Designations Maps/State and National. Available: <http://www.arb.ca.gov/degis/adm/adm.htm>. Accessed September 2018.

## 2.2 State

### 2.2.1 California Air Resources Board

CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets the CAAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emission standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and local air districts. The SIP is required for the State to take over implementation of the federal Clean Air Act from the USEPA.

### 2.2.2 California Clean Air Act

The California Clean Air Act, signed into law in 1988, requires all areas of the State to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical

date. The CAAQS apply to the same criteria pollutants as the federal Clean Air Act but also include State-identified criteria pollutants, which include sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. CARB has primary responsibility for ensuring the implementation of the California Clean Air Act, responding to the federal Clean Air Act planning requirements applicable to the state, and regulating emissions from motor vehicles and consumer products within the state. **Table 3** shows the CAAQS currently in effect for each of the criteria pollutants as well as the other pollutants recognized by the state. As shown in **Table 3**, the CAAQS include more stringent standards than the NAAQS for most of the criteria air pollutants.

Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. **Table 4** provides a summary of the attainment status of the Los Angeles County portion of the Air Basin with respect to the state standards. The Air Basin is designated as attainment for the California standards for sulfates, hydrogen sulfide, and vinyl chloride.

### 2.2.3 Air Quality and Land Use Handbook

CARB published the *Air Quality and Land Use Handbook* in April 2005 to serve as a general guide for considering impacts to sensitive receptors from facilities that emit TAC emissions. The recommendations provided therein are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, acutely ill, and chronically ill persons, from exposure to TAC emissions. Some examples of CARB's siting recommendations include the following: (1) avoid siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (2) avoid siting sensitive receptors within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week); (3) avoid siting sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene and within 500 feet of operations with two or more machines; and (4) avoid siting sensitive receptors within 300 feet of a large gasoline dispensing facility (defined as a facility with a throughput of 3.6 million gallons per year or greater) or 50 feet of a typical gasoline dispensing facility. The Project Site is not within the screening distances of these land uses. The nearest boundary of the Project Site is located approximately 1,050 feet south of the nearest lane of Interstate 210; approximately 1,800 feet east of the nearest dry cleaner (that does not currently use perchloroethylene machines),<sup>9</sup> and over 650 feet from the nearest gasoline stations at the intersection of East Walnut Street and South Los Robles Avenue.

### 2.2.3 On-Road and Off-Road Vehicle Rules

In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other vehicle emissions (Title 13 California Code of Regulations [CCR], Section 2485). The measure

<sup>9</sup> South Coast Air Quality Management District, Facility Information Detail (FIND), Magic Cleaners, Facility ID 185140. Available: [http://www3.aqmd.gov/webappl/fim/prog/facility\\_details.aspx?fac\\_id=1851403](http://www3.aqmd.gov/webappl/fim/prog/facility_details.aspx?fac_id=1851403). Accessed September 2018.

applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given time.

In 2008, CARB approved the Truck and Bus regulation to reduce NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from existing diesel vehicles operating in California (13 CCR, Section 2025). The requirements were amended in December 2010 and apply to nearly all diesel fueled trucks and busses with a gross vehicle weight rating greater than 14,000 pounds. For the largest trucks in the fleet, those with a gross vehicle weight rating greater than 26,000 pounds, there are two methods to comply with the requirements. The first way is for the fleet owner to retrofit or replace engines, starting with the oldest engine model year, to meet 2010 engine standards, or better. This is phased over 8 years, starting in 2015 and would be fully implemented by 2023, meaning that all trucks operating in the State subject to this option would meet or exceed the 2010 engine emission standards for NO<sub>x</sub> and particulate matter by 2023. The second option, if chosen, requires fleet owners, starting in 2012, to retrofit a portion of their fleet with diesel particulate filters achieving at least 85 percent removal efficiency, so that by January 1, 2016 their entire fleet is equipped with diesel particulate filters. However, diesel particulate filters do not typically lower NO<sub>x</sub> emissions. Thus, fleet owners choosing the second option must still comply with the 2010 engine emission standards for their trucks and buses by 2020.

In addition to limiting exhaust from idling trucks, CARB recently promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp), such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by the CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR, Section 2449). Implementation is staggered based on fleet size (which is the total of all off-road horsepower under common ownership or control), with the largest fleets to begin compliance by January 1, 2014. Each fleet must demonstrate compliance through one of two methods. The first option is to calculate and maintain fleet average emissions targets, which encourages the retirement or repowering of older equipment and rewards the introduction of newer cleaner units into the fleet. The second option is to meet the Best Available Control Technology (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies (VDECS) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turn overs or retrofits (VDECS installation) be fully implemented by 2023 in all equipment in large and medium fleets and across 100 percent of small fleets by 2028.

## 2.3 Regional

### 2.3.1 South Coast Air Quality Management District

As indicated previously, the City of Pasadena is located within the Air Basin. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, Los Angeles County except for the Antelope Valley, the non-desert portion of western

San Bernardino County, and the western and Coachella Valley portions of Riverside County. The Air Basin is a sub-region of the SCAQMD jurisdiction. While air quality in this area has improved, the Air Basin requires continued diligence to meet air quality standards.

## Air Quality Management Plan

The SCAQMD has adopted a series of Air Quality Management Plans (AQMP) to meet the CAAQS and NAAQS. The 2012 AQMP incorporates the latest scientific and technological information and planning assumptions, including regional growth projections<sup>10</sup> to achieve federal standards for air quality in the Air Basin. It incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. Additionally, it highlights the significant amount of emissions reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal Clean Air Act.

The key understanding of the 2012 AQMP is to bring the Air Basin into attainment with the NAAQS for the 24-hour PM<sub>2.5</sub> standard. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2024 8-hour O<sub>3</sub> standard deadline with new measures designed to reduce reliance on the federal Clean Air Act Section 182(e)(5) long-term measures for NO<sub>x</sub> and VOC reductions. The SCAQMD expects exposure reductions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

The SCAQMD Governing Board adopted the 2016 AQMP on March 3, 2017.<sup>11</sup> CARB approved the AQMP on March 23, 2017. Key elements of the 2016 AQMP include implementing fair-share emissions reductions strategies at the federal, state, and local levels; establishing partnerships, funding, and incentives to accelerate deployment of zero and near-zero-emissions technologies; and taking credit from co-benefits from greenhouse gas (GHG), energy, transportation and other planning efforts.<sup>12</sup> The strategies included in the 2016 AQMP are intended to demonstrate attainment of the NAAQS for the federal non-attainment pollutants O<sub>3</sub> and PM<sub>2.5</sub>.<sup>13</sup> Similar to the 2012 AQMP, the 2016 AQMP relies on “...aggressive mobile source control strategy

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<sup>10</sup> South Coast Air Quality Management District, 2012 Air Quality Management Plan, 2013, <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>. Accessed September 2018.

<sup>11</sup> South Coast Air Quality Management District, Air Quality Management Plan (AQMP), Final 2016 AQMP, <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp>. Accessed September 2018.

<sup>12</sup> South Coast Air Quality Management District, Air Quality Management Plan (AQMP), Final 2016 AQMP, <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp>. Accessed September 2018.

<sup>13</sup> South Coast Air Quality Management District, NAAQS/CAAQS and Attainment Status for South Coast Air Basin, (2016), <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caoqs-feb2016.pdf?sfvrsn=2>. Accessed September 2018.

supplemented with focused and strategic stationary source control measures.” The 2016 AQMP also recognizes the reduction in traditional air pollutants which occur as a “co-benefit” with the reduction in climate change-related pollutants achieved through GHG emission reduction programs and policies.<sup>14</sup> Vehicles and appliances (boilers, water heaters, space heaters, etc.) used in the construction and operation of the Project would comply with applicable regulations. While the 2016 AQMP was adopted by the SCAQMD and CARB, it has not yet received USEPA approval for inclusion in the SIP. Therefore, until such time as the 2016 AQMP is approved by the USEPA, the 2012 AQMP remains the applicable AQMP for federal purposes; however, this analysis considers both the 2012 and 2016 AQMP as appropriate.

## Air Quality Guidance Documents

The SCAQMD published the CEQA Air Quality Handbook to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts.<sup>15</sup> The CEQA Air Quality Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs and was used extensively in the preparation of this analysis. However, the SCAQMD is currently in the process of replacing the CEQA Air Quality Handbook with the Air Quality Guidance Handbook. While this process is underway, the SCAQMD recommends that lead agencies avoid using the screening tables in Chapter 6 (Determining the Air Quality Significance of a Project) of the CEQA Air Quality Handbook and instead recommends using other approved models to calculate emissions from land use projects, such as the California Emissions Estimator Model (CalEEMod) software.<sup>16</sup> The SCAQMD has published a guidance document called the *Final Localized Significance Threshold Methodology* that is intended to provide guidance in evaluating localized effects from mass emissions during construction and operations.<sup>17</sup> The SCAQMD adopted additional guidance regarding PM<sub>2.5</sub> in a document called *Final Methodology to Calculate Particulate Matter (PM)<sub>2.5</sub> and PM<sub>2.5</sub> Significance Thresholds*.<sup>18</sup> This latter document has been incorporated by the SCAQMD into its CEQA significance thresholds and Localized Significance Threshold Methodology.

<sup>14</sup> South Coast Air Quality Management District, NAAQS/CAAQS and Attainment Status for South Coast Air Basin, (2016), <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caoqs-feb2016.pdf?sfvrsn=2>. Accessed September 2018.

<sup>15</sup> South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993. Available: [http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-\(1993\)](http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993)). Accessed September 2018.

<sup>16</sup> <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp>. Accessed September 2018.

<sup>17</sup> South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008, <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-1st-methodology-document.pdf?sfvrsn=2>. Accessed September 2018.

<sup>18</sup> South Coast Air Quality Management District, *Final Methodology to Calculate Particulate Matter (PM)<sub>2.5</sub> and PM<sub>2.5</sub> Significance Thresholds*, 2006, [http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/particulate-matter-\(pm\)-2.5-significance-thresholds-and-calculation-methodology/final\\_pm2\\_5methodology.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/particulate-matter-(pm)-2.5-significance-thresholds-and-calculation-methodology/final_pm2_5methodology.pdf?sfvrsn=2). Accessed September 2018.

## Regulations and Rules

Several SCAQMD rules adopted to implement portions of the AQMP may apply to construction or operation of the Project. The Project may be subject to the following SCAQMD rules and regulations:

**Regulation IV – Prohibitions:** This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, start-up/shutdown exemptions and breakdown events. The following is a list of rules which may apply to the Project:

- **Rule 401 – Visible Emissions:** This rule states that a person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart<sup>19</sup> or of such opacity as to obscure an observer's view.
- **Rule 402 – Nuisance:** This rule states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
- **Rule 403 – Fugitive Dust:** This rule requires projects to prevent, reduce or mitigate fugitive dust emissions from a site. Rule 403 restricts visible fugitive dust to the project property line, restricts the net PM10 emissions to less than 50  $\mu\text{g}/\text{m}^3$  and restricts the tracking out of bulk materials onto public roads. Additionally, projects must utilize one or more of the best available control measures (identified in the tables within the rule). Mitigation measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities. Finally, a contingency plan may be required if so determined by the USEPA.

**Regulation XI – Source Specific Standards:** Regulation XI sets emissions standards for different specific sources. The following is a list of rules which may apply to the Project:

- **Rule 1113 – Architectural Coatings:** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.
- **Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters:** This rule specifies  $\text{NO}_x$  emission limits for natural gas-fired water heaters, with heat input rates less than 75,000 British thermal units (BTUs) per hour.
- **Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters:** This rule requires manufacturers, distributors, retailers, refurbishers, installers, and operators of new and

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<sup>19</sup> United States Bureau of Mines, Ringelmann Smoke Chart, 1967, <https://www.cdc.gov/niosh/mining/userfiles/works/pdfs/ic8333.pdf>. Accessed September 2018.

existing units to reduce NO<sub>x</sub> emissions from natural gas-fired boilers, steam generators, and process heaters as defined in this rule.

- **Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters:** This rule requires manufacturers, distributors, retailers, refurbishers, installers, and operators of new and existing units to reduce NO<sub>x</sub> emissions from natural gas-fired water heaters, boilers, and process heaters as defined in this rule.
- **Rule 1186 – PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations:** This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM10 emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also **Rule 403**).
- **Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities:** This rule requires owners and operators of any demolition or renovation activity and the associated disturbance of asbestos-containing materials, any asbestos storage facility, or any active waste disposal site to implement work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials.

## 2.3.2 Southern California Association of Governments

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With regard to air quality planning, SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016-2040 RTP/SCS) in April 2016, which addresses regional development and growth forecasts and forms the basis for the land use and transportation control portions of the AQMP. The growth forecasts are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. The 2016-2040 RTP/SCS and AQMP are based on projections originating within local jurisdictions.

## 2.4 Local

Local jurisdictions, such as the City of Pasadena, have the authority and responsibility to reduce air pollution through its land use decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City's General Plan includes Citywide goals, objectives, and policies related to air quality resources. Several goals, objectives, and policies are relevant to the project and are related to stationary source, mobile source, transportation and land use control, and energy conservation measures.

The City of Pasadena is also responsible for the implementation of transportation control measures as outlined in the AQMP. Through capital improvement programs, local governments can fund infrastructure that contributes to improved air quality by requiring such improvements

as bus turnouts as appropriate, installation of energy-efficient streetlights, and synchronization of traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation measures.

The City of Pasadena has incorporated the California Green Building (CALGreen) Standards Code, with amendments in Chapter 14.04.500 et seq. in its Municipal Code. The City's ordinance requires applicable projects to comply with specified provisions to reduce energy consumption. The ordinance added Section 307.1 to the CALGreen Standards Code, which states that buildings required to comply with Tier 1 requirements include mixed use and multi-family residential buildings four stories in height or more (Section 14.04.504). This would apply to the Project as it is a mixed-use building four stories in height or more.



## 3.0

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# Significance Thresholds

Pursuant to Appendix G of the State *CEQA Guidelines*, the Project would result in a significant impact related to air quality if it would:

- a. Conflict with or obstruct the implementation of the applicable air quality plan (AIR-1);
- b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation (AIR-2);
- c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) (AIR-3);
- d. Expose sensitive receptors to substantial pollutant concentrations (AIR-4); or
- e. Create objectionable odors affecting a substantial number of people (AIR-5).

The CEQA Guidelines Section 15064.7 indicates that significance criteria established by the applicable air quality management district or air pollution control district, when available, may be relied upon to make determinations of significance. The potential air quality impacts of the Project are, therefore, evaluated according to the SCAQMD's *CEQA Air Quality Handbook*, *Air Quality Analysis Guidance Handbook*, and subsequent guidance. The SCAQMD's guidance includes the following quantitative evaluation criteria, as shown in **Table 5**, *SCAQMD Air Quality Significance Thresholds*, which are used to determine if the Project's impacts exceed the thresholds listed above:<sup>20</sup>

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<sup>20</sup> While the SCAQMD CEQA Air Quality Handbook contains evaluation criteria for lead, Project construction and operation would not include sources of lead emissions and, therefore, the Project does not have the potential to cause significant air quality impacts related to lead. Unleaded fuel and unleaded paints have virtually eliminated lead emissions from residential land use projects such as the Project. As a result, lead emissions are not further evaluated herein.

**TABLE 5  
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS**

<b>Mass Daily Thresholds</b>		
<b>Pollutant</b>	<b>Construction<sup>a</sup></b>	<b>Operations<sup>b</sup></b>
NO <sub>x</sub>	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SO <sub>x</sub>	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Pb	3 lbs/day	3 lbs/day
<b>Toxic Air Contaminants (TACs), Odor, and GHG Thresholds</b>		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO <sub>2</sub> eq for industrial facilities	
<b>Ambient Air Quality Standards for Criteria Pollutants<sup>c</sup></b>		
NO <sub>2</sub> 1-hr average Annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM10 24-hour average Annual average	10.4 µg/m <sup>3</sup> (construction) <sup>e</sup> & 2.5 µg/m <sup>3</sup> (operation) 1.0 µg/m <sup>3</sup>	
PM2.5 24-hour average	10.4 µg/m <sup>3</sup> (construction) <sup>d</sup> & 2.5 µg/m <sup>3</sup> (operation)	
SO <sub>2</sub> 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m <sup>3</sup> (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day average Rolling 3-month average	1.5 µg/m <sup>3</sup> (state) 0.15 µg/m <sup>3</sup> (federal)	

NOTES: N/A = not applicable

<sup>a</sup> Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).

<sup>b</sup> For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.

<sup>c</sup> Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

<sup>d</sup> Ambient air quality threshold based on SCAQMD Rule 403.

SOURCE: South Coast Air Quality Management District, Air Quality Significance Thresholds, March 2015.

## 4.0

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# Methodology

The methodology to evaluate potential impacts to regional and local air quality that may result from the construction and long-term operations of the Project is presented below.

### 4.1 Consistency with Air Quality Plan

The SCAQMD is required, pursuant to the Clean Air Act, to reduce emissions of criteria pollutants for which the Air Basin is in non-attainment of the NAAQS (e.g., O<sub>3</sub> and PM<sub>2.5</sub>). The Air Basin is also in non-attainment of the CAAQS (e.g., O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>). The SCAQMD's AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving the NAAQS and CAAQS. These strategies are developed, in part, based on regional growth projections prepared by the SCAG. Projects that are consistent with the assumptions used in the AQMP do not interfere with attainment because the growth is included in the projections utilized in the formulation of the AQMP. Thus, projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's numeric indicators. As noted above, while the 2016 AQMP was adopted by the SCAQMD and CARB, it has not yet received USEPA approval for inclusion in the SIP. Therefore, until such time as the 2016 AQMP is approved by the USEPA, the 2012 AQMP remains the applicable AQMP for federal purposes, however, this analysis considers both the 2012 and 2016 AQMP as appropriate.

Criteria for determining the Project's consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook, and include the following:

- Consistency Criterion No. 1: The proposed project will not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.
- Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP or increments based on the years of the project build-out phase.

The violations to which Consistency Criterion No. 1 refers are the CAAQS and the NAAQS. Concerning Consistency Criterion No. 2, the AQMP contains air pollutant reduction strategies

based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans.

## 4.2 Construction Emissions

Daily regional emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile source and fugitive dust emissions factors. The emissions are estimated using the CalEEMod (Version 2016.3.2) software, an emissions inventory software, which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professions to quantify potential criteria pollutant and GHG emissions from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Regional data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California and is recommended by the SCAQMD.<sup>21</sup>

The input values used in this analysis were adjusted to be Project-specific based on construction equipment and schedule information from similar land use development projects in the City. Subphases of construction would include demolition of the existing on-site building and features, grading, excavation, drainage/utilities/trenching, foundations building construction, and architectural coatings. Emissions from these activities are estimated by construction phase. Construction haul and vendor truck emissions were evaluated using regional heavy-duty truck emission factors from EMFAC2014, as incorporated into CalEEMod. Daily truck trips and default trip length data were used to assess roadway emissions from truck exhaust. The maximum daily emissions are estimated values for the worst-case day and do not represent the emissions that would occur for every day of Project construction. The maximum daily emissions are compared to the SCAQMD daily regional numeric indicators. Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in **Appendix B** of this Technical Report.

## 4.3 Operational Emissions

The operational emissions are estimated using the CalEEMod software. CalEEMod was used to forecast the daily regional emissions from area sources that would occur during long-term Project operations. In calculating mobile-source emissions, the trip length values were based on the distances provided in CalEEMod. The trip distances were applied to the maximum daily trip estimates based on the trip rates in the Project Transportation Impact Analysis.<sup>22</sup> The trip rates

<sup>21</sup> See: South Coast Air Quality Management District, California Emissions Estimator Model, <http://www.aqmd.gov/caleemod/>.

<sup>22</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis – Outside of CEQA Analysis, 127-141 North Madison Avenue, 2018.

take into account trip reductions due to proximity to public transportation options. The California Air Pollution Control Officers Association (CAPCOA) has provided guidance for mitigating or reducing emissions from land use development projects within its guidance document titled *Quantifying Greenhouse Gas Mitigation Measures*.<sup>23</sup> The Project's land use characteristics consistent with the CAPCOA guidance document that would reduce vehicle trips to and from the Project Site and vehicle trip distances were included in the Project's operational mobile source emissions analysis.

Area source emissions are based on natural gas (building heating and water heaters), landscaping equipment, and consumer product usage (including paints) rates provided in CalEEMod. Natural gas usage factors in CalEEMod are based on the California Energy Commission (CEC) *California Commercial End Use Survey* (CEUS) data set, which provides energy demand by building type and climate zone.<sup>24</sup> However, since the data from the CEUS are from 2002, correction factors are incorporated into CalEEMod to account for the appropriate version of the Title 24 Building Energy Efficiency Standards in effect.

Operational air quality impacts are assessed based on the incremental increase in emissions compared to baseline conditions. As discussed previously, the Project Site is currently developed with one four-story office building and a surface parking lot that is currently in use and has existing emissions (refer to **Table 2**, above). Therefore, the Project's operational emissions would subtract the existing emissions of the current uses to get the total net new emissions from the Project. The maximum daily net emissions from operation of the Project are compared to the SCAQMD daily regional numeric indicators. Detailed operational emissions calculations are provided in **Appendix C** of this Technical Report.

## 4.4 Substantial Pollutant Concentrations

The localized effects from the on-site portion of the emissions are evaluated at nearby sensitive receptor locations potentially impacted by the Project according to the SCAQMD's Localized Significance Threshold Methodology (June 2003, revised July 2008), which relies on on-site mass emission rate screening tables and project-specific dispersion modeling, where appropriate. The localized significance thresholds are only applicable to NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. For NO<sub>x</sub> and CO, the thresholds are based on the ambient air quality standards. For PM<sub>10</sub> and PM<sub>2.5</sub>, the thresholds are based on requirements in SCAQMD Rule 403, Fugitive Dust. The SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds and therefore not cause or contribute to an exceedance of the applicable ambient air quality standards without project-specific dispersion modeling. The localized analysis is based on this SCAQMD screening criteria. The screening criteria depend on: (1) the area in which the project is located, (2) the size of the project site, and (3) the distance between the project site and the nearest sensitive receptor

<sup>23</sup> California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures*, 2010, <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>. Accessed September 2018.

<sup>24</sup> California Energy Commission, *California Commercial End-Use Survey*, <http://capabilities.itron.com/CeusWeb/Chart.aspx>. Accessed September 2018.

(e.g., residences, schools, hospitals). The Project Site is located in the West San Gabriel Valley area and is approximately 0.735 acre in size. The nearest sensitive receptor would be the Pasadena Urological Medical Group located approximately 125 feet southeast of the Project Site across North Madison Avenue. Therefore, the screening criteria applicable to a 0.735-acre site in the West San Gabriel Valley area with sensitive receptors located adjacent to the Project Site were used.

Emissions of CO are produced in greatest quantities from motor vehicle combustion and are usually concentrated at or near ground level because they do not readily disperse into the atmosphere, particularly under cool, stable (i.e., low or no wind) atmospheric conditions. Localized areas where ambient concentrations exceed state and/or federal standards are termed CO hotspots. The potential for the Project to cause or contribute to the formation of off-site CO hotspots are evaluated based on prior dispersion modeling of the four busiest intersections in the Air Basin that has been conducted by the SCAQMD for its CO Attainment Demonstration Plan in the AQMP. The analysis compares the roadway intersections in the Project Transportation Impact Analysis<sup>25</sup> with the greatest peak-hour traffic volumes that would be impacted by the Project to the intersections modeled by the SCAQMD. Project-impacted intersections with peak-hour traffic volumes that are lower than the intersections modeled by the SCAQMD, in conjunction with lower background CO levels, would result in lower overall CO concentrations compared to the SCAQMD modeled values in its AQMP.

## 4.5 Odors

Potential odor impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis as necessary. The screening-level analysis consists of reviewing the Project's site plan and Project description to identify new or modified odor sources. If it is determined that the Project would introduce a potentially significant new odor source or modify an existing odor source, then downwind sensitive receptor locations are identified, and a site-specific analysis is conducted to determine Project impacts.

## 4.6 Cumulative Impacts

The SCAQMD has provided guidance on an acceptable approach to addressing the cumulative impacts issue for air quality as discussed below:<sup>26</sup>

*“As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR... Projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance*

<sup>25</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis – Outside of CEQA Analysis, 127-141 North Madison Avenue, 2018.

<sup>26</sup> South Coast Air Quality Management District, Cumulative Impacts White Paper, Appendix D, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>, accessed September 2018.

*thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.”*

Because the City has not adopted specific Citywide significance thresholds for air quality impacts, it is appropriate to rely on thresholds established by the SCAQMD (refer to CEQA Guidelines Section 15064.7). While it may be possible to add emissions from the list of related projects and the Project, it would not provide meaningful data for evaluating cumulative impacts under CEQA because neither the City nor the SCAQMD have established numerical thresholds applicable to the summation of multiple project emissions for comparison purposes. Additionally, regional emissions from a project have the potential to affect the Air Basin as a whole, and it is not possible to establish a geographical radius from a specific project site where potential cumulative impacts from regional emissions would be limited. Meteorological factors, such as wind, can disperse pollutants, often times tens of miles downwind from a project site. Therefore, consistent with accepted and established SCAQMD cumulative impact evaluation methodologies, the potential for the Project to result in cumulative air quality impacts is assessed based on the SCAQMD thresholds.

## 5.0

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# Environmental Impacts

## 5.1 Consistency with Air Quality Plan (AIR-1)

### 5.1.1 Construction

- Consistency Criterion No. 1: The proposed project will not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

As discussed below in Section 5.2, Regional Emissions (AIR-2), and Section 5.4, Substantial Pollutant Concentrations (AIR-4), the emissions from construction of the Project would not exceed the SCAQMD regional or localized impact thresholds and would not cause or contribute to new violations that exceed the NAAQS or CAAQS. Therefore, the Project would not conflict with Criterion No. 1 and would result in a less-than-significant impact for construction emissions.

- Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP or increments based on the years of the project build-out phase.

Under this criterion, the SCAQMD recommends that lead agencies demonstrate that a project would not directly obstruct implementation of an applicable air quality plan and that a project be consistent with the assumptions (typically land-use related, such as resultant employment or residential units) upon which the air quality plan are based. The Project would result in an increase in short-term employment compared to existing conditions. Being relatively small in number and temporary in nature, construction jobs under the Project would not conflict with the long-term employment projections upon which the AQMP is based. During construction, the Project would be required to comply with CARB requirements to minimize short-term emissions from on-road and off-road diesel equipment, and with SCAQMD's regulations for controlling fugitive dust and other construction emissions.

Compliance with these requirements is consistent with and meets or exceeds the AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities. Because the Project would not conflict with the control strategies intended to reduce emissions from construction equipment, the Project would not conflict with or obstruct implementation of the AQMP, and impacts would be less than significant.



## 5.1.2 Operation

- Consistency Criterion No. 1: The proposed project will not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

As discussed below in Section 5.2, Regional Emissions (AIR-2), and Section 5.4, Substantial Pollutant Concentrations (AIR-4), the emissions from operation of the Project would not exceed the SCAQMD regional or localized impact thresholds and would not cause or contribute to new violations that exceed the NAAQS or CAAQS. Therefore, the Project would not conflict with Criterion No. 1 and would result in a less-than-significant impact for construction emissions.

- Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP or increments based on the years of the project build-out phase.

The AQMP was prepared to accommodate growth, reduce the levels of pollutants within the areas under the jurisdiction of SCAQMD, return clean air to the region, and minimize the impact on the economy. Projects that are considered consistent with the AQMP would not interfere with attainment because this growth is included in the projections used in the formulation of the AQMP.

The Project is a mixed-use land use proposal, and the Project Site is located in the CD-3 (Central District Specific Plan, Walnut Housing sub-district) zoning district. The Project would replace an existing 27,579-SF office building and 16,155 SF of surface parking lot with a development consisting of a 72,000-SF, five-story, 49-unit, mixed-use building, which includes two office spaces, totaling 4,210 SF, and 26,296 SF of open space. While the Project may result in an increase in population and reduction in jobs on the Project Site, the Project's location, design, and land uses render it consistent with the AQMP. The AQMP includes Transportation Control Measures that are intended to reduce regional mobile source emissions. While the majority of the measures are implemented by cities, counties, and other regional agencies, such as SCAG and SCAQMD, the Project's location, design, and land uses would support measures related to reducing vehicle trips for tenants by increasing residential density near public transportation. The Project would represent an urban infill development since it would be undertaken on a currently developed property and would be located near existing off-site commercial, residential, and retail destinations and in proximity to existing public transit options, including bus stops and the Metro Gold Line Lake Station and Memorial Park Station. The location of the Project would be consistent with the AQMP by reducing vehicle trips, vehicle miles traveled (VMT), and other associated emissions.

The Project's land use characteristics, including its infill location, results in reduced vehicle trips and VMT and reduced associated transportation-related emissions compared to a project without these land use characteristics. As discussed below under land use characteristic "Increased Transit Accessibility," because the Project consists of residential uses and the Project Site is a previously developed infill site located approximately 0.45 mile aerial distance (approximately 0.6 mile

walking distance) from the Metro Gold Line Lake Station, the Project Site meets the criteria of the City as a Transit Priority Area (TPA).

The land use characteristics listed below are consistent with the CAPCOA guidance document and would reduce vehicle trips to and from the Project Site and vehicle trip distances and, as a result, would achieve a reduction in transportation-related air pollutant and GHG emissions.

- **Increased Density:** Increased density, measured in terms of persons, jobs, and/or dwelling units per unit area, reduces emissions associated with transportation as it reduces the distance people travel for work or services and provides a foundation for the implementation of other strategies, such as enhanced transit services. This characteristic corresponds to CAPCOA guidance strategy LUT-1. According to CAPCOA, the reduction in VMT from this characteristic applies to urban and suburban settings for residential, retail, office, industrial, and mixed-use projects. The Project is located in an urban infill location<sup>27</sup> and is mixed-use with residential and office uses; therefore, this characteristic applies to the Project. The Project would increase the Project Site density to approximately 67 dwelling units per acre and would provide approximately 27 jobs per acre.<sup>28</sup>
- **Increased Transit Accessibility:** Locating a project with high density near transit facilitates the use of transit by people traveling to or from a project site. This characteristic corresponds to CAPCOA guidance strategy LUT-5.<sup>29</sup> According to CAPCOA, the reduction in VMT from this characteristic applies to urban and suburban settings for residential, retail, office, industrial, and mixed-use projects. The Project is located in an urban infill location and is mixed-use with residential and office uses; therefore, this characteristic applies to the Project. According to the CAPCOA guidance, factors that contribute to VMT reductions under this characteristic include the distance to transit stations near the Project. The Project Site is located within a quarter-mile (walking distance) of public transportation, including the Metro bus 10, 40, 180/181, 256, 267, and 686/687 routes and Foothill Transit bus 187 and 690 routes. The Project Site is also approximately 0.6 mile (walking distance) southwest of the Metro Gold Line Lake Station and approximately 0.7 mile (walking distance) east of the Metro Gold Line Memorial Park Station. The Project would also provide parking for bicycles on-site to encourage utilization of alternative modes of transportation. The increased transit accessibility would reduce vehicle trips and VMT versus the statewide and Air Basin average, encourage walking and non-automotive forms of transportation, and would result in corresponding reductions in transportation-related emissions.
- **Integrated Affordable and Below Market Rate Housing:** Below market rate housing provides greater opportunity for people to live closer to job centers and to accommodate more people in urban infill areas. This characteristic corresponds to CAPCOA guidance strategy

<sup>27</sup> California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures*, p. 59-60, 2010. The project area meets the characteristics for an urban setting with respect to grid street pattern, minimal setbacks, constrained and paid parking, access to high quality rail service (i.e., Metro Gold Line), location relative to regional cores (5 miles or less), and a jobs/housing balance of 1.87 in 2013 and a projected 2.02 in 2020 (see City of Pasadena, General Plan Draft EIR, State Clearinghouse No. 2013091009, page 5.10-15, January 2015).

<sup>28</sup> Los Angeles Unified School District, Level 1 – Developer Fee Justification Study for Los Angeles Unified School District, March 2017, <https://achieve.lausd.net/cms/lib/CA01000043/Centricity/Domain/921/LAUSD%20Dev%20Fee%20Study%202018%20FINAL.pdf>. Accessed September 2018. Based on 209 SF per employee for standard office uses.

<sup>29</sup> California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures*, p. 171-175, 2010.

LUT-6.<sup>30</sup> The Project would include 4 below market rate dwelling units (approximately 8 percent of the total number of dwelling units), which would result in a higher probability that a commuter would take transit or walk to work and a corresponding reduction in transportation-related emissions.

- **Improve Design of Development:** Improved street network characteristics within a neighborhood enhances walkability and connectivity. Characteristics include street accessibility usually measured in terms of number of intersections (e.g., 4-way intersections) per square mile. This characteristic corresponds to CAPCOA guidance strategy LUT-9.<sup>31</sup> According to CAPCOA, the reduction in VMT from this characteristic applies to urban and suburban settings for residential, retail, office, industrial, and mixed-use projects. The Project is located in an urban infill location and is mixed-use with residential and office uses; therefore, this characteristic applies to the Project. The Project would be located in a street-accessible area with over 100 four-way intersections within a 1-mile radius of the Project Site, which exceeds the standard intersection density assumed in baseline VMT modeling. The increased intersection density would reduce vehicle trips and VMT versus the statewide and Air Basin average, encourage walking and non-automotive forms of transportation, and would result in corresponding reductions in transportation-related emissions.
- **Provide Pedestrian Network Improvements:** Providing pedestrian access that minimizes barriers and links a project site to existing or planned external streets encourages people to walk instead of drive. This characteristic corresponds to CAPCOA guidance strategy SDT-1.<sup>32</sup> According to CAPCOA, the reduction in VMT from this characteristic applies to urban, and suburban settings for residential, retail, office, industrial, and mixed-use projects. The Project is located in an urban infill location and is mixed-use with residential and office uses; therefore, this characteristic applies to the Project. According to the CAPCOA guidance, factors that contribute to VMT reductions under this characteristic include pedestrian access connectivity within the Project and to/from off-site destinations. The walkability of existing facilities is based on the availability of pedestrian routes necessary to accomplish daily tasks without the use of an automobile. These attributes are quantified by WalkScore.com and assigned a score out of 100 points. With the various commercial businesses and recreational and entertainment facilities adjacent to the Project Site and proximity to public transit, the walkability of rating of the Project Site area is approximately 85 points,<sup>33</sup> this compares to the Citywide score of 66 points. The Project would provide common open space and walkways on its ground level that allow residents access North Madison Avenue from the East and North sides of the property. The Project would provide an internal pedestrian network for Project visitors and employees that links to the existing off-site pedestrian network, including existing off-site sidewalks, and would, therefore, result in some reduction in VMT and associated transportation-related emissions.

<sup>30</sup> California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, p. 176-178, 2010.

<sup>31</sup> California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, p. 182-185, 2010.

<sup>32</sup> California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, p. 186-189, 2010.

<sup>33</sup> WalkScore.com (www.walkscore.com) rates the Project Site area (127 N Madison Avenue, Pasadena, CA) with a score of 85 of 100 possible points (scores accessed on September 5, 2018). Walk Score calculates the walkability of specific addresses by taking into account the ease of living in the neighborhood with a reduced reliance on automobile travel.

Reductions in VMT were calculated for the above described land use characteristics. The Project's VMT would be reduced by approximately 31 percent compared to the Statewide and South Coast Air Basin default trip parameters in CalEEMod based on the calculation protocol from the CAPCOA guidance.

Furthermore, the Project's Traffic Impact Analysis concluded that the Project would not cause roadway intersections to become congested to the point of exceeding the Level of Service (LOS) C cap, as discussed in the Project's Traffic Impact Analysis.<sup>34</sup> As a result, the Project would not result in long-term operational population or employment growth that exceeds planned growth projections in the RTP/SCS or the AQMP or result in employment growth that would substantially add to traffic congestion. The Project would also be located in an area that exhibits transportation-efficient land use characteristics that would minimize VMT. As the Project would not conflict with the growth projections in the AQMP, impacts would be less than significant.

## 5.2 Regional Emissions (AIR-2)

### 5.2.1 Construction Emissions

Construction of the Project has the potential to generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment, such as excavators and forklifts, and through vehicle trips generated from worker trips and haul trucks traveling to and from the Project Site. The Project was estimated to result in the export of approximately 13,500 cubic yards of soil during grading and excavation activities. Demolition activities would generate approximately 3,370 tons of building and hardscape demolition debris. In addition, fugitive dust emissions would result from demolition and various soil-handling activities. Mobile source emissions, primarily NO<sub>x</sub>, would result from the use of construction equipment, such as excavators and loaders. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources.

Construction of the Project was assumed to begin in early 2019. However, construction may commence at a later date than that analyzed in this air quality impact analysis. If this occurs, construction impacts would be less than those analyzed herein because a more energy-efficient and cleaner burning construction equipment fleet mix would be expected in the future, pursuant to State regulations that require construction equipment fleet operators to phase-in less polluting heavy-duty equipment. As a result, should the Project commence construction at a later date than that analyzed in this report, air quality impacts would be less than the impacts disclosed herein.

The worst-case daily emissions were calculated as maximum daily construction emissions for each phase by year. The maximum daily emissions are predicted values for the worst-case day and do not represent the emissions that would occur for every day of construction. Results of the

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<sup>34</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis – Outside of CEQA Analysis, 127-141 North Madison Avenue, 2018.

criteria pollutant calculations are presented in **Table 6, Maximum Unmitigated Regional Construction Emissions**. As shown therein, construction-related daily emissions for the criteria and precursor pollutants (VOC, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM10, and PM2.5) would be below the SCAQMD thresholds of significance. These calculations include appropriate dust control measures required to be implemented during each phase of development, as required by SCAQMD Rule 403 (Control of Fugitive Dust). Therefore, with respect to regional emissions from construction activities, impacts would be less than significant.

**TABLE 6  
MAXIMUM UNMITIGATED REGIONAL CONSTRUCTION EMISSIONS (POUNDS PER DAY)<sup>a</sup>**

Source	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM10 <sup>b</sup>	PM2.5 <sup>b</sup>
<b>Overlapping Phases</b>						
Demolition - 2019 + Drainage/Utilities/Trenching - 2019	1	20	14	<1	2	1
Drainage/Utilities/Trenching - 2019 + Grading - 2019	4	51	29	<1	4	2
Drainage/Utilities/Trenching - 2019 + Foundations - 2019	2	25	19	<1	2	1
Drainage/Utilities/Trenching - 2020 + Foundations - 2020	1	9	11	<1	1	1
Drainage/Utilities/Trenching - 2020 + Building Construction - 2020	2	15	12	<1	2	1
Drainage/Utilities/Trenching - 2021 + Building Construction - 2021	1	13	12	<1	1	1
Drainage/Utilities/Trenching - 2021 + Architectural Coating - 2021	25	4	6	<1	<1	<1
<b>Maximum Regional (On-Site and Off-Site) Emissions</b>	<b>25</b>	<b>51</b>	<b>29</b>	<b>&lt;1</b>	<b>4</b>	<b>2</b>
<b>SCAQMD Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Over (Under)	(50)	(49)	(521)	(150)	(146)	(53)
Exceeds Thresholds?	No	No	No	No	No	No

NOTES:

<sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B** of this Technical Report.

<sup>b</sup> Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.

SOURCE: ESA 2018

## 5.2.2 Operational Emissions

Operation of the Project has the potential to generate criteria pollutant emissions through vehicle trips traveling to and from the Project Site. In addition, emissions would result from area sources on-site such as natural gas combustion, landscaping equipment, and use of consumer products.

Operational emissions were assessed for mobile, area, and stationary sources. Operational criteria pollutant emissions were calculated for the Project buildout year. Daily trip generation rates for the Project were provided by the Project Traffic Impact Analysis<sup>35</sup> and include trips associated with the residential and office uses.

<sup>35</sup> Ibid.

Operational impacts were assessed for the full Project buildout year assumed to be 2021. If the Project would become operational at a later date, operational impacts would be less than those analyzed herein, largely due to a higher portion of vehicles meeting more stringent emissions standards, pursuant to State regulations that require newer model year vehicles to be more fuel efficient and less polluting. As a result, should the Project become operational at a later date, air quality impacts would be less than the impacts disclosed herein.

Results of the criteria pollutant calculations are presented in **Table 7, Maximum Unmitigated Regional Operational Emissions**. The increase in operational-related daily emissions for the criteria and precursor pollutants (VOC, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM10, and PM2.5) would be substantially below the SCAQMD thresholds of significance. Therefore, with respect to regional emissions from Project operation, impacts would be less than significant.

**TABLE 7  
MAXIMUM UNMITIGATED REGIONAL OPERATIONAL EMISSIONS (POUNDS PER DAY) <sup>a</sup>**

Source	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM10	PM2.5
Area (Consumer Products, Landscaping)	2	<1	4	<1	<0.1	<0.1
Energy (Natural Gas)	<1	<1	<1	<1	<0.1	<0.1
Motor Vehicles	1	3	7	<1	1.9	0.5
<b>Project On-Site and Off-Site Emissions</b>	<b>3</b>	<b>3</b>	<b>11</b>	<b>&lt;1</b>	<b>2.0</b>	<b>0.6</b>
<b>Existing Project Site Emissions</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>&lt;1</b>	<b>1.3</b>	<b>0.4</b>
<b>Maximum Regional (On-Site and Off-Site) Net Emissions</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>&lt;1</b>	<b>0.7</b>	<b>0.2</b>
<b>SCAQMD Thresholds</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Over/(Under)	(53)	(55)	(545)	(150)	(149.3)	(54.8)
Exceeds Thresholds?	No	No	No	No	No	No

NOTES:

<sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix C** of this Technical Report.

SOURCE: ESA 2018

## 5.3 Cumulatively Considerable Non-Attainment Pollutants (AIR-3)

### 5.3.1 Construction

The Project would result in the emission of criteria pollutants for which the area is in non-attainment during construction. A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. The Air Basin is currently in non-attainment for O<sub>3</sub>, PM10, and PM2.5.

The emissions from construction of the Project would not exceed the SCAQMD regional or localized impact thresholds and, therefore, are not expected to cause or substantially contribute to

ground level concentrations that exceed the NAAQS or CAAQS. Therefore, the Project would not result in a cumulatively considerable net increase for non-attainment pollutants or O<sub>3</sub> precursors and would result in a less-than-significant impact for construction emissions.

### 5.3.2 Operation

Future Project operations would result in emissions of criteria pollutants for which the area is in non-attainment. However, operational emissions would not exceed the SCAQMD regional or local thresholds and would not be expected to cause or substantially contribute to ground level concentrations that exceed the NAAQS or CAAQS. Therefore, operation of the Project would not result in a cumulatively considerable net increase for non-attainment of criteria pollutants or O<sub>3</sub> precursors. As a result, the Project would result in a less-than-significant impact for operational emissions.

## 5.4 Substantial Pollutant Concentrations (AIR-4)

### 5.4.1 Localized Construction Emissions

The maximum daily localized emissions for each of the construction phases and localized significance thresholds are presented in **Table 8**, *Maximum Unmitigated Localized Construction Emissions*. As shown therein, maximum localized construction emissions for sensitive receptors would not exceed the localized thresholds for NO<sub>x</sub>, CO, PM10, and PM2.5. Therefore, with respect to localized construction emissions, impacts would be less than significant.

**TABLE 8**  
**MAXIMUM UNMITIGATED LOCALIZED CONSTRUCTION EMISSIONS (POUNDS PER DAY) <sup>a,b</sup>**

Source	NO <sub>x</sub>	CO	PM10 <sup>c</sup>	PM2.5 <sup>c</sup>
<b>Overlapping Phases</b>				
Demolition - 2019+Drainage/Utilities/Trenching - 2019	11	11	1.3	0.7
Drainage/Utilities/Trenching - 2019 + Grading - 2019	25	18	1.1	1.1
Drainage/Utilities/Trenching - 2019 + Foundations - 2019	10	10	0.6	0.6
Drainage/Utilities/Trenching - 2020 + Foundations - 2020	9	10	0.6	0.5
Drainage/Utilities/Trenching - 2020 + Building Construction - 2020	13	9	0.7	0.6
Drainage/Utilities/Trenching - 2021 + Building Construction - 2021	11	9	0.6	0.5
Drainage/Utilities/Trenching - 2021 + Architectural Coating - 2021	4	5	0.3	0.3
<b>Maximum Localized (On-Site) Emissions</b>	<b>25</b>	<b>18</b>	<b>1.3</b>	<b>1.1</b>
<b>SCAQMD Numeric Indicators <sup>d</sup></b>	<b>61</b>	<b>462</b>	<b>3.5</b>	<b>2.7</b>
Over (Under)	(36)	(444)	(2.2)	(1.6)
<b>Exceed Threshold?</b>	No	No	No	No

## NOTES:

- <sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B** of this Technical Report.
- <sup>b</sup> The LST analysis and localized impacts are determined based on the Project's on-site emissions.
- <sup>c</sup> Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.
- <sup>d</sup> The SCAQMD LSTs are based on Source Receptor Area 8 (West San Gabriel Valley) for a 0.735-acre site within a 25-meter receptor distance.

SOURCE: ESA 2018

## 5.4.2 Localized Operational Emissions

The maximum daily increase in localized emissions and localized significance thresholds are presented in **Table 9**, *Maximum Unmitigated Localized Operational Emissions*. As shown therein, the increase in maximum localized operational emissions for sensitive receptors would be substantially below the localized thresholds for NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. Therefore, with respect to localized operational emissions, impacts would be less than significant.

**TABLE 9**  
**MAXIMUM UNMITIGATED LOCALIZED OPERATIONAL EMISSIONS (POUNDS PER DAY) <sup>a,b</sup>**

Source	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Area (Consumer Products, Landscaping)	<1	4	<0.1	<0.1
Energy (Natural Gas)	<1	<1	<0.1	<0.1
<b>Total Project On-Site Emissions</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>
<b>Existing Project Site (On-Site) Emissions</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>
<b>Maximum Localized (On-Site) Net Emissions</b>	<b>&lt;1</b>	<b>4</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>
<b>SCAQMD Numeric Indicators <sup>b</sup></b>	<b>61</b>	<b>462</b>	<b>0.7</b>	<b>0.7</b>
Over/(Under)	(61)	(458)	(0.7)	(0.7)
Exceeds Thresholds?	No	No	No	No

## NOTES:

- <sup>a</sup> Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix C** of this Technical Report.
- <sup>b</sup> The SCAQMD LSTs are based on Source Receptor Area 8 (West San Gabriel Valley) for a 0.735-acre site within a 25-meter receptor distance.

SOURCE: ESA 2018.

## 5.4.3 Carbon Monoxide Hotspots

As shown previously in **Table 1**, above, CO levels in the Project area are substantially below the federal and state standards. Maximum CO levels in recent years are 3.0 ppm (one-hour average) and 1.8 ppm (eight-hour average) compared to the thresholds of 20 ppm (one-hour average) and 9.0 ppm (eight-hour average). CO decreased dramatically in the Air Basin with the introduction of the catalytic converter in 1975. No exceedances of CO have been recorded at monitoring stations in the Air Basin for some time, and the Air Basin is currently designated as a CO



attainment area for both the CAAQS and NAAQS. Thus, it is not expected that CO levels at Project-impacted intersections would rise to the level of an exceedance of these standards.

Additionally, the SCAQMD conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the Air Basin. These include: (a) Wilshire Boulevard and Veteran Avenue; (b) Sunset Boulevard and Highland Avenue; (c) La Cienega Boulevard and Century Boulevard; (d) Long Beach Boulevard and Imperial Highway. In the 2003 AQMP, the SCAQMD notes that the intersection of Wilshire Boulevard and Veteran Avenue is the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day. This intersection is located near the on- and off-ramps to Interstate 405 in West Los Angeles. The evidence provided in Table 4-10 of Appendix V of the 2003 AQMP shows that the peak modeled CO concentration due to vehicle emissions at these four intersections was 4.6 ppm (one-hour average) and 3.2 (eight-hour average) at Wilshire Boulevard and Veteran Avenue.

Based on the Project's Traffic Impact Analysis, of the studied intersections that are predicted to operate at LOS C under future operational year plus Project conditions, the intersections would potentially have peak traffic volumes of approximately 19,730.<sup>36</sup> As a result, CO concentrations are expected to be approximately 4.1 ppm (one-hour average) and 2.6 ppm (eight-hour average) or less, inclusive of background CO concentrations, which would not exceed the thresholds. Total traffic volumes at the maximum impacted intersection would likely have to increase by 5 times or more to contribute to a CO hotspot given that vehicles operating today have reduced CO emissions as compared to vehicles operating in year 2003 when the SCAQMD conducted the AQMP attainment demonstration modeling. Thus, this comparison demonstrates that the Project would not contribute considerably to the formation of CO hotspots and no further CO analysis is required. The Project would result in less-than-significant impacts with respect to CO hotspots.

## 5.5 Odors (AIR-5)

### 5.5.1 Construction

Potential activities that may emit odors during construction activities include the use of architectural coatings and solvents and the combustion of diesel fuel in on- and off-road equipment. As discussed in the Regulatory Setting, Section 2, of this technical report, SCAQMD Rule 1113 would limit the amount of VOCs in architectural coatings and solvents. In addition, the Project would comply with the applicable provisions of the CARB Air Toxics Control Measure regarding idling limitations for diesel trucks. Through mandatory compliance with SCAQMD Rules, no construction activities or materials are expected to create objectionable odors affecting a substantial number of people. Therefore, construction of the Project would result in less-than-significant impacts with respect to odors.

<sup>36</sup> City of Pasadena, Department of Transportation, Transportation Impact Analysis – Outside of CEQA Analysis, 127-141 North Madison Avenue, 2018.

## 5.5.2 Operation

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The Project does not include any uses identified by the SCAQMD as being associated with substantial odors. As a result, the Project is not expected to discharge contaminants into the air in quantities that would cause a nuisance, injury, or annoyance to the public or property pursuant to SCAQMD Rule 402. Therefore, the Project would not create adverse odors affecting a substantial number of people, and impacts would be less than significant.

## 6.0

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# Cumulative Impacts

The Project would result in the emission of criteria pollutants for which the region is in non-attainment during both construction and operation. The Air Basin fails to meet national standards for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and, therefore, is considered a federal “non-attainment” area for these pollutants. Consistent with accepted and established SCAQMD cumulative impact evaluation methodologies, the potential for the Project to result in cumulative air quality impacts is assessed based on the SCAQMD thresholds.

## 6.1 Construction Impacts

As shown above in **Table 6**, regional emissions calculated for Project construction would be less than the applicable SCAQMD daily significance thresholds. The thresholds are designed to assist the region in attaining the applicable State and national ambient air quality standards. These standards apply to both primary (criteria and precursor) and secondary pollutants (O<sub>3</sub>). Although the Project Site is located in a region that is in non-attainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>, the emissions associated with the Project would not be cumulatively considerable as the emissions would fall below SCAQMD daily significance thresholds. In addition, the Project would be consistent with the AQMP, which is intended to bring the Air Basin into attainment for all criteria pollutants.

There are three planned projects that are adjacent to the Project Site to the east and south. The Union Street Court Project at 635 East Union Street would be a 40-unit mixed-use building to the southeast of the proposed Project. The Olivewood North Project at 535 East Union Street would be an 86-unit mixed-use building to the south of the proposed Project. The Olivewood South Project at 54 North Oakland Avenue would be a 55-unit mixed-use building to the south of the proposed Project. Environmental documents prepared for the Union Street Court Project concluded that air quality impacts would be less than significant.<sup>37</sup>

Environmental documents have also been prepared for the Olivewood North Project and the Olivewood South Project and both Projects were determined to result in less than significant air

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<sup>37</sup> City of Pasadena, Air Quality Impact Assessment, Union Street Court, November 2017, <https://ww5.cityofpasadena.net/commissions/wp-content/uploads/sites/28/2017/12/2017-12-12-635-E.-Union-Street-Air-Quality-Study.pdf>. Accessed September 2018.

quality impacts.<sup>38,39</sup> Therefore, as the related projects would not exceed the SCAQMD significance thresholds, cumulative impacts from these projects would be less than significant.

Furthermore, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to the federal Clean Air Act mandates. Construction of the Project would comply with SCAQMD Rule 403 requirements and the ATCM to limit heavy duty diesel motor vehicle idling to no more than 5 minutes at any given time. In addition, the Project would utilize a construction contractor(s) that complies with required and applicable BACT and the In-Use Off-Road Diesel Vehicle Regulation. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects in the Air Basin, which would include the cumulative projects in the Project area. As such, the Project's contribution to cumulatively significant construction impacts to air quality would not be cumulatively considerable, and cumulative impacts would be less than significant for regional and localized criteria pollutants during construction.

## 6.2 Operational Impacts

The SCAQMD's approach for assessing cumulative impacts related to operations or long-term implementation is based on attainment of ambient air quality standards in accordance with the requirements of the federal and State Clean Air Acts. As discussed earlier, the SCAQMD has developed a comprehensive plan, the AQMP, which addresses the region's cumulative air quality condition.

A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. Because the Los Angeles County portion of the Air Basin is currently in non-attainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>, cumulative projects could exceed an air quality standard or contribute to an existing or projected air quality exceedance.

Cumulative impacts to air quality are evaluated under two sets of thresholds for CEQA and the SCAQMD. In particular, Section 15064(h)(3) of the CEQA *Guidelines* provides guidance in determining the significance of cumulative impacts. Specifically, Section 15064(h)(3) states in part that:

*“A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated*

<sup>38</sup> City of Pasadena, Planning and Community Development Department, Staff Report, Conditional Use Permit #6449, 54 North Oakland Avenue (Olivewood North Project), March 21, 2018, [https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Reports-CUP\\_6449.pdf](https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Reports-CUP_6449.pdf). Accessed November 2018.

<sup>39</sup> City of Pasadena, Planning and Community Development Department, Staff Report, Conditional Use Permit #6452, 535 East Union Street (Olivewood South Project), March 21, 2018, [https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Report-CUP\\_6452.pdf](https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Report-CUP_6452.pdf). Accessed November 2018.

*waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency...*"

For purposes of the cumulative air quality analysis with respect to CEQA Guidelines Section 15064(h)(3), the Project's incremental contribution to cumulative air quality impacts is determined based on compliance with the SCAQMD AQMP. The Project would be consistent with the City's zoning designation and growth projections for the area. Therefore, the Project would not conflict with or obstruct implementation of AQMP and would be consistent with the growth projections in the AQMP.

Nonetheless, SCAQMD no longer recommends relying solely upon consistency with the AQMP as an appropriate methodology for assessing cumulative air quality impacts. The SCAQMD recommends that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality.

As shown above in **Table 7**, regional emissions calculated for Project operations would be less than the applicable SCAQMD daily significance thresholds. The thresholds are designed to assist the region in attaining the applicable State and national ambient air quality standards. These standards apply to both primary (criteria and precursor) and secondary pollutants (O<sub>3</sub>). Although the Project Site is located in a region that is in non-attainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>, the emissions associated with the Project would not be cumulatively considerable as the emissions would fall below SCAQMD daily significance thresholds. In addition, the Project would be consistent with the AQMP, which is intended to bring the Air Basin into attainment for all criteria pollutants.

In addition, environmental documents prepared for the Union Street Court Project concluded that air quality impacts would be less than significant.<sup>40</sup> Environmental documents have also been prepared for the Olivewood North Project and the Olivewood South Project and both Projects were determined to result in less than significant air quality impacts.<sup>41,42</sup> Therefore, as the related projects would not exceed the SCAQMD daily significance thresholds, cumulative impacts from these projects would be less than significant.

As discussed previously, the Project would not exceed the SCAQMD regional daily significance thresholds. Therefore, the Project's incremental contribution to long-term emissions of non-

<sup>40</sup> City of Pasadena, Air Quality Impact Assessment, Union Street Court, November 2017, <https://ww5.cityofpasadena.net/commissions/wp-content/uploads/sites/28/2017/12/2017-12-12-635-E.-Union-Street-Air-Quality-Study.pdf>. Accessed September 2018.

<sup>41</sup> City of Pasadena, Planning and Community Development Department, Staff Report, Conditional Use Permit #6449, 54 North Oakland Avenue (Olivewood North Project), March 21, 2018, [https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Reports-CUP\\_6449.pdf](https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Reports-CUP_6449.pdf). Accessed November 2018.

<sup>42</sup> City of Pasadena, Planning and Community Development Department, Staff Report, Conditional Use Permit #6452, 535 East Union Street (Olivewood South Project), March 21, 2018, [https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Report-CUP\\_6452.pdf](https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2018/03/2018-3-21-Hearing-Officer-Staff-Report-CUP_6452.pdf). Accessed November 2018.

attainment pollutants and O<sub>3</sub> precursors, considered together with cumulative projects, would not be cumulatively considerable, and, therefore, the cumulative impact of the Project would be less than significant.

## 7.0

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# Summary of Results

Air pollutant emissions associated with the Project have been evaluated to determine the level of impact from construction activities and future operations of the Project.

## 7.1 Construction

Construction of the Project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the Project Site. In addition, fugitive dust emissions would result from grading and construction activities. However, use of typical construction equipment (in terms of size and age/emission standards) and compliance with Rule 403 requirements (regarding dust control measures such as watering twice daily and track out prevention measures), minimizes air emissions to the extent warranted.

As shown in **Table 6**, regional construction emissions would not exceed the SCAQMD daily significance thresholds. Therefore, impacts related to regional construction emissions would be less than significant. As shown in **Table 8**, localized emissions would not exceed the SCAQMD localized significance thresholds. Therefore, impacts related to localized construction emissions would be less than significant. As a result, Project-related construction impacts would be less than significant.

## 7.2 Operation

Air pollutant emissions associated with Project operations would be generated by the consumption of natural gas and by the operation of on-road vehicles. As shown in **Table 7** and **Table 9**, regional and localized operational emissions associated with the Project would not exceed the SCAQMD daily significance thresholds. In addition, the Project would result in less-than-significant CO hotspot and odor impacts. Furthermore, the Project would be consistent with applicable air quality plans and policies. Therefore, impacts related to Project operational emissions and consistency with applicable air quality management plans, policies, or regulations would be less than significant.