1642 South Central Avenue Project

Partially Recirculated Draft Environmental Impact Report (SCH# 2021060219)

AUGUST 2022

PREPARED FOR

City of Glendale

PREPARED BY

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CHAPTER 1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE OF THIS DOCUMENT

On March 24, 2022, the City of Glendale (City) released the Draft Environmental Impact Report for the 1642 South Central Avenue Project (Draft EIR). The Draft EIR evaluated the environmental impacts associated with the construction and operation of the proposed residential building. The Draft EIR public review period ended on April 22, 2022.

Two comments were received by the City during the public comment period. The comments brought new information to the attention of the Project proponent and City and raised questions about the analysis of construction noise and vibration impacts in the Draft EIR. In response, the City has prepared a Partially Recirculated Draft EIR (PR-DEIR) in order to provide revised analysis of the impacts of construction noise and vibration in response to the new information in the comments. The PR-DEIR replaces Section 3.2 *Noise and Vibration* of the Draft EIR. The revised noise and vibration information is being recirculated for public comment pursuant to the requirements of the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

1.1.1 Proposed Project Summary

The Project site is located at 1642 South Central Avenue, within the Tropico neighborhood of the City of Glendale (APN 5640-029-014). The Project site is a 0.23-acre rectangular parcel and is bounded to the north by South Central Avenue, to the west by Gardena Avenue, to the east by an industrial building constructed in 1985, and to the south by a single-family residence constructed in 1947.

The Project site is zoned SFMU (Commercial/Residential Mixed Use) and developed with two residential buildings (1642 South Central Avenue and 1608 Gardena Avenue) and a detached garage. The residence located at 1642 South Central Avenue was constructed in 1913, and a second residence located on the same lot but with the address of 1608 Gardena Avenue was constructed in 1920. The Project would demolish both residential dwelling units and the garage and construct a new 40,240-square-foot, five-story, 31-unit, rental housing building. Parking would be provided in a 16-space one-level subterranean garage. Per Government Code Section 65915 and Glendale Municipal Code Section 30.36 (Inclusionary Zoning Ordinance), three of the residential units would be reserved for very low-income households.

1.2 CEQA STANDARDS FOR RECIRCULATION OF EIR

1.2.1 Overview of Recirculation

CEQA Guidelines Section 15088.5 establishes that a lead agency is required to recirculate an EIR when significant new information is added to the EIR after it is released for public review under Section 15087 but before certification. “Recirculation” simply means that the public is provided an opportunity to comment on the new or revised sections of the EIR.

As used in this section, the term “information” can include changes in the project or environmental setting as well as additional data or other information. New information added to an EIR is not “significant” unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect. “Significant new information” requiring recirculation includes the following:

1. A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
2. A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
3. A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.
4. The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (*Mountain Lion Coalition v. Fish and Game Com.* (1989) 214 Cal.App.3d 1043)

1.2.2 Basis for Partial Recirculation of the 1642 South Central Avenue Draft EIR

Following the release of the Draft EIR, new information was obtained regarding an occupied residence that is closer to the Project site than was assumed in the Draft EIR's analysis of construction noise and vibration impacts. Using this new information, the analysis of construction noise and vibration impacts shows different results compared to those presented in the Draft EIR, including two new significant impacts not identified in the Draft EIR. These changes were determined to meet the CEQA Guidelines Section 15088.5 criteria concerning disclosure of a new significant environmental impact and substantial increase in the severity of an environmental impact. Therefore, the City determined that the portions of the Draft EIR related to noise and vibration should be revised and the partial revision to the Draft EIR should be recirculated for public comment.

1.3 SUMMARY OF REVISIONS TO DRAFT EIR

CEQA Guidelines Section 15088.5(g) requires that the PR-DEIR summarize the revisions made to the previously circulated Draft EIR.

This PR-DEIR includes revisions to Section 3.2 *Noise and Vibration*, Chapter 4 *Alternatives,* and the *Mitigation and Monitoring Reporting Program* of the Draft EIR, which are affected by the changes made in the updated Noise and Vibration Study Report (Appendix D). These revisions are introduced in Chapter 1 of this PR-DEIR and are provided as Section 3.2 *Noise and Vibration* and Chapter 4 *Alternatives*, to follow the document numbering convention of the Draft EIR. Revised Section 3.2 *Noise and Vibration* and Chapter 4 *Alternatives* replace the corresponding sections of the Draft EIR in its entirety. In addition, updates to Section 1.4 *Summary of Impacts and Mitigation Measures* are presented after Section 3.2 *Noise and Vibration.* Appendix D has been replaced with the updated Noise and Vibration Study Report (2022).

No additional changes are made to the following chapters of the Draft EIR: Chapter 1 *Introduction,* Chapter 2 *Project Description*, Chapter 3.1 *Cultural Resources*, Chapter 5 *Cumulative Impact Analysis*, and Chapter 6 *Other CEQA Considerations*. Therefore, these sections have not been reproduced in this PR-DEIR.

1.4 RECIRCULATED DRAFT EIR PROCESS

1.4.1 Public Review Process

This PR-DEIR was published on August 15, 2022 and will be subject to review and comment by the public, as well as all responsible agencies and other interested parties, agencies, and organizations, for a period of 30 days. The public comment period will run from **August 15, 2022 to September 14, 2022**. Comments on the PR-DEIR should be submitted to:

Attention: Dennis Joe, Senior Planner
City of Glendale
Community Development Department, Planning Division
633 East Broadway, Room 103
Glendale, California 91206
Email: djoe@glendaleca.gov

The PR-DEIR is available for viewing or downloading at the Planning Department website, https://www.glendaleca.gov/government/departments/community-development/planning/current-projects/environmental-review. Due to COVID-19 pandemic limitations, in-person viewing opportunities at the Community Development Department office are available only by appointment.

1.4.2 Limitation on Public Comments

CEQA Guidelines Section 15088.5(f)(2) establishes that:

> When the EIR is revised only in part and the lead agency is recirculating only the revised chapters or portions of the EIR, the lead agency may request that reviewers limit their comments to the revised chapters or portions. The lead agency need only respond to
>
> (i) comments received during the initial circulation period that relate to chapters or portions of the document that were not revised and recirculated, and
>
> (ii) comments received during the recirculation period that relate to the chapters or portions of the earlier EIR that were revised and recirculated.
>
> The lead agency's request that reviewers limit the scope of their comments shall be included either within the text of the revised DEIR or by an attachment to the revised DEIR.

Based on this statutory directive, the City requests that commenters limit their written comments to the new information regarding noise and vibration presented in this PR-DEIR.

1.4.3 Final EIR

When the public comment period for this PR-DEIR concludes on September 14, 2022, the City will prepare written responses to the comments received on both the Draft EIR and the PR-DEIR. The Final EIR will consist of the Draft EIR, the PR-DEIR, comments received on both the Draft EIR and PR-DEIR, and the responses to those comments.

As part of the City's demolition clearance and design review process involving historical resources, the Final EIR will be considered by the Historic Preservation Commission in a publicly noticed meeting, and then certified as a Final EIR, if deemed adequate. The Historic Preservation Commission will consider the information in the Final EIR in their deliberations on whether to approve, modify, or deny the Project or aspects of the Project. If the Historic Preservation Commission approves the Project, their approval action must include findings that identify significant Project-related impacts that would result from the Project; discuss mitigation measures or alternatives that have been adopted to reduce significant impacts to less-than-significant levels; and explain reasons for rejecting mitigation measures or alternatives if any are infeasible for legal, social, economic, technological, or other reasons.

The Historic Preservation Commission must also adopt a mitigation monitoring and reporting program (MMRP) as part of the adoption of the CEQA findings and project approvals. The MMRP identifies the measures included in the Project or imposed by the decision-makers as conditions of approval, the entities responsible for carrying out the measures, and the timing of implementation. If significant unavoidable impacts would remain after all feasible mitigation measures are implemented, the approving body, if it elects to approve the Project, must adopt a statement of overriding considerations that makes factual findings and determinations concerning how the Project benefits would outweigh the significant environmental impacts.

CHAPTER 3. ENVIRONMENTAL IMPACT ANALYSIS

3.2 NOISE AND VIBRATION

This updated Noise and Vibration section describes the existing noise environment in the Project vicinity; evaluates the potential for construction-related and operational noise and vibration impacts associated with implementation of the Project to adversely affect sensitive land uses; and identifies mitigation measures to avoid or reduce potential adverse impacts.

The analysis is based on long-term noise measurements at the Project site and review of applicable federal, state, and local noise-related regulations and standards. Noise calculations were prepared to quantitatively assess the noise increases that would be attributable to the Project. A Noise and Vibration Study was prepared for the Project; the updated study (2022) is shown in Appendix D.

3.2.1 Environmental Setting

This subsection introduces the key concepts and terms that are used in the evaluation of noise and describes the existing noise environment of the Project area.

3.2.1.1 Measurement of Sound

Sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound. The decibel (dB) scale is used to quantify sound intensity. Noise is sometimes defined as unwanted sound, and the terms "noise" and "sound" are used more or less interchangeably in this analysis. The human ear responds to a very wide range of sound intensities. The dB scale used to describe sound is a logarithmic rating system which accounts for the large differences in audible sound intensities. When addressing the effects of noise on people, it is necessary to consider the frequency response of the human ear, or those frequencies that people hear the best. Noise-measuring instruments are therefore often designed to "weight" noises based on the way people hear. The frequency weighting most often used to evaluate environmental noise is "A weighting" because it best reflects how humans perceive noise. Measurements from instruments using this system, and associated noise levels, are reported in "A weighted decibels," or dBA. Using this scale, a change in noise level of 3 dBA is perceived as barely perceptible, 5 dBA is perceived as readily perceptible, and 10 dBA is perceived as a doubling or halving of noise loudness.[1] Therefore, a 70-dB sound level will sound about twice as loud as a 60-dB sound level. People generally cannot detect differences of 1 to 2 dB in a complex acoustical environment. A 5-dBA change is also required before any noticeable change in community response is expected.[2]

On this scale, a doubling of sound-generating activity (i.e., a doubling of the sound energy) causes a 3-dB increase in average sound produced by that source, not a doubling of the perceived loudness of the sound (which requires a 10-dB increase). For example, if existing traffic on a road is causing a 60-dB sound level at a nearby location, a doubling of the number of vehicles on this same road would cause the sound level at this same location to increase to 63 dB, i.e., a noise level change that is barely perceptible to most people.

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1 California Department of Transportation (Caltrans), Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, pp. 2-43 to 2-46 and Table 2-10, *https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf*, accessed May 5, 2021.

2 Charles M. Salter Associates, Inc., Acoustics – Architecture, Engineering, the Environment, 1998, p. 63.

For any noise source, several factors affect the efficiency of noise transmission traveling from the source, which in turn affects the potential noise impact at offsite locations. Important factors include distance from the source, frequency of the noise, absorbency and roughness of the intervening ground (or water) surface, the presence or absence of obstructions and their absorbency or reflectivity, and the duration of the noise. Noise transmission is further discussed under "Attenuation of Noise." Table 3.2.1 presents typical noise levels of some familiar noise sources and activities.

Table 3.2.1. Representative Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Fly-over at 100 feet		
	100	
Gas Lawnmower at 3 feet		
	90	
Diesel Truck going 50 mph at 50 feet		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noise Urban Area during Daytime		
Gas Lawnmower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Area during Daytime	50	Dishwasher in Next Room
Quiet Urban Area during Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	30	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
	0	

Source: California Department of Transportation, Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, p. 2-20.

Although a measured A-weighted noise level will adequately indicate the level of environmental noise at any instant in time, noise levels in populated communities typically vary by time. Several noise descriptors have been developed to characterize community noise by the total acoustical energy content of the noise over defined periods of time or by characterizing the loudest noise levels over a given time interval. Table 3.2.2 describes other noise metrics and terms used in this analysis.

Table 3.2.2. Definitions of Acoustical Terms

Term	Definition
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time; usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Decibel (dB)	A unit of measurement that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter deemphasizes the very low- and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted, unless reported otherwise.)
Equivalent Continuous Noise Level, L_{eq}	The equivalent sound level is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. An L_{eq} is a single number representing the level of a constant sound containing the same amount of sound energy as the varying sound levels over a specific period. Thus, the L_{eq} is the "energy average" noise level for the measurement time interval.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 PM to 10:00 PM and after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
Day/Night Noise Level, Ldn	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.

ATTENUATION OF NOISE

Noise levels attenuate (decrease) with distance from the source. Transportation noise sources tend to be arranged linearly, such that roadway traffic attenuates at a rate of 3 to 4.5 dBA per doubling of distance from the source. Point sources of noise, including stationary, fixed, and idle mobile sources, like idling vehicles or construction equipment, can attenuate at a rate of 6 to 7.5 dBA per doubling of distance from the source. The 1.5-dBA variation in attenuation rates for these two noise sources can result from ground-absorption effects, which occur as sound travels over soft surfaces such as soft earth or vegetation versus hard ground such as pavement or very hard-packed earth.[3, 4] Meaningful reductions or attenuation of noise levels can also be accomplished by "shielding" a noise source or providing a barrier, which may be in the form of an intervening structure or terrain, between the source and receptor.[5]

With respect to the transmission of exterior noise to interior environments, noise attenuation effectiveness depends on exterior wall insulation, a window's sound transmission class rating, and whether windows are closed or open. Sound transmission class ratings indicate how well wall, ceiling, floor, door, and

[3] Caltrans, Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, pp. 2-27 to 2-28, https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf, accessed November 6, 2020.

[4] U.S. Housing and Urban Development, The Noise Guidebook, 1985, p. 24, https://www.hudexchange.info/onecpd/assets/File/Noise-Guidebook-Chapter-4.pdf, accessed November 6, 2020.

[5] Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006, Appendix A, http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf, accessed November 6, 2020.

window assemblies attenuate airborne sound. Generally, the higher the sound transmission class rating, the more sound is attenuated.[6]

EFFECTS OF NOISE ON PEOPLE

Exposure to prolonged high noise levels has been found to have effects on human health, including physiological and psychological effects to humans.[7] Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA.[8] Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of noise is called the threshold of feeling.

As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear (the threshold of pain). A sound level of 160 to 165 dBA will result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and is generally more concentrated in urban areas than in outlying, less developed areas. The human perception of noise level increases can be described in three categories:

- **Inaudible/Not Perceptible**: Changes in noise levels of less than 1 dB are inaudible to the human ear and often referred to as not perceptible.

- **Potentially Audible/Barely Perceptible**: A potentially audible impact refers to a 1 to 3 dB change in noise levels. This range of noise levels has been found to be noticeable in low-noise environments.

- **Audible/Readily Perceptible**: An audible impact refers to a noticeable increase in noise for humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be readily perceptible in exterior environments. For reference, a 10 dB increase is experienced by humans as a doubling of sound or perceived to be twice as loud.

Only readily perceptible changes in existing ambient or background noise levels are considered potentially significant.

3.2.1.2 Fundamentals of Groundborne Vibration

Equipment that creates blows or impacts on the ground surface produces vibrational waves, called groundborne vibration, that radiate along the surface of the earth and downward into the earth, potentially resulting in effects that range from annoyance to structural damage. As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate by a few ten-thousandths to a few thousandths of an inch. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. Vibration levels decrease with increasing distance. The maximum rate or

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6 There is not a straightforward linear relationship between increasing STC and a reduction in exterior-to-interior noise because the amount of reduction varies considerably with the frequency range of noise.

7 World Health Organization, Guidelines for Community Noise, Chapter 3, pp. 24-26, April 1999, http://apps.who.int/iris/bitstream/10665/66217/1/a68672.pdf, accessed May 5, 2021.

8 Appendix D.

velocity of particle movement is the commonly accepted descriptor of the vibration "strength." This is referred to as the peak particle velocity (PPV) and is typically measured in inches per second.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. When vibration encounters a building, the transfer of vibration from ground to the building foundation (referred to as "ground-to-foundation coupling") will usually reduce the overall vibration level; however, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls. High levels of vibration can damage fragile buildings or interfere with the operation of sensitive equipment. Depending on the age of the structure and type of vibration (transient, continuous, or frequent intermittent sources), vibration levels as low as 0.5 to 2.0 inches per second PPV (in/sec PPV) can damage a structure.

EFFECTS OF GROUNDBORNE VIBRATION ON PEOPLE

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below a level that would result in damage to a structure. Except for long-term occupational exposure, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. People may tolerate infrequent, short-duration vibration levels, but human annoyance to vibration becomes more pronounced if the vibration is continuous or occurs frequently. Human response to vibration often is described as the root-mean-square (RMS) velocity level and is denoted in the decibel scale, or VdB. The typical background level in residential areas is about 50 VdB, and most people cannot detect levels below about 65 VdB, and generally do not consider levels below 70 VdB, or approximately 0.1 PPV, to be an annoyance.[9] However, the duration of a vibration event has an effect on human response, as does its frequency. Generally, as the duration of a vibration event increases, the potential for adverse human response increases, particularly if the vibration event disturbs sleep. In addition, while people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration.

3.2.2 Existing Conditions

3.2.2.1 Noise Environment

This section describes the existing noise environment in the Project site vicinity. Noise monitoring was used to quantify existing noise levels at the Project site. In the City, vehicle traffic is the primary source of noise. Other significant local noise sources include train pass-bys and station operations, airport noise, industrial noise, and mechanical equipment noise.

The Project site is located approximately 315 feet east of an existing rail corridor that carries both passenger trains (Amtrak and Metrolink) and freight trains (Union Pacific Railroad, formerly known as Southern Pacific Lines). Noise associated with rail operations includes locomotive engines, wheel-to-rail and switch noise, horn sounding, station approach and disembark bell sounding, emergency signaling devices, and stationary bells located at the at-grade crossings at Chevy Chase Drive, West Broadway, and Doran Street.[10] The historic Glendale Southern Pacific Railroad Depot, also referred to as the Larry Zarian Transportation Center, is located across Gardena Avenue from the Project site. It serves as a stop for Metrolink commuter and Amtrak passenger trains on the corridor, except for certain express rail

[9] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, pp. 117-120, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed May 5, 2021.

[10] South Glendale Community Plan: Final Program Environmental Impact Report, June 2018. https://www.glendaleca.gov/government/departments/community-development/planning/community-plans/sgcp-eir.

services. Passenger rail movements occur every day and multiple times per hour between 5:00 A.M. and 11:00 P.M. through the Larry Zarian Transportation Center. Current passenger train operations have been reduced due to the current COVID-19 pandemic conditions and are estimated to be approximately half of typical operations.[11] This reduction in activity is accounted for in the impacts analysis discussion in this section. Furthermore, the rail corridor may include the future operations of the proposed California High-Speed Rail Project. These operations, while not captured in the existing noise measurements, are also accounted for in the impacts analysis.

3.2.2.2 Aircraft-Related Noise

The Project is approximately 7.25 miles southeast of Burbank Airport and 14.5 miles northeast of Los Angeles International Municipal Airport. As shown on the Los Angeles County Airport Land Use Commission noise maps, the proposed Project is located well outside the 65 dBA CNEL noise contours of these airports; therefore, noise-related impacts due to airport activities would not represent a significant source of existing noise.

3.2.2.3 Surrounding Land Uses and Sensitive Receptors

The Project site is surrounded primarily by residential, commercial, and industrial development. The areas adjacent to the Project site include the following uses:

- **North:** Existing industrial warehouse uses opposite South Central Avenue, 65 feet away
- **East:** Existing Peak Auto Body repair shop, immediately adjacent (within 5–10 feet)
- **South:** Existing single-family homes, the closest of which is within 3 feet of the southern property line
- **West:** Existing parking lot associated with the Larry Zarian Transportation Center opposite Gardena Avenue, 55 feet away

Land uses are considered noise "sensitive receptors" where low noise levels are necessary to preserve their intended goals such as relaxation, education, health, and general state of well-being. Noise-sensitive receptors include residents, hospitals, convalescent homes, schools, churches, hotels, and motels.[12] The nearest sensitive receptors are single-family homes immediately to the south.

3.2.2.4 Existing Noise Level Measurements

To assess existing noise levels, two long-term noise measurements were conducted at the Project site (Figure 3.2.1). The long-term noise measurements were recorded from June 9 through June 10, 2020. The long-term noise measurements captured data in order to calculate the hourly L_{eq} and CNEL at each location, which incorporate the nighttime hours. Sources that dominate the existing noise environment include traffic on adjacent roadways, train traffic on the existing rail line to the east, parking lot activities, and operations from the commercial and industrial uses. Table 3.2.3 summarizes the long-term noise level measurements taken at the Project site.

[11] Metrolink, Coronavirus Updates, June 8, 2021. https://metrolinktrains.com/coronavirus-updates#June_8.

[12] Governor's Office of Planning and Research, State of California 2017 General Plan Guidelines, 2017, p. 136, http://www.opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf, accessed May 5, 2021.

Table 3.2.3. Summary of Long-Term Noise Level Measurements

Site #	Location	Daytime Noise Levels [A] (dBA Leq)	Evening Noise Level [B] (dBA Leq)	Nighttime Noise Levels [C] (dBA Leq)	Average Daily Noise Level (dBA CNEL)
LT-1	Western edge of the Project site on Gardena Avenue.	62.1–70.7	59.2–63.0	48.4–63.4	67.0
LT-2	Northeast corner of the Project site, across on S. Glendale Avenue.	61.4–68.4	57.7–63.9	48.0–64.7	66.3

Notes: dBA = A-weighted decibels, L_{eq}=equivalent continuous sound level, CNEL = Community Noise Equivalent Level

[A] Daytime Noise Levels = noise levels during the hours of 7:00 a.m. to 7:00 p.m.

[B] Evening Noise Levels = noise levels during the hours of 7:00 p.m. to 10:00 p.m.

[C] Nighttime Noise Levels = noise levels during the hours of 10:00 p.m. to 7:00 a.m.

Source: 1642 S. Central Avenue Project –Noise and Vibration Study, LSA, July 2022. See EIR Appendix D.

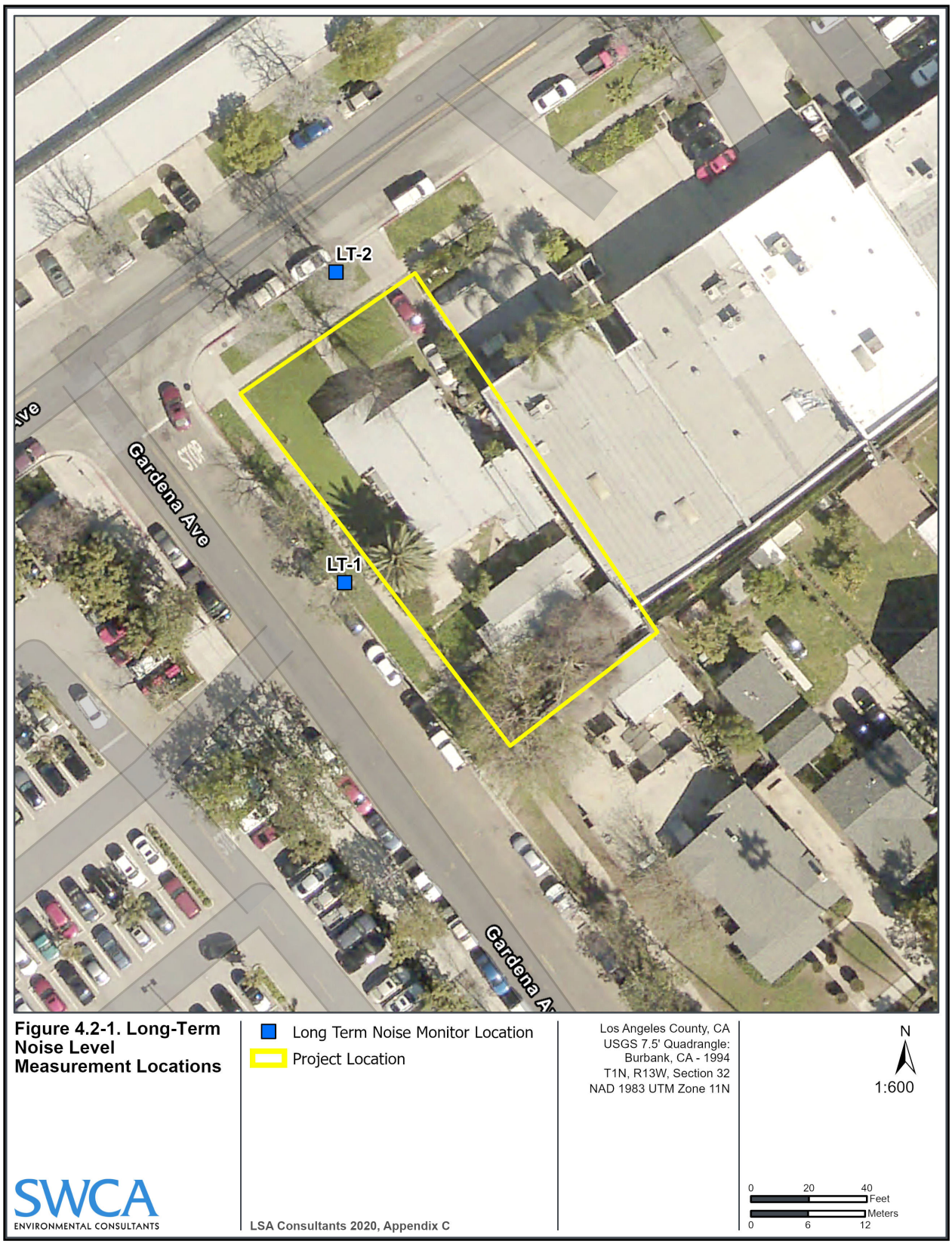

Figure 3.2.1. Long-term Noise Level Measurement Locations.

3.2.3 Regulatory Framework

3.2.3.1 Federal Regulations and Guidelines

This section identifies applicable federal regulations and guidelines related to noise and vibration.

U.S. FEDERAL TRANSIT ADMINISTRATION

Noise Standards

The U.S. Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment Manual*[13] establishes general methodology guidelines and impact criteria for assessment of construction noise impacts. It is not a regulation but does function as one of the few federal sources that suggest both a methodology and guidelines for assessing noise impacts from construction activities.

Table 3.2.4 describes the general noise assessment criteria for construction impacts. The general assessment criteria for construction noise identifies a 1-hour noise level of 90 dBA Leq for residential uses during daytime hours and a 1-hour noise level of 100 dBA Leq for commercial and industrial uses as the threshold for a potential noise impact. This provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction when the noise criteria are exceeded.

Table 3.2.4 FTA General Assessment Construction Noise Impact Criteria

Land Use	Maximum 1-Hour dBA L_{eq}	
	Day [A]	Night [B]
Residential	90	80
Commercial	100	100
Industrial	100	100

Notes:

dBA = A-weighted decibels; Leq = average or constant sound level.

[A] Day = 7 a.m. to 10 p.m.

[B] Night = 10 p.m. to 7 a.m.

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, Table 7-2, p. 179.

Vibration Standards

Although not a regulation, the FTA's *Transit Noise and Vibration Impact Assessment Manual* also provides guidance on the evaluation of building damage and human response to different levels of construction-related groundborne vibration. It functions as one of the few federal sources that provide guidance on the evaluation and assessment procedures and impact criteria for groundborne vibration induced by construction equipment. Table 3.2.5 summarizes the FTA vibration guidelines used to assess the potential for damage to structures, based on vibration PPV levels, with the potential for damage based on building category types (i.e., the fragility or strength of a building structure). FTA guidelines show that a vibration level of up to 0.3 in/sec in PPV is considered safe for buildings consisting of engineered concrete or masonry and would not result in any construction vibration damage. For non-engineered timber and masonry buildings, the construction building vibration damage criterion is 0.2 in/sec in PPV.

[13] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Table 3.2.5 FTA Vibration Threshold Guidelines for Potential Damage to Structures

Building Category	Peak Particle Velocity (inches/second)
I. Reinforced-concrete, steel, or timber buildings (no plaster)	0.50
II. Engineered concrete and masonry buildings (no plaster)	0.30
III. Non-engineered timber and masonry buildings	0.20
IV. Buildings that are extremely susceptible to vibration damage	0.12

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, Table 7-5, p. 186.

To avoid temporary annoyances for building occupants or interference with vibration-sensitive equipment inside special-use buildings during construction, the FTA recommends using the vibration criteria from the guidance manual for groundborne vibration assessments. Table 3.2.6 summarizes the FTA's general assessment criteria used to evaluate potential interference to building operations by different levels of construction-generated groundborne vibration.

Table 3.2.6. Indoor FTA Groundborne Vibration Impact Criteria

Land Use Category	Impact Levels (VdB relative to 1 micro-inch/second)		
	Frequent Events [A]	Occasional Events [B]	Infrequent Events [C]
Category 1: Buildings where vibration would interfere with interior operations	65 [D]	65 [D]	65 [D]
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime use	75	78	83

Notes:

VdB = Human response to vibration often is described as the root-mean-square (RMS) velocity level and is denoted in the decibel scale, or VdB. The typical background level in residential areas is about 50 VdB, and most people cannot detect levels below about 65 VdB, and generally do not consider levels below 70 VdB, or approximately 0.1 PPV, to be an annoyance.[14]

[A] Frequent: More than 70 vibration events of the same source per day.

[B] Occasional: Between 30 and 70 vibration events of the same source per day.

[C] Infrequent: Less than 30 vibration events of the same source per day.

[D] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define the acceptable vibration levels.

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, Tables 6-3 and 6-4, p. 126.

3.2.3.2 State Regulations and Guidelines

This section identifies applicable state regulations and guidelines related to noise and vibration.

CALIFORNIA NOISE INSULATION STANDARDS

The 2019 California Building Code (California Code of Regulations title 24, part 2) requires that walls and floor/ceiling assemblies separating dwelling units from each other, or from public or service areas, have a sound transmission class (STC) of at least 50, meaning they can reduce noise by a minimum of

[14] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, pp. 117-120, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed May 5, 2021.

50 dB.[15] Building Code Section 1206.4, Allowable Interior Noise Levels, also specifies a maximum interior noise limit of 45 dBA (L_{dn} or Community Noise Equivalent Level [CNEL]) in habitable rooms, and requires that common interior walls and floor/ceiling assemblies meet a minimum STC rating of 50 for airborne noise. These requirements are collectively known as the California Noise Insulation Standards and are enforced by the City of Glendale Department of Building and Safety.

3.2.3.3 Local Regulations and Guidelines

This section identifies applicable local regulations and guidelines related to noise and vibration. The Project would be entirely within the City of Glendale. Noise in the City is regulated by the City's General Plan and Municipal Code.

GLENDALE GENERAL PLAN

The Noise Element of the General Plan identifies sources of noise in the City and provides objectives and policies that ensure that noise from various sources would not create an unacceptable noise environment. Goals and policies are outlined in the document to achieve and maintain land uses that are compatible with environmental noise levels. Based on these standards, exterior noise levels of 60 dBA CNEL and lower are "normally acceptable" for single-family residential uses, while exterior noise levels of 65 dBA CNEL and lower are "normally acceptable" for multi-family residential uses. "Normally acceptable" is defined as the highest noise level that should be considered for the construction of new buildings that incorporate conventional construction techniques, but without any special noise insulation requirements. Table 3.2.7 displays the noise standards specified in Table 2 of the City's General Plan Noise Element for evaluating land use noise compatibility for proposed developments.

Table 3.2.7 City of Glendale Interior and Exterior Noise Standards

Categories	Land Use Categories	Noise Standards	
		Interior CNEL	Exterior CNEL
Residential	Single-family	45 [A]	65 [B]
	Multi-family	45 [A]	65 [C]
	Residential within Mixed Use	45 [A]	–
Commercial	Hotel, Motel, Transient Lodging	45 [A]	0.4
Institutional	Hospital, School, Classroom, Church, Library	45	–
Open Space	Parks [D]	–	65

Notes: CNEL = Community Noise Equivalent Level

[A] Interior environment excludes bathrooms, toilets, closets, and corridors.

[B] Applies to the outdoor environment limited to the private yard of single-family residences (normally rear yard).

[C] Applies to the patio area where there is an expectation of privacy (i.e., not a patio area which also serves as, or is adjacent to, the primary entrance to the unit).

[D] Only applies to parks where peace and quiet are determined to be of prime importance, such as hillside open space areas open to the public. Generally, would not apply to urban parks or active-use parks.

Source: City of Glendale Noise Element, Table 2 (2007).

[15] California State Building Code Section 1206.3.

CITY OF GLENDALE MUNICIPAL CODE

Noise Standards

The Glendale Municipal Code includes an adopted Noise Ordinance, Chapter 8.36 Noise Control, Articles I and II, which identifies noise standards for amplified noise sources, specific noise restrictions, noise insulation standards, and construction noise limits. Noise limits are regulated through the assessment of the offending noise sources, which influence the existing ambient noise environment.

Municipal Code Section 8.36.040 provides the City's noise standards based on the noise zone, the location of the noise (exterior/interior), and the time period. As shown in Table 3.2.8, the maximum allowable exterior noise level for commercial zoned properties is 65 dBA during day and nighttime hours, seven days a week. For residential (single-family) zoned properties, the maximum exterior noise level is 55 dBA during daytime hours and 45 dBA during nighttime hours.

Table 3.2.8 City of Glendale Municipal Code Exterior and Interior Noise Standards

Land Use Type	Location	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Cemetery and Residential (Single-Family and Duplex)	Exterior	55	45
Residential (Multi-family, hotels, motels, and transient lodgings)	Exterior	60	60
Central Business District and Commercial	Exterior	65	65
Industrial	Exterior	70	70
Residential	Interior	55	45

Notes:

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

Source: City of Glendale Municipal Code 8.36.040 Presumed noise standards.

Municipal Code Section 8.36.050 clarifies if "the actual ambient is less than the presumed ambient, the actual ambient shall control and any noise in excess of the actual ambient plus 5 dbA, shall be a violation. Where the actual ambient is equal to or more than the presumed ambient, the actual ambient shall control and any noise may not exceed the actual ambient by more than 5 dbA, and in no event may the actual ambient exceed the presumed ambient by more than 5 dbA."

With regard to construction activities, Section 8.36.080 of the Municipal Code states it is unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects within the City between the hours of 7:00 p.m. on one day and 7:00 a.m. of the next day or from 7:00 p.m. on Saturday to 7:00 a.m. on Monday or from 7:00 p.m. preceding a holiday, as designated in Chapter 3.08 of the Code, to 7:00 a.m. following such holiday unless a permit has been obtained beforehand from the building official.

Vibration Standards

Section 8.36.210 of the Municipal Code prohibits operation of any device that creates a vibration that is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at 150 feet from the source if on a public space or public right-of-way.

In order to assess the potential for vibration annoyance, the City of Glendale has defined "vibration perception threshold" in Section 8.36.020 as "…the minimal ground or structure borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects. The perception shall be presumed to be a motion velocity of 0.01 in./sec. over the range of one to one hundred Hz."

3.2.4 Impact Analysis

3.2.4.1 Significance Criteria

The Project would have a significant effect related to noise and vibration if implementation of the proposed Project would result in any of the following:

- Expose persons to or generate noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or
- Generate excessive groundborne vibration or groundborne noise levels.
- Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

3.2.4.2 Approach to Analysis

This analysis evaluates the noise and vibration impacts associated with construction and operation of the Project. Two types of noise and vibration impacts were considered: short-term, temporary impacts resulting from construction, and impacts due to long-term operational changes in the noise environment.

Given that the Municipal Code does not include standard criteria for construction noise impact assessment, the guidelines in the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018) are used in this analysis.

Impact NO-1: Construction of the proposed Project would generate a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established in the City of Glendale Noise Ordinance or applicable standards of other agencies. (*Significant and Unavoidable)*

Short-Term Construction Noise Impacts

The Project would be constructed in one development phase that would take approximately 18 months. Short-term noise impacts would be associated with demolition of the existing structures, excavation, grading, and construction of the Project. Construction-related short-term noise levels would be higher than existing ambient noise levels in the vicinity of the Project site; however, once Project construction is done, these noise levels would no longer occur.

Two types of short-term noise impacts could occur during construction of the Project. The first type is related to noise generated by trucks transporting construction equipment and materials, by hauling activities, and by vehicles carrying construction workers commuting to the Project site. These transportation activities would incrementally raise noise levels on roads leading to the site. It is expected that larger trucks used in equipment delivery would generate higher noise levels than vehicles carrying workers commuting to the Project site. The single-event noise from equipment trucks passing at a distance of 50 feet from a sensitive noise receptor would reach a maximum level of 84 dBA Lmax. However, heavy equipment used for grading and construction activities would be moved on-site just one

time and would remain on-site for the duration of each construction phase. The total number of daily vehicle trips associated with hauling during the grading phase is estimated to be approximately 14 and would be minimal compared to existing traffic volumes on the affected streets. The daily traffic noise level change associated with these trips would not be perceptible. Therefore, construction-related traffic impacts would be short term and would not result in a significant off-site noise impact.

The second type of potential short-term noise impact is related to noise generated during demolition, site preparation, grading, building construction, and paving. Construction is completed in discrete steps, each with its own mix of equipment and consequently its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and therefore the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

The site preparation and grading phase, which includes excavation and grading of the site, tends to generate the highest noise levels because earthmoving equipment is the noisiest construction equipment (see Table 3.2.9). Additionally, this phase would be the longest of the phases expected to occur near the Project site boundary. The three loudest pieces of equipment used during the site preparation and grading phase would likely be an excavator, grader, and dozer, as no pile driving is proposed. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Table 3.2.9 Typical Maximum Construction Equipment Noise Levels (Lmax)

Type of Equipment	Suggested Maximum Sound Levels for Analysis (dBA Lmax at 50 feet)
Impact Equipment	
Excavators with Hoe Ram	85
Impact Pile Driver	101
Non-Impact Equipment	
Air Compressors	80
Bore/Drill Rigs	85
Cement and Mortar Mixers	80
Concrete/Industrial Saws	90
Concrete Truck	82
Concrete Boom Pump	82
Cranes	85
Excavators	85
Generator Sets	82
Graders	85
Pavers	85
Plate Compactors	83
Pressure Washers	85
Pumps	81
Rollers	85
Rough Terrain Forklifts	85

Type of Equipment	Suggested Maximum Sound Levels for Analysis (dBA Lmax at 50 feet)
Rubber-Tired Dozers	85
Scrapers	85
Skid Steer Loaders	80
Tie Back Drill	85
Tower Crane	85
Tractors/Loaders/Backhoes	84
Welders	73

Notes:

[A] Based on highest anticipated noise level, assuming 100 percent use during any 1-hour period.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

Source: Federal Highway Administration, *FHWA Highway Construction Noise Handbook*, August 2006, Table 9.1, p. 91.

As shown in Table 3.2.10, during the construction of the Project, it is expected that the average noise levels at the nearest noise-sensitive use, the single-family home to the south at 1616 Gardena Avenue, would range from 69 dBA Leq to 83 dBA Leq. These noise levels depend on construction phase and are based on an average distance of 85 feet from the center of construction activities. Therefore, the noise impacts would not exceed the 90 dBA Leq 1-hour construction noise level criteria established by the FTA for residential uses based on the average condition. When construction activities occur near the property line, noise levels could approach 104 dBA Leq. For the single-family homes further to the south on El Bonito Avenue, construction noise levels would be reduced due to additional distance and shielding from existing intervening structures. While construction-related impacts are short term and would no longer occur once Project construction is completed, they have the potential to be higher than existing ambient noise levels by more than 5 dBA, a typical threshold of perceptibility in an outdoor environment, in the Project area.

Table 3.2.10: Potential Construction Noise Impacts at Surrounding Residences

Receptor (Location)	Composite Noise Level (dBA Leq) at 50 feet[1]	Average Distance (feet)	Range of Composite Construction Noise Levels (dBA Leq)	Exceed 90 dBA Leq Threshold?	Result in a 5 dBA Increase Over Ambient Condition
1616 Gardena Avenue	76 -88	85	69-83	No	Yes
335 El Bonito Avenue		175	63-77	No	Yes
337 El Bonito Avenue		120	66-80	No	Yes
339 El Bonito Avenue		170	63-77	No	Yes
343 El Bonito Avenue		150	64-78	No	Yes

Source: 1642 S. Central Avenue Project –Noise and Vibration Study, LSA, July 2022. See EIR Appendix D.

[1] The composite construction noise level represents the range of noise levels with the grading phases as compared to other phases.

dBA Leq = average A-weighted hourly noise level

Compliance with the time restrictions in the City's Noise Ordinance, Municipal Code Chapter 8.36, would ensure that construction noise does not disturb the residential uses during hours when ambient noise levels are likely to be lower (i.e., at night). Although construction noise would be higher than the ambient noise in the Project vicinity during the day, construction noise would cease to occur once Project

construction is completed. In addition to compliance with appropriate construction times, the Project would implement Mitigation Measure M-NO-1, Construction Noise Control.

Mitigation Measure M-NO-1: Construction Noise Control

Prior to issuance of demolition permits, the Glendale (City) Department of Building and Safety, or designee, shall verify that all construction plans include notes stipulating the following:

- Grading and construction contractors shall use equipment that generates lower vibration levels, such as rubber-tired equipment rather than metal-tracked equipment.
- Construction haul truck and materials delivery traffic shall avoid Local Streets and Urban, Community and Neighborhood Collectors as defined in the city's Circulation Element .
- The construction contractor shall place noise- and vibration-generating construction equipment, with exception to equipment needed to complete shoring activities associated with the construct of the subterranean garage, away from sensitive uses and locate construction staging areas away from sensitive uses whenever feasible.
- The construction contractor shall only use on-site electrical sources to power equipment rather than diesel generators ~~where feasible~~.
- The construction contractor shall ensure that a minimum 12-foot-high barrier, such as plywood structures or flexible sound control curtains, shall be erected between on the proposed Project site and adjacent to the sensitive receptors to minimize the amount of noise during construction. A 12-foot-high construction noise barrier would provide an approximately 12 dBA reduction to the closest residential receptors to the south.
- All residential units located within 500 feet of the construction site shall be sent a notice regarding the construction schedule. A sign legible at a distance of 50 feet shall also be posted at the construction site. All notices and the signs shall indicate the dates and durations of construction activities, as well as provide a telephone number for the "noise disturbance coordinator".

Construction noise would be higher than the daytime ambient noise in the Project vicinity and exceed daytime construction thresholds. However, the construction noise and threshold exceedance would cease to occur once Project construction is completed. In addition to compliance with appropriate construction times, the implementation of Mitigation Measure M-NO-1 would reduce construction noise to the greatest extent feasible; however, the impact would remain **significant and unavoidable**.

Impact NO-2: Construction of the proposed Project would generate excessive groundborne vibration levels. (*Significant and Unavoidable)*

Construction Vibration Impacts

Construction activities related to the Project, including excavation activities where the highest levels of vibration are anticipated, would not include vibration of foundations, utilities that are connected to existing structures, or tunneling operations. To provide an example of construction vibration levels expected for a project of this size, Table 3.2.11 shows the PPV values and vibration levels (in terms of VdB) from construction vibration sources from 25 feet away. A large bulldozer would generate

approximately 0.089 PPV inches/sec or 87 VdB of groundborne vibration when measured at 25 feet, based on the Transit Noise and Vibration Impact Assessment Manual.[16]

Table 3.2.11. Vibration Source Levels for Construction Equipment

Equipment	PPV_{ref} at 25 ft (in/sec) [A]	Lv (VdB) [B]
Impact Pile Driver (typical)	0.644	104
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Notes:

[A] PV_{ref} – reference Peak Particle Velocity. PPV is appropriate for evaluating potential damage to buildings.

[B] RMS VdB re 1 µin/sec.

ft = feet, in/sec = inches per second

µin/sec = microinches per second

Lv = velocity in decibels

RMS = root-mean-square

VdB = vibration velocity in decibel

Source: Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual, September 2018.

In order to assess the potential for vibration impacts, the analysis utilizes the distance between the nearest off-site buildings and the Project boundary (assuming the construction equipment would be used at or within 5 feet of the Project boundary) because vibration damage impacts occur at the buildings.

Table 3.2.12 presents a summary of potential vibration impacts of the Project construction. Based on the information in Table 3.2.12, vibration has the potential to cause damage to the commercial building to the north at 1638 South Central Avenue and the residential building to the south at 1616 Gardena Avenue if large construction equipment operates within 15 feet of the building façade. Additionally, vibration has the potential to cause annoyance to residential uses if large construction equipment operates within 110 feet of the building façade.

[16] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

Table 3.2.12 Summary of Construction Vibration Levels

Land Use	Address	Equipment Reference	Reference Vibration Level (PPV) at 25 ft	Distance (ft)[1]	Maximum Vibration Level (PPV)	Exceed Damage Criteria of 0.2 PPV in/sec?	Exceed Annoyance Criteria of 0.01 PPV in/sec?
Commercial	1638 S. Central Avenue	Large Bulldozers	0.089	5	0.995	Yes	No[1]
Residential	1616 Gardena Avenue			8	0.492	Yes	Yes
Residential	335 El Bonito Avenue			92	0.013	No	Yes
Residential	337 El Bonito Avenue			37	0.049	No	Yes
Residential	339 El Bonito Avenue			87	0.014	No	Yes
Residential	343 El Bonito Avenue			75	0.017	No	Yes

Source: Compiled by LSA (2022).

Note: Due to the associated indoor uses at the commercial use to the north, construction activities are not expected to cause annoyance.

ft = foot/feet

FTA = Federal Transit Administration

in/sec = inch/inches per second

PPV = particle velocity

As the residences listed in Table 3.2.12 fall within the 110-foot contour for annoyance and the commercial use to the north at 1638 South Central Avenue and the residential use to the east at 1616 Gardena Avenue fall within the potential damage contour, there would be a potentially significant groundborne vibration impact at these two locations. With implementation of Mitigation Measure M-NO-2: Construction Vibration Control, vibration damage would be avoided.

Mitigation Measure M-NO-2: Construction Vibration Control

Prior to issuance of demolition permits, the Glendale (City) Department of Building and Safety, or designee, shall verify that all construction plans include notes stipulating the following:

- ~~**Maintain Buffer Distances.** The construction contractor shall maintain a safe distance between the operation of vibration-generating construction equipment and the potentially affected building and/or structure to avoid damage presented in EIR Table 3.2.12 to the extent possible, based on site constraints.~~
- ~~**Use Alternative Construction Equipment.** To the extent feasible, the construction contractor shall use alternative construction techniques or equipment, such as hand excavation, to avoid or reduce unnecessary construction vibration.~~
- **Prepare a Monitoring Plan.** The property owner shall undertake a monitoring program to avoid or reduce Project-related construction vibration damage to adjacent buildings and/or structures and to ensure that any such damage is documented and repaired. The monitoring program shall apply to all potentially affected buildings and/or structures adjacent to the Project site. Prior to issuance of any demolition or building permit, the property owner shall submit the construction vibration monitoring plan to the City for approval. The monitoring plan shall include, at a minimum, the following components, as applicable:
    - **Vibration Analysis Refinement.** Once the specific construction equipment list becomes available, potential vibration damage distance contours shall be refined.

- **Vibration Analysis Refinement.** Once the specific construction equipment list becomes available, potential vibration damage distance contours shall be refined.
- **Vibration Monitoring.** To ensure that construction vibration levels do not exceed the established standard, an acoustical consultant shall monitor vibration levels at each affected building and/or structure on adjacent properties when heavy construction occurs in close proximity. Based on direction from the acoustical consultant, vibratory construction activities that generate vibration levels in excess of the standard shall be prohibited.
- **Alternative Construction Techniques.** Should construction vibration levels be observed in excess of the established standard, the contractor(s) shall halt construction and put alternative construction techniques into practice~~, to the extent feasible~~. Following incorporation of the alternative construction techniques, vibration monitoring shall recommence to ensure that vibration levels at each affected building and/or structure on adjacent properties are not exceeded.
- **Periodic Inspections.** A historic architect or qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on non-historic buildings and/or structures) shall conduct regular periodic inspections as specified in the vibration monitoring plan of each affected building and/or structure on adjacent properties during vibration-generating construction activity on the Project site. Should damage to any building and/or structure occur, the building(s) and/or structure(s) shall be remediated to their pre-construction condition at the conclusion of vibration-generating activity on the site.

Implementation of Mitigation Measure M-NO-2 would avoid construction vibration damage. However, vibration levels could exceed the applicable annoyance criteria at nearby residences, even with the use of standard construction best practices. This impact would remain **significant and unavoidable** and would not be reduced to a less-than-significant level with mitigation.

Impact NO-3: Operation of the proposed Project would not generate a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan, or applicable standards of other agencies. (*Less than Significant*)

Operational Noise Impacts: On-site Stationary Sources

The Project would install heating, ventilation, and air conditioning (HVAC) systems across the proposed building rooftop. The greatest noise impact related to HVAC operations would occur at the existing single-family home located south of the Project. The site plan identifies 31 HVAC units that would vary in distance from 30 to 140 feet from the closest single-family home façade. To be conservative, it was assumed that all units would be in operation simultaneously at the acoustical average distance to the receptor of approximately 75 feet.

Technical data available from several manufacturers show that there are residential air conditioners with noise levels with an approximate range from 42.3 to 60.3 dBA Leq when measured at a distance of 5 feet. The representative data were incorporated into the analysis.

The HVAC system operation would result in a composite level of 51.7 dBA Leq at the nearest sensitive receptor to the south. However, the Project would include screening walls around the HVAC system, which would provide an additional noise reduction of approximately 6dBA. With the noise reduction associated with distance and additional reduction from screening walls, HVAC noise levels would be approximately 45.7 dBA Leq. This noise level would be below the existing quietest nighttime ambient noise levels of 48.4 dBA Leq. Therefore, no mitigation is required, and the impacts related to operation of on-site stationary sources would be **less than significant**.

Operational Noise Impacts: Other On-site Sources

Based on noise measurements shown in Table 3.2.3, noise levels at the Project site currently approach 67 dBA CNEL. In order to account for the decrease in activity associated with the current COVID-19 pandemic, for purposes of this analysis it is estimated that the primary sources of noise in the Project vicinity, including the rail line to the west and associated parking lot activities, are currently about 50 percent of typical operations. With a doubling of operations, it is expected that noise levels would be 3 dBA higher, resulting in a level of 70 dBA CNEL.

As shown in Table 3.2.7, exterior noise standards are only applicable to private areas for which there is an expectation of privacy, such as patios. While the Project does not have any such areas, for reporting purposes the rooftop deck would be considered a gathering space that may benefit from lower noise levels. The proposed 6-foot-high glass barrier around the perimeter of the roof deck would reduce noise levels by approximately 6 dBA CNEL, to a level of 65 dBA CNEL. While measures to reduce exterior noise levels are not required, the Project must demonstrate compliance with the interior noise standard of 45 dBA CNEL. The Project's adherence to the minimum rating of windows and doors would ensure that noise impacts related to interior noise levels would be less than significant. Therefore, no mitigation is required, and the impacts related to operation of other on-site sources would be **less than significant**.

3.2.5 Cumulative Impacts

Cumulative noise or vibration impacts associated with construction or operation of the Project would occur if there are other projects in the Project vicinity that could be constructed at the same time as the proposed Project, or that could substantially extend the duration of construction noise or vibration received at any nearby sensitive receptors. The geographic area of concern for evaluation of cumulative noise impacts is the area within approximately 0.25 mile of the Project site because, in order for noise effects to combine with the Project-generated noise and result in a cumulative impact, the noise sources need to be in close proximity to each other. There are no cumulative projects within that radius of the Project site. The nearest cumulative project is located 1 mile from the Project site.

The Project site would be potentially impacted by the future California High Speed Rail (CAHSR) construction and operations. It would be within the Burbank to Los Angeles project section of the CAHSR project. The results of the noise model presented in the Burbank to Los Angeles Project Section EIR/EIS17 indicate that noise levels experienced at the Project site due to CAHSR operations would approach 64 dBA CNEL. The combination of the existing sources of noise with the future CAHSR operations would result in an exterior noise level of 71 dBA CNEL at the Project site. However, the CAHSR system is estimated to open in 2033.[18] Therefore, the Project would not combine with

[17] California High Speed Rail Authority, "Project Sections: Burbank to Los Angeles," 2021. Available at: https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/burbank-to-los-angeles-project-section-draft-environmental-impact-report-environmental-impact-statement/. Accessed on August 11, 2021.

[18] California High Speed Rail Authority, Burbank to Los Angeles Project Section EIR/EIS, Chapter 3, Available at: https://hsr.ca.gov/wp-content/uploads/docs/programs/burbank_los_angeles/BLA_Sec3-01_Introduction_DEIREIS.pdf

construction noise or vibration from future CAHSR construction and operations because construction of the Project would be completed prior to the initiation of CAHSR construction.

Municipal Code Section 8.36.080 (Construction on buildings, structures, and projects) limits construction activities to between the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday and also prohibits construction activities on Sundays and federal holidays unless a permit is obtained. Compliance with Section 8.36.080 is required by the Glendale Municipal Code for any projects associated with the South Glendale Community Plan and other cumulative development. Implementation of the Glendale Municipal Code and Mitigation Measure NO-1 would mitigate the exposure of persons to or the generation of noise levels in excess of standards established by the City. Therefore, the cumulative impact of the Project would also be **less than significant**.

1.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Section 1.4 of the Draft EIR included Table 1.1, which summarized the impacts and associated mitigation measures identified in the Draft EIR. Based on the analysis above in Section 3.2 *Noise and Vibration* of the PR-DEIR, Table 1.1 below has been updated with the two new significant and unavoidable impacts.

The table has four columns: the identified impact under each EIR issue area; the level of significance prior to implementation of mitigation; mitigation measures that would avoid or reduce the level of impacts; and the level of significance after implementation of mitigation measures. The levels of significance of impacts before and after implementation of applicable mitigation measures are identified as follows:

- **No Impact (NI)** – No adverse changes (or impacts) to the environment are expected.
- **Less Than Significant (LTS)** – Impact that would not exceed the defined significance criteria or would be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations.
- **Less Than Significant with Mitigation (LTSM)** – Impact that is significant but reduced to a less-than-significant level through implementation of the identified mitigation measure(s).
- **Significant and Unavoidable (SU)** – Impact that exceeds the defined significance criteria and cannot be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations, and for which there are no feasible mitigation measures that would bring the level to LTSM.

Table 1.1. Summary of Project Impacts Identified in the PR-DEIR

Impact	Level of Significance Before Mitigation	Mitigation and Improvement Measures	Level of Significance After Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; N/A = Not Applicable			
Section 3.2, Noise and Vibration			
NO-1: Construction of the proposed Project would generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the City of Glendale Noise Ordinance or applicable standards of other agencies.	S	**Mitigation Measure M-NO-1: Construction Noise Control** Prior to issuance of demolition permits, the Glendale (City) Department of Building and Safety, or designee, shall verify that all construction plans include notes stipulating the following: • Grading and construction contractors shall use equipment that generates lower vibration levels, such as rubber-tired equipment rather than metal-tracked equipment. • Construction haul truck and materials delivery traffic shall avoid residential areas whenever feasible. • The construction contractor shall place noise- and vibration-generating construction equipment and locate construction staging areas away from sensitive uses whenever feasible. • The construction contractor shall use on-site electrical sources to power equipment rather than diesel generators where feasible. • The construction contractor shall ensure that a minimum 12-foot-high barrier, such as plywood structures or flexible sound control curtains, shall be erected between on the proposed project site and adjacent to the sensitive receptors to minimize the amount of noise during construction. A 12-foot-high construction noise barrier would provide approximately 12 dBA reduction to the closest residential receptors to the south. • All residential units located within 500 feet of the construction site shall be sent a notice regarding the construction schedule. A sign legible at a distance of 50 feet shall also be posted at the construction site. All notices and the signs shall indicate the dates and durations of construction activities, as well as provide a telephone number for the “noise disturbance coordinator.	SU
NO-2: Construction of the proposed Project would generate excessive groundborne vibration levels.	S	**Mitigation Measure M-NO-2: Construction Vibration Control** Prior to issuance of demolition permits, the Glendale (City) Department of Building and Safety, or designee, shall verify that all construction plans include notes stipulating the following: • Maintaining Buffer Distances. Maintain a safe distance between the operation of vibration generating construction equipment and the potentially affected building and/or structure to avoid damage to the extent possible as presented in Table I, based on site constraints; and	SU

Impact	Level of Significance Before Mitigation	Mitigation and Improvement Measures	Level of Significance After Mitigation
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		• Alternative Construction Equipment. To the extent feasible, the construction contractor shall use alternative construction techniques or equipment, such as hand excavation to avoid or reduce unnecessary construction vibration. • Prepare a Monitoring Plan. The property owner shall undertake a monitoring program to avoid or reduce project-related construction vibration damage to adjacent buildings and/or structures and to ensure that any such damage is documented and repaired. The monitoring program shall apply to all potentially affected buildings and/or structures adjacent to the project site. Prior to issuance of any demolition or building permit, the property owner shall submit the construction vibration monitoring plan to the City for approval. The monitoring plan shall include, at a minimum, the following components, as applicable: o Vibration Monitoring. To ensure that construction vibration levels do not exceed the established standard, an acoustical consultant shall monitor vibration levels at each affected building and/or structure on adjacent properties when heavy construction occurs in close proximity. Based on direction from the acoustical consultant, vibratory construction activities that generate vibration levels in excess of the standard shall be prohibited. o Alternative Construction Techniques. Should construction vibration levels be observed in excess of the established standard, the contractor(s) shall halt construction and put alternative construction techniques into practice, to the extent feasible. Following incorporation of the alternative construction techniques, vibration monitoring shall recommence to ensure that vibration levels at each affected building and/or structure on adjacent properties are not exceeded. o Periodic Inspections. A historic architect or qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on non-historic buildings and/or structures) shall conduct regular periodic inspections as specified in the vibration monitoring plan of each affected building and/or structure on adjacent properties during vibration generating construction activity on the project site. Should damage to any building and/or structure occur, the building(s) and/or structure(s) shall be remediated to their pre-construction condition at the conclusion of vibration-generating activity on the site.	

Impact	Level of Significance Before Mitigation	Mitigation and Improvement Measures	Level of Significance After Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; N/A = Not Applicable			
NO-3: Operation of the proposed project would generate a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan, or applicable standards of other agencies.	LTS	No mitigation measures are required.	N/A
C-NO-1: Construction noise and vibration as a result of the proposed Project, combined with construction noise and vibration from cumulative projects in the vicinity, would cause a substantial temporary increase in ambient noise levels. Operation of the proposed Project, combined with operation noise from cumulative projects in the vicinity, would not cause a substantial permanent increase in ambient noise levels in the Project vicinity.	LTS	See Mitigation Measure M-NO-1: Construction Noise Control and Mitigation Measure M-NO-2: Construction Vibration Control, above.	LTS

CHAPTER 4. ALTERNATIVES

4.1 INTRODUCTION

Chapter 4, Alternatives, presents an analysis of alternatives to the 1642 South Central Avenue Project, as required by the CEQA. Four alternatives are evaluated: A No Project Alternative, Relocation Alternative, a Reduced Density (Relocation on Site) Alternative, and a Reduced Density (Existing Location) Alternative. This chapter explains the alternatives selection methodology, describes the alternatives selected for analysis, and compares the impacts of the Project with those of the alternatives and the ability of the alternatives to meet the Project objectives. The chapter concludes with a discussion of the environmentally superior alternative selected.

4.2 ALTERNATIVES SELECTION

The methodology used to select alternatives to the Project for detailed CEQA analysis focused on developing a range of potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified in Chapter 3 *Environmental Impact Analysis*, while still meeting most of the Project's basic objectives. The Draft EIR identified one significant and unavoidable impact: the demolition of a historic architectural resource, the 1642 South Central Avenue residence and all its character-defining features (see Section 3.1 *Historic Architectural Resources*). The PR-DEIR identified two significant and unavoidable impacts: the exceedance of construction noise and vibration levels above adopted standards (see Section 3.2 *Noise and Vibration*). As a result, project alternatives have been designed to would avoid or substantially lessen these impacts while still meeting most of the Project's basic objectives. The other alternative analyzed, the No Project Alternative, is required by CEQA.

4.3 REQUIREMENTS FOR ALTERNATIVES ANALYSIS

CEQA Guidelines Section 15126.6(a) states that an EIR must describe and evaluate a reasonable range of alternatives to a project that would feasibly attain most of its basic objectives but avoid or substantially lessen any identified significant environmental effects of the project. The EIR must include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. An EIR is not required to consider every conceivable alternative to a proposed project. Rather, it must consider a reasonable range of potentially feasible alternatives to foster informed decision-making and public participation.

The Public Resources Code, the CEQA Guidelines, and case law have found that range of factors and influences. CEQA Guidelines Section 15364 defines "feasibility" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." CEQA Guidelines Section 15126.6(f)(1) states that the factors that may be taken into account when addressing the feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (if the site is not already owned by the proponent). CEQA Guidelines Section 15126.6(f)(3) states that an EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. This section identifies an alternative considered by the Lead Agency, but rejected as infeasible, and provides a brief explanation of the reasons for its exclusion. As noted above, alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid any significant environmental effects (CEQA Guidelines, Section 15126.6(c)). The final determination of feasibility will

be made by City decision-makers based on substantial evidence in the record, which includes, but is not limited to, information presented in the EIR, comments received on the Draft EIR, and responses to those comments.

In addition, the range of alternatives considered in an EIR must include a no project alternative (CEQA Guidelines Section 15126.6(e)(1)) and an environmentally superior alternative (CEQA Guidelines Section 15126.6(e)(2)). The CEQA Guidelines provides the following direction about no project alternatives:

- The no project alternative analysis shall "discuss the existing conditions…as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and policies and consistent with the available infrastructure and community services." (CEQA Guidelines Section 15126.6(e)(2))
- In an EIR on "a development project on identifiable property, the 'no project' alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed." Thus, "…where failure to proceed with the project would not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (CEQA Guidelines Section 15126.6(e)(3)(B)).

The environmentally superior alternative is the alternative that best avoids or lessens any significant impacts of a proposed project, even if the alternative would impede to some degree attainment of the project objectives or would be more costly (CEQA Guidelines Section 15126.6(b)). If it is determined that the "no project" alternative would be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other project alternatives (CEQA Guidelines Section 15126.6(e)(2)).

- An EIR must also identify and briefly discuss any alternatives that were considered by the lead agency but rejected as infeasible during the scoping process (CEQA Guidelines Section 15126.6(c)). In identifying alternatives, primary consideration is given to alternatives that would reduce significant impacts while still meeting most of the basic project objectives. Alternatives typically rejected from further consideration are those that would have impacts identical to or more severe than the proposed project or those that would not meet most of the basic project objectives.

4.4 PROJECT OBJECTIVES

CEQA Guidelines Section 15124 states that the description of the project shall contain the following information but should not supply extensive detail beyond that needed for evaluation and review of the environmental impact. Among the basic informational requirements is a statement of objectives sought for the project. CEQA Guidelines Section 15124(b) clarifies the need for this requirement as follows:

> "…A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project and may discuss project benefits."

As stated in the CEQA Guidelines, alternatives to a project selected for analysis in an EIR must substantially lessen or avoid any of the significant environmental impacts associated with the proposed project while still meeting most of the project's basic objectives. The applicant has identified the follow objectives for the proposed project:

1) Contribute to the health of the City through an economically viable infill project that would provide an increase in residential units to help meet housing demand in the City and better meet the Regional Housing Needs Assessment (RHNA) requirements for the region.
1) Construct a new multi-family residential building with new architectural designs and energy-efficient building systems that promote energy conservation that furthers the City's policy goals expressed in the Greener Glendale Plan.
2) Provide new residential opportunities that offer multi-modal opportunities taking advantage of the Project's proximity to Larry Zarian Transportation Center.
3) Enhance the general welfare of the public by offering affordable housing opportunities and help meet the affordable housing goals and needs outlined in the City's Housing Element.
4) Develop new residential opportunities close to the existing retail amenities within South Glendale.

4.5 SUMMARY OF SIGNIFICANT IMPACTS

As stated in the CEQA Guidelines, project alternatives must avoid or substantially lessen significant impacts of the proposed project.

4.5.1 Significant and Unavoidable Impacts

As discussed in Draft EIR Section 3.1 *Historic Architectural Resources*, CEQA Guidelines Section 15064.5(b) establishes the criteria for assessing a significant environmental impact on historical resources. It states, "[a] project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." The section defines "substantial adverse change in the significance of an historical resource" as a "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." The significance of an historic architectural resource is considered to be "materially impaired" when a project demolishes or materially alters the physical characteristics that justify inclusion of the resource in the California Register of Historic Resources, or that justify inclusion of the resource in a local register, or that justify its eligibility for inclusion in the California Register of Historic Resources as determined by the lead agency for the purposes of CEQA (CEQA Guidelines Section 15064.5(b)(2). The Project would result in a significant and unavoidable impact on an historic architectural resource after implementation of Mitigation Measure M-CR-1: Documentation of Historical Resources.

As discussed in PR-DEIR Section 3.2 *Noise and Vibration*, construction-related noise has the potential to result in a 5 dBA increase over ambient conditions and exceed the FTA construction impact noise assessment criteria of a 1-hour noise level of 90 dBA Leq for residential uses during daytime hours. The Project would result in a significant and unavoidable impact related to short-term off-site construction noise levels after implementation of Mitigation Measure M-NO-1: Construction Noise Control. The Project would also result in significant and unavoidable impacts related to short-term off-site construction vibration levels after implementation of Mitigation Measure M-NO-2: Construction Vibration Control.

4.6 SELECTION AND ANALYSIS OF ALTERNATIVES

4.6.1 No Project Alternative

4.6.1.1 Description

Under the No Project Alternative, the two residential dwellings at 1642 South Central Avenue and at 1608 Gardena and the existing garage would be retained in their current configuration and would not be disturbed; no construction would occur on site and the current residential uses would continue. No new residential or commercial uses would be added. Therefore, the existing physical features on the Project site, including the character-defining features of the historical resource, would not change and no modifications, repairs, or restoration would be made to the existing historical resource.

4.6.1.2 Impacts of the No Project Alternative

The analysis of the No Project Alternative assumes that the Project would not be approved and would result in a "no build" alternative wherein the existing environmental setting is maintained.

If the No Project Alternative were to proceed, no changes would be implemented, and none of the impacts associated with the Project would occur. However, incremental changes would be expected to occur in the vicinity of the Project site as nearby projects are approved, constructed, and occupied. With no change to existing site conditions under the No Project Alternative, land use activity on the Project site would not contribute to significant cumulative impacts beyond existing levels. There would be no construction or operational impacts related to noise and vibration compared to the Project.

Since the No Project Alternative would retain all the character-defining features of the subject property and not demolish or make any modifications to the historical resource, it would not cause material impairment to that resource. Compared to the Project, which would demolish all buildings on site and result in material impairment to the historical resource, the No Project Alternative would not result in any project-level impacts and would not contribute to any impacts related to historic architectural resources.

The No Project Alternative would not require construction activities and would not result in significant and unavoidable impacts related to construction noise and vibration.

4.6.1.3 Ability to Meet Project Objectives

Under the No Project Alternative, the proposed 40,240-square-foot, five-story multi-family five-story residential building containing 31 units of rental housing, including three very-low income units, and a one-level subterranean garage would not be constructed. Therefore, the No Project Alternative would not meet any of the Project objectives as set forth in Section 1.2 herein above.

4.6.2 Reduced Density (Relocation on Site) Alternative

4.6.2.1 Description

The Reduced Density (Relocation on Site) Alternative would relocate the 1642 South Central Avenue residential building within the Project site, demolish 1608 Gardena Avenue and the existing garage, and construct a reduced number of residential units on the remaining site area. The 1642 South Central Avenue residential building would be shifted to the north within the existing project site, with a 10-foot setback from South Central Avenue. This relocation would leave a remaining buildable area of 4,433 square feet (0.1017 acre) on the Project site to accommodate a reduced density project of fifteen (15)

residential units, including 11 market-rate and 4 very low-income units instead of 31 units. The Reduced Density (Relocation On Site) Alternative would provide eight (8) subterranean parking spaces. Similar to the Project, the Reduced Density (Relocation on Site) Alternative would require construction of similar improvements, including grading and construction of the footings, connections for utilities, however the construction activities would be of shorter duration.

The on-site relocation and restoration of the historic building would involve various restoration activities, which would be treated as categorically exempt under CEQA so long as maintenance, repair, restoration, rehabilitation, preservation, conservation or reconstruction of the historical resource is done in a manner consistent with the Secretary of Interior's standards for Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (CEQA Guidelines section 15331).

4.6.2.2 Impacts of the Reduced Density (Relocation on Site) Alternative

The Reduced Density (Relocation on Site) Alternative would result in fewer environmental impacts compared to the Project given the reduced size (15 residential units versus 31 units) and shorter construction duration. The Reduced Density (Relocation on Site) Alternative would also be consistent with the SFMU (Commercial/Residential Mixed Use) and Mixed-Use District General Development Standards. The 15-unit building with a one-level subterranean garage would have a smaller building footprint than the 31-unit Project but would still result in short-term impacts to air quality, greenhouse gas emissions, geology/soils, water quality, and traffic. Similar to the Project, these short-term construction impacts from this Alternative would be less than significant and typical of small land development projects where compliance with existing codes and other regulatory standards ensure these types of impacts are below impact thresholds.

As previously noted, the Reduced Density (Relocation On Site) Alternative would require a shorter construction duration. However, the Reduced Density (Relocation On Site) Alternative would not result in significantly reduced construction noise compared to the Project. As noted in Section 3.2.4, the site preparation and grading construction phases generate the highest noise levels because earthmoving equipment is the noisiest construction equipment. These two construction phases would still be required, although the timing would be shortened due to the reduced size of the proposed building. Compliance with the City's Noise Ordinance and implementation of Mitigation Measure M-NO-1: Construction Noise Control and Mitigation Measure M-NO-2: Construction Vibration Control would ensure that construction noise and vibration is reduced to the maximum amount feasible. However, impacts related to construction noise and vibration would remain significant and unavoidable.

The Reduced Density (Relocation On Site) Alternative would preserve the on-site location, design, materials, workmanship, feeling, and character-defining features of the historical resource within the Tropico neighborhood. While the historic resource would be preserved, as with the Project, the Reduced Density (Relocation On Site) Alternative would modify the setting of the historic resource. This alternative would eliminate the significant and unavoidable historical architectural resources impact associated with demolition of 1642 South Central Avenue.

4.6.2.3 Ability to Meet Project Objectives

The Reduced Density Alternative would meet most of the Project objectives set forth in Section 4.4 herein above. However, it would not fulfill the project objectives to the same extent as the Project because fewer new residential units would be built, and it would not maximize the potential residential units on the Project site.

4.6.3 Reduced Density (Existing Location) Alternative

4.6.3.1 Description

The Reduced Density (Existing Location) Alternative would retain the historic residence located at 1642 South Central Avenue in its existing location on the Project site, and demolish the residence at 1608 Gardena Avenue and the existing garage. The remaining buildable area, consisting of approximately 3,383 square feet (0.007 acre) could accommodate 11 residential units, including 8 market-rate and 3 very low-income units. The Reduced Density (Existing Location) Alternative would provide eight (8) subterranean parking spaces.

Similar to the Project, the Reduced Density (Existing Location) Alternative would require construction of similar improvements, including grading and construction of the footings, connections for utilities, however the construction activities would be of shorter duration. This Alternative would also require restoration and preservation of the historic resource, and protection from any adverse impacts from construction of the new building. As a consequence, mitigation measures requiring construction monitoring would be required, as would the post-construction restoration and rehabilitation of the historic home pursuant to Secretary of Interior Standards.

4.6.3.2 Impacts of the Reduced Density (Existing Location) Alternative

The Reduced Density (Existing Location) Alternative would result in fewer environmental impacts compared to the Project given the reduced size (11 residential units versus 31 units) and shorter construction duration. Due to the approximately 1/3 size of this Alternative compared to the Project and shorter duration of construction, this Alternative would result in reduced environmental impacts compared to the Project. The Reduced Density (Existing Location) Alternative would also be consistent with the SFMU (Commercial/Residential Mixed Use) and Mixed-Use District General Development Standards. The 11-unit building with a one-level subterranean garage would have a smaller building footprint compared to the Project but would still result in short-term impacts to air quality, greenhouse gas emissions, geology/soils, water quality, and traffic. Similar to the Project, these short-term construction impacts would be less than significant and typical of small land development projects.

The Reduced Density (Relocation On Site) Alternative would result in reduced construction duration compared to the Project. However, the site preparation and grading construction phases, which generate the highest noise levels, would still be required. The timing of these phases would be shortened due to the reduced size of the proposed building. Compliance with the City's Noise Ordinance and implementation of Mitigation Measure M-NO-1: Construction Noise Control and Mitigation Measure M-NO-2: Construction Vibration Control would ensure that construction noise and vibration is reduced to the maximum amount feasible. However, impacts related to construction noise and vibration would remain significant and unavoidable.

The Reduced Density (Existing Location) Alternative would preserve the existing location, design, materials, workmanship, feeling, and character-defining features of the historical resource within the Tropico neighborhood. The preservation of location of the historic resource at its existing location on site would eliminate the Project's significant impact from demolition of the resource. The residential dwelling at 1642 South Central Avenue would remain a good example of a Craftsman style house and would remain eligible for listing on the Glendale Register of Historic Resources under Criterion 3.

4.6.3.3 Ability to Meet Project Objectives

If the Reduced Density (Existing Location) Alternative is determined to be feasible, then it would meet all of the Project objectives set forth in Section 4.4 herein above. However, it would not fulfill the project objectives to the same extent as the Project because fewer new residential units would be built, and it would not maximize the potential residential units on the Project site.

4.6.4 Alternative Considered but Rejected

4.6.4.1 Relocation Alternative

The Relocation Alternative would relocate the existing historic building at 1642 South Central Avenue from its present location to an alternative site. The Relocation Alternative would involve demolishing the remaining buildings on site (1608 Gardena Avenue and the existing garage) and constructing the same new multi-family 31 unit five-story development as the Project. The Relocation Alternative would therefore require the same construction activities, would result in the same impacts as the Project, and would requires the same mitigation.

This alternative was considered but rejected, as it is infeasible and would not achieve a reduction of significant impacts. The Relocation Alternative would preserve the character-defining features of the historic Craftsman-style residential building; however, relocation would change the location and setting of the historic resource by moving the house from the Tropico neighborhood. This alternative is infeasible as neither the project applicant nor the City owns or controls a relocation site or any other property near the Project site to which the duplex could be relocated. The ability and cost of acquiring a suitable alternative site cannot be determined. For these reasons, the Relocation Alternative was deemed an infeasible alternative for the Project.

4.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Pursuant to CEQA Guidelines Section 15126.6(e)(2), if the no project alternative is the environmentally superior alternative, then an EIR is required to identify another environmentally superior alternative from among the alternatives evaluated if the Project has significant impacts that cannot be mitigated to a less-than-significant level. The environmentally superior alternative is the alternative that best avoids or lessens any significant effects of the Project, even if the alternative would impede to some degree the attainment of the project objectives. The No Project Alternative is considered the overall environmentally superior alternative because it would represent a continuation of existing conditions on the Project site and would not result in any significant impacts associated with implementation of the Project. The No Project Alternative, however, would not meet any of the project objectives.

Therefore, the Reduced Density (Relocation on Site) Alternative would be the environmentally superior alternative among the other alternatives evaluated. The Reduced Density (Relocation on Site) Alternative would eliminate the significant and unavoidable historical architectural resources impact associated with demolition of 1642 South Central Avenue. The construction noise and vibration impacts would remain significant and unavoidable. This alternative would also meet more of the Project objectives of adding affordable housing and meeting the City's affordable housing goals, although not to the same extent as the Project since fewer new units would be built.