

FINAL ENVIRONMENTAL IMPACT REPORT FOR THE LOS ANGELES AERIAL RAPID TRANSIT PROJECT LOS ANGELES, CALIFORNIA

FEBRUARY 2024



State Clearinghouse No. 2020100007

ERRATA

Prepared for:

Los Angeles County Metropolitan Transportation Authority



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Errata | Los Angeles Aerial Rapid Transit Project Final Environmental Impact Report

A. Background and Introduction

In accordance with Section 15082 of the California Environmental Quality Act (CEQA) Guidelines, the Los Angeles County Metropolitan Transportation Authority (Metro) prepared and circulated a Notice of Preparation for public comment to the State Clearinghouse, Office of Planning and Research, responsible agencies, and other interested parties for a 45-day review period, beginning October 1, 2020, and concluding on November 16, 2020. Subsequently, a Draft Environmental Impact Report (EIR) was prepared and, in accordance with CEQA, the Draft EIR was released for a 60-day public review period from October 17, 2022 to December 16, 2022. On November 15, 2022, Metro extended the public review period for an additional 30 days for a 90-day public review period ending on January 17, 2023. Notice of the release of the Draft EIR, the extension of the public review period, and the public meetings was provided to agencies and interested parties in several ways in compliance with CEQA. A Final EIR that included responses to comments on the Draft EIR and corrections and additions to the Draft EIR was prepared and distributed on December 4, 2023.

This Errata has been prepared to address topics raised during stakeholder engagement and draft City of Los Angeles noise and vibration thresholds and historic resources methodology proposed after the release of the Final EIR. Stakeholder topics include operational noise, structural engineering considerations for the proposed Project, and tree removal the presence of monarch butterflies within the Los Angeles State Historic Park. In addition to providing additional information and clarifications regarding the proposed Project, this Errata to the Final EIR also addresses corrections to the Final EIR.

The Draft EIR, Final EIR, and this Errata comprise the EIR for the proposed Project.

B. General Corrections and Clarifications

City of Los Angeles Proposed Updates to Noise and Vibration Thresholds and Methodology

On December 8, 2023, following the release of the Final EIR, the City of Los Angeles Department of City Planning (“City”) issued via email the December 2023 Construction Noise and Vibration Proposed Updates to Thresholds and Methodology, included as Attachment A to the email (the “City’s Proposed Noise and Vibration Updates”).¹ As explained in the City’s Proposed Noise and Vibration Updates, the City is proposing to update its construction noise and vibration thresholds to be used in assessing the environmental impacts of projects in accordance with CEQA. Appendix A to the Errata is a memorandum regarding the City’s Proposed Noise and Vibration Updates. As discussed in Appendix A, while the City’s Proposed Noise and Vibration Updates have not been adopted, for informational purposes, the analysis in the memorandum has been prepared to address the City’s Proposed Noise and Vibration Updates. As discussed in the memorandum, the City’s Proposed Noise and Vibration Updates would not result in any

¹ December 8, 2023, Email from Mindy Nguyen to Interested Parties re: Public Hearing for Adoption of Updated CEQA Thresholds and Methodology for Construction Noise and Vibration Impacts to Historic Resources.

new significant impacts or a substantial increase in the severity of any impact already identified in the Draft and Final EIR. In fact, if adopted and applied to the proposed Project, the City's Proposed Noise and Vibration Updates would only reduce the level of significance of the Project's construction noise and vibration impacts. The City's Proposed Noise and Vibration Updates only relate to construction noise and vibration impacts, and thus would not impact the operational noise analysis in the Draft and Final EIR.

City of Los Angeles Proposed Updates to Historic Resources Methodology

On December 8, 2023, following the release of the Final EIR, the City issued via email the Draft CEQA Guide – Guide to Preparation of Impact Analysis – Cultural Resources – Historic Resources and Draft CEQA Guide – Technical Studies – Cultural Resources – Historic Resources (“City's Proposed Historic Resources Update”).² While the City's Proposed Historic Resources Update has not been adopted, for informational purposes, Appendix B to this Errata is a memorandum regarding the City's Proposed Historic Resources Update. As discussed in Appendix B, the City's Proposed Historic Resources Update does not change the thresholds of significance in the CEQA Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations). Rather, City's Proposed Historic Resources Update memorializes best practices for the review and analysis of historical resources. As concluded in Appendix B, the Draft EIR's Appendix G, Historic Resources Technical Report, is consistent with the best practices outlined in the City's Proposed Historic Resources Update.

Tree Removal and Replacement

Stakeholders raised questions regarding the removal of trees within the Los Angeles State Historic Park for the proposed Project, as well as regarding heritage trees.

Tree Removal at the Los Angeles State Historic Park

As discussed in Appendix A, Scoping Report, to the Draft EIR, and Appendix A, Public Outreach Report, to the Final EIR, as a responsible agency for the proposed Project, the California Department of Parks and Recreation (“State Parks”), engaged in consultation with Metro on the Draft EIR and Final EIR, and commented on the Draft EIR, to ensure that the EIR included the necessary analysis regarding environmental effects within that responsible agency's jurisdiction. This includes with respect to tree removal at the Los Angeles State Historic Park. In addition, the Project Sponsor worked with State Parks to determine the location of the Chinatown/State Park Station to improve pedestrian flow into the park and what other improvements would further enhance the experience of visitors (e.g., increased landscaping and hardscaping, new restrooms and concession areas, etc.). This resulted in moving the station to the southernmost edge of the Park. State Parks has the authority to grant the necessary approvals for the proposed Project. State Parks will undertake its own review of the proposed Project when the Project Sponsor seeks approvals for its use of LASHP from State Parks.

As discussed in Section 3.4, Biological Resources, of the Draft EIR, and in Appendix K.1, Updated Tree Report, and in Appendix G, Supplemental Biological Resources Report, of the Final EIR, a total of 75 trees

² December 8, 2023, Email from Mindy Nguyen to Interested Parties re: Public Hearing for Adoption of Updated CEQA Thresholds and Methodology for Construction Noise and Vibration Impacts to Historic Resources.

were identified for removal within the Los Angeles State Historic Park, including 24 trees associated with the construction of the Chinatown/State Park Station and 51 trees associated with the Project's alignment. None of the trees identified to be removed in the Park are protected trees under the City of Los Angeles Tree Protection Ordinance, as trees within the Park were planted in 2016 as part of a planting program and are not naturally occurring. Moreover, the trees at the Park are small- to medium- sized trees, as shown in Appendix K.1, Updated Tree Inventory Report, of the Final EIR.

As discussed in Section 5.0, Corrections and Additions, of the Final EIR, the proposed Project would implement BIO-PDF-F (Tree Replacement), which memorialized the proposed Project's commitment to adhere to ordinances and requirements applicable to tree replacement, based on the corresponding jurisdiction of the property where each tree is located. As discussed on page 3.4-23, in Section 3.04, Biological Resources, of the Draft EIR, and in Appendix K.1, Updated Tree Inventory Report, and in Appendix G, Supplemental Biological Resources Report, of the Final EIR, the removal of the 75 trees within Los Angeles State Historic Park would require a permit or approval from State Parks, and all existing trees required to be removed on State Parks property would be replaced at a minimum 1:1 ratio within the Park or as agreed to as part of the approvals required for implementation of the proposed Project from the Department, including the General Plan Amendment. These approvals will include a robust public process and additional opportunities for stakeholder participation, including as to the tree replacement ratio, species, and location.

Certain stakeholders questioned whether any trees proposed for removal within the Los Angeles State Historic Park are considered "heritage" trees. As discussed below, and as further detailed in Appendix C, Heritage Trees at the Los Angeles State Historic Park, the proposed Project's arborist determined that there are no heritage trees, and no trees that could be considered or classified as heritage, at the Los Angeles State Historic Park, as detailed in Appendix C, Heritage Trees at the Los Angeles State Historic Park. In addressing this issue, Metro and the proposed Project's arborist considered Metro's tree policy,³ which outlines tree replacement requirements for Metro's construction activities. Although the proposed Project is not a Metro construction project, and thus Metro's tree policy does not apply, the proposed Project is generally consistent with the policy. Information regarding the proposed Project's consistency is provided for informational purposes. With respect to heritage trees, as detailed in Appendix C, Metro's tree policy defers to local ordinances for their respective definitions of heritage trees.

As discussed in The City of Los Angeles Department of Recreation and Parks defines a heritage tree as: "individual trees of any size or species that are specifically designated as heritage because of their historical, commemorative, or horticultural significance." The City has only designated nine trees as heritage, and none of the City's nine designated heritage trees are located in the Los Angeles State Historic Park or are otherwise affected by the Project.⁴ Furthermore, the trees within the Park do not meet the common definition of heritage trees—typically large, individual trees with unique value that are considered irreplaceable. Trees within the Park were planted in 2016 as part of a tree planting program and are not naturally occurring. The trees at the Park are small- to medium- sized trees. Appendix C

³ Metro Tree Policy (October 22, 2022), available at: <https://datamade-metro-pdf-merger-testing.s3.amazonaws.com/2022-0535.pdf>; last accessed January 8, 2024.

⁴ See City of Los Angeles, Heritage Trees, available at: <https://www.laparks.org/forest/heritage-trees>; last accessed January 8, 2024.

includes photographs illustrating the subject trees, their sizes, and the general landscape within the Park, as well as aerial images from Google Earth showing the mass grading of the Park site in 2005, such that there were no existing trees at that time, and 2016, showing recently installed trees and other plant material. Accordingly, there are no trees that could be considered or classified as “heritage” at the Los Angeles State Historic Park.

In addition, as discussed on page 3.4-23, in Section 3.04, Biological Resources, and in Appendix E, Biological Resources Assessment, of the Draft EIR, and in Appendix K.1, Updated Tree Inventory Report, and in Appendix G, Supplemental Biological Resources Report, of the Final EIR, 6 trees within the public ROW located near the Los Angeles State Historic Park would be replaced at a ratio specified by the Urban Forestry Division, typically, at a 2:1 ratio. This replacement ratio is consistent with Metro’s tree policy, which requires a 2:1 replacement ratio for Metro construction projects.⁵

As discussed on page 14 of Appendix G, Supplemental Biological Resources Report, of the Final EIR, replacement trees would be planted as near to the location of removal as possible. Tree replacement locations would be coordinated with the landowner or party responsible for managing the land, including the City of Los Angeles and State Parks.

Consistency with Metro’s Tree Policy

As noted above, Metro’s tree policy applies only to Metro construction activities. Therefore, the policy is inapplicable to the proposed Project because it is not a Metro construction project. Nevertheless, the proposed Project is consistent with the tree policy’s goals. For example, Metro’s tree policy recognizes the importance of providing shade in order to mitigate the impacts of increased heat on transit riders due to climate change, particularly in lower income neighborhoods.⁶ Consistent with this goal, as discussed in Section 2.7.9, Sustainability Features, of the Draft EIR, the proposed Project’s Chinatown/State Park Station would provide shade structures and potential seating.

Further, Metro’s tree policy requires Metro to consult with appropriate municipalities or localities, in addition to community stakeholders, prior to selecting the appropriate location for planting replacement trees for Metro construction projects.⁷ Consistent with this policy, the Project Sponsor will coordinate tree replacement locations with the landowner or party responsible for managing the land, including the City of Los Angeles and State Parks. Further, under Metro’s tree policy, it is preferred that trees are replaced and relocated within the project area. Consistent with this policy, the proposed Project’s replacement trees would be planted as near to the location of removal as possible, as discussed on page 14 of Appendix G, Supplemental Biological Resources Report, of the Final EIR.

Metro’s tree policy implements a tree replacement ratio consistent with surrounding jurisdictions for Metro’s construction projects. As discussed on page 3.04-23, in Section 3.04, Biological Resources, of the Draft EIR, it is anticipated that replacement ratios for trees on land administered or managed by responsible agencies would be agreed to as part of the approvals required for implementation of the proposed Project. Refer to Table 4-1 of Appendix G, Supplemental Biological Resources Report, of the

⁵ Metro Tree Policy, p. 3.

⁶ Metro Tree Policy, p. 2.

⁷ Metro Tree Policy, p. 6.

Final EIR, for discussion of applicable tree replacement requirements in the City of Los Angeles. As shown in this table, protected trees require a replacement ratio of 4:1, while significant trees require a replacement ratio of 1:1. Removed “street trees” that occur in the public right-of-way (ROW) are to be replaced at a ratio specified by the Urban Forestry Division; typically, at a 2:1 ratio. The proposed Project would provide a minimum replacement ratio of 1:1 for all trees removed in the Los Angeles State Historic Park and a replacement ratio of 1:1 for all large trees removed in the State Route (SR) 110 California Department of Transportation (Caltrans) ROW.

Metro’s tree policy outlines timeframes for removal of trees such that tree removal would occur outside of bird nesting season.⁸ This timeframe is consistent with the proposed Project’s BIO-PDF-G, as discussed in Section 5.0, Corrections and Additions, of the Final EIR. BIO-PDF-G requires tree removal to occur outside of bird nesting season.

Gondola System Noise Modeling

Following release of the Final EIR, a stakeholder commented that the existing 3S system in Tyrol, Austria, which was used to validate the noise analysis for Project operations, is different than the system for the Project because it has station walls. Refer to Topical Response P, Gondola System Noise Modeling, of the Final EIR, for discussion of the noise model used to predict noise levels from operations of the proposed Project including a discussion of the equations that were used to predict noise levels that would result from operations of the proposed Project. As discussed in Topical Response P, the noise analysis then took the additional step of validating those equations against a 3S gondola system similar to the system that would be used for the proposed Project (the Tyrol, Austria system) to ensure that the equations could be appropriately used to predict noise levels from operations of the proposed Project. Moreover, refer to Appendix D, LA ART Station Operational Noise Analysis, of this Errata, which further clarifies that the noise measurements taken of the Tyrol system were taken outside of the subject station in locations with a direct line-of-sight to the mechanical equipment. Therefore, any walls and windows that do exist as part of the Tyrol system would not have resulted in reduced sound levels at the locations where noise measurements were taken. Accordingly, any differences that may exist between the walls at the system in Tyrol and the proposed Project are irrelevant to the proposed Project’s noise analysis.

Structural Design

Following release of the Final EIR, a stakeholder alleged that Appendix F, Memo on Structural Design, of the Final EIR, suggests that additional or larger support structures may be needed for the proposed Project’s structural feasibility. Refer to Section 2.0, Project Description, of the Draft EIR and Section 3.0, Project Description, of the Final EIR, for the details of the proposed Project’s stations, junction, and tower, include number, size, height, and location. As detailed in Appendix F, Memo on Structural Design, of the Final EIR, the proposed Project’s stations, junction, and tower would meet the rigorous safety standards of applicable standards, requirements, and building codes, including all mandated standards addressing environmental factors such as wind and seismic effects and gravity forces, to ensure structural integrity and safety. Moreover, refer to Appendix E, Supplemental Memo on Structural Design, of this Errata, which

⁸ Metro Tree Policy, p. 7.

further clarifies that the proposed Project's stations, junction, and tower as detailed in the Project Description meet safety standards. Neither additional nor larger support structures for the stations, junctions, or towers would be required.

Monarch Butterflies in the Los Angeles State Historic Park

Stakeholders raised questions regarding the potential for the Project to impact monarch butterflies and their habitat in the Los Angeles State Historic Park. As discussed in Appendix F, Memorandum on Monarch Butterflies, of this Errata, four surveys of the Project's biological survey area ("BSA") in the Los Angeles State Historic Park were conducted, and monarch butterfly habitat (milkweed plants) was not observed in these surveys. Milkweed plants and associated signage pertaining to the related restoration effort were located in the northeastern end of the Los Angeles State Historic Park, more than 500 feet outside of the BSA and more than 1,000 feet from the proposed Project alignment. As discussed in greater detail in Appendix G, Supplemental Biological Resources Report, to the Final EIR, the eastern portion of the Los Angeles State Historic Park is a sufficient distance away to not be impacted by the proposed Project. Although one commenter expressed concern that milkweed plantings in this area of the park would be inaccessible during project construction and thus may perish without regular watering, access to this area would not be limited during construction, or otherwise impacted by construction.

As fully described in Appendix F, due to the absence of overwintering and breeding habitat for monarch butterflies within the proposed Project's BSA, impacts to this species arising from the proposed Project's construction and operation are expected to be negligible.

C. Corrections and Additions to the EIR

Additional changes have been made to the Final EIR based on further community engagement and review. Such changes to the Final EIR are indicated under the appropriate Final EIR section. Where applicable, changes previously made in the Final EIR have been incorporated herein with deletions shown in ~~striketrough~~ and additions shown in underline.

Executive Summary

Final EIR, Volume I, Section 1.0, Executive Summary, page 1.0-36, revise as follows to add BIO-PDF-G in the first row at the end of the third column:

BIO-PDF-G: Tree removal for the proposed Project would occur outside of the bird nesting season (generally February 1 through September 30) and bat maternity roosting season (generally April 15 through August 31).

Corrections and Additions

Final EIR, Volume I, Section 5.0, Corrections and Additions, page 5.0-20 revise as follows to add:

5.1.21 References to the Expo Line

Appendix B, Carlberg Associates Tree Inventory Report, to Appendix E, Biological Resources Assessment, of the Draft EIR, and Appendix K.1, Updated Tree Inventory Report, of this Final EIR, include survey exhibits

referencing the locations of trees. Certain pages of these exhibits reference the “Expo Line.” References to the Expo Line refer to the A Line (Blue), formerly the L Line (Gold).

D. Effect of Corrections and Additions

This Errata documents additional changes to the EIR (comprising the Draft EIR and Final EIR). As demonstrated by the following discussion, the modifications to the EIR do not result in new significant impacts and do not warrant recirculation of the EIR.

CEQA Guidelines section 15088.5 requires that an EIR that has been made available for public review, but not yet certified, be recirculated only if significant new information has been added to the EIR. Pursuant to CEQA Guidelines section 15088.5(c), the entire document need not be recirculated if revisions are limited to specific portions of the document. The relevant portions of CEQA Guidelines section 15088.5 read as follows:

(a) A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification. 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 (including a feasible project alternative) that the project's proponents have declined to implement. "Significant new information" requiring recirculation include, for example, a disclosure showing that:

- (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 significant 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.*

(b) Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.

The information contained in this Errata merely clarifies, amplifies, or makes insignificant changes to the information that has already been presented in the EIR. In addition, the modifications to the EIR are not significant because the EIR is not changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the Project. Based on the above, the clarifications to the EIR would not result in any new significant impacts or a substantial increase in the severity of any impact already identified in the EIR. In addition, the clarifications and additions to the EIR merely clarify, amplify or make insignificant refinements to the information that has already been presented in the EIR. Thus, none of the conditions in Section 15088.5 of the CEQA Guidelines are met, and recirculation is not required.

Appendix A

Proposed Noise and Vibration Threshold and Methodology Updates Memorandum



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Project name:
LAART Noise and Vibration

From:
Chris Kaiser, INCE
AECOM

Date:
January 8, 2024

To:
Danae Hall
Kimley Horn

Memo

Subject: Proposed City of Los Angeles Construction Noise and Vibration Thresholds

On December 8, 2023, the City of Los Angeles Department of City Planning (“City”) issued via email the December 2023 Construction Noise and Vibration Proposed Updates to Thresholds and Methodology, included as Attachment A (the “City’s Proposed Updates”). As explained in the City’s Proposed Updates, the City is proposing to update its construction noise and vibration thresholds to be used in assessing the environmental impacts of projects in accordance with CEQA. As explained in the City’s Proposed Updates, the City’s proposed construction noise and vibration thresholds were developed based on input from noise experts and a review of noise thresholds used by other state and local agencies. The proposed thresholds are intended to be suited to the City’s urban nature, while still recognizing the importance of human health, including sleep disruption. The proposed thresholds are intended to account for reasonable expectations regarding construction noise and vibration during daytime and nighttime hours and also include absolute maximum noise levels that are intended to protect human health. On December 20, 2023, the City held a hearing to receive public comment on the City’s Proposed Updates and the City is considering whether to adopt them.¹

While the City’s Proposed Updates have not been adopted, for informational purposes, the analysis in this memorandum has been prepared to address the City’s Proposed Updates. As discussed below, the City’s Proposed Updates to the construction noise and vibration thresholds would not result in any new significant impacts or a substantial increase in the severity of any impact already identified in the Draft and Final EIR. In fact, if adopted, the City’s Proposed Updates would only reduce the Project’s construction noise and vibration impacts. The City’s Proposed Updates only relate to construction noise and vibration impacts, and thus would not impact the operational noise analysis in the Draft and Final EIR.

In addition, the City’s Proposed Updates also include environmental protection measures (“EPMs”) related to noise and vibration at Attachments 1 and 2 within Attachment A. It is the City’s intent that the EPMs will be implemented as part of development projects. If the City adopts the City’s Proposed Updates, the Project will comply with the applicable EPM requirements. In addition, in Attachment 4 within Attachment A, the City included details on construction noise and vibration analysis methodology. The noise and vibration analysis included in the Draft and Final EIR was completed consistent with the methodology provided for in Attachment 4 within Attachment A.

¹ December 8, 2023, Email from Mindy Nguyen to Interested Parties re: Public Hearing for Adoption of Updated CEQA Thresholds and Methodology for Construction Noise and Vibration Impacts to Historic Resources.

Draft and Final EIR Construction Noise and Vibration Thresholds

As discussed on pp. 3.13-28 through 3.13-30 of Section 3.13, Noise, of the Draft EIR, for purposes of the Draft EIR, for which Metro is the Lead Agency and the City is a responsible agency, both Metro's and the City's thresholds of significance are used as part of the construction noise and vibration analysis. Metro applies the Federal Transit Administration ("FTA") impact criteria for both noise and vibration, and the City's utilized thresholds are based on the City's 2006 L.A. CEQA Thresholds Guide and the Los Angeles Municipal Code ("LAMC") for construction noise. The City did not have its own adopted standards, guidance, or thresholds relative to ground-borne vibration and therefore the Draft EIR analysis utilized the FTA impact criteria for vibration.

Specifically, the following construction-related noise and vibration thresholds were utilized in the Draft and Final EIR:

- **Noise-1:** A project would normally have a significant impact on noise levels from construction if construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA $L_{eq}(\text{day})$ or more at a noise-sensitive use (City: L.A. CEQA Thresholds Guide).
- **Noise-2:** A significant noise impact would exist if noise from construction equipment generates noise levels greater than 75 dBA at a distance of 50 feet from the source between 7:00 AM and 10:00 PM (City: LAMC).
- **Noise-3:** A significant noise impact would exist if the Project construction noise level would exceed 80 dBA $L_{eq}(\text{day})$ at residential properties, churches, schools, and parks, or 85 dBA $L_{eq}(\text{day})$ at commercial uses (Metro: FTA)
- **Vibration-1:** A significant vibration impact would exist for human annoyance if ground vibration levels exceed 72 VdB at residential structures, or 75 VdB at institutional structures. For potential structural damage, a significant vibration impact would exist if ground vibration levels exceed:
 - 0.5 PPV, inches per second, for category 1 buildings (reinforced-concrete, steel or timber (no plaster)) – (FTA)
 - 0.3 PPV, inches per second, for category 2 buildings (engineered concrete and masonry (no plaster)) – (FTA)
 - 0.2 PPV, inches per second, for category 3 buildings (non-engineered timber and masonry buildings) – (FTA)
 - 0.12 PPV, inches per second, for category 4 buildings (buildings extremely susceptible to vibration damage) – (FTA).

City's Proposed Updates to Construction Noise and Vibration Thresholds

The City's proposed thresholds for construction noise and vibration are set forth in Attachment 3 within Attachment A and are as follows:

CONSTRUCTION NOISE

Daytime – Increase Over Ambient. No numeric threshold for daytime construction activities (between 7:00 A.M. and 7:00 P.M. Monday through Friday, and between 8:00 A.M. and 6:00 P.M. on Saturdays).

Daytime – Absolute Threshold. Maximum 80 dBA Leq (8-hour) absolute threshold at sensitive uses (at the property line with outdoor uses or at the exterior of the building), including outdoor public recreational areas.

Nighttime – Increase Over Ambient. Maximum 5 dBA increase above the ambient noise level at sensitive uses (between 7:00 P.M. and 7:00 A.M. Monday through Friday, and between 6:00 P.M. and 8:00 A.M. on Saturdays, and anytime on Sundays or national holidays). Certain mat pour activities are exempt from this provision.

Nighttime – Absolute Noise.

- Maximum 55 dBA Leq for sensitive uses within older buildings that would have operable windows that may be open.
- Maximum 65 dBA Leq for sensitive uses with windows closed that are not operable and are single-glazed.
- Maximum 70 dBA Leq for sensitive uses that have newer construction (e.g., the structures have been designed to ensure that an interior 45 dBA is obtained with double-paned windows). Certain mat pour activities are exempt from this provision.

CONSTRUCTION VIBRATION

Daytime – Human Annoyance. No numerical threshold.

Nighttime – Human Annoyance. Maximum 0.80 VdB at the exterior of a sensitive-use building.

Building Damage. Construction activities shall not exceed the following building damage thresholds for the identified structures:

- Fragile Buildings: 0.1 PPV
- Historic Buildings: 0.25 PPV
- Older Residential Structures: 0.3 PPV
- New Residential Structures: 0.5 PPV
- Modern Industrial/Commercial Buildings: 0.5 PPV

Included below is an analysis of the City's Proposed Updates to the construction noise and vibration thresholds as compared to the thresholds utilized in the Draft and Final EIR. As provided therein, the City's Proposed Updates to the construction noise and vibration thresholds would not result in any new significant impacts or a substantial increase in the severity of any impact already identified in the Draft and Final EIR. In fact, if adopted, the City's Proposed Updates would only reduce the Project's construction noise and vibration impacts.

Analysis of Draft and Final EIR Construction Noise Thresholds versus City's Proposed Updates to Thresholds for Construction Noise

Regarding construction noise, the City's Proposed Updates would remove the increase-over-ambient threshold for daytime construction activities (between 7:00 A.M. and 7:00 P.M. Monday through Friday, and between 8:00 A.M. and 6:00 P.M. on Saturdays)² that was analyzed as part of Noise-1 in the Draft EIR. In addition, instead of the Noise-2 threshold of 75 dBA at a distance of 50 feet, the City's Proposed Updates would provide for

² These are the construction hours anticipated to be used for construction activities in the Draft and Final EIR, although the LAMC allows for longer hours during the weekdays. (See LAMC, § 41.40 [allowing construction from 7:00 a.m. to 9:00 p.m., Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays].)

a maximum 80 dBA L_{eq} (8-hour) absolute threshold at sensitive uses (at the property line with outdoor uses or at the exterior of the building), including outdoor public recreational areas. Note that this Daytime – Absolute Threshold has similarities with the Noise-3 threshold utilized in the Draft EIR as part of Metro’s FTA analysis.

Table 3.13-17 on pp. 3.13-35 to 3.13-39 of Section 3.13, Noise, of the Draft EIR, shows the locations where on-site construction noise impacts would occur during each phase of construction of the Project, based on the L.A. CEQA Thresholds Guide increase over ambient criteria discussed above as Noise-1. Additionally, Table 3.13-19 on p. 3.13-46 of Section 3.13, Noise, of the Draft EIR provides a summary of the proposed Project’s construction impacts across all phases of construction of the Project per the Noise-1 L.A. CEQA Thresholds Guide analysis. As detailed therein, on-site construction-related noise impacts would be significant and unavoidable even with implementation of mitigation.

Table 1, below, provides an overview of the construction noise analyzed under the City’s Proposed Updates using the Daytime – Absolute Threshold of 80 dBA L_{eq} at sensitive uses, rather than the increase over ambient analyzed as part of Noise-1 in the Draft EIR.³ Table 1 serves to apply the City’s Proposed Updates to Draft EIR Table 3.13-17 and identifies those impacts that were identified as significant that would no longer be considered significant under the City’s Proposed Updates. Table 2 serves to apply the City’s Proposed Updates to Draft EIR Table 3.13-19 to provide a summary of the proposed Project’s construction impacts across all phases of construction of the Project per the City’s Proposed Updates. Like Table 1, Table 2 highlights those impacts that were identified as significant that would not be considered significant under the City’s Proposed Updates. There are no examples of impacts that were considered less than significant that would become significant as a result of the City’s Proposed Updates.

As shown in Table 2, under the proposed maximum 80 dBA L_{eq} absolute threshold for construction noise, under the “with mitigation” scenario impacts would be reduced to less than significant at 11 sensitive receptors (NSR 1A, NSR 6, NSR 9 – 12, NSR 14S, NSR 14N, NSR 16, NSR 17S and NSR 17N). Nevertheless, under the City’s Proposed Updates significant impacts from construction noise under the “with mitigation” scenario would remain at NSR 2, NSR 3, NSR 4, NSR 5, NSR 7, and NSR 8.

The City’s Proposed Updates also propose thresholds for nighttime construction activities. No nighttime construction is proposed for the Project, and as explained in Section 3.13, Noise, of the Draft EIR, approval would be required from the City of Los Angeles Board of Police Commissioners for extended construction hours and construction on Sundays. Therefore, the nighttime thresholds included in the City’s Proposed Updates are not discussed further herein.

³ Note that the Draft EIR included an analysis of noise sensitive receptors that included some commercial uses. Under the City’s Proposed Updates certain of these uses would not be considered noise sensitive receptors. Nevertheless, to maintain the Draft and Final EIR’s conservative analysis this memorandum continues to consider these uses as noise sensitive receptors.

Table 1 – Update to Draft EIR Table 3.13-17 Proposed Project Construction Noise (L.A. CEQA Threshold Analysis)

Project Component Site	Construction Phase	NSR	Land Use	Existing Leq (dBA)	Without Mitigation				With Mitigation				
					Predicted Construction Noise Levels Leq (dBA)		Impacts?		Predicted Construction Noise Levels Leq (dBA)			Impacts?	
					Level	Increase	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)	Level	Increase	Reduction in Noise Level from Sound Barrier	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)
Alameda Station	Foundations and Columns	NSR 1 A	Transit Terminal	61.1	81	19.9	Yes	Yes	79.5	18.4	1.5	Yes	<u>No</u>
		NSR 1 B	Day-care Center	61.1	67.7	6.6	Yes	<u>No</u>	65.1	4	2.6	No	No
		NSR 2	Public Park	69	90.1	21.1	Yes	Yes	81.4	12.4	8.7	Yes	Yes
		NSR 3	MFR	68.4	88.9	20.5	Yes	Yes	78.9	10.5	10	Yes	<u>No</u>
		NSR 3 T	MFR	68.4	87.4	19	Yes	Yes	87.3	18.9	0.1	Yes	Yes
	Structural Steel and Gondola Equipment Erection	NSR 1 A	Transit Terminal	61.1	79.8	18.7	Yes	<u>No</u>	79.8	16.1 - 18.7	0.0 - 2.6	Yes	<u>No</u>
		NSR 1 B	Day-care Center	61.1	64.9	3.8	No	No	63.8	2.7	1.1	No	No
		NSR 2*	Public Park	69	90	21	Yes	Yes	90	21	0	Yes	Yes
		NSR 3	MFR	68.4	92.3	23.9	Yes	Yes	87.9	16.4 - 19.5	4.4 - 7.5	Yes	Yes
		NSR 3 T**	MFR	68.4	91.8	23.4	Yes	Yes	91.8	23.4	0	Yes	Yes
	Vertical Circulation, Hardscape, Landscape, Interior Work	NSR 1 A	Transit Terminal	61.1	73	11.9	Yes	<u>No</u>	71	9.9	2	Yes	<u>No</u>
		NSR 1 B	Day-care Center	61.1	59	0	No	No	58.4	0	0	No	No
		NSR 2*	Public Park	69	91.8	22.8	Yes	Yes	91.8	22.8	0	Yes	Yes
		NSR 3	MFR	68.4	90.6	22.2	Yes	Yes	80.6	12.2	10	Yes	Yes
		NSR 3 T**	MFR	68.4	85.5	17.1	Yes	Yes	85.5	17.1	0	Yes	Yes
Alameda Tower	Foundations and Columns	NSR 4	Office Building	63.6	84.1	20.5	Yes	Yes	80.9	17.3	3.2	Yes	Yes
	Structural Steel and Gondola Equipment Erection	NSR 4	Office Building	63.6	79.5	15.9	Yes	<u>No</u>	78.7	15.1	0.8	Yes	<u>No</u>
	Vertical Circulation,	NSR 4	Office Building	63.6	78.7	15.1	Yes	<u>No</u>	72.9	9.3	5.8	Yes	<u>No</u>

Project Component Site	Construction Phase	NSR	Land Use	Existing Leq (dBA)	Without Mitigation				With Mitigation				
					Predicted Construction Noise Levels Leq (dBA)		Impacts?		Predicted Construction Noise Levels Leq (dBA)			Impacts?	
					Level	Increase	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)	Level	Increase	Reduction in Noise Level from Sound Barrier	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)
	Hardscape, Landscape, Interior Work												
Alpine Tower	Foundations and Columns	NSR 5	Future MFR	65.6	82	16.4	Yes	Yes	77.6	12	4.4	Yes	<u>No</u>
		NSR 5 T	Future MFR	65.6	81.6	16	Yes	Yes	81.3	15.7	0.3	Yes	Yes
		NSR 6	MFR	69	81.2	12.2	Yes	Yes	77.5	8.5	3.7	Yes	<u>No</u>
		NSR 6 T**	MFR	69	78.9	9.9	Yes	<u>No</u>	78.9	9.9	0	Yes	<u>No</u>
		NSR 7	Office Building	69.8	84.1	14.3	Yes	Yes	80.3	10.5	3.8	Yes	Yes
	Structural Steel and Gondola Equipment Erection	NSR 5	Future MFR	65.6	82	16.4	Yes	Yes	73.8	8.2	8.2	Yes	<u>No</u>
		NSR 5 T	Future MFR	65.6	81	15.4	Yes	Yes	79.3	13.7	1.7	Yes	<u>No</u>
		NSR 6	MFR	69	80.3	11.3	Yes	Yes	78.4	9.4	1.9	Yes	<u>No</u>
		NSR 6 T	MFR	69	78.3	9.3	Yes	<u>No</u>	75.1	6.1	3.2	Yes	<u>No</u>
		NSR 7	Office Building	69.8	80	10.2	Yes	Yes	77.6	7.8	2.4	Yes	<u>No</u>
	Vertical Circulation, Hardscape, Landscape, Interior Work	NSR 5	Future MFR	65.6	76.8	11.2	Yes	<u>No</u>	69.5	3.9	7.3	No	No
		NSR 5 T**	Future MFR	65.6	76.4	10.8	Yes	<u>No</u>	76.4	10.8	0	Yes	<u>No</u>
		NSR 6	MFR	69	75.9	6.9	Yes	<u>No</u>	68.3	0	6.9	No	No
		NSR 6 T	MFR	69	74.7	5.7	Yes	<u>No</u>	72.9	3.9	1.8	No	No
		NSR 7	Office Building	69.8	78.5	8.7	Yes	<u>No</u>	71.3	1.5	7.2	No	No
Chinatown/State Park Station	Foundations and Columns	NSR 8T	Future MFR	64.7	82.9	18.2	Yes	Yes	78.5	13.8	4.4	Yes	<u>No</u>
		NSR 8B	Future MFR	64.7	84.9	20.2	Yes	Yes	80.5	15.8	4.4	Yes	Yes
		NSR 9	MFR	61.1	72.6	11.5	Yes	<u>No</u>	68.1	7	4.5	Yes	<u>No</u>
		NSR 9 T**	MFR	61.1	72.4	11.3	Yes	<u>No</u>	72.4	11.3	0	Yes	<u>No</u>
		NSR 10	MFR	61.1	68.9	7.8	Yes	<u>No</u>	65.4	4.3	3.5	No	No
		NSR 10 T**	MFR	61.1	66.5	5.4	Yes	<u>No</u>	66.5	5.4	0	Yes	<u>No</u>
		NSR 11	Restored Mill	63	83.2	20.2	Yes	Yes	77.2	14.2	6	Yes	<u>No</u>

Project Component Site	Construction Phase	NSR	Land Use	Existing Leq (dBA)	Without Mitigation				With Mitigation				
					Predicted Construction Noise Levels Leq (dBA)		Impacts?		Predicted Construction Noise Levels Leq (dBA)			Impacts?	
					Level	Increase	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)	Level	Increase	Reduction in Noise Level from Sound Barrier	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)
		NSR 12	MFR	64.7	74.9	10.2	Yes	<u>No</u>	71.2	6.5	3.7	Yes	<u>No</u>
		NSR 12 T**	MFR	64.7	74.8	10.1	Yes	<u>No</u>	74.8	10.1	0	Yes	<u>No</u>
		NSR 13S*	Future MFR	67.7	69.2	1.5	No	No	69.2	1.5	0	No	No
		NSR 14S	Public Park	58.7	85.8	27.1	Yes	Yes	77.7	19	8.1	Yes	<u>No</u>
	Structural Steel and Gondola Equipment Erection	NSR 8T	Future MFR	64.7	80.4	15.7	Yes	Yes	79.8	15.1	0.6	Yes	<u>No</u>
		NSR 8B	Future MFR	64.7	83.2	18.5	Yes	Yes	82.7	18	0.5	Yes	Yes
		NSR 9	MFR	61.1	66.7	5.6	Yes	<u>No</u>	65.7	4.6	1	No	No
		NSR 9 T**	MFR	61.1	66.6	5.5	Yes	<u>No</u>	66.6	5.5	0	Yes	<u>No</u>
		NSR 10	MFR	61.1	67	5.9	Yes	<u>No</u>	66.6	5.5	0.4	Yes	<u>No</u>
		NSR 10 T**	MFR	61.1	65.7	4.6	No	No	65.7	4.6	0	No	No
		NSR 11	Restored Mill	63	75.2	12.2	Yes	<u>No</u>	73.8	10.8	1.4	Yes	<u>No</u>
		NSR 12	MFR	64.7	73.3	8.6	Yes	<u>No</u>	72.4	7.7	0.9	Yes	<u>No</u>
		NSR 12 T**	MFR	64.7	73.3	8.6	Yes	<u>No</u>	72.6	7.9	0.7	Yes	<u>No</u>
		NSR 13S*	Future MFR	67.7	64	0	No	No	63.5	0	0	No	No
		NSR 14S	Public Park	58.7	77.5	18.8	Yes	<u>No</u>	76	17.3	1.5	Yes	<u>No</u>
	Vertical Circulation, Hardscape, Landscape, Interior Work	NSR 8T	Future MFR	64.7	74.4	9.7	Yes	<u>No</u>	68.2	3.5	6.2	No	No
		NSR 8B	Future MFR	64.7	75.5	10.8	Yes	<u>No</u>	69.5	4.8	6	No	No
		NSR 9	MFR	61.1	62.6	1.5	No	No	54.3	0	1.5	No	No
		NSR 9 T**	MFR	61.1	62.4	1.3	No	No	62.4	1.3	0	No	No
		NSR 10	MFR	61.1	63.8	2.7	No	No	57.5	0	2.7	No	No
		NSR 10 T**	MFR	61.1	61.1	0	No	No	61.1	0	0	No	No
		NSR 11	Restored Mill	63	73.6	10.6	Yes	<u>No</u>	64.7	1.7	8.9	No	No
		NSR 12	MFR	64.7	67.1	2.4	No	No	57.1	0	2.4	No	No
		NSR 12 T**	MFR	64.7	67	2.3	No	No	67	2.3	0	No	No
		NSR 13S*	Future MFR	67.7	60.3	0	No	No	55.3	0	0	No	No
		NSR 14S	Public Park	58.7	78.8	20.1	Yes	<u>No</u>	68.8	10.1	10	Yes	<u>No</u>

Project Component Site	Construction Phase	NSR	Land Use	Existing Leq (dBA)	Without Mitigation				With Mitigation				
					Predicted Construction Noise Levels Leq (dBA)		Impacts?		Predicted Construction Noise Levels Leq (dBA)			Impacts?	
					Level	Increase	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)	Level	Increase	Reduction in Noise Level from Sound Barrier	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)
Broadway Junction	Demo	NSR 13S*	Future MFR	67.7	66.1	0	No	No	66.1	0	0	No	No
		NSR 13N*	Future MFR	65.8	67	1.2	No	No	67	1.2	0	No	No
		NSR 14N	Public Park	53.6	72.6	19	Yes	No	62.6	9	10	Yes	No
		NSR 15	Church	65.8	67.7	1.9	No	No	58.1	0	1.9	No	No
		NSR 16	School	58.7	79.7	21	Yes	No	69.7	11	10	Yes	No
		NSR 17N	SFR	56.1	77.3	21.2	Yes	No	67.3	11.2	10	Yes	No
		NSR 17S	SFR	56.1	90	33.9	Yes	Yes	80.0	23.9	10	Yes	No
	Foundations and Columns	NSR 13S*	Future MFR	67.7	66.1	0	No	No	66.1	0	0	No	No
		NSR 13N*	Future MFR	65.8	67.3	1.5	No	No	67.3	1.5	0	No	No
		NSR 14N	Public Park	53.6	72.8	19.2	Yes	No	62.8	9.2	10	Yes	No
		NSR 15	Church	65.8	67.6	1.8	No	No	61.7	0	1.8	No	No
		NSR 16	School	58.7	78.9	20.2	Yes	No	68.9	10.2	10	Yes	No
		NSR 17N	SFR	56.1	76.9	20.8	Yes	No	67	10.9	9.9	Yes	No
		NSR 17S	SFR	56.1	89.2	33.1	Yes	Yes	79.2	23.1	10	Yes	No
	Structural Steel and Gondola Equipment Erection	NSR 13S*	Future MFR	67.7	66	0	No	No	66	0	0	No	No
		NSR 13N*	Future MFR	65.8	65.5	0	No	No	65.5	0	0	No	No
		NSR 14N	Public Park	53.6	72.6	19	Yes	No	71.4	16.5 - 17.8	1.2 - 2.5	Yes	No
		NSR 15	Church	65.8	68.3	2.5	No	No	67.7	1.4 - 1.9	0.6 - 1.1	No	No
		NSR 16	School	58.7	72.8	14.1	Yes	No	72.2	11.5 - 13.5	0.6 - 2.6	Yes	No
		NSR 17N	SFR	56.1	73.1	17	Yes	No	71.5	13.2 - 15.4	1.6 - 3.8	Yes	No
		NSR 17S	SFR	56.1	80.7	24.6	Yes	Yes	75.1	19	5.6	Yes	No
	Vertical Circulation, Hardscape, Landscape, Interior Work	NSR 13S*	Future MFR	67.7	59.8	0	No	No	59.8	0	0	No	No
		NSR 13N*	Future MFR	65.8	60.9	0	No	No	60.9	0	0	No	No
		NSR 14N	Public Park	53.6	66.3	12.7	Yes	No	56.3	2.7	10	No	No
		NSR 15	Church	65.8	61.3	0	No	No	56.6	0	0	No	No
		NSR 16	School	58.7	72.4	13.7	Yes	No	63.1	4.4	9.3	No	No
		NSR 17N	SFR	56.1	71.9	15.8	Yes	No	61.9	5.8	10	Yes	No

Project Component Site	Construction Phase	NSR	Land Use	Existing Leq (dBA)	Without Mitigation				With Mitigation				
					Predicted Construction Noise Levels Leq (dBA)		Impacts?		Predicted Construction Noise Levels Leq (dBA)			Impacts?	
					Level	Increase	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)	Level	Increase	Reduction in Noise Level from Sound Barrier	Draft EIR Threshold	City's Proposed Updates Threshold (80 dBA)
		NSR 17S	SFR	56.1	82.6	26.5	Yes	Yes	72.6	16.5	10	Yes	No
Stadium Tower	Foundations and Columns	NSR 16*	School	58.7	63.7	5	Yes	No	61	2.3	2.7	No	No
		NSR 17N*	SFR	56.1	59.9	3.8	No	No	57.1	1	2.8	No	No
		NSR 18*	SFR	56.5	53.1	0	No	No	53.1	0	0	No	No
	Structural Steel and Gondola Equipment Erection	NSR 16	School	58.7	65.6	6.9	Yes	No	59.7	1	5.9	No	No
		NSR 17N	SFR	56.1	62.2	6.1	Yes	No	56.1	0	6.1	No	No
		NSR 18	SFR	56.5	55.7	0	No	No	49.6	0	0	No	No
	Vertical Circulation, Hardscape, Landscape, Interior Work	NSR 16	School	58.7	58.5	0	No	No	58.2	0	0	No	No
		NSR 17N	SFR	56.1	54.8	0	No	No	54.6	0	0	No	No
		NSR 18	SFR	56.5	48.2	0	No	No	48.2	0	0	No	No
Stadium Station	Foundations and Columns	NSR 16*	School	58.7	61	2.3	No	No	61	2.3	0	No	No
		NSR 18*	SFR	56.5	54.8	0	No	No	54.8	0	0	No	No
	Structural Steel and Gondola Equipment Erection	NSR 16*	School	58.7	61.7	3	No	No	61.7	3	0	No	No
		NSR 18*	SFR	56.5	56.8	0.3	No	No	56.8	0.3	0	No	No
	Vertical Circulation, Hardscape, Landscape, Interior Work	NSR 16*	School	58.7	54.4	0	No	No	54.4	0	0	No	No
		NSR 18*	SFR	56.5	49.2	0	No	No	49.2	0	0	No	No
Mesa Lot	Laydown Yard	NSR 19*	Public Park	57.2	53.8	0	No	No	-	-	-	No	No
1: Mitigation applied only when a barrier could feasibly be constructed between construction and impacted receptors. Receptors where barriers were found to not be feasible marked with an asterisk (*). Receptors where barriers were found to only be feasible at the bottom floor and not feasible at the top floor marked with a double asterisk (**).													
2: Ranges of levels for mitigation results represent best and worst-case scenarios of mitigation measures at the receptor, such as when a barrier will need to be moved partway through a phase.													

Table 2 – Update to Draft EIR Table 3.13-19 Summary of Proposed Project Construction Analysis (L.A. CEQA Thresholds Guide Analysis)

Project Component Site	NSR	Impacts Without Mitigation?		Impacts With Mitigation?	
		Draft EIR Threshold	City's Proposed Updates Threshold	Draft EIR Threshold	City's Proposed Updates Threshold
Alameda Station	NSR 1A	Yes	Yes	Yes	No
	NSR 1B	Yes	No	No	No
	NSR 2	Yes	Yes	Yes	Yes
	NSR 3	Yes	Yes	Yes	Yes
Alameda Tower	NSR 4	Yes	Yes	Yes	Yes
Alpine Tower	NSR 5	Yes	Yes	Yes	Yes
	NSR 6	Yes	Yes	Yes	No
	NSR 7	Yes	Yes	Yes	Yes
Chinatown/State Park Station	NSR 8	Yes	Yes	Yes	Yes
	NSR 9	Yes	No	Yes	No
	NSR 10	Yes	No	Yes	No
	NSR 11	Yes	Yes	Yes	No
	NSR 12	Yes	No	Yes	No
	NSR 13S	No	No	No	No
	NSR 14S	Yes	Yes	Yes	No
Broadway Junction	NSR 13S	No	No	No	No
	NSR 13N	No	No	No	No
	NSR 14N	Yes	No	Yes	No
	NSR 15	No	No	No	No
	NSR 16	Yes	No	Yes	No
	NSR 17N	Yes	No	Yes	No
	NSR 17S	Yes	Yes	Yes	No
Stadium Tower	NSR 16	Yes	No	No	No
	NSR 17N	Yes	No	No	No
	NSR 18	No	No	No	No
Stadium Station	NSR 16	No	No	No	No
	NSR 18	No	No	No	No
Mesa Lot	NSR 19	No	No	No	No

Analysis of Draft and Final EIR Construction Vibration Thresholds versus City's Proposed Updates to Thresholds for Construction Vibration

Regarding construction vibration, the City's Proposed Updates would not include a human annoyance threshold during the daytime. A human annoyance threshold would only apply to nighttime construction activities. No nighttime construction is proposed for the Project, therefore, under the City's Proposed Updates the Project would not have a significant and unavoidable human annoyance impact.

Regarding building damage, the City's Proposed Updates would result in some modifications to the threshold applied to certain vibration-sensitive receptors since the Draft and Final EIR applied FTA thresholds and the City's Proposed Updates would implement guidance from Caltrans, which is slightly different than the FTA guidance. However, there would be no change to the Draft and Final EIR conclusions regarding vibration impacts associated with building damage.

Table 3.13-28 on page 3.13-62 of Section 3.13, Noise, of the Draft EIR, shows the location when on-site construction vibration impacts would occur during each phase of the construction of the Project under applicable FTA structural damage criteria, outlined above as Vibration-1. Table 3, below, shows the threshold that was utilized in the Draft EIR and compares it to the threshold under the City's Proposed Updates. As provided therein, for all but two of the vibration-sensitive receptors the City's Proposed Updates threshold is the same as or higher than the Draft EIR threshold. Meaning that in all but two circumstances the City's Proposed Updates would allow the same amount of vibration or more vibration to occur prior to triggering an impact. For the two locations where the City's Proposed Updates would provide for a lower threshold, the Project's impacts would still be below the applicable threshold from the City's Proposed Updates. Therefore, the City's Proposed Updates would not result in any changes to the construction building damage vibration conclusions and with implementation of mitigation measures VIB-A (Vibration Monitoring) and VIB-B (Force-Adjustable Ground Compaction Devices) vibration damage impacts would remain less than significant.

Table 3 – Proposed Thresholds – Construction Vibration – Building Damage

ID	Vibration-Sensitive Receptor	Building Type (Draft EIR Table 3.13-27)	Building Type (City Proposed Updates)	Impact Threshold Damage (PPV in in/sec)				Impact?
				Draft EIR Threshold	City's Proposed Updates Threshold	Updated Threshold Comparison to EIR (Higher, Lower, Same)	Project's Maximum Damage PPV in/sec from Draft EIR Table 3.13-28	
VSR-1	Los Angeles Union Station Terminal	II Engineered	Historic Building	0.3	0.25	Lower	0.04	Less Than Significant
VSR-2 ⁴	El Grito Mural	III Non-Engineered	Historic Building	0.2	0.25	Higher	1.58	Less Than Significant with Mitigation
VSR-3 ⁴	Plaza Substation	III Non-Engineered	Historic Building	0.2	0.25	Higher	0.09	Less Than Significant
VSR-4	a. Avila Adobe (original 1818 structure)	"Extremely Fragile"	Fragile Building	0.12	0.1	Lower	0.06	Less Than Significant
	b. Avila Adobe (1970s addition)	III Non-Engineered	Historic Building	0.2	0.25	Higher	7.24 ⁵ _I	Less Than Significant with Mitigation
VSR-5	Old Winery	III Non-Engineered	Historic Building	0.2	0.25	Higher	7.24 ⁵	Less Than Significant with Mitigation
VSR-6	Mozaic Apartments	I Reinforced	New Residential Structures	0.5	0.5	Same	0.4	Less Than Significant
VSR-7	The California Endowment	I Reinforced	Modern Industrial/Commercial Building	0.5	0.5	Same	0.06	Less Than Significant
VSR-8	Starlight Nail and Beauty Supply	III Non-Engineered	Historic Building	0.2	0.25	Higher	0.16	Less Than Significant

⁴ Note that Draft EIR Table 3.13-27 incorrectly identified the Plaza Substation as VSR-2 and the El Grito Mural as VSR-3. Draft EIR Figure 3.13-6 and Table 3.13-28 correctly identify the Plaza Substation as VSR-3 and the El Grito Mural as VSR-2 consistent with what is provided herein.

⁵ As explained on page 3.13-63 of Section 3.13, Noise, of the Draft EIR this number is associated with Vertical Circulation/Hardscape/Landscape/Interior work-West Phase. The analysis conservatively assumed a one-foot distance from the structures for the vibration analysis. It should be noted that Mitigation Measure VIB-B requires use of non-vibrating equipment or hand tools for ground compaction or excavation/drilling operations within 26 feet of these structures.

ID	Vibration-Sensitive Receptor	Building Type (Draft EIR Table 3.13-27)	Building Type (City Proposed Updates)	Impact Threshold Damage (PPV in in/sec)				Impact?
				Draft EIR Threshold	City's Proposed Updates Threshold	Updated Threshold Comparison to EIR (Higher, Lower, Same)	Project's Maximum Damage PPV in/sec from Draft EIR Table 3.13-28	
VSR-9	LA County Fleet Services	I Reinforced	Modern Industrial/Commercial Building	0.5	0.5	Same	0.07	Less Than Significant
VSR-10	Chinatown Senior Lofts	II Engineered	Older Residential Structure	0.3	0.3	Same	0.09	Less Than Significant
VSR-11	Homeboy Industries	I Reinforced	Modern Industrial/Commercial Building	0.5	0.5	Same	0.16	Less Than Significant
VSR-12	Blossom Plaza	I Reinforced	New Residential Structures	0.5 ⁶	0.5	Same	0.01	Less Than Significant
VSR-13	Capitol Milling Company	III Non-Engineered	Historic Building	0.2	0.25	Higher	0.09	Less Than Significant
VSR-14	St. Peter's Church	III Non-Engineered	Historic Building	0.2	0.25	Higher	0.01	Less Than Significant
VSR-15	Cathedral High School Auditorium	I Reinforced	Modern Industrial/Commercial Building	0.5	0.5	Same	0.27	Less Than Significant
VSR-16	Cathedral High School Office Building	II Engineered	Older Structure	0.3	0.3	Same	0.13	Less Than Significant
VSR-17	Low-Rise Residential (on Savoy Street)	III Non-Engineered	Older Residential Structure	0.2	0.3	Higher	0.17	Less Than Significant
VSR-18	Solano Canyon Homes on Amador Street	III Non-Engineered	Older Residential Structure	0.2	0.3	Higher	0.00	Less Than Significant

⁶ Draft EIR Table 3.13-27 identified Blossom Plaza as a Reinforced Building with a building damage threshold of 0.5. However, Draft EIR Table 3.13-28 identified Blossom Plaza as having a building damage threshold of 0.3 and used 0.3 in the analysis of Blossom Plaza. The 0.5 threshold is what should have been identified for Blossom Plaza in Draft EIR Table 3.13-28 as Blossom Plaza is a building with modern construction. Nevertheless, under either threshold the Project would have a less than significant building damage vibration impact.

ID	Vibration-Sensitive Receptor	Building Type (Draft EIR Table 3.13-27)	Building Type (City Proposed Updates)	Impact Threshold Damage (PPV in in/sec)				Impact?
				Draft EIR Threshold	City's Proposed Updates Threshold	Updated Threshold Comparison to EIR (Higher, Lower, Same)	Project's Maximum Damage PPV in/sec from Draft EIR Table 3.13-28	
VSR-19	Future Residential	I Reinforced	New Residential Structures	0.5	0.5	Higher	0.17	Less Than Significant

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Attachment A



DECEMBER 2023

PREPARED FOR:

City of Los Angeles,
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PREPARED BY:

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CONSTRUCTION

NOISE AND VIBRATION

PROPOSED UPDATES TO THRESHOLDS AND METHODOLOGY

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INTRODUCTION

This document proposes updated construction noise and vibration thresholds to be used by the Department of City Planning in assessing the environmental impacts of projects in accordance with the California Environmental Quality Act (CEQA).¹ As discussed in more detail below, the proposed thresholds are intended to be suited to the generally urban nature of the City, while still recognizing the importance of human health, including sleep disruption. The proposed thresholds are intended to account for reasonable expectations regarding construction noise and vibration during daytime and nighttime hours, and also include absolute maximum noise levels that are intended to protect human health. These thresholds have been proposed based on input from Technical Advisory Committee noise experts, as well as a review of noise thresholds used by other state and local agencies.

¹ Other City Departments may utilize these thresholds or their own thresholds as they deem appropriate.

REGULATORY

BACKGROUND

Noise and vibration impacts are one of the environmental impact categories considered for development projects pursuant to CEQA. There are several plans and regulations that include policies, guidelines, and requirements regarding noise impacts at the federal, state, and local levels. As described below, these plans, guidelines, and laws include the following: the U.S. Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), the State of California's Division of Occupational Safety and Health (Cal/OSHA), the State of California's Office of Planning and Research (OPR) CEQA Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations), the City of Los Angeles' (City)'s General Plan Noise Element, the Los Angeles Municipal Code (LAMC), and the Federal Transportation Authority's (FTA) Transit Noise and Vibration Impact Assessment Manual. In addition, as discussed below, relevant information included in the City's 2006 CEQA Thresholds Guide also may be used for guidance in evaluating construction-related noise impacts of development projects.

GENERAL EFFECTS OF NOISE AND VIBRATION EXPOSURE ON HUMAN HEALTH

There are varying effects of noise and associated standards and metrics set forth by agencies to address such effects. For example, the U.S. Occupational Safety and Health Administration (OSHA) and the State's Division of Occupational Safety and Health (also known as Cal/OSHA) have adopted regulations designed to protect workers against the effects of occupational noise exposure. Per Cal/OSHA, the permissible noise exposure for 8 hours is 90 dBA (L_{eq}), which is the limit for potential hearing loss.² In addition, based on an urban noise survey conducted by the Environmental Protection Agency (EPA), the relationship between noise level and annoyance ranges from seven percent of the population annoyed at a

² Cal/OSHA, Title 8 Regulations, Subchapter 7. General Industry Safety Orders, Group 15. Occupational Noise, Article 105. Control of Noise Exposure, §5096. Exposure Limits for Noise, Table N-1 Permissible Noise Exposure.

noise level of 55 dBA (L_{dn}) to 23 percent annoyed at 70 dBA (L_{dn}).³ Furthermore, per the EPA, sleep disturbance is one of the main major causes of annoyance due to noise. Two components of sleep disturbance include falling asleep and awakening. The EPA states that noise levels of 40 to 50 dBA could result in difficulty in falling asleep for some people, and noise levels of 70 dBA or higher would likely result in awakening.⁴ As another example, the Federal Transit Authority (FTA) also states that there may be adverse community reaction to construction noise and sets forth its own criteria of 80 dBA $L_{eq(8-hour)}$ for FTA construction activity noise near residential uses during daytime hours.⁵

There are also varying effects of construction vibration and associated standards and metrics that have been established by various agencies to address such effects. These include effects associated with building damage with criteria for specific building types set forth by Caltrans and the FTA. These agencies have also established guidelines regarding construction vibration related to human annoyance.

CEQA FRAMEWORK FOR NOISE IMPACTS

The CEQA Guidelines state that a significant noise impact would occur if a project would result in the “generation of a substantial temporary or permanent increase 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.” With regard to vibration, the CEQA Guidelines state that a significant vibration impact would occur if the project would result in a “generation of excessive groundborne vibration or groundborne noise levels.”

CITY POLICIES & REGULATIONS RELATED TO NOISE

The City's General Plan Noise Element includes general objectives and policies related to reducing or eliminating intrusive noise and reducing or eliminating noise impacts associated with development of land and changes in land use. The Noise Element also includes guidelines for noise compatible land uses. However, the Noise Element does not include specific or mandatory standards, policies, or guidance specifically related to thresholds or analysis of construction noise and vibration. The Noise Element defines noise-sensitive land uses as single-family and multi-unit dwellings, long-term care facilities (including

³ EPA, Noise Effects Handbook: A Desk Reference to Health and Welfare Effects of Noise, October 1979, Revised July 1981.

⁴ EPA, Noise Effects Handbook: A Desk Reference to Health and Welfare Effects of Noise, Page 6-2, October 1979, Revised July 1981.

⁵ FTA, Transit Noise and Vibration Impact Assessment Manual, Chapter 7.1, p. 179, September 2018.

convalescent and retirement facilities), dormitories, motels, hotels, transient lodging, and other residential uses; places of assembly including churches or houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves; and parks.

The LAMC is the regulatory mechanism for implementing the goals and policies of the City's General Plan, including those set forth in the Noise Element. With regard to construction noise, the City's Noise Ordinance (LAMC Section 112.05) sets forth a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard does not apply where compliance therewith is technically infeasible.⁶ In addition, LAMC Section 41.40 prohibits construction between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. and after 6:00 p.m. on Saturday or any national holiday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 a.m. and 9:00 p.m. and Saturdays and national holidays between 8:00 a.m. and 6:00 p.m.). Construction may be permitted outside of these hours if a temporary noise variance is approved by the Los Angeles Board of Police Commissioners.

With regard to vibration, LAMC Section 91.3307.1 states, "Adjoining public and private property shall be protected from damage during construction, remodeling, and demolition work. Protection must be provided for footings, foundations, party walls, chimneys, skylights, and roofs. Provisions shall be made to control water runoff and erosion during construction or demolition activities."

In 2006, the City set forth the L.A. CEQA Thresholds Guide, which was intended to provide guidance, as a voluntary tool, for CEQA impact analysis. Today, these thresholds are only used as guidance in instances where staff finds they are beneficial to use and supported with substantial evidence.⁷ In addition, the L.A. CEQA Thresholds Guide recognizes that its applicability and use may be re-evaluated after a period of use. With regard to construction noise, the L.A. CEQA Threshold Guide states that a project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior sound levels by 10 dBA or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use; or

⁶ In accordance with the City's Noise Regulations, "technically feasible" means that the established noise limitations can be complied with at a project site, with the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques employed during the operation of equipment.

⁷ "Substantial evidence" in this document is as defined in Public Resources Code Section 21080(e)(1) and CEQA Guidelines Section 15384, and is evidence that is of a ponderable legal significance, reasonable in nature, credible and of solid value.

- Construction activities would exceed the ambient noise level by 5 dBA at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.

(Note that in practice, these noise increases have been evaluated in terms of hourly L_{eq} , in lieu of the 24-hour CNEL noise metric, as construction noise typically does not occur over a 24-hour basis. Also note that the above thresholds in the L.A. CEQA Thresholds Guide were developed based on more open-ended noise questions within Appendix G of the CEQA Guidelines that have since been revised.)

Use of the above thresholds in City CEQA documents for construction noise impact analysis has proven to be overly sensitive and has resulted in impact conclusions that are not supported with substantial evidence. In particular, use of a threshold of a 5 dBA increase over existing ambient conditions often results in significant impacts for routine construction activities that are expected to occur in an urban environment. For example, in a single-family neighborhood with a 48 dBA L_{eq} daytime baseline, the 5 dBA threshold suggests that a construction impact of 54 dBA L_{eq} would be significant. However, evidence supports that noise levels less than 55 dBA are acceptable to over 90 percent of the general public. The threshold is so low that it has the potential to show significant impacts even for the construction or exterior remodeling of a single-family home in a residential area involving no unusual noise producing equipment. In addition, according to this threshold, a single daily impact in excess of 5 dBA is considered to be a significant environmental impact, even though the impact would be temporary in nature, could result in short-term impacts in terms of human annoyance, but may not necessarily result in direct health impacts unless a certain absolute noise threshold is attained. In other words, while a two- or three-year construction project could result in a 5 dBA impact for a single day, the conclusion that this should be considered a significant effect on the environment would be overly conservative, as the impact would be temporary in nature and not necessarily impactful to public health. The L.A. CEQA Thresholds Guide does not include specific thresholds for vibration related to construction activities. However, over time many City CEQA documents have used the FTA's criteria for addressing construction vibration related to both human annoyance and building damage.

In the future, the City proposes to require environmental protection measures (EPMs) to be implemented as part of development projects. These EPMs have been drafted and have already been incorporated into draft updates to the City's Land Use Element (in individual Community Plan updates which comprise the Land Use Element) that are underway. These will be applicable to development projects within those geographic areas once those Community Plans are adopted. For areas not undergoing Community Plan updates, EPMs could be made standard conditions of approval until such time that the EPMs are adopted for discretionary projects requiring findings that could support imposing noise conditions. Relevant proposed EPMs related to noise and vibration are included in Attachments A and B.

CONSTRUCTION NOISE & VIBRATION

ANALYSIS IN CITY CEQA DOCUMENTS

NOISE ANALYSIS

The City has used various thresholds for evaluating construction noise impacts. Prior to 2006, the City had often used the criteria in the Noise Ordinance to evaluate potential construction noise impacts. Once the L.A. CEQA Thresholds Guide was approved in 2006, the City also used the construction noise thresholds established within the Thresholds Guide. Note that the thresholds in the L.A. CEQA Thresholds Guide were based on broader questions within Appendix G of the CEQA Guidelines that have since been refined after 2006.

In practice, use of the thresholds from the L.A. CEQA Thresholds Guide has resulted in construction noise impact conclusions that are not supported by substantial evidence. This construction noise threshold does not recognize the urban nature of much of the City and the expectation that daytime construction activities are a common activity within an urban environment. As an example, construction of a typical single-family residential addition within an existing neighborhood could potentially exceed the significance thresholds within the L.A. CEQA Thresholds Guide, which are primarily based on increases above ambient noise levels, and which may not necessarily result in human health effects or impacts. Furthermore, these thresholds do not distinguish between daytime and nighttime construction activities where nighttime construction activities are the activities that may have the greater potential to create intrusive noise and impact sleep. In addition, while use of the criteria from the Noise Ordinance (described above) for a maximum 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone when technically feasible is reasonable, the wording of the criteria including the use of the terminology “technically feasible” as defined therein is somewhat open ended and the standard is limited to a residentially zoned subset of sensitive noise uses, rather than a broader range of sensitive uses which may also be impacted by construction noise.

VIBRATION ANALYSIS

With regard to vibration, City CEQA documents often use FTA's guidance related to potential building damage and human annoyance. Based on this FTA guidance, impacts relative to ground-borne vibration associated with potential building damage would be considered significant if any of the following future events were to occur:

- Project construction activities cause ground-borne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced concrete, steel, or timber building.
- Project construction activities cause ground-borne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.2 PPV at the nearest off-site non-engineered timber and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

Based on FTA guidance, construction vibration impacts associated with human annoyance would be significant if the following were to occur (applicable to frequent events; 70 or more vibration events per day):

- Project construction activities cause ground-borne vibration levels to exceed 72 VdB at off-site sensitive uses, including residential, hotel and theater uses.

In practice, use of the FTA guidance regarding human annoyance from vibration has proven to be too rigid as most typical construction activities during daytime hours within an urban environment would exceed the 72 VdB threshold if a sensitive use is nearby (i.e., within 80 feet). Similar to construction noise, construction vibration is reasonably anticipated in an urban environment, like that found in the City, and such vibration levels would not be anticipated to result in health impacts or substantially affect the activities of the general public during daytime hours. The guidance regarding building damage has been more reasonable in practice.

PROPOSED CONSTRUCTION NOISE & VIBRATION THRESHOLDS

Recognizing the overly sensitive construction noise threshold in the L.A. CEQA Thresholds Guide and the FTA guidance for construction vibration, the following new thresholds are proposed that are more suited to the generally urban nature of the City yet still recognize the importance of human health, including sleep disruption. Specifically, these proposed thresholds account for reasonable expectations during daytime and nighttime hours and also include absolute noise levels that are intended to protect human health. These thresholds have been proposed based on input from noise experts in the Technical Advisory Committee, as well as a review of noise thresholds used by other state and local agencies.

The proposed construction noise thresholds are focused on impacts to sensitive uses. The Noise Element defines noise-sensitive land uses as single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodging, and other residential uses; places of assembly including churches or houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves; and parks. For purposes of environmental analysis based on the updated thresholds, this definition of sensitive uses is proposed to be carried over from the list in the Noise Element; however, recording studios should be added as a sensitive use relative to construction vibration impacts.

Generally, there are commonly two types of noise standards, as follows:

- Relative or “increase” standards - these are quantified thresholds, expressed as an allowable increase in decibels, attributed to the construction noise contribution, over the pre-existing outdoor ambient sound level at a receptor.
- Absolute or “fixed” standards - these are quantified thresholds that represent a fixed noise limit and take into account a potential impact that is independent of the pre-existing outdoor ambient sound level at a receptor.

NOISE THRESHOLDS

Proposed Daytime Construction Noise Thresholds

Increase Over Ambient

- For construction activities that occur between 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 8:00 a.m. and 6:00 p.m. on Saturdays, no numerical threshold above ambient noise levels is proposed.

Supporting Discussion Points:

- This approach is consistent with many jurisdictions within the State, including the cities of Beverly Hills, Fresno, and Pasadena, and Caltrans, which do not have a threshold for a numeric increase in ambient noise levels.⁸
- Daytime hours experience higher ambient levels of noise due to additional sources of noise such as traffic noise, maintenance activities, construction activities, etc.
- Construction activity hours for this threshold are within the envelope of the construction hours currently permitted by LAMC 41.40. However, rather than a 9:00 p.m. construction hour end time as permitted by the LAMC, an earlier 7:00 p.m. end time was chosen as people are more sensitive to noise during evening hours when compared to daytime hours. In addition, a 7:00 p.m. end time is supported by the CNEL metric itself wherein a 5-dB penalty is added for noise levels between 7:00 p.m. and 10:00 p.m.
- Daytime construction activities are temporary and periodic.
- This approach recognizes the urban environment of the City and that daytime construction activities are commonplace (i.e., it is not expected that daytime activities would affect people sleeping). Potential human health impacts are addressed by the absolute thresholds below and increases in ambient noise levels are addressed in the nighttime thresholds below, including consideration of sleep disruption.
- Within the City, existing daytime ambient noise for uses along major roadways is in the range of 65 to 70 dBA and along quiet residential streets is between 55 and 60 dBA. The table below

⁸ City of Beverly Hills Municipal Code Section 5-1-205; City of Fresno General Plan Noise Element Table 14.3-5; City of Pasadena Municipal Code Chapter 9.36.80; Caltrans Traffic Noise Analysis Protocol Chapter 3.2, April 2020.

provides samples of the daytime ambient noise levels, as measured along major roadways and smaller quiet residential streets. As discussed below, construction noise would be limited to a maximum absolute noise threshold of 80 dBA Leq(8-hour) at noise sensitive uses. With respect to ambient noise, the 80 dBA Leq(8-hour) absolute threshold would be similar to a noise increase of approximately 10 dBA (based on an existing 70 dBA ambient noise level, a typical noise level along major roadways) to 25 dBA (based on an existing 55 dBA ambient noise level, a typical noise level in a quieter residential neighborhood) over the ambient noise level. Table 1, below, provides the typical ambient noise levels along various roadways within the City.

Table 1
Typical Ambient Noise Levels Along Roadways

LOCATION	DAYTIME AMBIENT NOISE LEVELS, ^a dBA
Major Roadways	
Hollywood Boulevard (Hollywood)	71.7
Vine Street (Hollywood)	69.5
Sunset Boulevard (Hollywood)	71.0
Highland Boulevard (Hollywood)	71.5
Figueroa Street (downtown)	71.1
Hope Street (downtown)	66.6
7th Street (downtown)	70.5
Vermont Avenue (South LA)	68.6
Burbank Boulevard (Encino)	68.7
Minor Roadways (residential areas)	
Stanbury Avenue (Sherman Oaks)	58.8
Calhoun Avenue (Sherman Oaks)	57.6
Hudson Avenue (Hollywood)	59.9
Leland Way (Hollywood)	60.9
Browning Boulevard (South LA)	58.3
Etiwanda Avenue (Encino)	53.3
Angelo Drive (hillside)	54.7
Hillgrove Drive (hillside)	56.5
^a Measured ambient noise levels along the noted roadways are based on the analysis of previous projects within the City.	

- Although the increase in ambient noise levels of 10 to 25 dBA would be noticeable, the construction noise would be temporary and would occur during daytime hours (outside of the sensitive sleeping hours). Furthermore, residents of urban areas are used to temporary construction noise and its increase to ambient noise levels of 10 to 25 dBA and higher, from time to time during daytime hours. As such, the City would not consider increases in ambient noise levels resulting from

construction activities as constituting significant environmental effects. Instead, as discussed below, the City would utilize an absolute noise exposure level over an extended period for evaluating potential noise impacts during daytime hours, as this metric better reflects potential health impacts due to construction noise.

- Daytime construction noise levels are further reduced by existing building codes for certain types of buildings. For example, the State has established noise insulation standards for new multi-family residential units, hotels, and motels via the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dBA CNEL in any habitable room. The standards require an acoustical analysis demonstrating that dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to exterior noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.
- Sensitive uses such as hospital buildings are generally designed to limit the effects of exterior noise on the interior uses of the building, and include fixed windows, which further minimize noise from exterior sources.⁹
- Noise-related impacts to biological resources should be addressed in the biological resources analysis of the CEQA document.

Absolute Thresholds

- On- and off-site construction noise during daytime hours (7:00 a.m. and 7:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays) would be limited to a maximum 80 dBA $L_{eq(8\text{-hour})}$ absolute threshold at sensitive uses (at the property line with outdoor uses or at the exterior of the building), including outdoor public recreational areas.
 - This threshold applies to residential uses (at the property line with outdoor uses or at the exterior of the building); including expansive upper-level deck/open spaces areas that provide for the recreational use of residents. Examples include large patios or decks that are the primary outdoor use area in an apartment complex. However, this standard does not apply to private residential balconies which may or may not extend past the exterior of a building.

Supporting Discussion Points:

⁹ As required per the California Noise Insulation Standards (Title 24, California Code of Regulations), exterior sound insulation requirements.

- The 80 dBA $L_{eq(8-hour)}$ absolute threshold is used by the FTA for construction noise near residential uses during daytime hours.
- The 80 dBA $L_{eq(8-hour)}$ absolute threshold would be similar to the 75 dBA at 50 feet criteria for residential uses set forth by the LAMC when adjusting for distance and would expand its applicability by also applying to other non-residential sensitive uses.
- The residential open space provision for only addressing upper-level deck/open spaces areas that provide for the recreational use of residents and not private balconies is consistent with the approach taken by Caltrans: "...noise should be evaluated at second-story elevations or at higher elevations in the case of multistory buildings when there are exterior areas of frequent human use at the higher elevations that could benefit from noise reduction. Examples include large patios or decks that are the primary outdoor use area in an apartment complex."¹⁰
- Per OSHA/CalOSHA, the noise limit for potential hearing loss is 90 dBA $L_{eq(8-hour)}$ and the proposed absolute threshold would be well below this limit.¹¹

Proposed Nighttime Construction Noise Thresholds

(Note: Nighttime construction activities require a variance approved by the City of Los Angeles Police Commission)

Increase Over Ambient

- For construction activities that occur between 7:00 P.M. and 7:00 A.M. Monday through Friday, and between 6:00 P.M. and 8:00 A.M. on Saturdays, and anytime on Sundays or national holidays, noise levels at sensitive uses would not exceed 5 dBA above the ambient noise level at the receptor.
- Mat pour activities (and other types of concrete pour, which require an extended continuous pour beyond the allowable construction hours) that are required to occur during nighttime hours for less than five days are exempt from this provision.

Supporting Discussion Points:

¹⁰ Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Chapter 4.3.1.1 Receptors and Receivers, p. 4-5, September 2013.

¹¹ OSHA, Standard 1910.95 – Occupation noise exposure. In addition to the permissible noise level of 90 dBA ($L_{eq(8-hour)}$), OSHA also specified an action level of 85 dBA ($L_{eq(8-hour)}$) at which a hearing conservation program is required (OSHA Standard 1910.95(c)(1)).

- The threshold is rigorous and similar to San Francisco and other jurisdictions/agencies (including the City Beverly Hills, the FTA and Caltrans).
- A 5-dB increase is generally an increase that is distinctly perceptible.
- The threshold recognizes the importance of human health, as the nighttime ambient noise levels with a 5-dB increase may indicate a potential sleep disturbance, but would be well below the noise limits for potential hearing loss.
- People generally do not use outdoor areas during nighttime activities. However, as indicated above, the threshold takes into account potential noise increase at the building interior, which may result in potential sleep disturbance.
- Mat concrete pour activities typically require a continuous concrete pour to achieve a seamless, integral slab and are necessary for certain types of construction. Therefore, depending on the size of the mat foundation, mat concrete pour activities at times extend into the nighttime hours due to the continuous pour requirements. The number of mat concrete pours is typically limited to a few days for most projects and is temporary in nature. Activities associated with mat and other types of concrete pours involve cement trucks and pumps that do not typically generate noise levels above 80 dBA at a distance of 50 feet. Therefore, mat pours activities with a limited duration are exempted from this threshold and are not expected to result in significant construction noise impacts related to human health. In addition, in accordance with the City's anticipated forthcoming EPMs, staging areas for the mat pour activities would be required to be located as far from noise-sensitive uses as reasonably possible and technically feasible in consideration of site boundaries, topography, intervening roads and uses, and operational constraints.

Absolute Noise

- For construction activities that occur between 7:00 p.m. and 7:00 a.m. Monday through Friday, and between 6:00 p.m. and 8:00 a.m. on Saturdays, and anytime on Sundays or national holidays, the maximum exterior noise level at sensitive uses where sleep is expected may not exceed the following:
 - 55 dBA L_{eq} for sensitive uses within older buildings that would have operable windows that may be open.
 - 65 dBA L_{eq} for sensitive uses with windows closed that are not operable and are single-glazed.

- 70 dBA L_{eq} for sensitive uses that have newer construction (i.e., the structures have been designed to ensure that an interior 45 dBA is obtained with double-paned windows)
- (Mat pour activities (and other types of concrete pour, which require an extended continuous pour beyond the allowable construction hours) that are required to occur during nighttime hours for less than seven days are exempt from this provision).

Supporting Discussion Points:

- The proposed nighttime absolute noise threshold levels are generally based on levels so as not to impact people sleeping. Two components of sleep disturbance include falling asleep and awakening. Per the EPA, noise levels of 40 to 50 dBA could result in difficulty in falling asleep for some people, and noise levels of 70 dBA or higher would likely result in awakening.¹² Therefore, the proposed threshold is based on not exceeding an interior noise level of 45 dBA L_{eq} (averaged between 40 and 50 dBA).
- These maximums, which are tailored based on likely noise attenuation from different building types would foreseeably provide for an interior noise level of 45 dBA L_{eq} , which will address potential noise disruptions to sleep.
- These noise levels support the expectation of a quieter sound environment at residential land uses during nighttime periods, and all-day on Sundays and national holidays when traditionally most occupants would be home.

VIBRATION THRESHOLDS

Proposed Vibration Thresholds for Human Annoyance

- For construction activities that occur between 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 8:00 a.m. and 6:00 p.m. on Saturdays, no numerical threshold is proposed related to human annoyance.
- During nighttime hours (between 7:00 p.m. and 7:00 a.m. Monday through Friday, and between 6:00 p.m. and 8:00 a.m. on Saturdays), and anytime on Sundays or national holidays, construction

¹²

EPA, Noise Effects Handbook: A Desk Reference to Health and Welfare Effects of Noise, p. 6-2, July 1981.

activities shall not generate groundborne vibration levels that exceed 0.80 VdB at the exterior of a sensitive use building.

Supporting Discussion Points:

- The City is an urban area where intermittent human annoyance from construction activity is commonplace and expected during daytime hours.
- The Federal Transit Administration (FTA) provides ground borne vibration impact criteria ranging from 72 (for frequent vibration events) VdB to 80 VdB (infrequent vibration events) for residences and buildings where people normally sleep. The FTA vibration criteria are specified for long-term operations. However, since project construction activities are temporary, the 80 VdB criteria for infrequent vibration events would be appropriate as a vibration threshold for human annoyance. In addition, vibration due to mat concrete pour activities would be minimal (below 80 VdB), as concrete trucks and concrete pumps do not generate excessive vibration levels. Therefore, mat pour activities with a limited duration are exempted from this threshold and are not expected to result in significant construction vibration impacts.

Proposed Vibration Thresholds for Building Damage

- Architectural Building Damage—Construction activities shall not exceed the following building damage thresholds for the identified structures:
 - Fragile Buildings: 0.1 PPV
 - Historic Buildings: 0.25 PPV
 - Older¹³ Residential Structures: 0.3 PPV
 - New Residential Structures: 0.5 PPV
 - Modern Industrial/Commercial Buildings: 0.5 PPV

Supporting Discussion Points:

- These thresholds are consistent with Caltrans criteria that are based on specific building types.¹⁴

¹³ Caltrans does not specify the age of the building to be considered. For vibration impact analyses, a building over 50 years can be considered an "older" residential structure.

¹⁴ Caltrans, Transportation and Construction Guidance Manual, Table 19, Guideline Vibration Damage Potential Threshold Criteria, April 2020.

Attachment 1

Environmental Protection Measures Related to Noise and Vibration (Already included in Community Plan EIRs)

NOISE

Noise and Vibration Standards (NV1)—Construction Noise

NV1-1: Noise Shielding and Muffling

a. Applicability Threshold

Any Project whose earthwork or construction activities involve the use of construction equipment and require a permit from LADBS.

b. Standard

Power construction equipment (including combustion engines), fixed or mobile, shall be equipped with noise shielding and muffling devices consistent with manufacturers' standards or the Best Available Control Technology. All equipment shall be properly maintained, and the Applicant or Owner shall require any construction contractor to keep documentation on-site during any earthwork or construction activities demonstrating that the equipment has been maintained in accordance with manufacturer's specifications.

NV1-2: Use of Driven Pile Systems

a. Applicability Threshold

Any Project whose earthwork and construction activities involve the use of construction equipment and require a permit from LADBS.

b. Standard

Driven (impact) pile systems shall not be used, except in locations where the underlying geology renders drilled piles, sonic, or vibratory pile drivers infeasible, as determined by a soils or geotechnical engineer and documented in a soils report.

NV1-3: Enclosure or Screening of Outdoor Mechanical Equipment

a. Applicability Threshold

Any Project whose earthwork or construction activities involve the use of construction equipment and require a permit from LADBS.

b. Standard

All outdoor mechanical equipment (e.g., generators, compressors) shall be enclosed or visually screened. The equipment enclosure or screen shall be impermeable (i.e., solid material with minimum weight of 2 pounds per square feet) and break the line of sight between the equipment and any off-site Noise-Sensitive Uses.

NV1-4: Location of Construction Staging Areas

a. Applicability Threshold

Any Project whose earthwork or construction activities involve the use of construction equipment and require a permit from LADBS.

b. Standard

Construction staging areas shall be located as far from Noise-Sensitive Uses as reasonably possible and technically feasible in consideration of site boundaries, topography, intervening roads and uses, and operational constraints. The burden of proving what constitutes 'as far as possible' shall be upon the Applicant or Owner, in consideration of the above factors.

NV1-5: Temporary Walls

a. Applicability Threshold

Any Project whose earthwork and construction activities involve the use of construction equipment and require a permit from LADBS; and whose construction activities are located within a line of sight to and within 500 feet of Noise-Sensitive Uses, with the exception of Projects limited to the construction of 2,000 square feet or less of floor area dedicated to residential uses.

b. Standard

Noise barriers, such as temporary walls (minimum ½-inch thick plywood) or sound blankets (minimum STC 25 rating),¹ that are a minimum of eight feet tall, shall be erected between construction activities and Noise-Sensitive Uses as reasonably possible and technically feasible in consideration of site boundaries, topography, intervening roads and uses, and operational constraints. The burden of proving that compliance is technically infeasible shall be upon the Applicant or Owner. Technical infeasibility shall mean that noise barriers cannot be located between construction activities and Noise-Sensitive Uses due to site boundaries, topography, intervening roads and uses, and/or operational constraints.

NV1-6: Noise Study

a. Applicability Threshold

Any Project whose earthwork or construction activities involve the use of construction equipment and require a permit from LADBS; are located

within 500 feet of Noise-Sensitive Uses; and have one or more of the following characteristics:

- Two or more subterranean levels;
- 20,000 cubic yards or more of excavated material
- Simultaneous use of five or more pieces of construction equipment; or
- Construction duration (excluding architectural coatings) of 18 months or more.

Or any Project whose construction activities involve impact pile driving or the use of 300 horsepower equipment.

b. Standard

A Noise Study prepared by a Qualified Noise Expert shall be required and prepared prior to obtaining any permit by LADBS. The Noise Study shall characterize expected sources of earthwork and construction noise that may affect identified Noise-Sensitive Uses, quantify expected noise levels at these Noise-Sensitive Uses, and recommend measures to reduce noise exposure to the extent noise reduction measures are available and feasible, and to demonstrate compliance with any noise requirements in the LAMC. Specifically, the Noise Study shall identify noise reduction devices or techniques to reduce noise levels in accordance with accepted industry practices and in compliance with LAMC standards. Noise reduction devices or techniques shall include but not be limited to mufflers, shields, sound barriers, and time and place restrictions on equipment and activities. The Noise Study shall identify anticipated noise reductions at Noise-Sensitive Uses associated with the noise reduction measures. Applicants and Owners shall be required to implement and comply with all measures identified and recommended in the Noise Study. The Noise Study and copies of any contractor agreements shall be maintained pursuant to the proof of compliance requirements in Section I.D.6.

Noise and Vibration Standards (NV2)—Construction Vibration

NV2-1: Baseline Survey and Vibration Control Plan

a. Applicability Threshold

Any Project, with the exception of Projects limited to the construction of 2,000 square feet or less of floor area dedicated to residential uses, whose earthwork or construction activities: (1) involve the use of construction equipment, including Heavy Construction Equipment, that produces 0.12 PPV or more of vibration at a distance of 25 feet (see reference vibration levels in Appendix F); (2) require a permit from LADBS; and (3) which occur:

- Within 25 feet of any building extremely susceptible to vibration damage, including unreinforced masonry buildings, tilt-up concrete wall buildings, wood-frame multi-story buildings with soft, weak or open

front walls, and non-ductile concrete buildings, or a building that is designated or determined to be a historic resource pursuant to local or state law or that is determined to be potentially eligible for historic designation in a Historic Resources Survey; or

- Within 15 feet of non-engineered timber and masonry buildings.

Or any Project whose construction activities involve the use of pile drivers within 135 feet of any building extremely susceptible to vibration damage, including existing unreinforced masonry buildings, existing tilt-up concrete wall buildings, existing wood-frame multi-story buildings with soft, weak or open front walls, and existing non-ductile concrete buildings, or a building that is designated or determined to be a historic resource pursuant to local or state law or that is determined to be potentially eligible for historic designation in a Historic Resources Survey.

b. Standard

Prior to demolition, grading/excavation, or construction, a Qualified Structural Engineer shall prepare a survey establishing baseline structural conditions of potentially affected structures and a Vibration Control Plan, which shall include methods to minimize vibration, including, but not limited to:

- A visual inspection of the potentially affected structures to document (by video and/or photography) the apparent physical condition of the building (e.g., cracks, broken panes, etc.).
- A shoring design to protect the identified structures from potential damage;
- Use of drilled piles or a sonic vibratory pile driver rather than impact pile driving, when the use of vibrating equipment is unavoidable;
- Use of rubber-tired equipment rather than metal-tracked equipment; and
- Avoiding the use of vibrating equipment when allowed by best engineering practice.

NV2-2: Repair of Damage

a. Applicability Threshold

Any Project, with the exception of Projects limited to the construction of 2,000 square feet or less of floor area dedicated to residential uses, whose earthwork or construction activities: (1) involve the use of construction equipment, including Heavy Construction Equipment, that produces 0.12 PPV or more of vibration at a distance of 25 feet (see reference vibration levels in Appendix F); (2) require a permit from LADBS; and (3) which occur:

- Within 25 feet of any building extremely susceptible to vibration damage, including unreinforced masonry buildings, tilt-up concrete wall buildings, wood-frame multi-story buildings with soft, weak or open

front walls, and non-ductile concrete buildings, or a building that is designated or determined to be a historic resource pursuant to local or state law or that is determined to be potentially eligible for historic designation in a Historic Resources Survey; or

- Within 15 feet of non-engineered timber and masonry buildings.

Or any Project whose construction activities involve the use of pile drivers within 135 feet of any building extremely susceptible to vibration damage, including existing unreinforced masonry buildings, existing tilt-up concrete wall buildings, existing wood-frame multi-story buildings with soft, weak or open front walls, and existing non-ductile concrete buildings, or a building that is designated or determined to be a historic resource pursuant to local or state law or that is determined to be potentially eligible for historic designation in a Historic Resources Survey.

b. Standard

In the event of damage to any non-historic building due to construction vibration, as verified by the Qualified Structural Engineer, a letter describing the damage to the impacted building(s) and recommendations for repair shall be prepared by the Qualified Structural Engineer within 60 days of the time when damage occurred. Repairs shall be undertaken and completed, at the Owner's or Applicant's expense, in conformance with all applicable codes.

In the event of vibration damage to any building that is designated or determined to be a historic resource pursuant to local or state law or that is determined to be potentially eligible for historic designation in a Historic Resources Survey, a letter describing the damage to the impacted building(s) and recommendations for repair shall be prepared by the Qualified Historian within 60 days of the time when damage occurred. Repairs shall be undertaken and completed, at the Owner's or Applicant's expense, in conformance with the California Historical Building Code (Title 24, Part 8) as well as the Secretary of the Interior's Standards for the Treatment of Historic Properties and associated guidelines, as applicable and as determined by the Qualified Historian.

Attachment 2

Proposed Additional EPM to Address Vibration-Sensitive Uses

NV2-3: Vibration Sensitive Uses [Proposed additional EPM]

a. Applicability Threshold

Any Project, with the exception of Projects limited to the construction of 2,000 square feet or less of floor area dedicated to residential uses, whose earthwork or construction activities occur within 150 feet of hospital and veterinary operating centers, imaging facilities, and recording studios.

b. Standard

- Prior to demolition, grading/excavation, or construction, a Qualified Vibration Consultant shall prepare a Vibration Impact Analysis at the vibration sensitive use and shall prepare a Vibration Control Plan, to minimize vibration impacts.
- The qualified vibration consultant shall take vibration monitoring measurements during site clearing, earthmoving activities, and foundation and structural activities within 150 feet of the sensitive use in order to assess the actual impact of vibration on adjacent structures and to incorporate and adjust techniques as necessary to reduce vibration. To the extent the adjacent sensitive use allows the applicant to conduct monitoring within the adjacent sensitive use, baseline monitoring prior to construction and monitoring during these construction activities shall be conducted at the sensitive use. The engineer shall insure the incorporation of measures that reduce vibration at the sensitive use.
- Noticing of the scheduling of various phases of construction will be submitted to the adjacent vibration-sensitive use 45 days in advance of activities and shall identify the dates of activity, the hours of activity, types of equipment to be used and the anticipated noise and vibration levels.

Attachment 3

Construction Noise and Vibration Analysis Thresholds

CONSTRUCTION NOISE

Daytime - Increase Over Ambient. No numeric threshold for daytime construction activities (between 7:00 A.M. and 7:00 P.M. Monday through Friday, and between 8:00 A.M. and 6:00 P.M. on Saturdays).

Daytime - Absolute Threshold. Maximum 80 dBA Leq (8-hour) absolute threshold at sensitive uses (at the property line with outdoor uses or at the exterior of the building), including outdoor public recreational areas.

Nighttime - Increase Over Ambient. Maximum 5 dBA increase above the ambient noise level at sensitive uses (between 7:00 P.M. and 7:00 A.M. Monday through Friday, and between 6:00 P.M. and 8:00 A.M. on Saturdays, and anytime on Sundays or national holidays). Certain mat pour activities are exempt from this provision.

Nighttime - Absolute Noise

- Maximum 55 dBA Leq for sensitive uses within older buildings that would have operable windows that may be open.
- Maximum 65 dBA Leq for sensitive uses with windows closed that are not operable and are single-glazed.
- Maximum 70 dBA Leq for sensitive uses that have newer construction (e.g., the structures have been designed to ensure that an interior 45 dBA is obtained with double-paned windows). Certain mat pour activities are exempt from this provision.

CONSTRUCTION VIBRATION

Daytime - Human Annoyance. No numerical threshold.

Nighttime - Human Annoyance. Maximum 0.80 VdB at the exterior of a sensitive use building.

Building Damage, Construction activities shall not exceed the following building damage thresholds for the identified structures:

- Fragile Buildings: 0.1 PPV
- Historic Buildings: 0.25 PPV
- Older Residential Structures: 0.3 PPV
- New Residential Structures: 0.5 PPV
- Modern Industrial/Commercial Buildings: 0.5 PPV

Attachment 4

Construction Noise and Vibration Analysis Methodology

In calculating the absolute noise levels, Project construction-related noise levels at the receptor locations are to be calculated based on the anticipated construction equipment planned to be used and using the construction equipment noise levels published by the FHWA's "Roadway Construction Noise Model," as provided in Table 1, on page 2.¹ The construction noise calculations are to be based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance, using the following equation:

$$L_{eq(8-hr)} = L_{max} \text{ at 50 feet} - 20\log(D/50) + 10\log(UF) + 10G\log(D/50) \text{ (Eq. 1)}$$

Where:

$L_{eq(8-hr)}$ = calculated noise level, $L_{eq(8-hr)}$, at a receptor from the operation of a single piece of equipment, dBA.

L_{max} at 50 feet = noise emission level of the construction equipment at the reference distance of 50 feet, dBA (from Table 1).

D = distance from the receptor to the construction equipment, feet

To represent the average construction noise level, as construction equipment would move around the project site, the distance (D) is to be from the approximate center of the project site to the receptor location (maximum 500 feet from the interior of the Project site).

UF = usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

G = a constant that accounts for topography and ground effects.

For general assessment, assumed $G = 0$ assuming free-field conditions and without ground effects. If ground effects are of specific importance, use the FTA procedure for calculating G.²

¹ FHWA Roadway Construction Noise Model User's Guide, 2006.

² FTA, Transit Noise and Vibration Impact Assessment Manual, Table 4-26, September 2018. See attached.

Table 1
Equipment Noise Emissions and Acoustical Usage Factors

Equipment	Acoustical Usage Factor (%)	Noise Level at 50 feet from Equipment, dBA (L_{max})
Auger Drill Rig	20	84
Backhoe	40	78
Compactor (ground)	20	83
Compressor (air)	40	78
Concrete Mixer Truck	40	79
Concrete Pump Truck	20	81
Concrete Saw	20	90
Crane	16	81
Dozer	40	82
Drill Rig Truck	20	84
Drum Mixer	50	80
Dump Truck	40	76
Excavator	40	81
Flat Bed Truck	40	74
Front End Loader	40	79
Generator	50	81
Generator (<25KVA, VMS Sign)	50	73
Gradall	40	83
Grader	40	85
Jackhammer	20	89
Man Lift	20	75
Mounted Impact Hammer (hoe ram)	20	90
Paver	50	77
Pneumatic Tools	50	85
Pump	50	81
Roller	20	80
Scraper	40	84
Trenching Machine	50	80
Tractor	40	84
Vacuum Street Sweeper	10	82
Welders	40	74
<i>Source: FHWA Roadway Construction Noise Model User's Guide, 2006.</i>		

The 8-hour L_{eq(8-hr)} should be calculated for all equipment anticipated to be used for each phase of construction using Equation 1 above.

In addition, the noise level for the loudest equipment operating for some period of time at the nearest distance to the receptor should be calculated using Equation 2 below.

$$L_{eq(8-hr)} = L_{max \text{ at } 50 \text{ feet}} - 20\log(D/50) + 10\log(UF) + 10\log(T/8) + 10G\log(D/50) \quad \text{(Eq. 2)}$$

Where:

$L_{eq(8-hr)}$ = calculated noise level, $L_{eq(8-hr)}$, at a receptor from the operation of a single piece of equipment, dBA.

$L_{max \text{ at } 50 \text{ feet}}$ = noise emission level of the construction equipment at the reference distance of 50 feet, dBA (from Table 1).

D = distance from the receptor to the construction equipment, feet

To represent the noise level from the loudest equipment, the distance (D) is to be from perimeter of the project construction site (or, if known, as close to the perimeter as on-site conditions physically allow and/or based on nearest expected work/activity proximity of the loudest equipment piece) to the receptor location.

UF = usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

T = number of hours (within an 8-hour period) that the loudest equipment would be operating at the distance "D" above. For example, for one hour, T would equal one (1). If T is unknown, assume one hour for purposes of this calculation.

G = a constant that accounts for topography and ground effects.

For general assessment, assumed $G = 0$ assuming free-field conditions and without ground effects. If ground effects are of specific importance, use the FTA procedure for calculating G.³

This additional loudest-equipment calculation reflects consideration for such a potentially dominant acoustical contributor to overall construction noise for a defined phase to be closer to the studied off-site receptor than the approximate geographic center of the Project site per Eq. 1.

Combine the individually calculated noise levels, using Eq. 1 and Eq. 2, from all construction equipment within each phase of construction, using the Equation 3, below:

$$L_{eq(8-hr) \text{ total}} = 10\log \left[\sum_{\text{all sources}} 10^{L_{eq(8-hr)}/10} \right] \quad \text{(Eq. 3)}$$

³ FTA, *Transit Noise and Vibration Impact Assessment Manual*, Table 4-26, September 2018

An alternative calculation to the $L_{eq(8-hr)}$ noise level can be made using an area source method, using a computer prediction model, such as, SoundPLAN, CadnaA, or comparable software tools or emulators. The area source calculation method would provide a more refined calculation of the spatial average of the construction equipment over the project site. (See, e.g., attached Sample Noise Calculations Attached for the alternative calculation.)

Nighttime Construction Noise Calculations

For the nighttime construction noise, calculate the one-hour $L_{eq(1-hr) \text{ total}}$ using above Equations 1 and 2 for the expected operating on-site equipment during a nighttime hour of interest. Then, logarithmically combine these results with Equation 4 below:

$$L_{eq(1-hr) \text{ total}} = 10 \log \left[\sum_{\text{all sources}} 10^{L_{eq(1-hr)}/10} \right] \quad (\text{Eq. 4})$$

Finally, calculate the composite construction plus ambient noise level, using Equation 5 below:

$$L_{eq(\text{composite})} = 10 \log \left[10^{L_{eq(1-hr) \text{ total}}/10} + 10^{L_{eq(\text{ambient})}/10} \right] \quad (\text{Eq. 5})$$

Determine the potential noise impact by comparing the composite construction noise level from Eq. 5 with the measured nighttime ambient noise levels. Noise impact is considered significant if the composite construction noise levels (project construction noise plus nighttime ambient) is 5 dBA or higher than the nighttime ambient noise level.

Vibration Calculations Procedures

Vibration levels at the receptor locations are to be calculated based on the Caltrans published standard vibration velocities for various construction equipment operations, as provided in Table 2 below.

Table 2
Construction Equipment Reference Vibration Source Levels

Equipment	Reference PPV at 25 feet (in/sec)
Vibratory Roller	0.210
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003
Source: Caltrans, <i>Transportation and Construction Vibration Guidance Manual</i> , 2020.	

The vibration velocities at a receptor can be calculated based on a point source with standard distance propagation conditions, pursuant to Caltrans procedures, using Equation 4, below.

$$PPV_{\text{Equipment}} = PPV_{\text{Ref}} (25/D)^n \text{ (in/sec) (Eq. 4)}$$

Where:

$PPV_{\text{Equipment}}$ = calculated vibration level at a receptor from the operation of a single piece of equipment.

PPV_{Ref} = reference vibration level (PPV) of the construction equipment at the reference distance of 25 feet, dBA (from Table 2).

D = distance from the receptor to the construction equipment, feet

n = 1.1 (the value related to the attenuation rate through ground)

Caltrans suggests a value of 1.1 for “n” because vibration from construction equipment originates primarily near the ground surface. A higher value of “n” based on site-specific soil conditions could be used for a less-conservative estimation of vibration level, such as 1.5 as used by FTA or per Table 3 from the Caltrans 2020 *Transportation and Construction Vibration Guidance Manual*.

Sample Noise Calculations

Project 1 (Large Project): 1111 Sunset Project EIR

Project 2 (Medium Project): Hollywood & Wilcox Project EIR

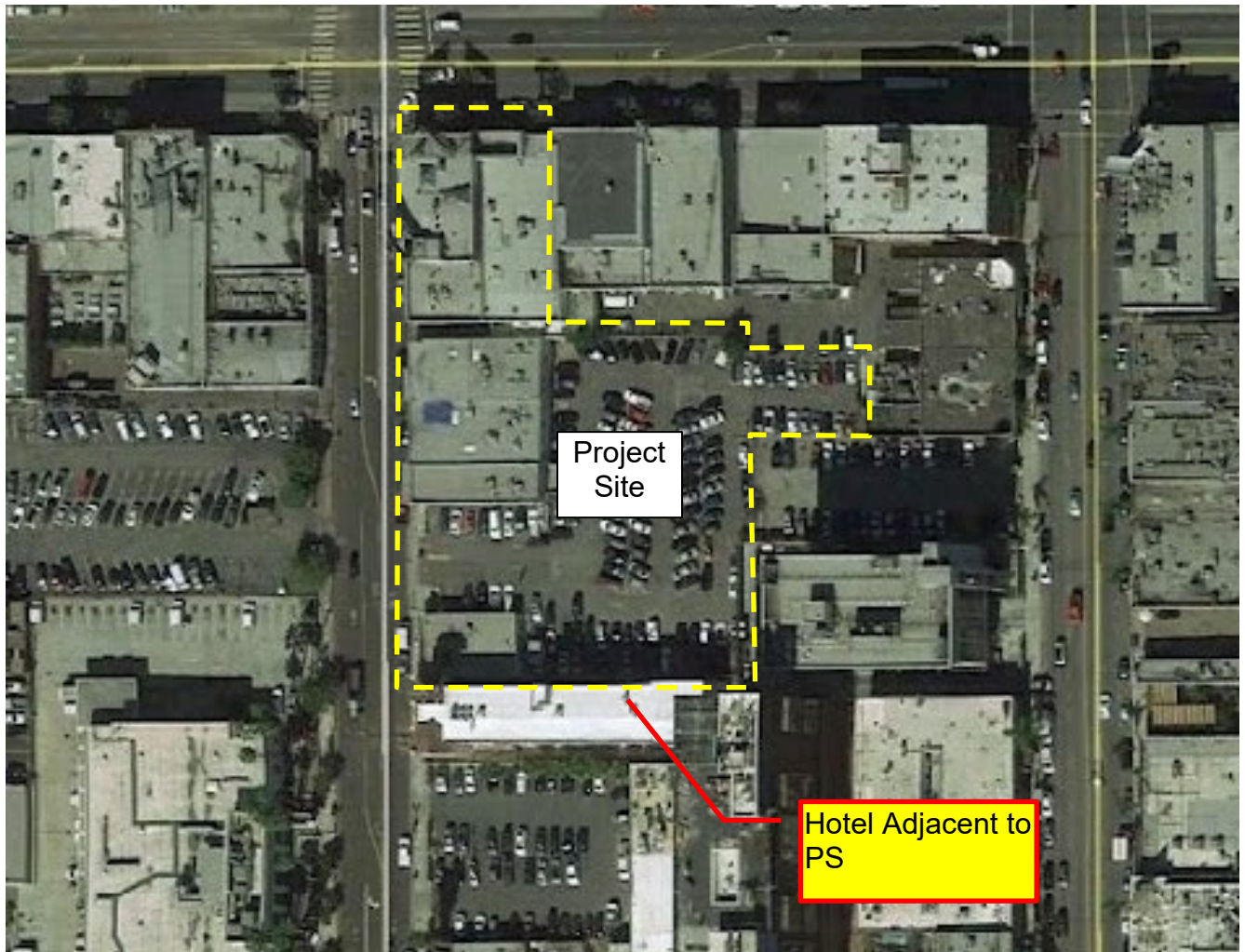
Project 3 (Small Project): 8000 W 3rd Street Project MND

8-Hour Leq Construction Noise Calculations - 1111 Sunset Project EIR



Calculation Method (With all equipment operating 8 hours)	Estimated Noise Levels at Nearest Receptor, dBA Leq(8-hr)	
	Demolition/Grading Phase	Grading/Excavation Phase
1. All equipment at center of Project Site (approximately 300 feet), with one noisiest piece near the receptor (70 feet) for one hour. <i>Calculation using Excel spreadsheet.</i>	77	75
2. All equipment spatially spread across entire site (modelled as an area source). <i>Calculation using SoundPLAN computer prediction model.</i>	72	71
<u>Assumptions:</u> – Demo/Grading Phase: (3) bore/drill rigs, (2) cement and mortar mixers, (4) excavator, (2) plate compactor, (1) generator, (1) rough terrain forklift, (4) rubber-tired loaders, (2) skid steer loaders, (2) tractor/loader/backhoes, (3) water trucks, (3) welders, (1) air compressor, (1) concrete saw. – Grading/Excavation Phase: (3) bore/drill rigs, (2) cement and mortar mixers, (4) excavator, (2) plate compactor, (1) generator, (1) rough terrain forklift, (4) rubber-tired loaders, (2) skid steer loaders, (2) tractor/loader/backhoes, (3) water trucks, (3) welders.		

8-Hour Leq Construction Noise Calculations - Hollywood & Wilcox Project EIR



Calculation Method (With all equipment operating 8 hours)	Estimated Noise Levels at Nearest Receptor, dBA Leq(8-hr)	
	Demolition Phase	Grading Phase
1. All equipment at center of Project Site (approximately 150 feet), with one noisiest piece near the receptor (10 feet) for one hour. <i>Calculation using Excel spreadsheet.</i>	88	83
2. All equipment spatially spread across entire site (modelled as an area source). <i>Calculation using SoundPLAN computer prediction model.</i>	80	80
<u>Assumptions:</u> - Demo Phase: (1) concrete saw, (2) excavators, (1) front end loader, (1) bobcat, (1) water truck, (1) air compressor. - Grading Phase: (2) bore/drill rigs, (1) plate compactor, (1) excavator, (1) front end loader, (2) tieback drill rigs, (1) air compressor, (2) concrete trucks, (1) crane, (4) welders.		

8-Hour L_{eq} Construction Noise Calculations - 8000 W 3rd Street Project MND



Calculation Method (With all equipment operating 8 hours)	Estimated Noise Levels at Nearest Receptor, dBA L_{eq} (8-hr)	
	Demolition Phase	Grading Phase
1. All equipment at center of Project Site (approximately 75 feet), with one noisiest piece near the receptor (75 feet) for one hour. <i>Calculation using Excel spreadsheet.</i>	84	82
2. All equipment spatially spread across entire site (modelled as an area source). <i>Calculation using SoundPLAN computer prediction model.</i>	79	78
<u>Assumptions:</u> - Demo Phase: (1) concrete saw, (1) excavators, (2) tractor/loader/backhoe, (1) air compressor. - Grading Phase: (1) bore/drill rigs, (2) excavators, (2) tractor/loader/backhoe, (1) pump, (1) crane, (1) welder.		

Appendix B

Proposed Historic Resources Methodology Update Memorandum

MEMORANDUM

Teresa Grimes | Historic Preservation

Teresa.Grimes@icloud.com

323-868-2391

Date: January 5, 2024

For: Danae Hall, AICP, Kimley-Horn

Project: Los Angeles Aerial Rapid Transit (LA ART) Project

Subject: City of Los Angeles Update to CEQA Thresholds and Methodology

I managed and co-authored the preparation of the Historical Resource Technical Report (Technical Report) for the Los Angeles Aerial Rapid Transit (LA ART) Project. The Technical Report analyzed the potential impacts of the proposed Project on historical resources as defined by the California Environmental Quality Act (CEQA). The Technical Report was used in the preparation of the Cultural Resource section of the Draft Environmental Impact Report (Draft EIR) for the proposed Project.

The City of Los Angeles is in the process of updating its CEQA Thresholds and Methodology. The City has released but not yet adopted two documents related to historical resources: a guide for the preparation of impact analysis and a guide for preparing technical studies. Neither of these documents change the thresholds of significance in the CEQA Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations). Rather, these documents would memorialize best practices for the review and analysis of historical resources. The Technical Report for the LA ART Project is consistent with the best practices outlined in these two documents.

Appendix C

Heritage Trees at the Los Angeles State Historic Park



January 3, 2024

Danae Hall, AICP
Kimley-Horn
660 S. Figueroa Street
Los Angeles, CA 90017

Re: Heritage Trees at the Los Angeles State Historic Park

Dear Ms. Hall,

A question has arisen regarding the presence of heritage trees at the Los Angeles State Historic Park. This letter provides my determination and conclusion about the presence of heritage trees located in the Park.

In April-June 2021, Carlberg inventoried the trees at each of the proposed locations of the Project's stations, junction, and towers, as well as trees under and adjacent to the Project's alignment that would or could encroach within 5 feet of the bottom of the cabins within 50 feet from the centerline of the Project's ropeway. As detailed in Appendix K, Updated Tree Report, of the Final EIR, a total of 75 trees were identified to be removed within the Los Angeles State Historic Park, including 24 trees associated with the construction of the Chinatown/State Park Station and 51 trees associated with the Project's alignment. In addition, six (6) City of Los Angeles right-of-way trees were identified to be removed for the construction of the Chinatown/State Park Station. None of the trees identified to be removed within the Los Angeles State Historic Park are protected trees under the City of Los Angeles Tree Protection Ordinance.

Definitions of 'heritage tree' vary depending on a particular jurisdiction or tree ordinance. A common definition is typically a large, individual tree with unique value, and is considered irreplaceable. The major criteria for heritage tree designation are age, rarity, and size, as well as aesthetic, botanical, ecological, and historical value.¹

¹ Coates, Peter A. (2006). *American Perceptions of Immigrant And Invasive Species: Strangers on the Land*. University of California Press. pp. 140-. ISBN 978-0-520-24930-1. January 3, 2024.

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The City of Los Angeles Department of Recreation and Parks defines a heritage tree as:

Individual trees of any size or species that are specially designated as heritage because of their historical, commemorative, or horticultural significance.

The City has designated just nine trees within the City that qualify as 'heritage'.² None of the City designated heritage trees are located in the Los Angeles State Historic Park or are otherwise affected by the Project.

Metro's Tree Policy defers to local ordinances for their respective definitions of Heritage and Protected Trees, but states the following regarding Heritage and Protected Trees:

Removal of Heritage Trees shall be avoided to the greatest extent feasible due to their historical or other significance. When necessary, designated heritage trees (by local ordinance) will be replaced at a four-to-one ratio by the trees of the same variety. Protected trees must be protected and removed in compliance with the local ordinance identifying a Protected Tree. The identification and protection of Heritage Trees and Protected Trees are to be addressed in the Construction Contractor's Tree Protection Plan.

As noted above, none of the nine City designated heritage trees are located in the Los Angeles State Historic Park or are otherwise affected by the Project.

With respect to protected trees, trees within Los Angeles City jurisdictional limits fall within the guidelines of the City of Los Angeles Tree Preservation Ordinance No. 186,873 (Chapter IV, Article 6 of the Los Angeles Municipal Code), as implemented by the City of Los Angeles Planning Department. Protected trees and shrubs as set forth in the Ordinance are coast live oak, western sycamore, Southern California black walnut, California bay laurel, Mexican elderberry and toyon with trunk diameters (measured at 4.5 feet above grade) of 4 inches or greater. If a protected tree species was part of a planting program (e.g., not naturally occurring), it is not considered a "protected" tree as defined in the Ordinance.

While trees within the Park include western sycamore, coast live oak, and toyon, because these trees were all planted as part of the Park's tree planting program and are not naturally occurring, the trees are not classified as a protected tree by the City under the Ordinance. Moreover, all trees at the Park are small- to medium-sized trees. The tree with the largest diameter is a sycamore (16.2 inches); it was transplanted into the landscape as a mature tree, as was a coast live oak (13.5 inches diameter). Typical trunk diameters of the trees installed from nursery containers are six inches.

Photographs on the following pages illustrate the subject trees, their sizes, and the general landscape within the Park. Also included are aerial images from Google Earth showing the mass grading of the site in 2005; clearly there were no existing trees at that time.

² <https://www.laparks.org/forest/heritage-trees>



In my professional opinion, there are no trees that could be considered or classified as 'heritage' at the Los Angeles State Historic Park.

Please feel welcome to contact me if you have any questions.

Sincerely,



Cy Carlberg, Registered Consulting Arborist
Principal, Carlberg Associates



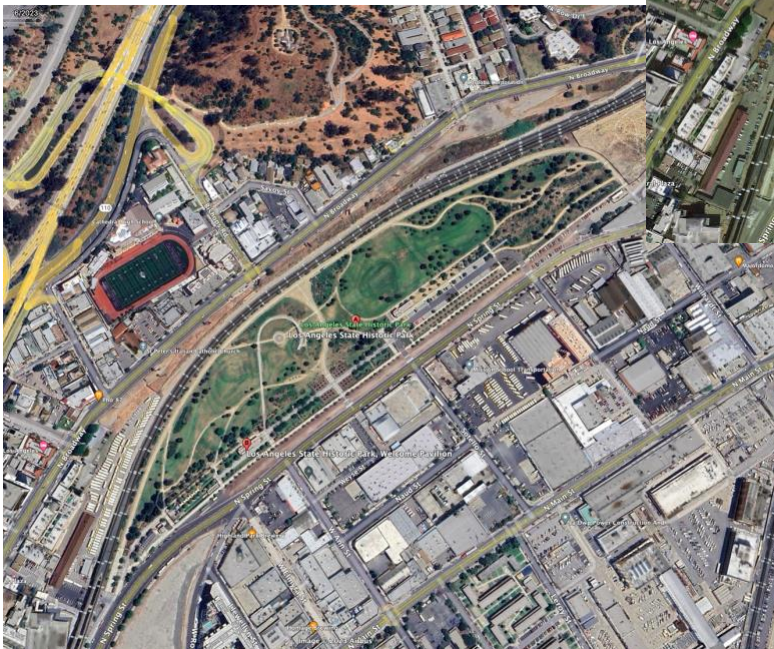
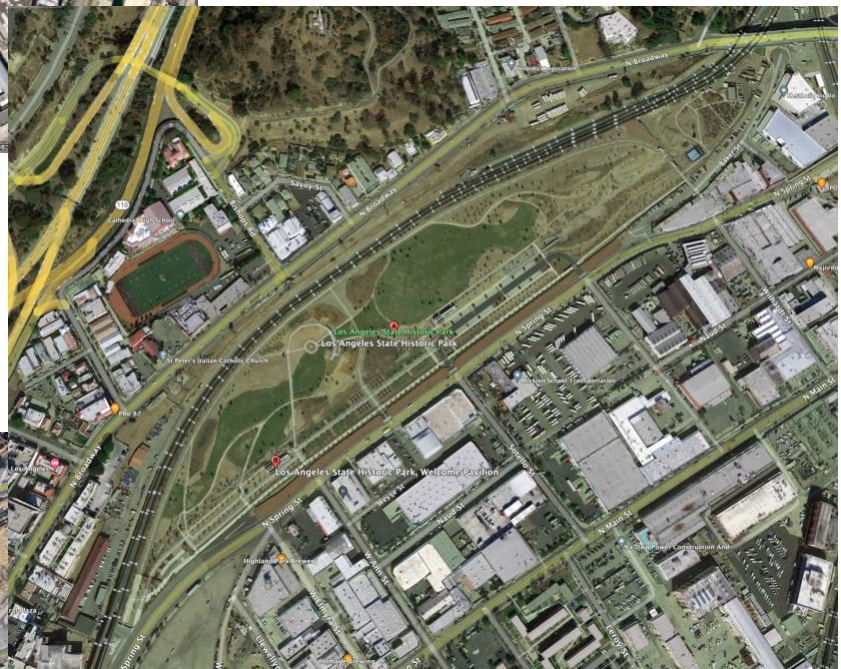


Google Earth Historic Images:

Left: 2005, showing mass grading of the Park.

Below right: 2016, showing the recently installed trees and other plant material.

Below left: 2023, showing the landscape as it appears today.





These images illustrate the absence of any trees of any significant size.





Above: Showing the typical size of a planted sycamore.

Above right: Showing the typical size of one of the toyons.

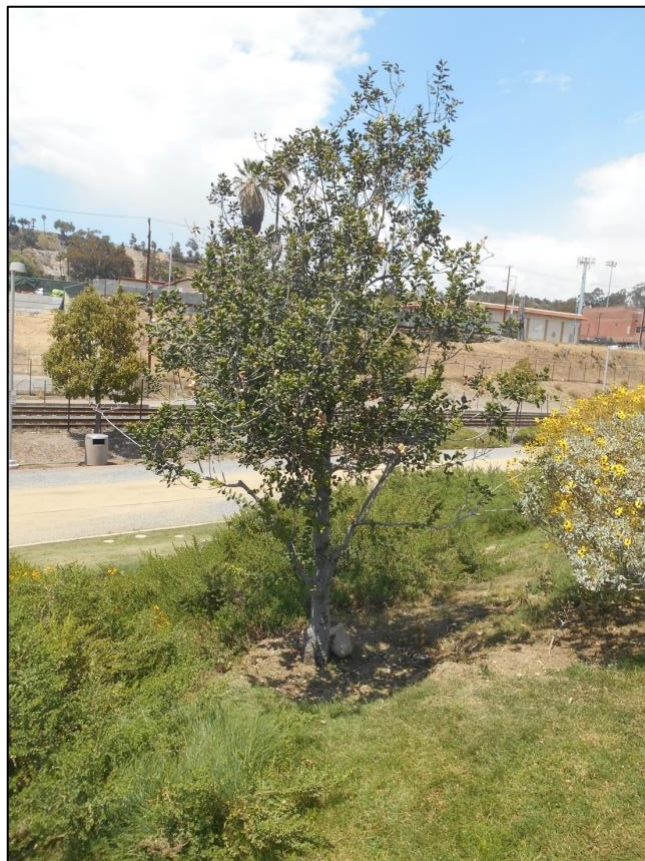
Bottom right: Showing a large sycamore that was transplanted as a mature specimen into the Park.





Left: 2005, showing the one medium-sized oak in the subject area of the Park; it was transplanted into the Park as a mature specimen.

Below: The only other oak in the subject area.



Appendix D

LA ART Station Operational Noise Analysis

Project name:
LAART Noise and Vibration**To:**
Danae Hall
Kimley Horn**From:**
Chris Kaiser, INCE
AECOM**Date:**
January 10, 2024

Memo

Subject: LAART Station Operational Noise Analysis

Following the release of the Final EIR, a stakeholder posted a link to a YouTube video taken within the interior of the 3S Eisgratbahn system at the Stubai Glacier in Tyrol, Austria. In posting the video, the stakeholder indicated that the 3S system in Tyrol is different than the system proposed for the Project because the Project's stations don't have solid walls.

As discussed in Section 3.13, Noise, of the Draft EIR and Topical Response P, Gondola System Noise Modeling, of the Final EIR, equations taken from a journal article, *Noise prediction models for gondola ropeway components*,¹ (Rossi Article) were used to predict noise levels that would result from operations of the Project. The noise analysis for the Project then took the additional step of validating the Rossi Article equations against a 3S gondola system similar to the system that would be used for the Project to ensure that the Rossi Article equations could be appropriately used to predict noise levels from operations of the Project. As detailed in the Final EIR Topical Response P and Final EIR Appendix L, 3S Sound Measurements Memo, the 3S gondola system noise measurements that were utilized to validate the Rossi Article equations were taken from the 3S Eisgratbahn system at the Stubai Glacier in Tyrol, Austria.

Tables 5-3 and 5-4 of Appendix M, Noise and Vibration Technical Report, of the Draft EIR, summarize the results of the validation calculations and show the predicted noise levels using the Rossi Article equations that were selected for the Project and the measured noise taken from the system in Tyrol. As shown therein, and as discussed on pages 37 through 39 of Appendix M, Noise and Vibration Technical Report, of the Draft EIR, use of the Rossi Article's equations to evaluate the Project's operational noise is validated by the measured noise from the Tyrol system and results in a conservative assessment of the noise generated by the Project. Specifically, as shown in Table 5-3, this comparison led to a conservative average over-prediction of 2.6 dBA across all station locations. Accordingly, use of the Rossi Article's equations to evaluate the Project's operational noise was appropriately validated using a 3S gondola system that is similar to the Project and use of the model has been shown to result in a conservative assessment of the noise generated by the Project.

It is important to note that while the 3S gondola system in Tyrol was used to validate the Rossi Article's equations, the noise measurements from Tyrol were not used to predict the noise levels for the Project. Instead, the noise prediction was generated from the equations in the Rossi Article.

¹ Rossi, F. and Nicolini, A. Noise Prediction Models for Gondola Ropeway Components. Noise Control Engineering Journal, 59 (5), pp. 415-431, September-October 2011.

Nevertheless, the noise measurements taken of the Tyrol system that were used to validate the Rossi Article's equations were taken outside of the subject station in locations with a direct line-of-sight to the mechanical equipment. Therefore, any walls and windows that do exist as part of the Tyrol system would not have resulted in reduced sound levels at the locations where noise measurements were taken. Accordingly, any differences that may exist between the walls at the system in Tyrol and the Project are irrelevant to the Project's noise analysis.

We also note that the YouTube video was taken within the interior of the Tyrol system and in close proximity to noise-generating equipment, thereby enhancing the perceived loudness and tonality of station operation. Considering basic acoustic propagation principles, the actual operational sound levels experienced off-site at noise sensitive receptors would be significantly quieter and would feature less high-pitch content. Furthermore, the video misrepresents the future noise environment at receptors where sounds from the system would be intermixed with and partially masked by existing noise sources. In fact, predicted station operational sound levels provided in Table 3.13-23 of Section 3.13, Noise, of the Draft EIR, show that operational sound levels would be quieter than measured existing noise levels (e.g., traffic noise) at every studied noise-sensitive receptor.

Appendix E

Supplemental Memorandum on Structural Design

Date Monday, January 8, 2024

To Danae Hall

Address Kimley-Horn
660 S. Figueroa Street
Los Angeles, CA 90017

From Ryan Wilkerson, Principal

Re LA ART: Supplemental Memo on Structural Design

Nabih Youssef & Associates, Structural Engineers (NYA) is an internationally recognized structural engineering firm providing specialized structural and earthquake engineering consulting for new and existing buildings. NYA has advised on the proposed Project since 2018.

We prepared Appendix F, Memo on Structural Design, for the Final EIR. Following release of the Final EIR, a stakeholder alleged that the Memo on Structural Design suggests that additional or larger support structures may be needed for the proposed Project's structural feasibility. As detailed in the Memo on Structural Design, the proposed Project's stations, junction, and towers would meet the rigorous safety standards of applicable standards, requirements, and building codes, including all mandated standards addressing environmental factors such as wind and seismic effects and gravity forces, to ensure structural integrity and safety. Neither additional nor larger support structures for the stations, junctions, or towers would be required.

Appendix F

Memorandum on Monarch Butterflies

February 8, 2024

To: Danae Hall, AICP, Kimley-Horn

From: Michael J. Kuehn, Ph.D., Senior Biologist | Project Manager

Re: Los Angeles Aerial Rapid Transit Project – Monarch Butterflies

Following the release of the proposed Project's Final EIR, certain commenters expressed concern about the Project potentially impacting monarch butterflies and their habitat in the Los Angeles State Historic Park. As discussed below, due to the absence of overwintering and breeding habitat for monarch butterflies within the proposed Project's BSA, impacts to this species arising from the proposed Project's construction and operation are expected to be negligible.

Background

The monarch butterfly became a candidate for listing under the federal Endangered Species Act (FESA) on December 17, 2020 (85 FR 81813). As described in 85 FR 81813, Monarch butterflies in western North America exhibit long-distance migration and overwinter as adults at forested locations in Mexico and California. These overwintering sites provide protection from the elements (for example, rain, wind, hail, and excessive radiation) and moderate temperatures, as well as nectar and clean water sources located nearby. Adult monarch butterflies feed on nectar from a wide variety of flowers. Reproduction is dependent on the presence of milkweed, the sole food source for monarch butterfly larvae.

Monarch Butterfly Habitat Was Not Identified in the Proposed Project's BSA

Construction impacts to monarch butterflies are expected to be limited because milkweed plants were not observed in the BSA during three previously performed surveys (April 1, 2021, April 24, 2022, and March 23, 2023) conducted for the proposed Project's EIR. Furthermore, the following online resources were used to determine whether milkweed and monarch butterflies, or their overwintering sites, have been detected by others within the BSA. One record of milkweed was identified within the State Historic Park, but this record appears to be associated with ongoing restoration work outside of the BSA (discussed below). No overwintering sites were identified.

- Western Monarch Milkweed Mapper—Provides locations of western monarch overwintering sites, milkweed occurrences, and monarch sightings (The Xerces Society for Invertebrate Conservation 2024a, <https://www.monarchmilkweedmapper.org/>, last accessed 2/8/2024).
- Western Monarch Count Overwintering Site Database—Provides locations of western monarch overwintering sites, (The Xerces Society for Invertebrate Conservation et al. 2024b, <https://westernmonarchcount.org/map-of-overwintering-sites/>, last accessed 2/8/2024).

Milkweed Restoration in the Los Angeles State Historic Park

At least two comment letters from stakeholders associated with Project Monarch LA (Villagomez Jan. 16, 2024 and Ozawa Jan. 16, 2024) expressed concerns about potential impacts to milkweed plants that are part of a restoration program at the Los Angeles State Historic Park which is implemented in partnership with Project Monarch LA (<https://www.projectmonarchla.org/>).

According to the Project Monarch LA website, this restoration work was initiated in March 2023. Since this planting effort could have continued after the most recent survey of the BSA on March 23, 2023, an additional field survey was performed by a botanist to assess the BSA within the Los Angeles State Historic Park on January 17, 2024, for the presence of milkweed plants. During this survey, no milkweed plants were found in the area surveyed.

Milkweed plants and associated signage pertaining to the related restoration effort were located in the northeastern end of the Los Angeles State Historic Park, more than 500 feet outside of the BSA and more than 1,000 feet from the proposed Project alignment. As discussed in greater detail in Appendix G, Supplemental Biological Resources Report, to the Final EIR, the eastern portion of the Los Angeles State Historic Park is a sufficient distance away to not be impacted by the proposed Project. Although one commenter expressed concern that milkweed plantings in this area of the park would be inaccessible during Project construction and thus may perish without regular watering, access to this area would not be limited during construction, and the area will not otherwise be impacted by Project construction or operation.

Conclusion

Due to the absence of overwintering and breeding habitat for monarch butterflies within the proposed Project's BSA, impacts to this species arising from construction and project operation are expected to be negligible.