Los Angeles County
Metropolitan Transportation Authority

Link Union Station

Final Noise and Vibration Study

January 2026

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, renewed July 22, 2024, and executed by the Federal Railroad Administration and the State of California.

Metro

CALIFORNIA
High-Speed Rail Authority

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CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS

ADA	Americans with Disabilities Act
BNSF	BNSF Railway
dB	decibel
dBA	A-weighted decibel
CBC	California Building Code
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHSRA	California High Speed Rail Authority
CNEL	Community Noise Equivalent Level
CP	Control Point
EIS	Environmental Impact Statement
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
HSR	High-Speed Rail
ID	identification
LAUS	Los Angeles Union Station
L_{dn}	day-night sound level
L_{eq}	equivalent noise level
Link US	Link Union Station
L_{max}	maximum sound level
Metro	Los Angeles County Metropolitan Transportation Authority
ML	monitoring location
MOU	memorandum of understanding
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
PEIR	Program Environmental Impact Report
Project	Link Union Station Project
PPV	peak particle velocity
PTC	Positive Train Control
ROW	Right-of-Way
RTP	Regional Transportation Plan
SCAG	Southern California Association Of Governments
SCS	Sustainable Communities Strategy
VCEs	Vertical Clearance Elements
VdB	Vibration velocity level in decibels

U.S.	United States
USC	United States Code
US-101	United States Highway 101

ES.0 Executive Summary

This noise and vibration study was prepared pursuant to the National Environmental Policy Act (NEPA) to determine the short-term construction and long-term noise and vibration effects resulting from the No Action Alternative and the Build Alternative and identify mitigation measures to reduce the potential for adverse effects related to noise and vibration.

The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* (FTA 2018) manual, Federal Railroad Administration's (FRA) *High-Speed Ground Transportation Noise and Vibration Impact Assessment* (FRA 2012) manual, FRA's Procedures for Considering Environmental Impacts [*Federal Register* 64 (3): 28555, May 26, 1999], and California High-Speed Rail Authority's (CHSRA) Environmental Methodology Guidelines (CHSRA 2014) were implemented as the methodology to evaluate the noise and vibration impacts of the regional/intercity rail and high-speed rail (HSR) components of the Link Union Station (Link US) Project (Project or proposed action), respectively.

To provide a baseline for the evaluation, noise and vibration measurements were conducted at monitoring locations associated with sensitive land uses in the vicinity of Los Angeles Union Station (LAUS) where sensitive receptors occur near proposed infrastructure. The sensitive receptor locations were used for predictions and represent a cluster of sensitive receptors, consistent with FTA/FRA guidance and regulations. The measurements identified that noise and vibration levels in the Project study area are consistent with those located near active rail lines and in urban environments.

Operational noise and vibration levels were analyzed for the Build Alternative in 2026, 2031, and 2040 conditions. A summary of the operational noise impacts is as follows:

- In the 2026 condition, 24 moderate noise impacts would occur (all William Mead Homes dwelling units) and no severe impacts would occur.
- In the 2031 condition, 34 moderate impacts would occur (16 dwelling units at William Mead Homes, 3 dwelling units at Mozaic Apartments, and 15 dwelling units at Care First Village) and 35 severe noise impacts would occur (24 dwelling units at William Mead Homes, 10 dwelling units at Care First Village, and one park at William Mead Homes).
- In the 2040 condition, 25 moderate impacts would occur (16 dwelling units at William Mead Homes and 9 dwelling units at Mozaic Apartments) and 35 severe impacts would occur (24 dwelling units at William Mead Homes, 10 dwelling units at Care First Village, and one park at William Mead Homes).

A summary of the long-term operational noise impacts for each of the receptors is below:

- Related to William Mead Homes and the Care First Village, severe impacts in the 2031 condition is considered an adverse effect. Implementation of Mitigation Measure NV-1 (described in Section 11.1) would reduce adverse operational noise impacts by reducing noise levels lower than the FTA severe impact criteria.

- For the Mozaic Apartments, exterior noise levels at the Mozaic Apartments would result in moderate noise impacts at three dwelling units, specifically at the balconies of the units located closest to LAUS. Mitigation measures are not proposed because severe impacts would not occur and the exterior areas (balconies) of the Mozaic Apartments are already exposed to relatively high existing noise levels from transit and railroad operations located at LAUS. The Mozaic Apartments were recently constructed in 2005 and as part of the planning process, the developer was required to design the development in accordance with City of Los Angeles Municipal Code, Section 91.1207.14.2 since it is located in close proximity to railroad tracks. The City's code requires that new buildings located in close proximity to train tracks be constructed in such a manner to ensure interior sound levels are 45 dBA L_{dn} or lower. With or without implementation of the Build Alternative, interior sound levels are assumed to be 45 A-weighted decibel (dBA) day-night sound level (L_{dn}) or lower because noise attenuation measures in the form of thick pane windows and concrete structures (as opposed to other noise absorbing materials) are already in place, as required by the City of Los Angeles. As with the existing train movements at LAUS, with the Build Alternative, the majority (e.g., over 80 percent) of the train movements would occur during daytime hours during the peak-period, rather than during nighttime hours when rail activity could result in greater sleep disturbance. For these reasons, effects would not be considered adverse.
- The Los Angeles County Men's Central Jail and the Twin Towers Correctional Facility do not have outdoor uses and are not predicted to be subjected to noise levels that exceed severe or moderate noise limits. Additionally, these two facilities are comprised of buildings made from concrete with thick windows. Consistent with Federal Highway Administration guidance for interior sound level attenuation, interior noise levels during operation of are estimated to be at least 20 decibels (dB) lower than those experienced at the exterior of these structures with windows closed, which would be similar for railroad noise sources (Federal Highway Administration 2011). Interior noise levels would be below 45 dBA L_{dn}, which is a level that the United States (U.S.) Environmental Protection Agency has identified as a level that does not interfere with interior activities (e.g., speech and sleeping), and interior noise levels at the facilities would be 45 dBA L_{dn} or lower for the same reasons described above. Based on these considerations, effects would not be considered adverse.
- For Los Angeles County Metropolitan Transportation Authority (Metro) Senior Housing, La Petite Academy, and One Santa Fe Apartments, no moderate or severe impacts were identified. No adverse effect would occur.

No operational vibration impacts would result from the Build Alternative.

Construction-related noise associated with the Build Alternative would exceed FTA's construction noise guidelines at sensitive receptors nearest to the Build Alternative, resulting in an adverse effect on William Mead Homes, Care First Village Mozaic Apartments, and the Metro Gateway Childhood Development Center. the following Category 2 and 3 land uses would be subject to construction noise that exceeds the City's 75 dBA limit:

- William Mead Homes - 41 dwelling units and one recreational use;
- Care First Village - approximately 36 dwelling units and a playground/park;
- Mozaic Apartments - 82 dwelling units; and,
- Metro Gateway Childhood Development Center.

Mitigation Measure NV-2 (described in Section 11.2) includes provisions for construction of temporary noise barriers around stationary equipment; rerouting truck traffic away from residential areas; siting stationary construction equipment as far away from sensitive land uses as practicable; sequencing construction such that construction activities are conducted during the same time period; avoidance of nighttime construction activities; and use of alternative construction methods, such as drilled piles instead of impact piles in the vicinity of sensitive receptors to reduce construction-related noise. Although mitigation would reduce construction noise, noise levels would still exceed applicable thresholds in some areas. Therefore, effects would remain adverse.

Construction-related vibration impacts resulting from the Build Alternative are also predicted to occur at William Mead Homes, Care First Village, and the Mozaic Apartments. Mitigation for construction-related vibration impacts would be similar to that for construction-related noise. Implementation of Mitigation Measures NV-2 and NV-3 (described in Section 11.2) would reduce the potential for adverse construction-related noise and vibration impacts to occur, as well as associated annoyance related to construction-related noise and vibration.

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1.0 Introduction

The Los Angeles County Metropolitan Transportation Authority (Metro), as the owner of Los Angeles Union Station (LAUS), is proposing the infrastructure improvements associated with the Link Union Station (Link US) Project (Project or proposed action) to address existing capacity constraints at LAUS. For the purposes of the National Environmental Policy Act (NEPA), Metro is serving as the local Project sponsor and joint lead agency.

Pursuant to 23 United States Code (USC) Section 327 and a memorandum of understanding (MOU) between the Federal Railroad Administration (FRA) and the State of California, effective July 23, 2019, under a program known as NEPA Assignment, the California High-Speed Rail Authority (CHSRA) is responsible for the federal review and approval of environmental documents for projects on the high-speed rail (HSR) system and other passenger rail projects that directly connect to the HSR system, including the Link US Project. For the purposes of the environmental impact statement (EIS) being prepared, CHSRA is serving as the federal lead agency with NEPA responsibilities pursuant to the requirements of the NEPA Assignment MOU. CHSRA and Metro are preparing the EIS in compliance with NEPA (42 USC Section 4321 et seq.), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508), FRA's Procedures for Considering Environmental Impacts (FRA's Environmental Procedures) (*Federal Register* [FR] 64(101), 28545-28556, May 26, 1999), 23 USC Section 139, and the NEPA Assignment MOU.[1, 2]

Pursuant to the MOU requirements between FRA and the State of California, FRA's Environmental Procedures are being used to determine environmental effects of the No Action Alternative and the Build Alternative.

Below is an overview of the purpose and need, the Project study area, the No Action Alternative, and the major components associated with the on-site infrastructure improvements proposed at and within the vicinity of LAUS that are associated with the Build Alternative considered in the EIS.

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[1] While this environmental document was being prepared, FRA adopted new NEPA compliance regulations (23 CFR 771). Those regulations only apply to actions initiated after November 28, 2018. See 23 CFR 771.109(a)(4). Because this environmental document was initiated prior to that date, it remains subject to FRA's Environmental Procedures rather than the Part 771 regulations.

[2] The CEQ issued new regulations, effective April 20, 2022, updating the NEPA implementing procedures at 40 CFR Parts 1500–1508. However, because this environmental document was initiated prior to the effective date, it is not subject to the new regulations and CHSRA is relying on the regulations as they existed on the date of the initial Notice of Intent, May 31, 2016. Therefore, all citations to CEQ regulations in this environmental document refer to the 1978 regulations and the 1986 amendment, 51 *Federal Register* 15618 (April 25, 1986).

1.1 Purpose

The purpose of the proposed action is to increase the regional and intercity rail service capacity of LAUS and to improve schedule reliability at LAUS through the implementation of a run-through tracks configuration and elimination of the current stub end tracks configuration while preserving current levels of freight rail operations, accommodating the planned HSR system in Southern California, increasing the passenger/pedestrian capacity and enhancing the safety of LAUS through the implementation of a new passenger concourse, meeting the multi-modal transportation demands at LAUS.

1.2 Need

The need for the proposed action is generated by the forecasted increase in regional population and employment; implementation of federal, state, and regional transportation plans (RTP) that provide for increased operational frequency for regional and intercity trains; and introduction of the planned HSR system in Southern California. Localized operational, safety, and accessibility upgrades in and around LAUS will be required to meet existing demand and future growth.

1.3 Project Location and Study Area

The Build Alternative consists of infrastructure improvements in Downtown Los Angeles in the vicinity of LAUS (Figure 1-1). LAUS is located at 800 Alameda Street in the City of Los Angeles, California. LAUS is bounded by United States Highway 101 (US-101) to the south, Alameda Street to the west, Cesar Chavez Avenue to the north, and Vignes Street to the east. The northern Project limit is at North Main Street (Mile Post 1.18) and the southern Project limit is in the vicinity of Control Point (CP) Olympic, south of Interstate 10 and Olympic Boulevard (Mile Post 142.70).

Figure 1-2 depicts the Project study area, which is generally used to characterize the affected environment, unless otherwise specified, and provide a geographic context for the existing and proposed infrastructure improvements at and within the vicinity of LAUS. The Project study area includes three main segments (Segment 1: Throat Segment, Segment 2: Concourse Segment, and Segment 3: Run-Through Segment). The existing conditions within each segment are summarized north to south below:

- **Segment 1: Throat Segment –** This segment, known as the LAUS throat, includes CP Chavez and the area north of the platforms at the LAUS rail yard, from North Main Street at the north to Cesar Chavez Avenue at the south. In the throat segment, all arriving and departing trains are required to traverse through a complex network of lead tracks, switches, and crossovers. Five lead tracks provide access into and out of the rail yard, except for one location near the Vignes Street Bridge, where it reduces to four lead tracks. Currently, special track work consisting of multiple turnouts and double-slip switches are used in the throat to direct trains into and out of the appropriate assigned terminal platform tracks. The Garden Tracks (stub-end tracks where private train cars are currently stored) are also located just north of the platforms. Land uses in the vicinity of the throat segment are residential, industrial, and institutional.

- **Segment 2: Concourse Segment –** This segment is between Cesar Chavez Avenue and US-101 and includes LAUS, the rail yard, the East Portal Building, the baggage handling building with associated parking areas and access roads, the ticketing/waiting halls, and the 28-foot-wide pedestrian passageway with connecting ramps and stairways below the rail yard. Land uses in the vicinity of the concourse segment are residential, commercial, and public.
- **Segment 3: Run-Through Segment –** This segment is south of LAUS and extends east to west from Alameda Street to the west bank of the Los Angeles River and north to south from Keller Yard to CP Olympic. This segment includes US-101, the Commercial Street/Ducommun Street corridor, Metro Red and Purple Lines Maintenance Yard (Division 20 Rail Yard), BNSF Railway (BNSF) West Bank Yard, Keller Yard, the main line tracks on the west bank of the Los Angeles River from Keller Yard to CP Olympic, and the Amtrak lead track connecting the main line tracks with Amtrak's Los Angeles Maintenance Facility in the vicinity of 8th Street. Land uses in the vicinity of the run-through segment are primarily industrial and manufacturing.

The Project study area has a dense street network ranging from major highways to local city streets. The roadways within the Project study area include the El Monte Busway, US-101, Bolero Lane, Leroy Street, Bloom Street, Cesar Chavez Avenue, Commercial Street, Ducommun Street, Jackson Street, East Temple Street, Banning Street, First Street, Alameda Street, Garey Street, Vignes Street, Main Street, Aliso Street, Avila Street, Bauchet Street, and Center Street.

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Figure 1-1. Project Location and Regional Vicinity

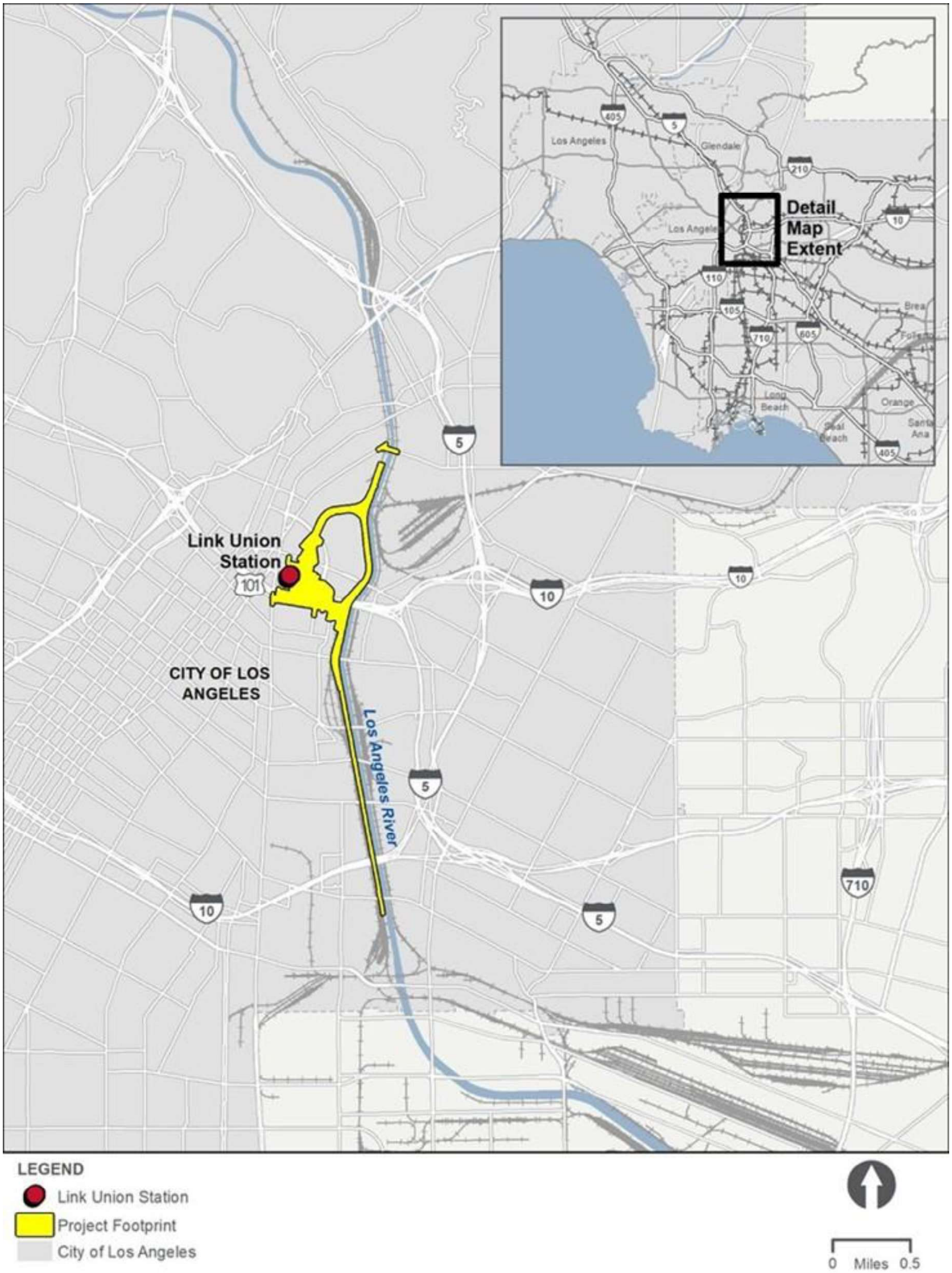

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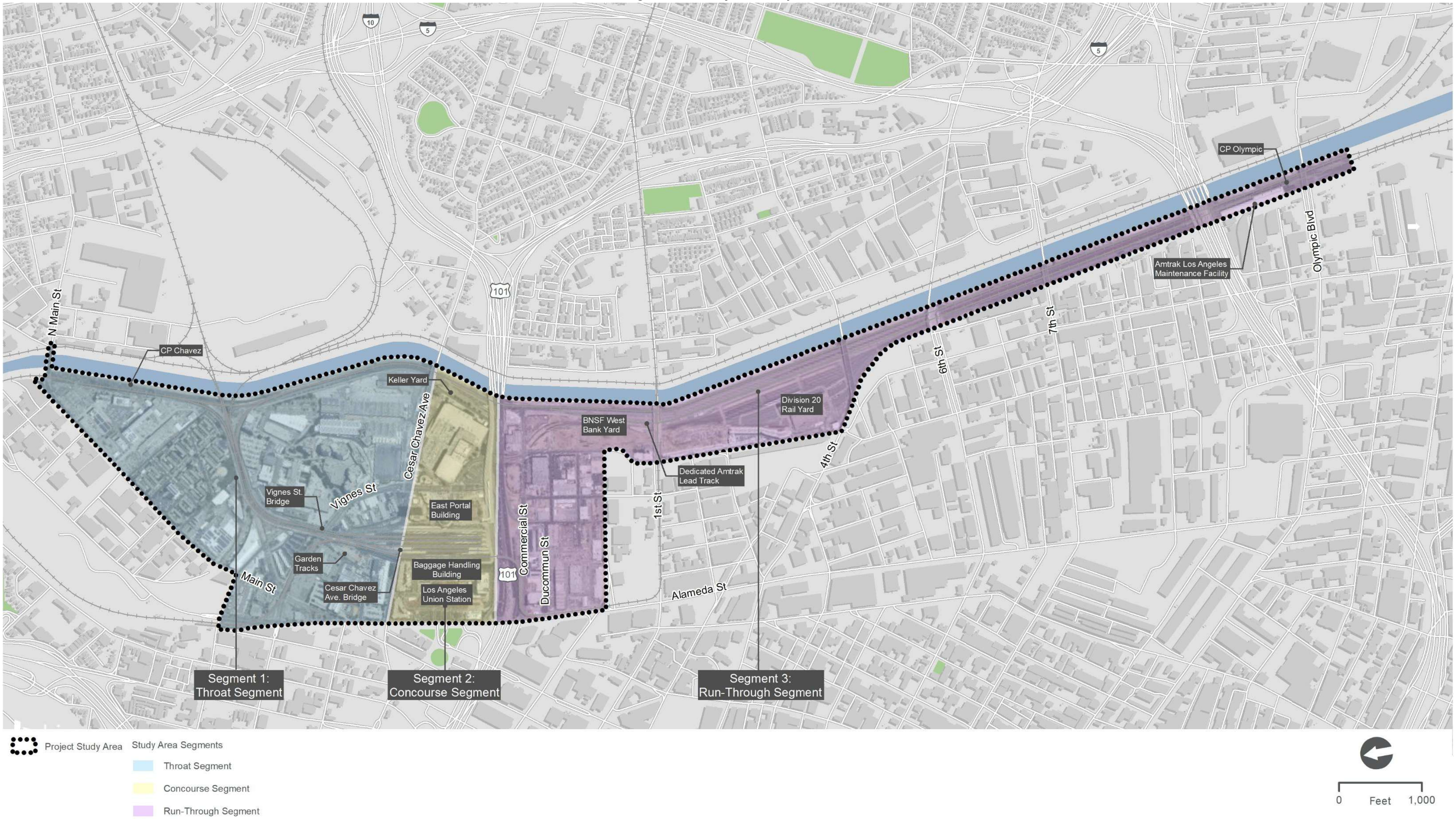
Figure 1-2. Project Study Area



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1.4 Project Alternatives

The EIS includes an evaluation of the No Action Alternative and one build alternative (Build Alternative). The Build Alternative would include, but not be limited to, new lead tracks north of LAUS (Segment 1: Throat Segment), an elevated throat and rail yard with concourse-related improvements at LAUS (Segment 2: Concourse Segment), and 10 run-through tracks south of LAUS (Segment 3: Run-Through Segment).

1.4.1 No Action Alternative

NEPA (40 CFR 1502.14(d)) requires federal agencies to include an analysis of "the alternative of no action." For NEPA purposes, the No Action Alternative is the baseline against which the effects of implementing the Build Alternative is evaluated against to determine the extent of environmental and community effects. For the No Action Alternative, the baseline year is 2016, and the horizon year is 2040.

The No Action Alternative represents the future conditions that would occur if the proposed infrastructure improvements and the operational capacity enhancements at LAUS were not implemented. The No Action Alternative reflects the foreseeable effects of growth planned for the area in conjunction with other existing, planned, and reasonably foreseeable projects and infrastructure improvements in the Los Angeles area, as identified in planning documents prepared by Southern California Association of Governments (SCAG), Metro, and/or Metrolink, including the 2023 Federal Transportation Improvement Program (FTIP) (SCAG 2023), *Final 2008 Regional Comprehensive Plan* (SCAG 2008), and the 2020 RTP/Sustainable Communities Strategy (SCS): Connect SoCal (SCAG 2020).

Conditions in the Project study area would remain similar to the existing condition, as described below:

- **Segment 1: Throat Segment –** Trains would continue to operate on five lead tracks that do not currently accommodate the planned HSR system. The tracks north of LAUS would remain at the current elevation, and the Vignes Street Bridge and Cesar Chavez Avenue Bridge would remain in place.
- **Segment 2: Concourse Segment –** LAUS would not be transformed from a stub-end tracks station into a run-through tracks station, and the 28-foot-wide pedestrian passageway would be retained in its current configuration. No modifications to the existing passenger circulation routes or addition of vertical circulation elements (VCE; escalators and elevators) at LAUS would occur.
- **Segment 3: Run-Through Segment –** Commercial Street would remain in its existing configuration, and implementation of active transportation improvements would likely be implemented along Center Street in concert with the *Connect US Action Plan* (Metro 2015). No modifications to the BNSF West Bank Yard would occur.

1.4.2 Build Alternative

The key components associated with the Build Alternative are summarized north to south below:

- **Segment 1: Throat Segment (lead tracks and throat track reconstruction) –** The Build Alternative includes subgrade and structural improvements in Segment 1 of the Project study area (throat segment) to increase the elevation of the tracks leading to the rail yard. The Build Alternative includes the addition of one new lead track in the throat segment for a total of six lead tracks to facilitate enhanced operations for regional/intercity rail trains (Metrolink/Amtrak) and operations for HSR trains within a shared track alignment. Regional/intercity and HSR trains would share the two western lead tracks in the throat segment. The existing railroad bridges in the throat segment at Vignes Street and Cesar Chavez Avenue would also be reconstructed. North of CP Chavez on the west bank of the Los Angeles River, the Build Alternative also includes safety improvements at the Main Street public at-grade railroad crossing (medians, restriping, signals, and pedestrian and vehicular gate systems) to facilitate future implementation of a quiet zone by the City of Los Angeles.
- **Segment 2: Concourse Segment (elevated rail yard and expanded passageway) –** The Build Alternative includes an elevated rail yard and expansion of the existing 28-foot-wide pedestrian passageway in Segment 2 of the Project study area (concourse segment). The rail yard would be elevated approximately 15 feet. New passenger platforms would be constructed on the elevated rail yard with associated VCEs (stairs, escalators, and elevators) to enhance safety elements and improve Americans with Disabilities Act (ADA) accessibility. Platform 1, serving the Gold Line, would be lengthened, and elevated to optimize east to west passenger circulation. The pedestrian passageway would be expanded at the current grade to a 140-foot width to accommodate a substantial increase in passenger capacity with new functionally modern passenger amenities while providing points of safety to meet applicable California Building Code (CBC) and National Fire Protection Association (NFPA) 130 Standards for Fixed Guideway Transit Systems. The expanded passageway and associated concourse improvements would facilitate enhanced passenger circulation and provide space for ancillary support functions (back-of-house uses, baggage handling, etc.), transit-serving retail, and office/commercial uses while creating an opportunity for an outdoor, community-oriented space with new plazas east and west of the elevated rail yard (East and West Plazas). Amtrak ticketing and baggage check-in services would be enhanced, and new baggage carousels would be constructed in a centralized location under the rail yard. A canopy would be constructed over the West Plaza up to 70 feet in height, and two design options are considered for canopies that would extend over the rail yard (Section 1.4.3).
- **Segment 3: Run-Through Segment (10 run-through tracks) –** The Build Alternative includes 10 new run-through tracks south of LAUS in Segment 3 of the Project study area (run-through segment). The Build Alternative includes common rail infrastructure from LAUS to the west bank of the Los Angeles River (vicinity of First Street

Bridge) to support run-through tracks for both regional/intercity rail trains and HSR trains. At the BNSF West Bank Yard, dedicated lead tracks for Amtrak trains and BNSF trains, in combination with implementation of common rail infrastructure would result in permanent loss of freight rail storage track capacity at the north end of BNSF West Bank Yard (5,500 track feet).

The Build Alternative would also require modifications to US-101 and local streets (including potential street closures and geometric modifications); improvements to railroad signal, positive train control (PTC), and communication systems; modifications to the Gold Line light rail platform and tracks; modifications to the main line tracks on the west bank of the Los Angeles River; modifications to the Amtrak lead track; addition of access roadways to the railroad right-of-way (ROW); land acquisitions; addition of utilities; utility relocations, replacements, and abandonments; and addition of drainage facilities/water quality improvements.

1.4.3 Rail Yard Canopy Design Options

Two design options for canopies over the elevated platforms in the rail yard are considered in conjunction with the concourse-related improvements as part of the Build Alternative.

- **Rail Yard Canopy Design Option 1 (individual canopies) –** This design option would include replacing the existing historic butterfly canopies with individual canopies above each platform. New individual canopies would extend up to 25 feet above each platform and would be similar in form to the existing butterfly canopies but sized to fit the widened and lengthened platforms. Platform lengths would vary between 450 and 1,445 feet. Platforms would be up to 30 feet wide.
- **Rail Yard Canopy Design Option 2 (grand canopy) –** This design option would include replacing the existing historic butterfly canopies with a large grand canopy that would extend up to 75 feet above the elevated rail yard platforms. The grand canopy would be up to 1,500 feet long and wide enough to provide cover over all elevated platforms in the rail yard.

1.5 Project Implementation Approach

The implementation of infrastructure improvements would generally occur in two main phases that are evaluated as scenario years in the EIS: the interim condition and the full build-out condition. The infrastructure improvements for each of these scenarios are described below.

1.5.1 Interim Condition (Phase A)

The interim condition (also referred to as Phase A) is when the run-through track infrastructure south of LAUS and the associated signal modifications, property acquisitions, and civil/structural improvements to facilitate new run-through service would be implemented. The interim condition does not include new lead tracks north of LAUS, or the elevated rail yard and new concourse-related improvements at LAUS. The interim condition aligns with a construction completion date as early as 2026.

A summary of the proposed activities associated with the interim condition is provided below.

- Acquire properties south of LAUS within the Project footprint.
- Relocate utilities north and south of LAUS.
- Acquire a portion of the BNSF West Bank Yard (majority north of First Street) and remove 5,500 feet of existing storage tracks at BNSF West Bank Yard.
- Construct special track work and modify signal/communication infrastructure north of LAUS.
- Construct a run-through track ramp on the southern extent of Platform 4 at LAUS.
- Construct a common viaduct/deck over US-101.
- Construct a common embankment from Vignes Street to Center Street south of LAUS.
- Construct common Center Street Bridge south of LAUS.
- Construct common embankment or new common bridge from Center Street to Amtrak Bridge south of LAUS.
- Construct common Amtrak Bridge south of LAUS.
- Construct Division 20 access road.
- Construct common rail embankment on the west bank of the Los Angeles River (from Amtrak Bridge to First Street Bridge).
- Construct new dedicated lead tracks for BNSF freight trains and Amtrak trains.
- Construct two run-through tracks from Platform 4 at LAUS to the main line tracks along the west bank of the Los Angeles River.

Some embankments and/or bridges south of LAUS could be constructed in a phased manner.

1.5.2 Full Build-Out Condition (Phase B)

The full build-out condition (also referred to as Phase B) is when new lead tracks and the elevated throat north of LAUS, along with the elevated rail yard and concourse-related improvements at LAUS would be implemented. The full build-out condition aligns with a construction completion date as early as 2031.

A summary of the proposed activities associated with the full build-out condition is provided below.

- Construct new compatible lead tracks and reconstruct throat north of LAUS.
- Construct new bridges over Vignes Street and Cesar Chavez Avenue north of LAUS.

- Construct elevated rail yard, concourse-related improvements, and East/West Plazas at LAUS.
- Construct remaining run-through tracks for regional/intercity rail operations on previously constructed structures south of LAUS.

The full build-out condition includes the common rail infrastructure for the planned HSR system that would be located throughout the Link US Project limits, including improvements at LAUS. Operation of HSR trains would occur on two lead tracks north of LAUS, Platforms 2 and 3 and associated Tracks 3 through 6 at LAUS, and on HSR run-through tracks supported by common rail bridges and embankments south of LAUS. Operation of the planned HSR system is or will be considered in CHSRA's environmental documentation for the Burbank to Los Angeles and Los Angeles to Anaheim Project Sections.

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2.0 Objective

This noise and vibration study was prepared to identify potential noise and vibration impacts (synonymous with effects) in accordance with NEPA. The report provides a discussion of alternatives considered, the physical setting of the Project study area, and the noise and vibration regulatory framework applicable to the Project. The assessment identifies the existing noise and vibration conditions and provides an analysis of potential noise and vibration impacts that may occur from short-term construction activities and long-term operation.

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3.0 Purpose of Report

The purpose of this report is to:

1. Describe the regulatory framework for noise and vibration.
2. Describe the methods used for characterizing existing conditions and evaluating construction and operational effects.
3. Determine the short-term construction and long-term operational noise and vibration effects.
4. Identify mitigation measures that would reduce the potential for adverse effects to occur, to the extent feasible.

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4.0 Approach

This chapter describes the overall approach to preparing the noise and vibration analysis for construction and operation. The approach includes:

- Acoustic terminology description.
- Vibration terminology description.
- Methods for assessing operational noise sources.
- Operational vibration.
- Construction noise.
- Construction vibration.

FTA*'s Transit Noise and Vibration Impact Assessment* (FTA 2018), as well as FRA's *High-Speed Ground Transportation Noise and Vibration Impact Assessment* (FRA 2012) manuals were followed to evaluate the environmental effects of the Project. Additionally, the operational noise assessment implements the methods provided in Section 3.4 of CHSRA's *Environmental Methodology Guidelines* (CHSRA 2014), as applicable. Noise and vibration effects were assessed using procedures followed by the FTA for regional/intercity rail improvements because FRA defers to FTA procedures for this type of evaluation. Because the Project accommodates the planned HSR system, the FRA and the CHSRA procedures are also considered.

4.1 Acoustic Terminology

Noise levels are presented on a logarithmic scale to account for the large pressure response range of the human ear. This logarithmic scale is expressed in units of dB. A dB is defined as the ratio between a measured value and a reference value usually corresponding to the lower threshold of human hearing. The lower threshold of human hearing is defined as 20 micropascals. Typically, a noise analysis examines 11 octave (or 33⅓ octave) bands ranging from 16 hertz (low) to 16,000 hertz (high). This octave band encompasses the human audible frequency range. Because the human ear does not perceive every frequency with equal loudness, spectrally varying sounds are often adjusted with a weighting filter. The A-weighted filter is applied to compensate for the frequency response of the human auditory system, known as a dBA.

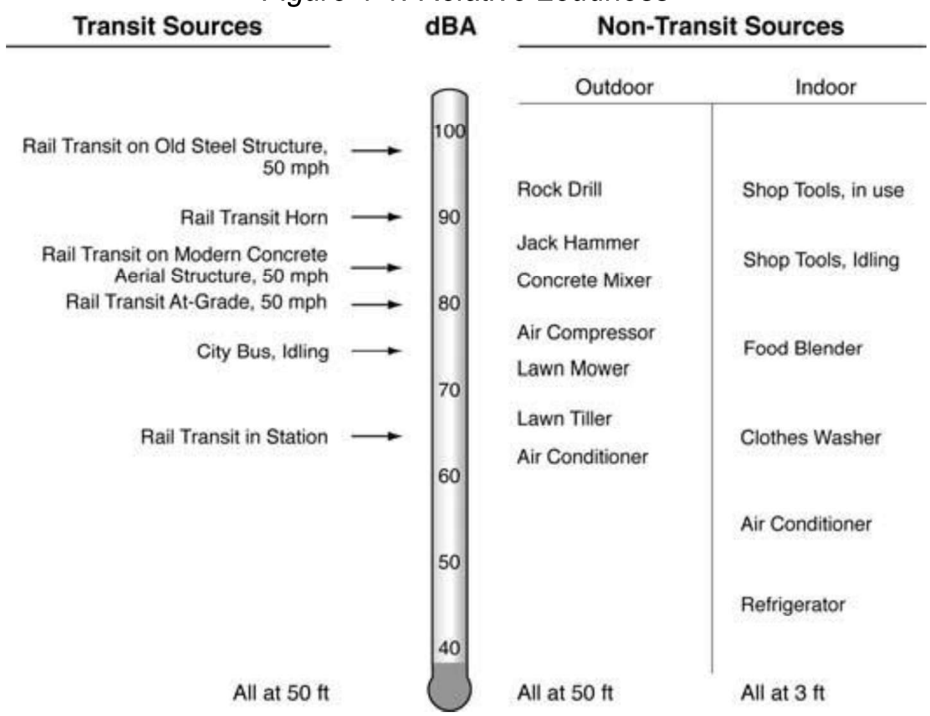
An inherent property of the logarithmic dB scale is that the sound pressure levels of two separate sources are not directly additive. For example, if a sound of 50 dBA is added to another sound of 50 dBA in the proximity, the result is a 3-dB increase, which is a total of 53 dBA and not an arithmetic doubling to 100 dBA.

The human ear perceives changes in sound pressure level relative to changes in "loudness." Scientific research demonstrates the following general relationships between sound level and human perception for two sound levels with the same or very similar frequency characteristics:

- One dBA is the practical limit of accuracy for sound measurement systems and corresponds to an approximate 10 percent variation in the sound pressure level. A 1 dBA increase or decrease is a non-perceptible change in sound to the average person.
- Three dBA increase or decrease is a doubling (or halving) of acoustic pressure level, and it corresponds to the threshold of change in loudness perceptible in a laboratory environment. In practice, the average person is barely able to distinguish a 3 dBA difference in environmental sound outdoors.
- Five dBA increase or decrease is described as a readily perceptible change in relative loudness and is a discernible change in an outdoor environment.
- Ten dBA increase or decrease is a tenfold increase or decrease in acoustic pressure level but is perceived as a doubling or halving in loudness (e.g., the average person would judge a 10 dBA change in sound level to be twice or half as loud).

Figure 4-1 depicts estimations of common noise sources and outdoor acoustic environments. It provides the comparison of relative loudness for each of these sources.

Figure 4-1. Relative Loudness



Source: FTA 2018

Noise levels can be measured, modeled, and presented in various formats. The noise metrics that were employed in this analysis have the following definitions:

- ***L_{eq}*** (equivalent noise level)***.*** Conventionally expressed in dBA, the L_{eq} is the energy-averaged, A-weighted sound level over a specified time period. It is defined as the steady, continuous sound level over a specified time, which has the same acoustic energy as the actual varying sound levels over the specified period. The daytime L_{eq} is the energy averaged sound level for the daytime period (7:00 AM to 10:00 PM) and the nighttime L_{eq} is the energy averaged sound level for the nighttime period (10:00 PM to 7:00 AM).
- ***L_{dn}*** (day-night sound level)***.*** The L_{dn} is the energy average, hourly A-weighted L_{eq} for a 24-hour period with a 10-dB penalty added to sound levels occurring during the nighttime hours (10:00 PM to 7:00 AM) to account for individuals' increased sensitivity to noise levels during nighttime hours.
- ***dB.*** Noise levels are presented on a logarithmic scale to account for the large pressure response range of the human ear and are expressed in units of decibels (dB). A decibel is defined as the ratio between a measured value and a reference value usually corresponding to the lower threshold of human hearing defined as 20 micropascals (μPa). The A-weighted filter is applied to compensate for the frequency response of the human auditory system, known as dBA.
- ***L_{max}.*** The maximum A weighted sound level as determined during a specified measurement period. It can also be described as the maximum instantaneous sound pressure level generated by a piece of equipment or during a construction activity.
- ***Community noise equivalent level.*** Community noise equivalent level (CNEL) is another average A weighted L_{eq} sound level measured over a 24-hour period; however, this noise scale is adjusted to account for some individuals' increased sensitivity to noise levels during the evening and nighttime hours. A CNEL noise measurement is obtained after adding 5 dB to sound levels occurring during evening hours (7:00 PM to 10:00 PM) and 10 dB to noise levels occurring during nighttime hours (10:00 PM to 7:00 AM).

4.2 Vibration Terminology

As noted in the FTA's *Noise and Vibration Impact Assessment* (FTA 2018), both train operations and construction activities can be a source of groundborne vibration. As discussed above, FRA has adopted FTA's procedures and guidance for this vibration impact assessment. During the construction phase, activities such as driving piles and operating heavy equipment may cause groundborne vibration. Due to the weight of train equipment, the operation of trains can also cause groundborne vibration. Vibration is an oscillatory motion, which can be described in terms of displacement, velocity, or acceleration. Velocity or acceleration is typically used to describe vibration.

The following two descriptors are frequently used when discussing quantification of vibration:

- ***Peak Particle Velocity (PPV)**:* The maximum instantaneous positive or negative peak of the vibration signal.
- ***Root Mean Square:*** The square root of the average of the squared amplitude of the vibration signal, which is typically calculated over a 1-second period.

4.3 Methods for Assessing Operational Noise Sources

The operational noise assessment is based on the Build Alternative and the Rail Yard Canopy Design Option 1 – Individual Canopies over Rail Yard. This analysis is conservative and assumes the worst-case scenario because Rail Yard Canopy Design Option 2 – Grand Canopy over Rail Yard includes shielding. Therefore, using the Build Alternative and the individual canopies consider the worst-case scenario for the sensitive receptors closest to the Project study area.

4.3.1 Rail Noise

The steps described in FTA's Transit Noise and Vibration Impact Assessment Manual (FTA 2018), as well as the FRA's High-Speed Ground Transportation Noise and Vibration Impact Assessment Manual (FRA 2012) were followed to evaluate the potential noise and vibration impacts of the Project. Additionally, the operational noise assessment implements the methods provided in the CHSRA's Environmental Methodology Guidelines (CHSRA 2014). FTA and FRA methodology identifies a noise screening procedure, a general noise assessment, and a detailed noise analysis, which are outlined below.

- ***Noise Screening Procedure.*** Following the FTA and FRA noise screening procedure, the project type was identified (e.g., commuter rail main line, commuter rail station, HSR main line, and HSR station). Project-to-receiver screening distances are provided in the manuals for each of these project types. Adjustments to the generic screening distances are made to suit a particular project using the methodology in Section 4.3, Step 3 of the FTA manual and Chapter 4.1 of the FRA manual (FTA 2018; FRA 2012). For the Project, the largest (i.e., longest) project-to-receiver screening distance identified is associated with the commuter rail centerline main line activity. FTA indicated that the potential for noise impacts beyond 750 feet, or 375 feet for areas that are located behind intervening buildings, is minimal for commuter rail main line activity (FTA 2018). Receivers outside of this distance do not require further noise analysis. Receivers within the screening distance are carried forward for the general noise assessment.
- ***General Noise Assessment.*** Following this methodology, the existing noise level and the project noise level are estimated and compared with the impact criteria contained in the manual. The estimations include parameters such as project type and location of proposed infrastructure, representative noise-source levels, design speed, and time and frequency of operation. Because severe noise impacts were identified as part of the general noise assessment for rail noise, the noise analysis then proceeded to the more detailed noise analysis.

- ***Detailed Noise Analysis.*** Following FTA's and FRA's detailed noise assessment methodology, the noise impacts associated with the Project were quantified through an in-depth analysis. The methodologies outlined in Section 4.5 of the FTA manual and Chapter 5 of the FRA manual (FTA 2018; FRA 2012) were used to calculate the L_{dn} noise levels attributable to train operations on the rail alignment under the existing, future-no-project, and future-with-project scenarios (project-related contribution). Receivers of interest (i.e., potential noise-sensitive receptors) were selected using the guidance provided in Section 4.5 of the FTA manual, which is very similar to the guidance in the FRA manual for the planned HSR system (FTA 2018; FRA 2012).

The Project requires a Detailed Noise Assessment. The noise modeling effort associated with the detailed noise assessment accounted for the number of train movements anticipated to pass through LAUS during daytime and nighttime hours throughout operation. The following assumptions were made as part of the detailed noise assessment.

- The typical train speed along the alignment(s) through the Project study area north of the station and for trains running before connecting to the main line tracks would be limited to 20 to 25 miles per hour. For this analysis, 25 miles per hour was used.
- Train speeds at LAUS would be 15 miles per hour and are assumed to increase up to 30 miles per hour after trains exit LAUS terminal tracks.
- Future train movements and consists (e.g., the number of locomotives and cars per train movement anticipated to pass through LAUS) are based off those provided in the *Link US Rail Planning Technical Memorandum* (Metro 2026b).
- There are two private at-grade rail crossings southwest of the "wye," where trains enter and exit LAUS in the throat segment near William Mead Homes. Operationally, the use of horns for trains entering and exiting the station is restricted because it is considered a quiet zone unless workers are present on the ground or if the locomotive engineer judges a situation to be a safety issue. The two private at-grade rail crossings are at a location that triggers safety issues because they are located along a blind curve. In 2018, Metro conducted a train horn use study (independent of this report) to identify the percentage of trains using a horn at these crossings (Metro 2018). The general approach of this report included one day of train traffic monitoring near the at-grade crossings to identify when a train horn was used. At the time of hearing a train horn, a basic noise measurement of the horn level was conducted using a cell phone. This report identified that 44 percent of trains sound their horns at the two private at-grade rail crossings. Consistent with the data obtained by Metro, for the purposes of this evaluation, noise modeling assumes that 44 percent of trains utilizing tracks that intersect these two private at-grade crossings would continue to use horns as they approach the blind turn in the future.
- At the North Main Street public at-grade rail crossing, the same train horn study referenced above identified that 100 percent of trains sound their horn at this crossing. Therefore, consistent with the data Metro obtained, for the purposes of this report, the noise modeling assumes that 100 percent of trains use horns at the North Main Street crossing. Upon

implementation of a Quiet Zone by the City of Los Angeles, the improvements may help to reduce noise at William Mead Homes in the future. It is currently unknown when a quiet zone at this location would be approved by the California Public Utilities Commission and FRA; therefore, reduced noise levels resulting from implementation of a quiet zone at this location are only considered as part of the cumulative noise effect evaluation.

- The future noise exposure would be the combination of the existing noise exposure and the additional noise exposure caused by the Build Alternative. Train movement volumes are projected to increase in the future as identified in the *Link US Rail Planning Technical Memorandum* (Metro 2026b) provided as Appendix C to the EIS, and these increases are defined as Project-related operational noise sources where there are existing tracks in operation. These train movements are incorporated into the noise modeling conducted for 2026, 2031, and 2040. The 2026 and 2031 years correspond to the two major phases of Project implementation (interim condition and full build-out condition), and the 2040 condition corresponds to the horizon years and timeframe for corresponding service goals and objectives of multiple statewide plans and mandates. A summary of the Project-related capacity enhancements associated with each scenario is provided below:
    - 2026: Two new regional/intercity rail run-through tracks from Platform 4 at LAUS (interim condition).
    - 2031: All regional/intercity rail improvements at LAUS including the new lead tracks and reconstructed throat, elevated rail yard and concourse-related improvements, and 10 run-through tracks (full build-out condition).
    - 2040: Full operation of HSR service at LAUS.
- Where there are no tracks currently in operation, such as areas just south of LAUS, the train movements for 2026, 2031, and 2040 are treated as a new noise source.
- In 2026, as part of the Build Alternative, the following assumptions were incorporated into the noise modeling:
    - Some Metrolink trains that provide service to/from south of LAUS would use the new run-through tracks to access the station.
    - Amtrak Pacific Surfliner trains operating to and from the south would use the run-through tracks as well (subject to schedule coordination with Metrolink trains using the same tracks). This would reduce the total number of trains operating in the throat area.
    - Amtrak long distance trains would continue to access LAUS from the north as they currently do.
- In 2031, as part of the Build Alternative, the following assumptions were incorporated into the noise modeling:
    - Amtrak Pacific Surfliner trains departing to or arriving from locations south of LAUS would use the run-through-tracks.

  - Because access to the Amtrak Los Angeles Maintenance Facility cannot be accomplished via the new run-through tracks, it is assumed that all Amtrak long-distance trains and 60 of the daily Amtrak Pacific Surfliner trains (approximately two thirds of all trains) would access the Amtrak Los Angeles Maintenance Facility as they currently do from the north through the throat segment and then follow tracks south along the west side of the Los Angeles River.
- In 2040, as part of the Build Alternative, the following assumptions were incorporated into the noise modeling:
  - The majority of the Metrolink trains accessing LAUS from the north would need to utilize the tracks on the east bank of the Los Angeles River to accommodate HSR service anticipated to be in operation. From there, the trains would cross using the northernmost bridge to access the throat.
  - Because access to the Amtrak Los Angeles Maintenance Facility cannot be accomplished via the new run-through tracks, it is assumed that all Amtrak long-distance trains and 60 of the daily Amtrak Pacific Surfliner trains would access the Amtrak Los Angeles Maintenance Facility as they currently do from LAUS north through the throat and then utilize tracks south along the west bank of the Los Angeles River.
  - North of LAUS, Amtrak Pacific Surfliner trains would continue to use the tracks on the west bank of the Los Angeles River.
  - Metrolink and Amtrak trains are assumed to be operating using diesel fuel, and for safety purposes, would continue to use horns at private crossings in the throat segment.
- Because actual train schedules have not been prepared by the rail operators for the years of analysis (2026, 2031, and 2040), it is not possible at this time to calculate a peak daytime noise level for "daytime use only" noise-sensitive land uses, such as parks; therefore, the daytime L_{eq} is used to assess "daytime use only" impacts on noise-sensitive land uses.
- For construction-related impacts, activities in the concourse segment (Segment 2) and run-through segment (Segment 3) would generally involve use of heavy equipment as detailed in the impact analysis section of this report.
- Potential increases in noise and vibration from HSR operations are not factored into the Project's impact analysis or the overall impact assessment determination for the Project because operation of the planned HSR system is or will be considered in CHSRA's environmental documentation for the Burbank to Los Angeles and Los Angeles to Anaheim Project Sections.

Appendix A of this report provides a summary of the fundamental equations used for this analysis. Appendix A also provides the noise model input assumptions and the output (i.e., calculated noise levels) of the rail noise analysis.

4.3.2 Three-Dimensional Predictive Model

Operational sound levels can be assessed using the FTA/FRA spreadsheet models; however, efficiencies can be gained by implementing "off-the-shelf" acoustic modeling software that implements the calculation methods of the FTA/FRA spreadsheets. Additionally, analyses of complex rail operations are not easily accomplished via the spreadsheet models. Therefore, for this assessment, a three-dimensional off-the-shelf predictive models, SoundPLAN software version 8.2, was used to calculate rail noise levels implementing the FTA/FRA methods for regional/intercity rail, light-rail transit, and HSR trains. These modeling programs conform to the FTA/FRA standard for rail noise sources. The SoundPLAN model includes an array of data inputs, such as sound sources, topography, buildings, and ground characteristics, such as paved areas and vegetated areas. The following steps were taken to implement the FTA/FRA standard for rail noise sources in SoundPLAN:

- Step A: FTA/FRA spreadsheets were used to identify source terms (i.e., noise levels) for each train set that would operate on a given rail line at 50 feet.
- Step B: Each train configuration (i.e., Metrolink, Amtrak Pacific Surfliner, Amtrak long distance, and HSR) and the number of train movements on a given track location were entered into SoundPLAN. The resultant level was compared against the items developed in Step A to ensure consistency.
- Step C: Each source term was applied to specific rail lines based on estimates of train movements for 2026, 2031, and 2040 as outlined in the *Link US Rail Planning Technical Memorandum* (Metro 2026b), which included a mix of Metrolink regional rail trains, Amtrak Pacific Surfliner and long-distance trains, and HSR trains. The years 2026 and 2031 correspond to the two major phases of Project implementation (interim condition and the full build-out condition). The year 2040 corresponds to the horizon years and corresponding service goals and objectives of multiple statewide plans and mandates.
- Step D: The Build Alternative scenario was modeled utilizing the track alignment and configuration, and estimated train movements for each independent rail operator (Metrolink, Amtrak, and the CHRSA).
- Step E: Idling train noise was calculated via point sources in the SoundPLAN model, and the source terms were generated using FTA's methods (FTA 2018). Attenuation effects of the point sources were calculated implementing the International Organization for Standardization's *International Standard 9613-2 Acoustics – Attenuation of Sound during Propagation Outdoors* (International Organization for Standardization 1996).
- Step F: Modeling included terrain contours to capture terrain changes, including those associated with the elevated rail yard.
- Step G: Buildings were modeled as three-dimensional shapes to capture attenuation impacts.

- Step H: Although there are small patches of grass and dirt in the Project study area, the noise predictions conservatively assume a uniformly hard and acoustically reflective surface like that of a paved area.

Operational noise levels were compared with the relevant noise impact criteria identified in Chapter 4.0. Noise levels associated with special trackwork, such as crossovers, were also included in this assessment for sensitive receptors located within 200 feet of the alignment. Although CHSRA's *Environmental Methodology Guidelines* exclude these potential sound and vibration sources (CHSRA 2014), because regional/intercity rail trains are evaluated, these sources are considered in this assessment.

4.3.3 Wheel Squeal Noise

Wheel squeal is the noise produced by wheel-rail interaction, particularly on a curve where the radius of curvature is smaller than allowed by the separation of the axles in a wheel set. Wheel squeal has not been included in the noise projections because wheel squeal is highly variable, which makes accurate projections difficult. However, the FTA and FRA manuals indicate that standard steel wheel on steel rail systems tend to initiate curve squeal at curves with radii less than 100 times the truck wheelbase (FTA 2018; FRA 2012).

For the trains in the Project study area, assuming a truck wheelbase of 9 feet, wheel squeal would initiate on curves with a radius of 900 feet or less. North of LAUS, the planned track curvature for the alignment has a radius of less than 900 feet, which is similar to the existing curves in this area. Measurements in this area were used to identify existing occurrences of wheel squeal at nearby noise-sensitive land uses, such as William Mead Homes and squeal was present only on some of the operations. Measurements indicated that on some tracks and with some train squeals occurs intermittently indicating that friction modifiers in the area may be malfunctioning. This may be due to friction modifiers requiring service or certain vehicles needing wheel maintenance. South of LAUS, the proposed curvature would also have radii of less than 900 feet; however, no noise-sensitive receptors occur within the screening distance.

4.3.4 Traffic Noise

Due to low trip generation associated directly with the Project compared to the high existing traffic noise levels not associated with the Project, traffic noise was considered part of the existing noise exposure and was not modeled as part of the Project.

4.4 Operational Vibration

The FTA and FRA procedures for a general operational vibration assessment (as outlined in Section 6.4 of the FTA manual and Chapter 8 of the FRA manual) were used for this analysis (FTA 2018; FRA 2012). The FTA/FRA assessment procedure requires the following data:

- **Number of daily vibration events:** The number of daily events was classified as frequent because there would be over 70 vibration events of the same kind per day.

- **Receiver land use designation (categories specified above):** Category 2 (for the residences) or Category 3 (parks, schools, daycare) land use designations were used for all of the receivers analyzed.
- **Vibration source levels:** The source levels were derived from Figure 6-4 and Table 6-10 of the FTA manual (FTA 2018) using the curve for "locomotive-powered passenger or freight" and Table 8-1 of the FRA manual (FRA 2012).
- **Distance from source to receiver (building) footprints:** The distance between the source (i.e., rail centerline) and the receiver was measured using a geographic information system.
- **Train speed, suspension, wheel condition (worn or flat-spots), and track condition:** Train speed estimates would range from 20 to 25 miles per hour. Because the train types are regional/intercity rail and HSR, the train's wheels were assumed to be well-maintained and in good condition (i.e., no flat spots).
- **Number of floors above grade to the receiver:** The upper floors of William Mead Homes, Mozaic Apartments, and Care First Village were considered relative to the source of potential noise and vibration that may result from the Build Alternative.
- **Soil characteristics of ground between the vibration source and receiver:** Soil propagation characteristics were assumed to be normal (rather than efficient as assumed in FTA Figure 6-4 and Table 6-10) based on the State Soil Geographic database for California (U.S. Department of Agriculture 2011). FTA guidelines indicate that efficient ground, such as stiff clay soils, can result in propagation of vibration to greater distances. Typical vibration-sensitive structures were assumed to be large masonry buildings based on field observations.
- **Receiver construction/foundation type and description, including whether it is fragile or extremely fragile:** Using the generalized ground surface vibration curve, the root mean square velocity level data at the receiver distance of interest were adjusted based on the factors affecting the source, factors affecting the vibration path, and factors affecting the receiver (FTA 2018). Structure types and associated adjustments were also obtained from the FTA manual (FTA 2018).

The potential for damage to adjacent architectural resources as a result of Project-related operational vibration was analyzed in addition to the modeled noise- and vibration-sensitive receivers. Following FTA methodology, the potential for vibration damage and annoyance was assessed at sensitive land uses.

4.5 Construction Noise

Noise from construction activity is generated by the broad array of powered, noise-producing mechanical equipment used in the construction process. This equipment ranges from hand-held pneumatic tools to excavators, loaders, a variety of trucks, and tie and rail handling equipment. To assess potential noise impacts from construction, this noise analysis used the methodology in

Section 7 of the FTA manual and Chapter 10 of the FRA manual, which are identical to one another (FTA 2018; FRA 2012).

The noise exposure at a receiver location was calculated from the dB addition of all operating construction equipment using the equations and methodology described in the FTA/FRA manuals (FTA 2018; FRA 2012). For example, the attenuation rate used as a point source was 6 dB per doubling of distance. The intervening ground was generally hard surfaced; therefore, any additional reduction from ground effects was negligible. Where applicable, shielding effects from intervening structures were accounted for using the same shielding calculations used in the rail noise analysis (FTA 2018; FRA 2012).

Table 7-1 of the FTA manual presents the construction source noise emission levels at a reference distance of 50 feet (FTA 2018). The noise emission levels for construction equipment planned to be on site is indicated in Table 4-1 of this report. Construction equipment used in the analysis included trucks, loaders, rollers, mobile cranes, ballast tampers, generators, and other items. The range in noise levels typically generated by the equipment assumed for the analysis ranges from 74 dBA L_{eq} (e.g., water trucks or flatbed trucks) to 101 dBA L_{eq} (e.g., impact pile drivers) at a distance of 50 feet (FHWA 2018). The noise modeling effort associated with the detailed noise assessment used a conservative construction scenario assuming all major Project components would be constructed together (lead tracks, elevated throat and rail yard, concourse, and run-through tracks) over a 6-year duration, while accounting for the construction fleet and location of proposed construction activities.

4.6 Construction Vibration

To assess potential vibration effects from construction, this vibration analysis used the methodology contained in Section 7.2 of the FTA manual and Chapter 10.2 of the FRA manual, which are identical (FTA 2018; FRA 2012). The potential for damage to structures from Project-related construction vibration was analyzed for the sensitive receivers discussed above. Vibration source levels for a variety of typical construction equipment types are outlined in Table 7-4 of the FTA manual (reproduced in this report as Table 4-1), in terms of PPV in inches per second at a reference distance of 25 feet from the source and vibration velocity level in decibels (VdB) at 25 feet (FTA 2018; FRA 2012). For this analysis, the source of typical vibration levels for an impact pile driver (0.644 inch per second PPV) and vibratory roller (0.210 inch per second PPV) were utilized.

Table 4-1. Typical Construction Equipment Vibration Levels

Equipment/Source		PPV at 25 Feet (inch/second)	Approximate Vibration Velocity Level at 25 Feet[a]
Pile driver (impact)	Upper range	1.518	112

Table 4-1. Typical Construction Equipment Vibration Levels

Equipment/Source		PPV at 25 Feet (inch/second)	Approximate Vibration Velocity Level at 25 Feet[a]
	Typical	0.644	104
Pile driver (vibratory)	Upper range	0.734	105
	Typical	0.170	93
Clam shovel drop (slurry wall)	—	0.202	94
Hydromill (slurry wall)	In soil	0.008	66
	In rock	0.017	75
Vibratory roller	—	0.210	94
Hoe ram	—	0.089	87
Large bulldozer	—	0.089	87
Caisson drilling	—	0.089	87
Loaded trucks	—	0.076	86
Jackhammer	—	0.035	79
Small bulldozer	—	0.003	58

Source: FTA 2018
Notes:
[a] ***Root mean square VdB reference 1 microinch per second.***
PPV=peak particle velocity; VdB=vibration velocity level in decibels.

4.6.1 Approach to Project Noise and Vibration Analysis

The most prominent areas where operational noise and vibration levels would occur is north of and at LAUS, near William Mead Homes, the Care First Village, and Mozaic Apartments as these are all residential land uses. Train movements through LAUS in the 2026, 2031, and 2040 conditions would be substantially greater than existing levels (Metro 2026b).

A detailed construction scenario with estimated durations and types of equipment was developed to estimate noise and vibration levels for the construction activities having the most daily equipment usage (i.e., daily engine hours).

5.0 Noise/Vibration Criteria

5.1 Noise Impact Criteria

5.1.1 Federal Regulations and Guidelines

Several federal laws and guidelines are relevant to the assessment of ground transportation noise and vibration impacts and are applicable to the Project:

- The Noise Control Act of 1972 (42 U.S. Code Section 4910) was the first comprehensive statement of national noise policy. It declared that "it is the policy of the U.S. to promote an environment for all Americans free from noise that jeopardizes their health or welfare."
- The FTA *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) provides the methodology and impact criteria applicable to conventional passenger rail and transit components associated with the Project.
- The FRA *High-Speed Ground Transportation Noise and Vibration Impact Assessment* (FRA 2012) provides the methodology and impact criteria applicable to the planned HSR system.

FTA published a revised noise and vibration impact assessment manual in 2018. The FRA impact assessment guidance is primarily to address noise and vibration from projects with train speeds of 90 to 250 miles per hour while providing reference to the FTA manual for projects with conventional train speeds below 90 miles per hour. The impact criteria in both guidance documents are based on the goal of maintaining a noise environment considered acceptable for land uses, where noise and vibration may have an impact. The noise exposure is quantified in terms of the L_{dn} for residential land uses or in terms of the hourly equivalent sound level for other land uses.

The FTA states that in cases where changes are proposed to an existing transit system, its cumulative noise criteria can be used (FTA 2018). In the case of the Project, the cumulative noise criteria are appropriate in most areas because the existing facility is being modified, with an exception being the area immediately south of the station where the new run-through tracks would be constructed.

In FTA's Transit Noise and Vibration Impact Assessment Manual (FTA 2018) and FRA's High-Speed Ground Transportation Noise and Vibration Impact Assessment Manual (FRA 2012), noise impact criteria for operation of rail facilities are based on the change in outdoor noise exposure using a sliding scale with three land use categories and three degrees of impact. The criteria were established to reflect a heightened community annoyance caused by late-night, or early morning service, as well as communities' varying sensitivity to noise from projects during different ambient noise conditions.

For operational rail noise, FTA's and FRA's three land use categories are as follows:

- ***Noise Category 1:*** Tracts of land where quiet is an essential element in their intended purpose, such as outdoor amphitheaters, concert pavilions, and National Historic Landmarks with significant outdoor use.
- ***Noise Category 2:*** Residences and buildings where people normally sleep, including homes, hospitals, and hotels.
- ***Noise Category 3:*** Institutional land uses (i.e., schools, places of worship, libraries) with use typically during the daytime and evening. Other uses in this category can include medical offices, conference rooms, recording studios, concert halls, cemeteries, monuments, museums, historical sites, parks, and recreational facilities.

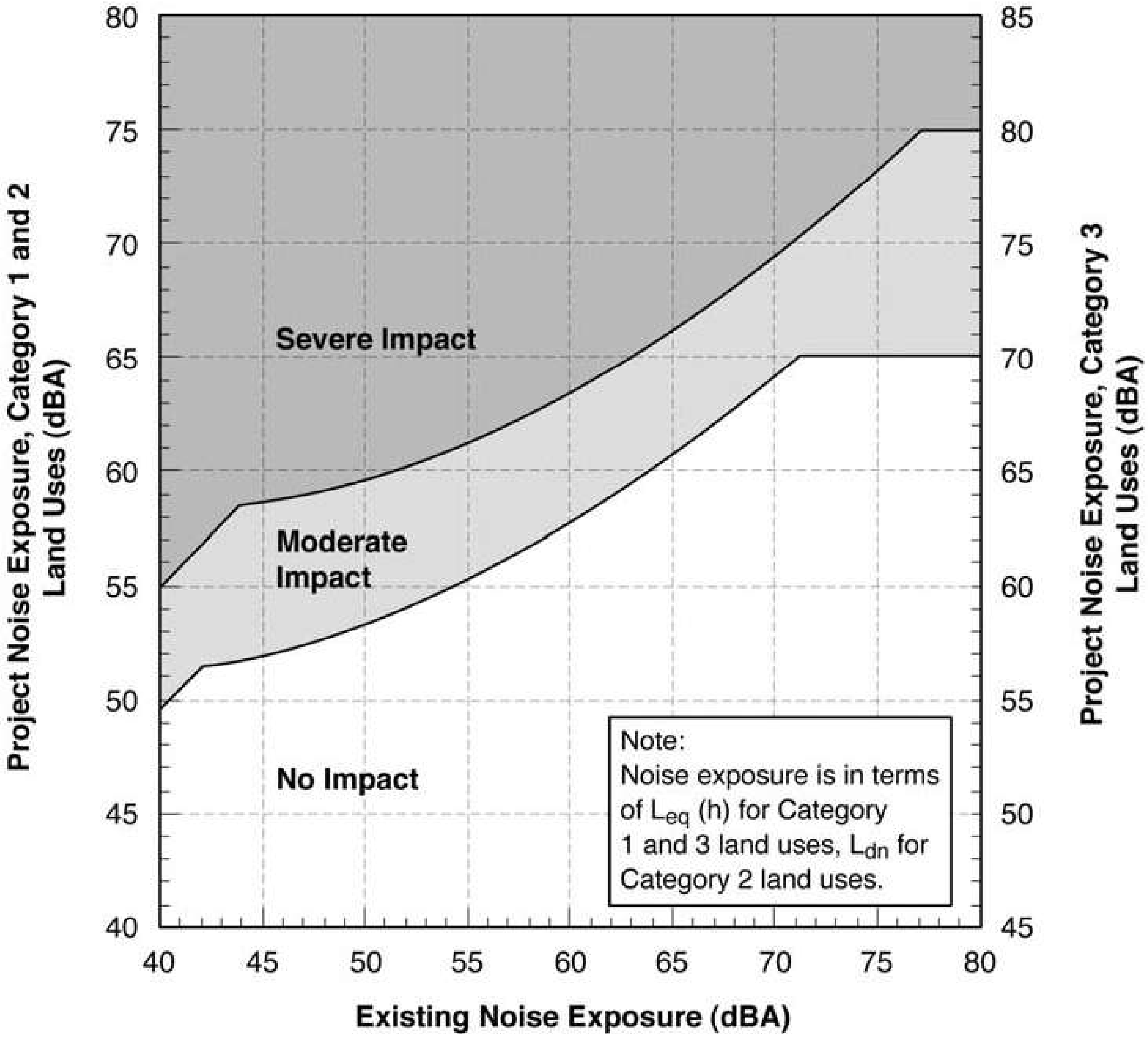
The three categories are determined from general land use information about each receiver. No Category 1 receivers are located within 1 mile of the proposed track alignment, which is well beyond the typical FTA screening distance for noise or vibration impacts. Outdoor hourly L_{dn} applies to Category 2, whereas outdoor hourly L_{eq} applies to Category 3.

Noise impacts on Category 2 and Category 3 land uses as a result of a project are assessed by comparing existing and future Project-related outdoor noise levels. Figure 5-1, Figure 5-2, and Figure 5-3 illustrate the FTA noise impact criteria as they relate to each land use category. As shown in Figure 5-1, the criterion for each degree of impact is based on a sliding scale dependent on the existing noise exposure and the increase in noise exposure attributable to the Project. Figure 5-1 shows Project based noise impact criteria, and Figure 5-2 and Figure 5-3 illustrate cumulative noise impact criteria. Based on FTA/FRA criteria, potential noise impacts fall into three types: no impact, moderate impact, and severe impact (FTA 2018; FRA 2012). The impact categories are described further below:

- ***No Impact:*** A project on average would result in an insignificant increase in the number of instances where people are highly annoyed by new noise. This impact level would not require mitigation.
- ***Moderate Impact:*** The change in cumulative noise is noticeable to most people, but may not be sufficient to cause strong, adverse community reactions. The FRA and FTA manuals indicate mitigation for this impact level should be considered but is not required.
- ***Severe Impact:*** A high level of people would be highly annoyed by the noise, perhaps resulting in vigorous community reaction. The FRA and FTA manuals indicate mitigation for this impact level is required.

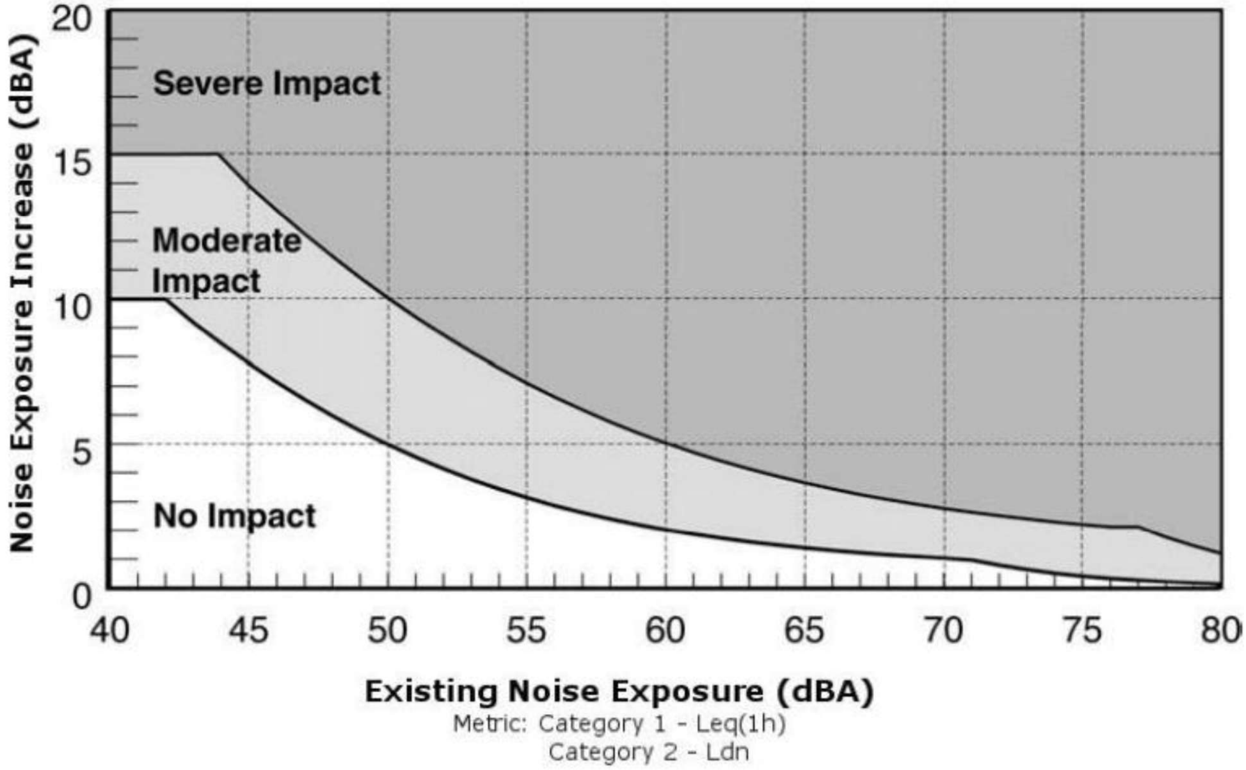
An example of an impact evaluation is FTA's sliding impact criterion for Category 2 receivers. An existing environment of 50 dBA L_{dn} would experience a moderate impact if the Project creates a noise exposure of approximately 53 dBA to 59 dBA L_{dn}, or if there is an increase of 5 to 10 dB. An existing environment of 65 dBA L_{dn} would be classified as having no impact if the Project creates a noise exposure of 61 dBA to 66 dBA L_{dn}, or if there is an increase of up to 2 dB. Those same existing environments (50 or 65 dBA L_{dn}) would be classified as having a severe impact if the Project creates noise exposure levels greater than 59 dBA and 66 dBA L_{dn}, respectively, or an increase of over 15 dB and 4 dB, respectively. Chapter 7.0 of the FTA manual contains tables listing suggested construction noise impact criteria depending upon the level of detail/understanding of the construction phase (FTA 2018). For the more detailed approach applicable to the Project, the FTA's guidelines for assessment of construction noise shown in Table 5-2 are suggested for use due to different noise levels for daytime and nighttime construction. Daytime is defined as 7:00 AM to 10:00 PM, and nighttime is defined as 10:00 PM to 7:00 AM.

Figure 5-1. Federal Transit Administration Noise Impact Criteria



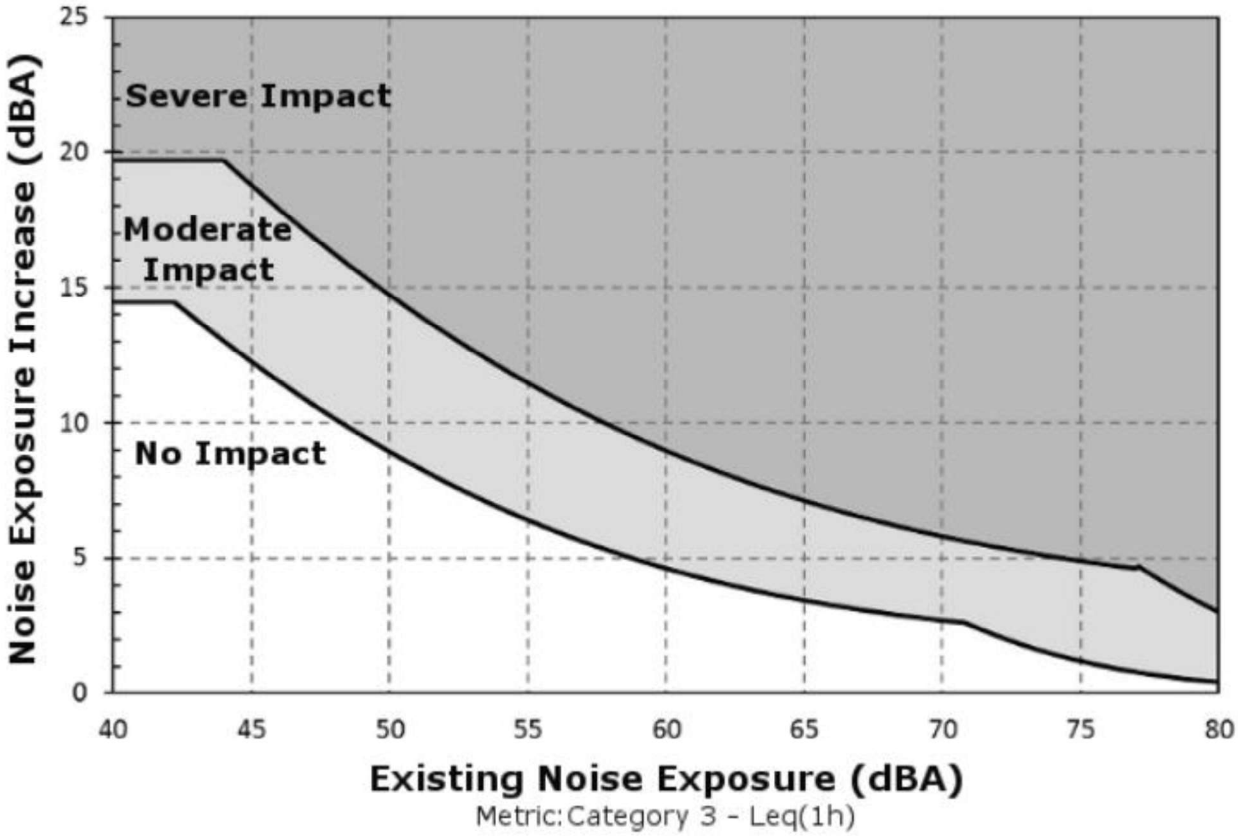
Source: FTA 2018

Figure 5-2. Federal Transit Administration Cumulative Noise Levels Allowed by Criteria Category 2 Lands



Source: FTA 2018

Figure 5-3. Federal Transit Administration Cumulative Noise Levels Allowed by Criteria Category 3 Lands



Source: FTA 2018

Table 5-1. Noise Levels Defining Impact for Federal Transit Administration/Federal Railroad Administration Projects

Existing Noise Exposure (dBA)	Project Noise Impact Exposure (dBA)					
	Category 1 (L_{eq} (1 hour)) or 2 (L_{dn})) Sites			Category 3 Sites (L_{eq} (1hour))		
L_{eq} (1 hour) or L_{dn}	No Impact	Moderate Impact	Severe Impact	No Impact	Moderate Impact	Severe Impact
<43	<Ambient+10	Ambient + 10 to 15	>Ambient+15	<Ambient+15	Ambient + 15 to 20	>Ambient+20
43	<52	52–58	>58	<57	57–63	>63
44	<52	52–58	>58	<57	57–63	>63

Table 5-1. Noise Levels Defining Impact for Federal Transit Administration/Federal Railroad Administration Projects

Existing Noise Exposure (dBA)	Project Noise Impact Exposure (dBA)					
	Category 1 (L_{eq} (1 hour)) or 2 (L_{dn})) Sites			Category 3 Sites (L_{eq} (1hour))		
L_{eq} (1 hour) or L_{dn}	No Impact	Moderate Impact	Severe Impact	No Impact	Moderate Impact	Severe Impact
45	<52	52–58	>58	<57	57–63	>63
46	<53	53–59	>59	<58	58–64	>64
47	<53	53–59	>59	<58	58–64	>64
48	<53	53–59	>59	<58	58–64	>64
49	<54	54–59	>59	<59	59–64	>64
50	<54	54–59	>59	<59	59–64	>64
51	<54	54–60	>60	<59	59–65	>65
52	<55	55–60	>60	<60	60–65	>65
53	<55	55–60	>60	<60	60–65	>65
54	<55	55–61	>61	<60	60–66	>66
55	<56	56–61	>61	<61	61–66	>66
56	<56	56–62	>62	<61	61–67	>67
57	<57	57–62	>62	<62	62–67	>67
58	<57	57–62	>62	<62	62–67	>67
59	<58	58–63	>63	<63	63–68	>68
60	<58	58–63	>63	<63	63–68	>68
61	<59	59–64	>64	<64	64–69	>69
62	<59	59–64	>64	<64	64–69	>69
63	<60	60–65	>65	<65	65–70	>70
64	<61	61–65	>65	<66	66–70	>70
65	<61	61–66	>66	<66	66–71	>71

Table 5-1. Noise Levels Defining Impact for Federal Transit Administration/Federal Railroad Administration Projects

Existing Noise Exposure (dBA)	Project Noise Impact Exposure (dBA)					
	Category 1 (L_{eq} (1 hour)) or 2 (L_{dn})) Sites			Category 3 Sites (L_{eq} (1hour))		
L_{eq} (1 hour) or L_{dn}	No Impact	Moderate Impact	Severe Impact	No Impact	Moderate Impact	Severe Impact
66	<62	62–67	>67	<67	67–72	>72
67	<63	63–67	>67	<68	68–72	>72
68	<63	63–68	>68	<68	68–73	>73
69	<64	64–69	>69	<69	69–74	>74
70	<65	65–69	>69	<70	70–74	>74
71	<66	66–70	>70	<71	71–75	>75
72	<66	66–71	>71	<71	71–76	>76
73	<66	66–71	>71	<71	71–76	>76
74	<66	66–72	>72	<71	71–77	>77
75	<66	66–73	>73	<71	71–78	>78
76	<66	66–74	>74	<71	71–79	>79
77	<66	66–74	>74	<71	71–79	>79
>77	<66	66–75	>75	<71	71–80	>80

Notes:
dBA=A-weighted decibels; L_{eq}=equivalent noise level; L_{dn}=day–night sound level

Table 5-2. Federal Transit Administration Detailed Construction Noise Criteria

Land Use	8-Hour L_{eq} (dBA)		30-Day Average L_{dn} (dBA)
	Day	Night	
Residential	80	70	75[a]
Commercial	85	85	80[b]
Industrial	90	90	85[b]

Source: FTA 2018, FRA 2012
Notes:
[a] ***In urban areas with very high ambient noise levels (L_{dn} greater than 65 dB), L_{dn} from construction operations should not exceed existing ambient + 10 dB.***
[b] ***24-hour L_{eq}, not L_{dn}***
dBA=A-weighted decibels; L_{eq}=equivalent noise level; L_{dn}=day-night sound level

City of Los Angeles Municipal Code Section 112.05 indicates that sound levels from construction may not exceed 75 dBA unless it is technically infeasible to keep construction noise within this limit.

5.1.2 Local Regulations

The Project is located in the City of Los Angeles. The City of Los Angeles's municipal code noise regulations are generally not applicable to operational noise from the Project; however, construction noise is restricted via Section 41.40 of the municipal code, which stipulates that:

> *No person shall, between the hours of 9:00 PM and 7:00 AM of the following day, perform any construction or repair work of any kind upon, or any excavating for, any building or structure, where any of the foregoing entails the use of any power driven drill, riveting machine excavator or any other machine, tool, device or equipment which makes loud noises to the disturbance of persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence. In addition, the operation, repair or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited during the hours herein specified. Any person who knowingly and willfully violates the foregoing provision shall be deemed guilty of a misdemeanor punishable as elsewhere provided in this Code.*

Additionally, the city's code limits construction equipment operating within 500 feet of any residential zone to 75 dBA when measured 50 feet from the source. The City of Los Angeles may provide permission to work outside of these hours where it is in the public interest, or where a hardship, injustice, or unreasonable delay would result from its interruption during the hours provided in Section 41.40 of the Municipal Code. Exception to this code would be completed by the construction contractor before construction begins.

5.2 Vibration

5.2.1 Federal Regulations

The evaluation of vibration impact levels, stated as VdB, is based on the land use category and the number of vibration events per day. The impact level also depends on the type of analysis being conducted (i.e., groundborne vibration or groundborne noise).

The FTA manual provides guidelines to assess human response to different levels of groundborne noise and vibration, as shown in Table 5-3. There are no Category 1 land uses considered within the screening distance (Section 4.3.1). The majority of vibration-sensitive land uses in the Project study area are Category 2 land uses. The term “frequent events” is defined as more than 70 vibration events per day, “occasional events” is defined as 30–70 vibration events per day, and the term “infrequent events” is defined as fewer than 30 vibration events per day.

For areas along heavily used corridors (more than 12 trains per day) where existing vibration levels exceed the thresholds provided in Table 5-3, there is no impact if there is no significant increase in events and Project-related vibration levels result in less than a 3 VdB increase.

Groundborne noise is normally not a consideration when trains are at grade (i.e., not underground or where there are basements or human activity in spaces underground). In these situations, the airborne noise is the major consideration. Groundborne noise generally becomes an important consideration for subways or other projects in which part of the alignment includes a tunnel or where there is otherwise no airborne sound path.

FTA and FRA construction-related vibration guidelines call for investigation of the potential for vibration-induced damage to fragile or extremely fragile buildings (FTA 2018; FRA 2012). Damage to a building is possible (but not necessarily probable) if ground vibration levels exceed the following criteria:

- Exceeds 0.5 inch-per-second PPV (approximately 102 VdB) for reinforced concrete, steel, or timber.
- Exceeds 0.3 inch-per-second PPV (approximately 98 VdB) for engineered concrete and masonry buildings.
- Exceeds 0.20 inch-per-second PPV (approximately 94 VdB) for fragile buildings.
- Exceeds 0.12 inch-per-second PPV (approximately 90 VdB) for extremely fragile buildings.

Table 5-3 presents the groundborne vibration and noise impact criteria. The Project study area does not have any Category 1 land uses (fragile or extremely fragile buildings) within the screening distance. The majority of vibration-sensitive land uses in the Project study area are Category 2 land uses (residential). Construction vibration is assessed based on the potential for damage and the likelihood of annoyance. FTA and FRA indicate engineered concrete and masonry structures (no plaster) have damage criteria of 0.3 PPV (inches per second). To assess the potential for construction vibration annoyance, the same vibration thresholds as those identified in Table 5-3 for operational vibration are applied.

Table 5-3. Groundborne Vibration and Noise Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro inch/second)			Groundborne Noise Impact Levels (dB re 20 micropascals)		
	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[c]	65 VdB[c]	65 VdB[c]	—[d]	—[d]	—[d]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

***Source:** FTA 2018 (Table 6-3); FRA 2012*
Notes:
a Frequent events is defined as more than 70 vibration events per day.
b Occasional events is defined as between 30 and 70 vibration events of the same source per day.
c Infrequent events is defined as fewer than 30 vibration events per day.
d This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilation, and air-conditioning systems and stiffened floors. Vibration-sensitive equipment is not sensitive to groundborne noise.
dB=decibel; dBA=A-weighted decibel; VdB=vibration velocity level in decibels

6.0 Noise- and Vibration-Sensitive Land Uses and Sensitive Receptors

The following discussion provides a description of the noise- and vibration-sensitive land uses where sensitive receptors are located in the Project study area (Category 2 and 3 land uses). The receptor locations are used for predictions and represent a cluster of sensitive receptors, which is consistent with the FTA/FRA guidance and regulations. The noise analysis area includes those noise-sensitive areas within the screening distance (Section 4.3.1), which includes approximately 750 feet from the alignment where no buildings are present and 375 feet for areas where intervening buildings are present. Because vibration attenuates more quickly with distance, the vibration analysis area is substantially smaller; it includes only those vibration-sensitive land uses and structures within 200 feet of the proposed track alignment.

Figure 6-1 identifies the noise- and vibration-sensitive land uses where sensitive receptors (Category 2 and 3 land uses) are located within the 750- and 375-foot screening distances, and community noise and vibration measurement locations for modeled receivers. Based on the applicability of the screening distances, noise- and vibration-sensitive land uses included in the detailed assessment include:

- William Mead Homes;
- Care First Village;
- Metro Senior Housing;
- Mozaic Apartments,
- One Santa Fe Apartments
- Ann Street Elementary;
- La Petite Academy (First 5 LA Headquarters);
- Metro Gateway Childhood Development Center;
- Care First Village playground/park and a park (i.e., athletic fields) at the William Mead Homes;
- Los Angeles County Men's Central Jail and Twin Towers Correctional Facility (although these jails are also located within the analysis area; however, there are no outdoor uses at these jails. For this reason, the jails were evaluated for indoor noise exposure [i.e., sleep disturbance]).

Other Category 2 and 3 land uses that are not included in the detailed assessment are also depicted in Figure 6-1 for informational purposes.

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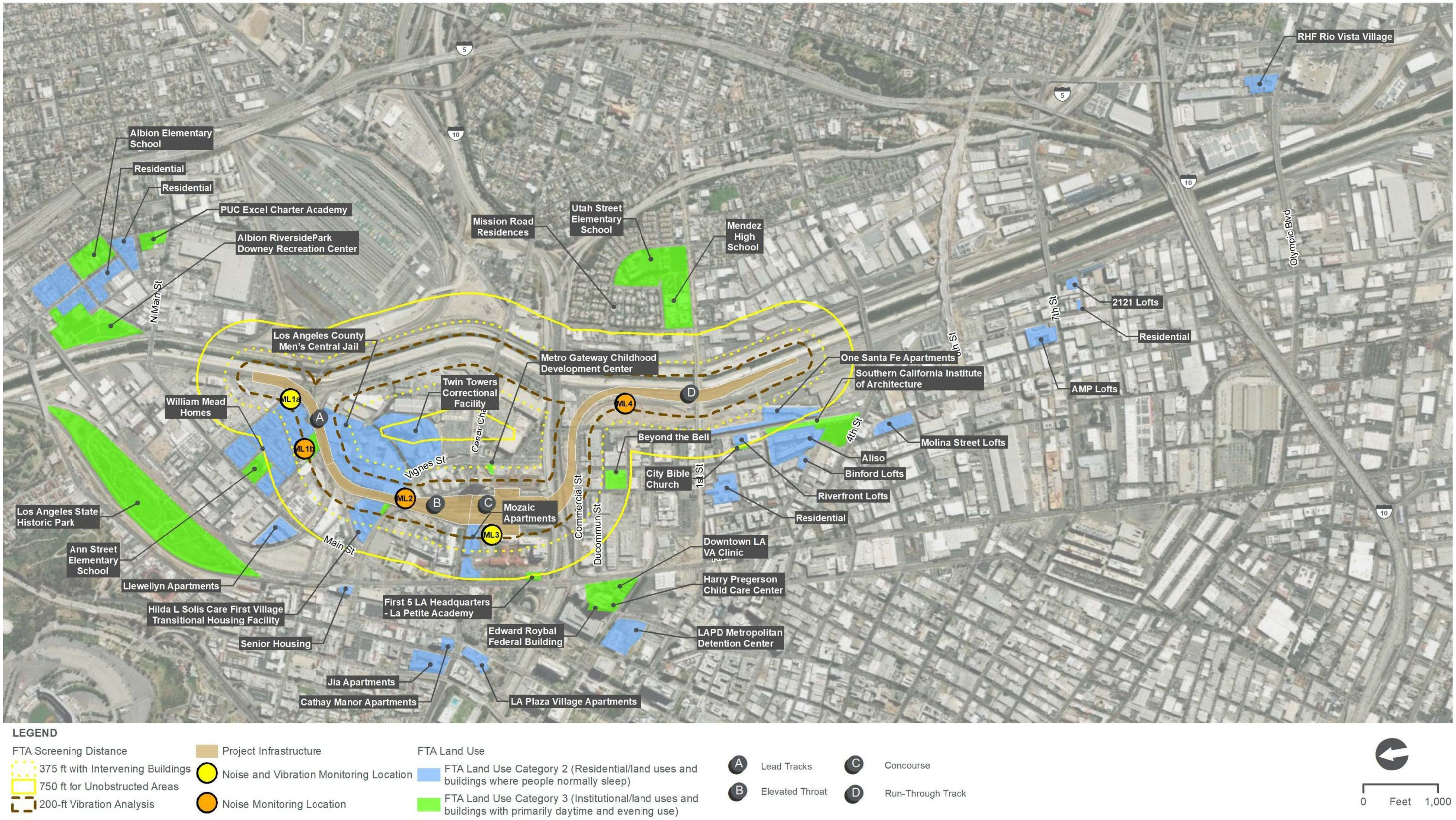
Figure 6-1. Noise- and Vibration-Sensitive Land Uses, Community Noise and Vibration Measurement Locations, and Sensitive Receptor Clusters



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7.0 Existing Conditions

7.1 Noise Conditions

Metro completed a baseline sound survey at representative locations to identify existing noise exposure at noise-sensitive land uses where sensitive receptors occur within screening distances. Table 7-1 provides the noise levels at noise-sensitive land uses in the Project study area for the existing condition. Noise levels are not substantially different than when data were collected primarily because the train equipment and location of noise generators during the day and night are the same. Additionally, the configuration of sensitive receptors remains the same and no new construction of buildings that would obscure noise-sensitive land uses has occurred.

Multiple residences are within the noise analysis study area. The measurement locations depicted on Figure 6-1 are representative of each noise-sensitive receptor to evaluate noise impacts. Measurements at noise-sensitive land uses were taken on weekdays from January 24 through January 26, 2017.

Table 7-1. Measured Noise Levels for the Existing Condition

Site ID	Location	Noise Levels (dBA)		
		L_{dn}	L_{eq} (day)	L_{eq} (night)
ML1a	William Mead Homes	69	66	62
ML1b	Athletic Fields at William Mead Homes	69	66	61
ML2	Twin Towers Correctional Facility (Terminal Tower) and Care First Village	73	71	66
ML3	Mozaic Apartments (Amtrak Baggage Handling Building) and Metro Gateway Childhood Development Center	67	64	60
ML4	One Santa Fe Apartments and Studios (Emergency Security Operations Center)	71	64	64

Notes:
dBA=A-weighted decibel; ID=identification; L_{dn}=day-night average sound level; L_{eq}=equivalent noise level; ML=monitoring location

In 2021, the Care First Village was constructed. For the purposes of this evaluation, the existing noise levels at Twin Towers Correctional Facility were used to characterize the noise levels for the Care First Village, mainly since the proximity of these two receptors to the measurement location is similar and ML2 is therefore representative of this area as well.

Appendix B provides more details on the measurement effort. The narrative below provides a description of the noise measurements performed.

7.1.1 Monitoring Location 1 – William Mead Homes

William Mead Homes is located in Segment 1 of the Project study area, which is in close proximity to the lead tracks in the throat segment.

Two locations (Figure 7-1 and Figure 7-2) were selected to monitor noise levels: one on a building rooftop located approximately 112 feet from the tracks (ML1a), and one in the facility athletic fields (ML1b). Ground locations near Building 16 of the William Mead Homes would not be suitable due to high likelihood of equipment tampering or theft. At the athletic fields, the location selected was adjacent to the park and within a fenced area that is secured, which was agreed to with the management of William Mead Homes since other locations at the athletic fields were identified as having a high likelihood of equipment tampering or theft. The noise meter at ML1a was set up at 10:30 AM on January 24, 2017, and the noise meter at ML1b was set up at 9:48 AM on the same day. The meters were stored in padlocked cases and secured in place using security chains or sandbags (Figure 7-1 and Figure 7-2). The connected microphones were calibrated before being placed in the direction of the tracks. Several observed sounds could be heard, including the rolling trains, their horns, and their wheels on the track. For security reasons, ML1a was set on the rooftop of a home. Normal residential noises were heard, including music and street traffic. ML1b was located near the athletic fields in close proximity to the maintenance yard where equipment was stored and retrieved, including a lawnmower and motorized carts filled with tools. Figure 7-3 and Figure 7-4 are time history charts of the monitored 1-hour L_{eq} levels.

Figure 7-1. Monitoring Location 1a – Noise Meter Location

Figure 7-2. Monitoring Location 1b – Noise Meter Location

Figure 7-3. Monitoring Location 1a – Hourly Equivalent Noise Level Time History

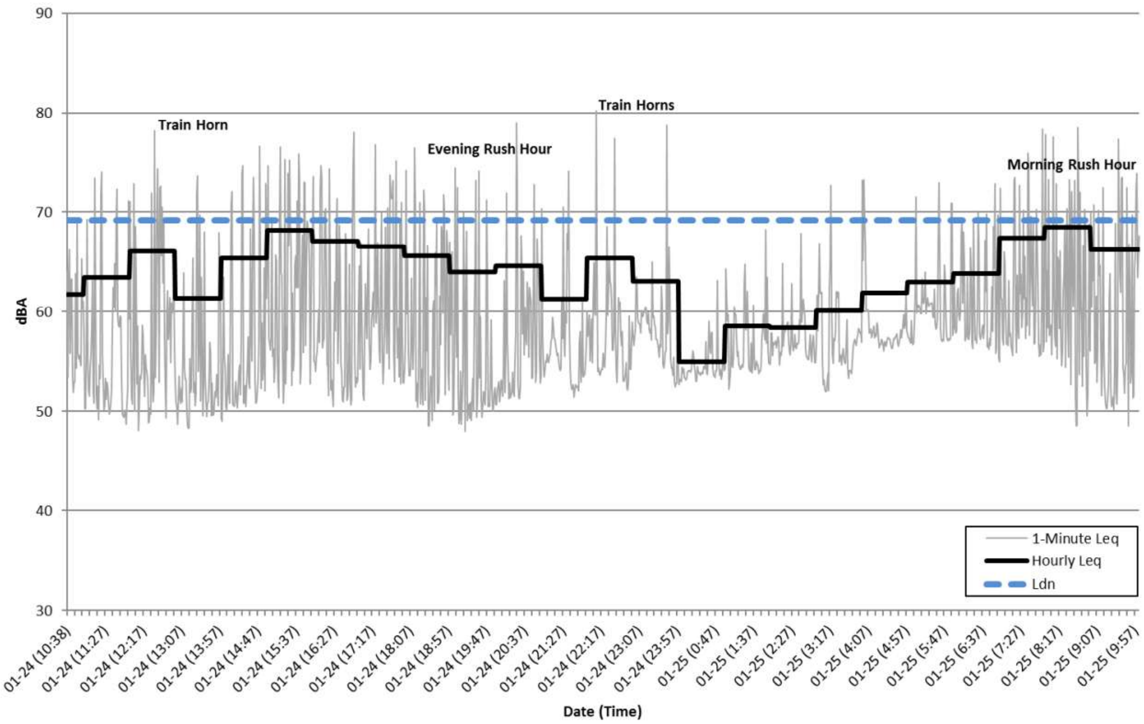
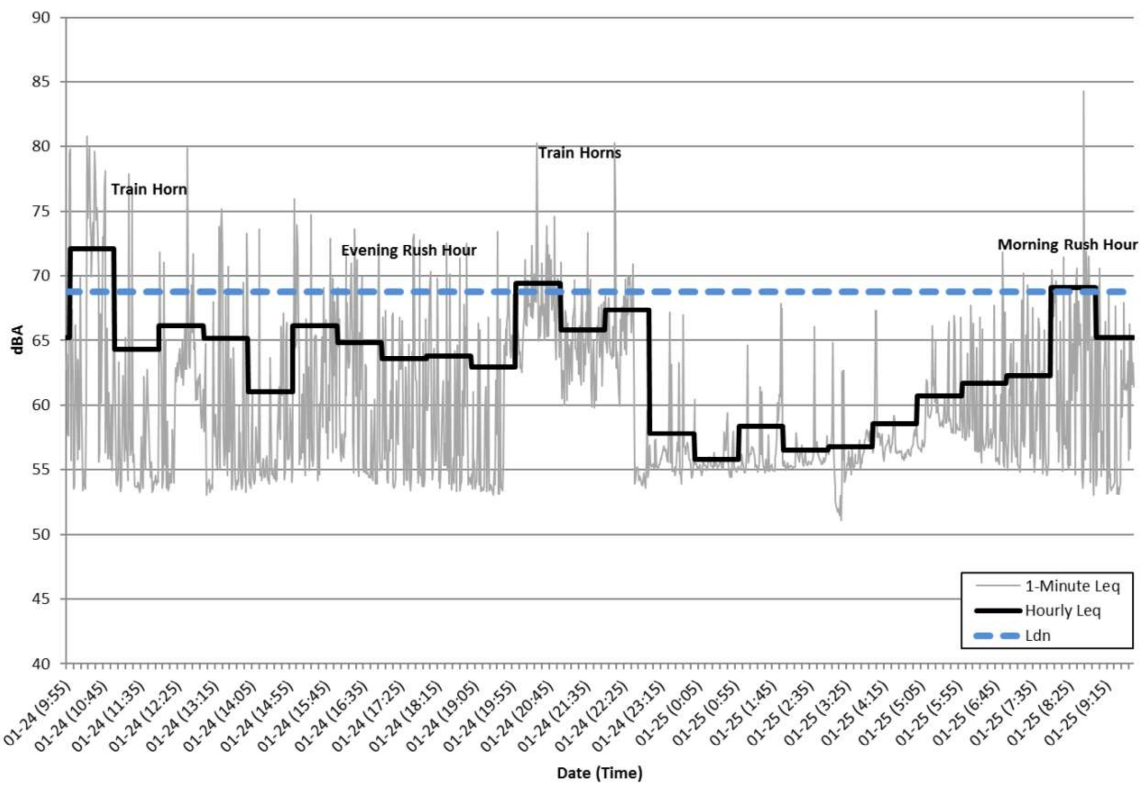


Figure 7-4. Monitoring Location 1b – Hourly Equivalent Noise Level Time History

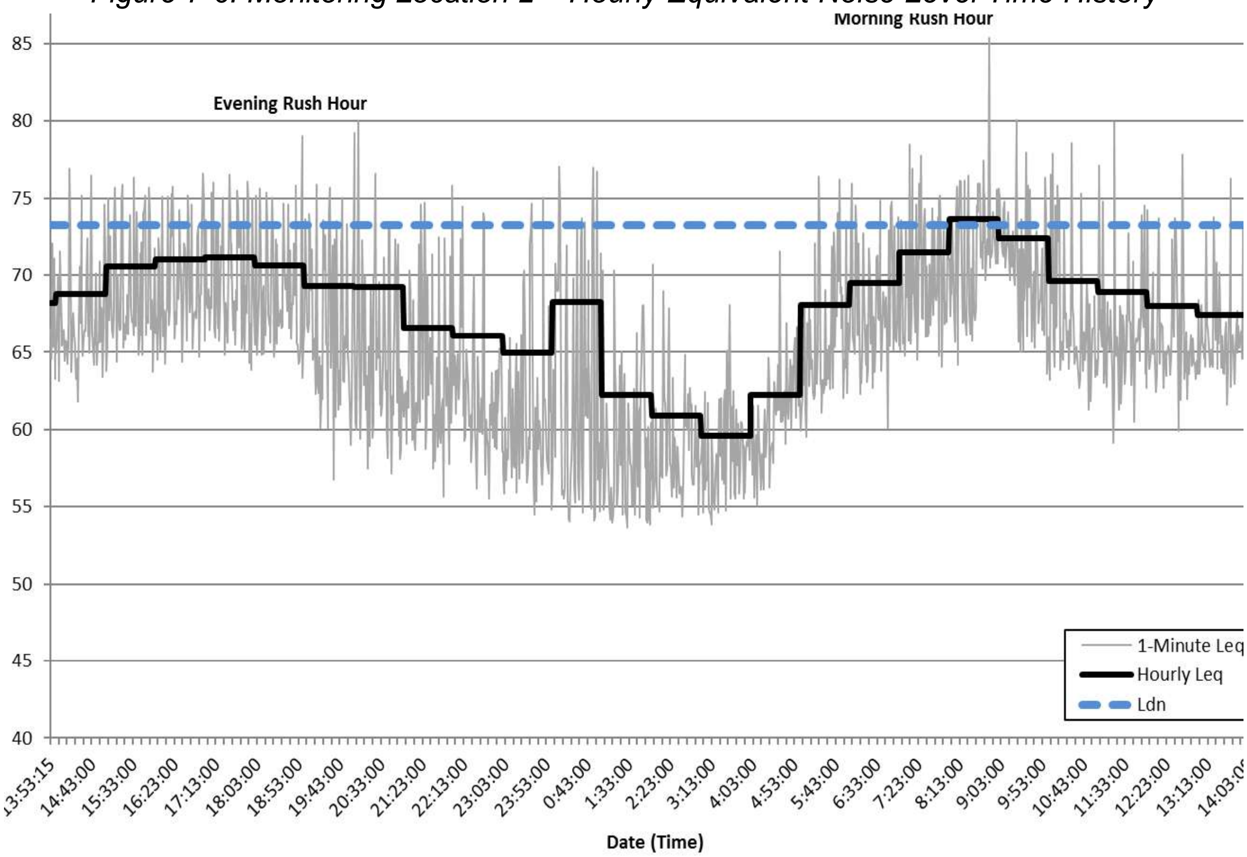


7.1.2 Monitoring Location 2 – Twin Towers Correctional Facility

A suitable location to characterize the noise levels for this receptor was determined to be the terminal tower, approximately 366 feet from the location of the receptor (Figure 7-5). The terminal tower location was closer in proximity to the railroad tracks by approximately 43 feet. A noise meter was set up at 1:52 PM on January 25, 2017. The meter was calibrated and secured to a nearby fencepost (Figure 7-5). Observed noises at this location included street traffic, idle trains, and active trains. Figure 7-6 is a time-history chart of the measured hourly L_{eq}.

Figure 7-5. Monitoring Location 2 – Noise Meter Location

Figure 7-6. Monitoring Location 2 – Hourly Equivalent Noise Level Time History

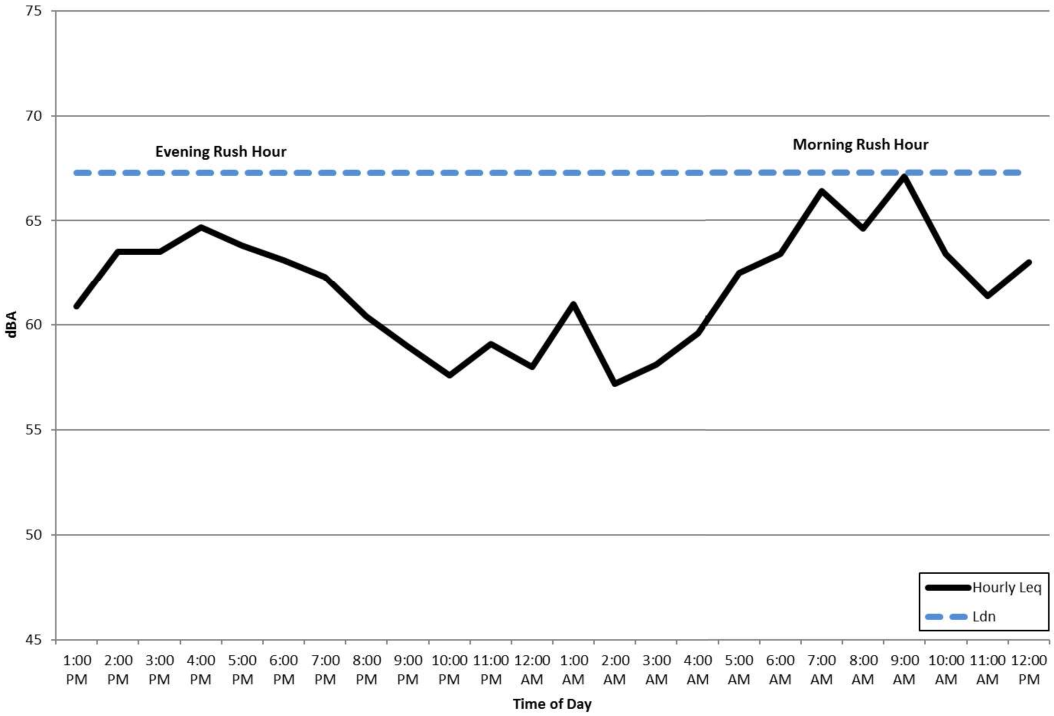


7.1.3 Monitoring Location 3 – Mozaic Apartments

Noise monitoring to capture existing ambient conditions, including sounds from the rail yard, was conducted adjacent to the Mozaic Apartments on the rooftop of the Amtrak Baggage Handling building (Figure 7-7). While not representative of the closest façade of apartment units, ML-3 is more representative of spatial average of the potentially impacted units. For the purposes of this evaluation, the existing noise levels collected at this location were used to characterize the noise levels for Metro Gateway Childhood Development Center, mainly since the proximity of these two receptors to the measurement location is similar and ML3 is therefore representative of this area as well. The noise monitor was set up at 1:37 PM on January 24, 2017, on the northeast corner of the rooftop of the building. Winds were calm during the measurement effort. The sound level meter was field calibrated and secured for 24 hours on a tripod that was kept on the rooftop with sandbags. Observed noises at this location included street traffic, idling trains, moving trains, and the public address system at LAUS. Figure 7-8 is a time-history chart of the measured hourly $L_{eq.}$ Because of equipment limitations at this location, 1-minute L_{eq} intervals could not be collected and are not included in Figure 7-8.

Figure 7-7. Monitoring Location 3 – Noise Meter Location

Figure 7-8. Monitoring Location 3 – Hourly Equivalent Noise Level Time History



7.1.4 Monitoring Location 4 – One Santa Fe Apartments and Studios

The Metro Emergency Security Operations Center was determined to be a suitable location for monitoring existing noise levels for One Santa Fe Apartment complex because this location is roughly the same distance from the existing railroad tracks as the One Santa Fe Apartment complex. It is located approximately 1,151 feet north of the apartments (Figure 7-9). The noise meter was calibrated and secured to the fence closest to the tracks using sandbags and security rope (Figure 7-9) at 10:43 AM on January 25, 2017, and lasted 24 hours. The observed noises at this location included street traffic, idle buses, and bus traffic entering and exiting the parking lot. Figure 7-10 is a time-history chart of the ML-4 measurement data.

Figure 7-9. Monitoring Location 4 – Noise Meter Location

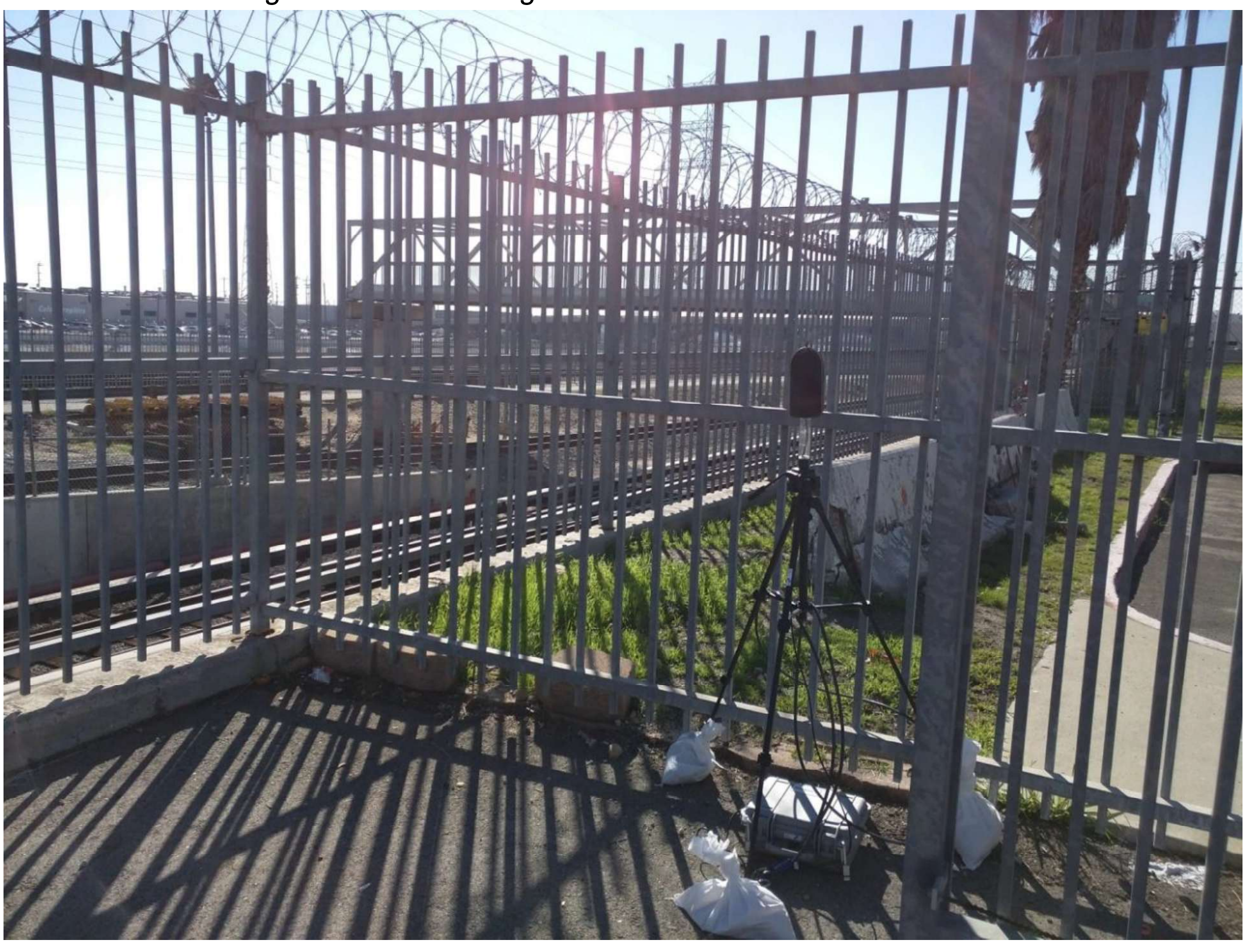
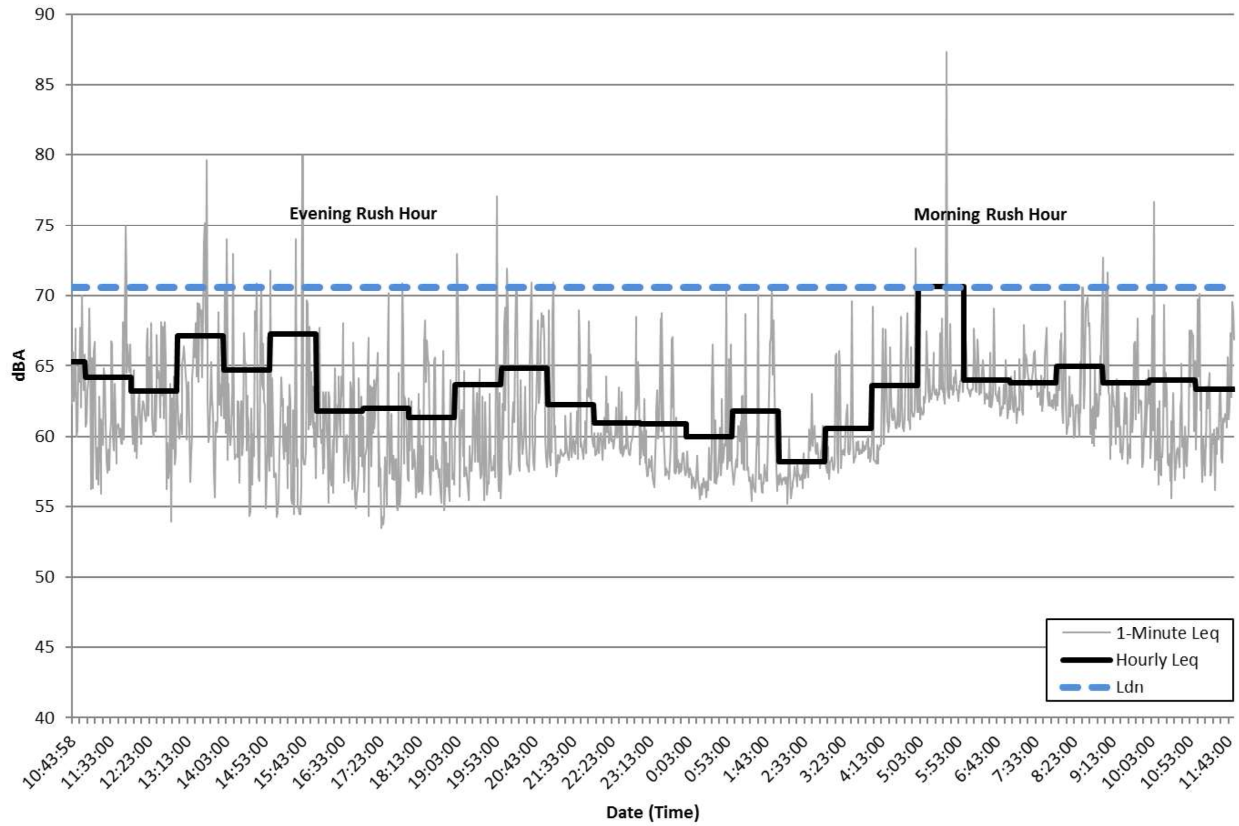


Figure 7-10. Monitoring Location 4 – Hourly Equivalent Noise Level Time History



7.2 Vibration Conditions

Groundborne vibration was measured at vibration-sensitive structures. These measurements were completed at ML1a at William Mead Homes (Figure 7-11) and ML3 at the Mozaic Apartments). Vibration measurements were completed with a seismic grade, low noise accelerometer firmly fixed to the ground. For the purposes of this evaluation, the existing vibration conditions collected at William Mead Homes were used to characterize the vibration conditions for the Care First Village, mainly since the proximity of these two receptors to the measurement location is similar and ML1a is therefore representative of this area as well.

7.2.1 Monitoring Location 1a – William Mead Homes

While the noise meters were collecting data for 24 hours on January 24, 2017, at William Mead Homes, vibration measurements were completed near ML1a for 30 minutes, starting 10:58 AM to obtain a sufficient number of events. The monitoring unit was placed at William Mead Homes on the lawn in front of the nearest structure to the rail corridor (Figure 7-11), approximately 30 feet from the building in the direction of the train tracks. Rail vibration events were measured, which included Metrolink and Amtrak trains. Vibration levels during train events were somewhat variable, with the highest monitored VdB 1-second of all vibration sources listed in Table 7-2. These levels were adjusted to be representative of the nearest William Mead Homes building because the vibration sensor was located approximately 30 feet from the building in the direction of the train tracks, and the measured vibration levels are considered representative of levels at William Mead Homes Building 16. Measurements focused on the railroad traffic on the tracks located nearby; however, other vibration-inducing events, such as roadway vehicular passby events, were observed. Generally, the highest vibration levels measured resulted from train passby events. Figure 7-12 provides a 1-second time history chart of the monitored VdB with train events identified.

Figure 7-11. Monitoring Location 1a – Vibration Measurement at William Mead Homes

Figure 7-12. Monitoring Location 1a – 1-Second Velocity in Decibels Time History with Rail Events

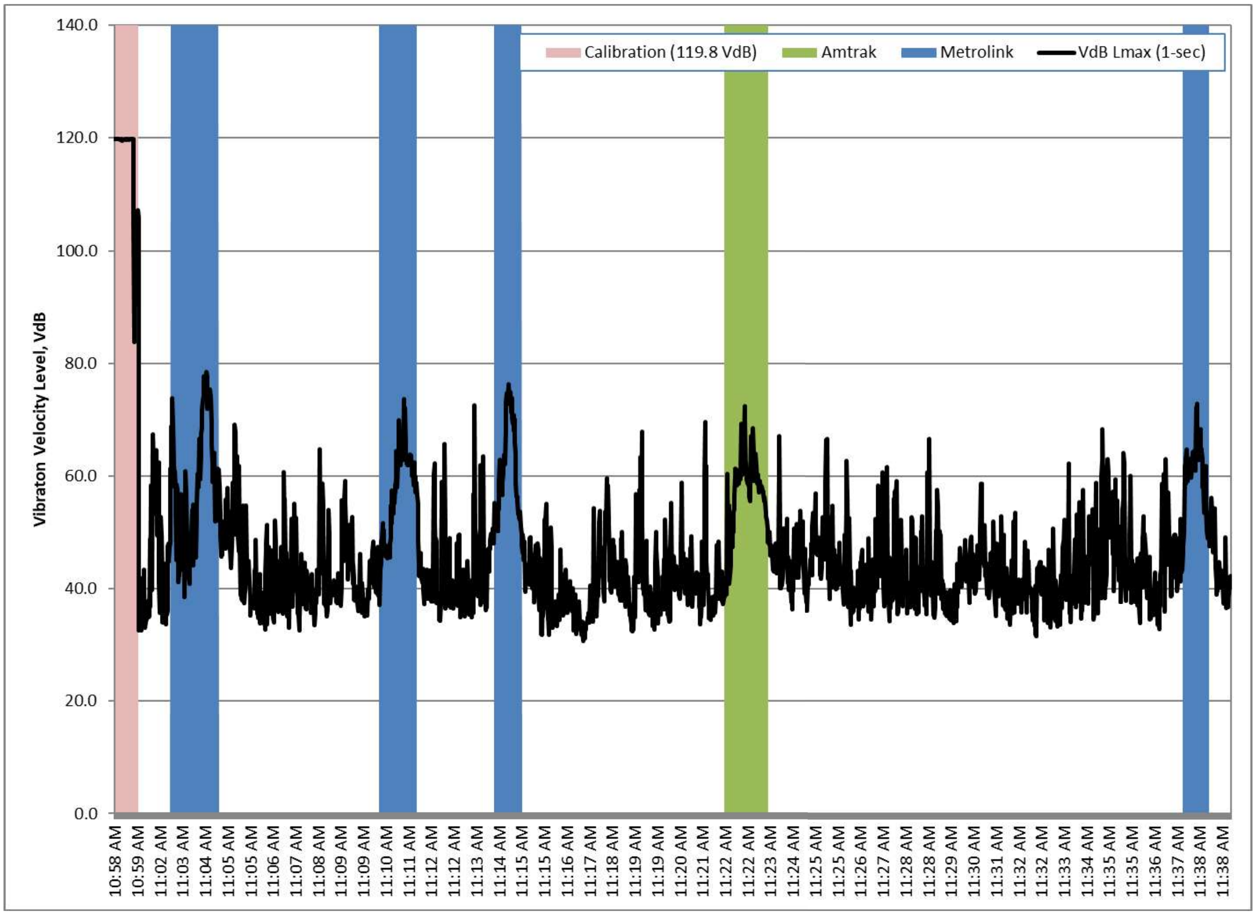


Table 7-2. Vibration from Train Events at Monitoring Location 1a (William Mead Homes)

Time (AM)	Train	Configuration	Track	Vibration Levels (VdB)	Distance Adjusted to Nearest William Mead Homes Building (VdB)*
11:03–11:04	Metrolink	One locomotive, five cars	Closest	78	69
11:10–11:11	Metrolink	One locomotive, five cars	2nd Closest	74	65
11:14–11:15	Metrolink	One locomotive, four cars	Closest	76	67
11:22–11:23	Amtrak[a]	Two locomotives, eight cars (long distance) One locomotive, six cars (Surfliner)	3rd Closest	72	63

Table 7-2. Vibration from Train Events at Monitoring Location 1a (William Mead Homes)

Time (AM)	Train	Configuration	Track	Vibration Levels (VdB)	Distance Adjusted to Nearest William Mead Homes Building (VdB)*
11:37–11:38	Metrolink	One locomotive, six cars	2nd Closest	73	64

Notes:
Two Amtrak trains passed by between 11:22 AM and 11:23 AM.
[a] Adjusted for distance and building structure type
VdB= vibration velocity level in decibels

Measurement results from this location indicate that existing vibration levels from Metrolink trains and Amtrak trains are similar, with the Metrolink trains causing slightly higher vibration levels since they operate on tracks in closer proximity. Additionally, this may be a function of the specific train's speed in combination with the weight of the vehicles as they passed by the vibration monitoring location.

7.2.2 Monitoring Location 3 – Mozaic Apartments

While a noise meter was collecting data for 24 hours on January 24, 2017, at the Amtrak Baggage Handling Building, short-term vibration measurements were completed near ML3 for approximately 1 hour starting at 2:19 PM (Figure 7-13) to obtain a sufficient sample. The monitoring unit was firmly affixed to the sidewalk with adhesive at a distance representative of the corner of the nearest point of the Mozaic Apartment complex to the rail yard platforms. For the purposes of this evaluation, the existing vibration conditions collected at this location were used to characterize the vibration levels for Metro Gateway Childhood Development Center, mainly since the proximity of these two receptors to the measurement location is similar and ML3 is therefore representative of this area as well. Rail vibration events were measured, including the Gold Line, Metrolink, and Amtrak trains, which were operating on several different tracks accessing various platforms.

Adjacent to the sidewalk is a local roadway that, at times, had vehicular traffic while a transit vibration event was also occurring. Vibration levels during train events were variable, with the highest monitored one-1-second VdB of all vibration sources (Table 7-3). Existing vibration levels exceed the FTA/FRA threshold for Category 2 land uses near a frequent rail corridor (Section 5.2.1). The focus of the vibration measurements was to identify vibration from railroad and transit related events; therefore, efforts were not made to specifically log other events, such as automobile passby events. An impact would occur if the Project results in increased vibration levels of 3 VdB or greater than existing levels. Figure 7-14 provides a 1-second time history chart of the monitored VdB, with train events identified.

Figure 7-13. Monitoring Location 3 – Vibration Measurement at Mozaic Apartments

Figure 7-14. Monitoring Location 3 – 1-second Velocity in Decibels with Time History

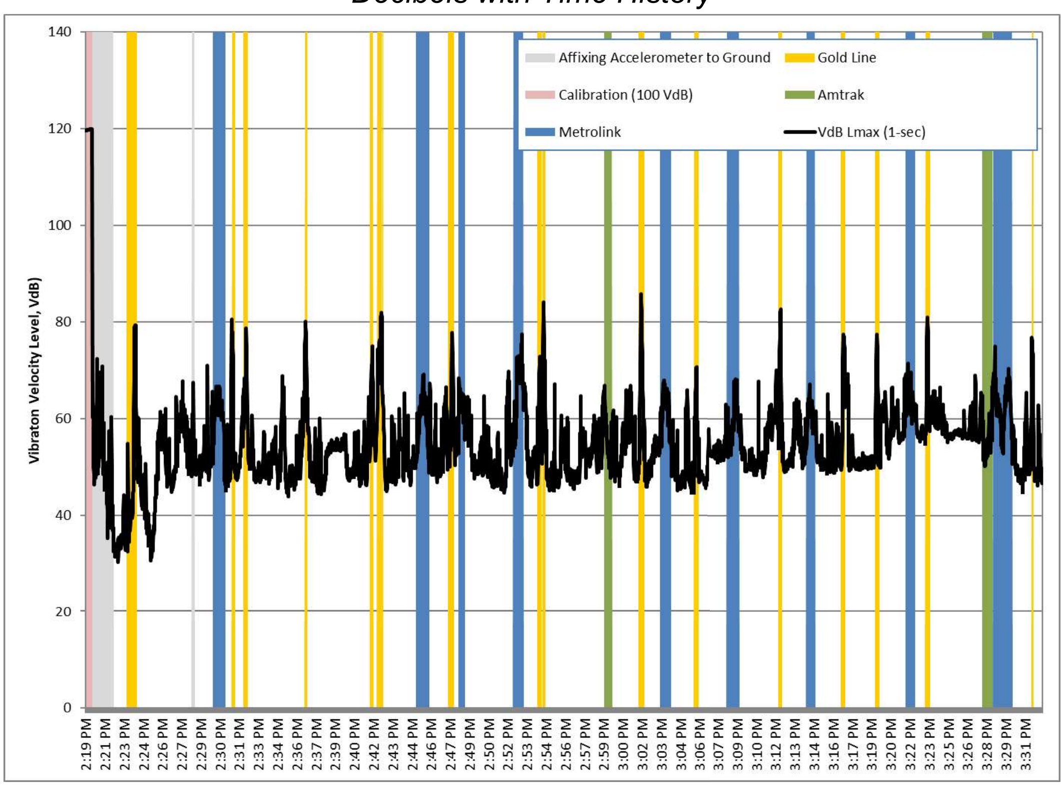


Table 7-3. Vibration from Train Events at Monitoring Location 3 (Mozaic Apartments and Metro Gateway Childhood Development Center)

Time (PM)	Train	Configuration	Track Platform	Distance (feet)	Vibration Levels (VdB)
2:23–2:24	Gold Line	Two vehicles	1	27	79
2:30	Metrolink	Two locomotives, eight cars	5	125	67
2:31	Gold Line	Two vehicles	1	27	79
2:32	Gold Line	Two vehicles	2	63	79
2:36	Gold Line	Two vehicles*	1 and 2	27 and 63	80
2:37	Gold Line	Two vehicles	2	63	76
2:41	Gold Line	Two vehicles	2	63	75
2:42	Gold Line	Two vehicles	1	27	82
2:45–2:46	Metrolink	Two locomotive four cars	7	183	69
2:47–2:48	Gold Line	Two vehicles	1	27	78
2:48	Metrolink	One locomotive, four cars	5	125	68
2:52–2:53	Metrolink	One locomotive, five cars	4	121	77
2:54	Gold Line	Two vehicles	1	27	84
2:59	Amtrak	One locomotive, six cars	10	272	67*
3:01–3:02	Gold Line	Two vehicles	1	27	86*
3:04	Metrolink	One locomotive, four cars	10	272	66
3:05–3:06	Gold Line	Two vehicles	2	63	71
3:08	Metrolink	One locomotive, five cars	9	241	68
3:12	Gold Line	Two vehicles	1	27	83
3:14–3:15	Metrolink	One locomotive, four cars	5	125	67

Table 7-3. Vibration from Train Events at Monitoring Location 3 (Mozaic Apartments and Metro Gateway Childhood Development Center)

Time (PM)	Train	Configuration	Track Platform	Distance (feet)	Vibration Levels (VdB)
3:17	Gold Line	Two vehicles	1	27	77
3:19	Gold Line	Two vehicles	2	63	78
3:22	Metrolink	One locomotive, six cars	7	183	71*
3:23	Gold Line	Two vehicles	1	27	81
3:27	Amtrak	One locomotive, six cars	10	272	65[a]
3:28	Amtrak	One locomotive, six cars	10	237	75
	Metrolink	One locomotive, four cars	3	81	
	Gold Line	Two vehicles	2	63	
3:29–3:30	Metrolink	One locomotive, four cars	3	81	70
3:31	Gold Line	Two vehicles	2	63	77

Notes:
**** A truck also passed by the sensor on the nearest roadway during the measurement.***
VdB= vibration velocity level in decibels

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8.0 Effects Criteria

For the purposes of this noise and vibration study, the Build Alternative would have an adverse effect relative to noise and vibration if it would result in:

A. Noise levels in excess of established general plan, noise ordinance, or agency standards.

B. Excessive groundborne vibration and groundborne noise levels.

C. A substantial permanent or temporary increase in ambient noise levels.

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9.0 Environmental Consequences

9.1 Operational Noise

CRITERIA A AND C	A. Noise levels in excess of established general plan, noise ordinance, or agency standards C. Ambient noise levels (Operations)

The results of the rail noise impact assessment are summarized in Table 9-1 in the 2026 condition, Table 9-2 in the 2031 condition, and Table 9-3 in the 2040 condition at the locations depicted in Figure 6-1.

The discussion below provides the impact assessment for the Build Alternative and the associated operating conditions and increased levels of service in 2026, 2031, and 2040, as described in the *Link US Rail Planning Technical Memorandum* (Metro 2026b).

9.1.1 Build Alternative – 2026 Condition

For the 2026 condition, regional/intercity rail service would operate at increased levels of service compared to existing conditions as described in the *Link US Rail Planning Technical Memorandum* (Metro 2026b). In the throat segment (Segment 1), new lead tracks would not be constructed near William Mead Homes or Care First Village. In the concourse segment (Segment 2), Metro's Gold Line would utilize Tracks 1 and 2 and regional/intercity trains would use the remaining tracks (Tracks 3 through 14). In the run-through segment (Segment 3), construction of two new run-through tracks as part of the Build Alternative would result in a new source of operational noise for land uses nearby.

As shown in Table 9-1, noise levels in the 2026 condition would range from 40 to 67 dBA L_{dn} at Category 2 land uses (i.e., places where people sleep) and 46 to 62 dBA L_{eq} at Category 3 land uses (i.e., La Petite Academy (First 5 LA Headquarters), Ann Street Elementary School, the park/playground at the Care First Village, the park/athletic field near William Mead Homes, and the Metro Gateway Childhood Development Center). In 2026, moderate impacts (see Section 5.1.1 for definition) would occur at 24 multifamily dwelling units (all at William Mead Homes). No moderate or severe impacts would occur at the Care First Village, Mozaic Apartments, Los Angeles County Men's Central Jail and the Twin Towers Correctional Facility, Metro Senior Housing, One Santa Fe Apartments, La Petite Academy (First 5 LA Headquarters), Ann Street Elementary School, the park/playground at the Care First Village, the park/athletic field near William Mead Homes, or the Metro Gateway Childhood Development Center. Although part of the athletic field at William Mead Homes is located within the limits of where moderate impacts are predicted to occur, this is an "active" sports area (running, playing baseball, etc.) and is not considered to be noise sensitive according to FTA guidelines.

Table 9-1. Operational Noise Levels – Build Alternative (2026 Condition)						
				Build Alternative		
Noise-Sensitive Area Description	Land Use Category[a]	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
William Mead Homes	2	415	69	45–67	0	24
	3	2	66	50–62	0	0
Metro Senior Housing	2	123	60	45	0	0
Los Angeles County Men's Central Jail	2	4,000[b]	73	49	0	0
Twin Towers Correctional Facility	2	9,500[b]	73	50	0	0
Mozaic Apartments East Building	2	176	67	43–58	0	0
Mozaic Apartments West Building	2	96	67	41–47	0	0
La Petite Academy (First 5 LA Headquarters)	3	1	64	47	0	0
One Santa Fe Apartments/ Studios	2	438	71	40–57	0	0
Care First Village	2	232	73	42–59	0	0
	3	1	71	54	0	0
Metro Gateway Childhood Development Center	3	1	64	46	0	0

Table 9-1. Operational Noise Levels – Build Alternative (2026 Condition)

Noise-Sensitive Area Description	Land Use Category[a]	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Build Alternative		
				Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
Total	2	14,980[b]	60–73	40–67	0	24
	3	4	64–71	47–62	0	0

Notes:

[a] ***Category 2 land uses are assessed using Ldn and Category 3 land uses are assessed using Leq.***

[b] ***Approximately 4,000 inmates are housed at the Los Angeles Central Jail and 9,500 inmates are housed at the Twin Towers Correctional Facilities. Neither facility provides outdoor use areas for prisoners; therefore, only interior noise levels are of concern. The prisons are built out of concrete and have thick windows to keep prisoners inside; therefore, interior sound levels are estimated to be at least 20 dBA lower than those calculated at the exterior of each facility.***

dBA=A-weighted decibel; L_{dn}=day-night average sound level used for Category 2 land uses, L_{eq}=equivalent noise level used for Category 3 Land Uses

Based on the results in Table 9-1, no adverse effect would occur because impacts are considered moderate. The FRA and FTA manuals include provisions for consideration of mitigation for moderate impacts, although mitigation is not required for moderate impacts. Although implementation of Mitigation Measure NV-1 (described in Section 11.1) is not required in the 2026 condition because impacts are not severe, Metro would construct the sound walls in accordance with Mitigation Measure NV-1 (described in Section 11.1) earlier than 2031 to reduce construction-related noise impacts and/or moderate operational noise impacts from increased train movements that may occur as early as 2026. The dimensions of the noise wall will be finalized during final design.

Figure 9-1 depicts the noise contours associated with the moderate impact areas at William Mead Homes for the 2026 condition. Noise levels at each individual modeled receiver are provided in Appendix C.

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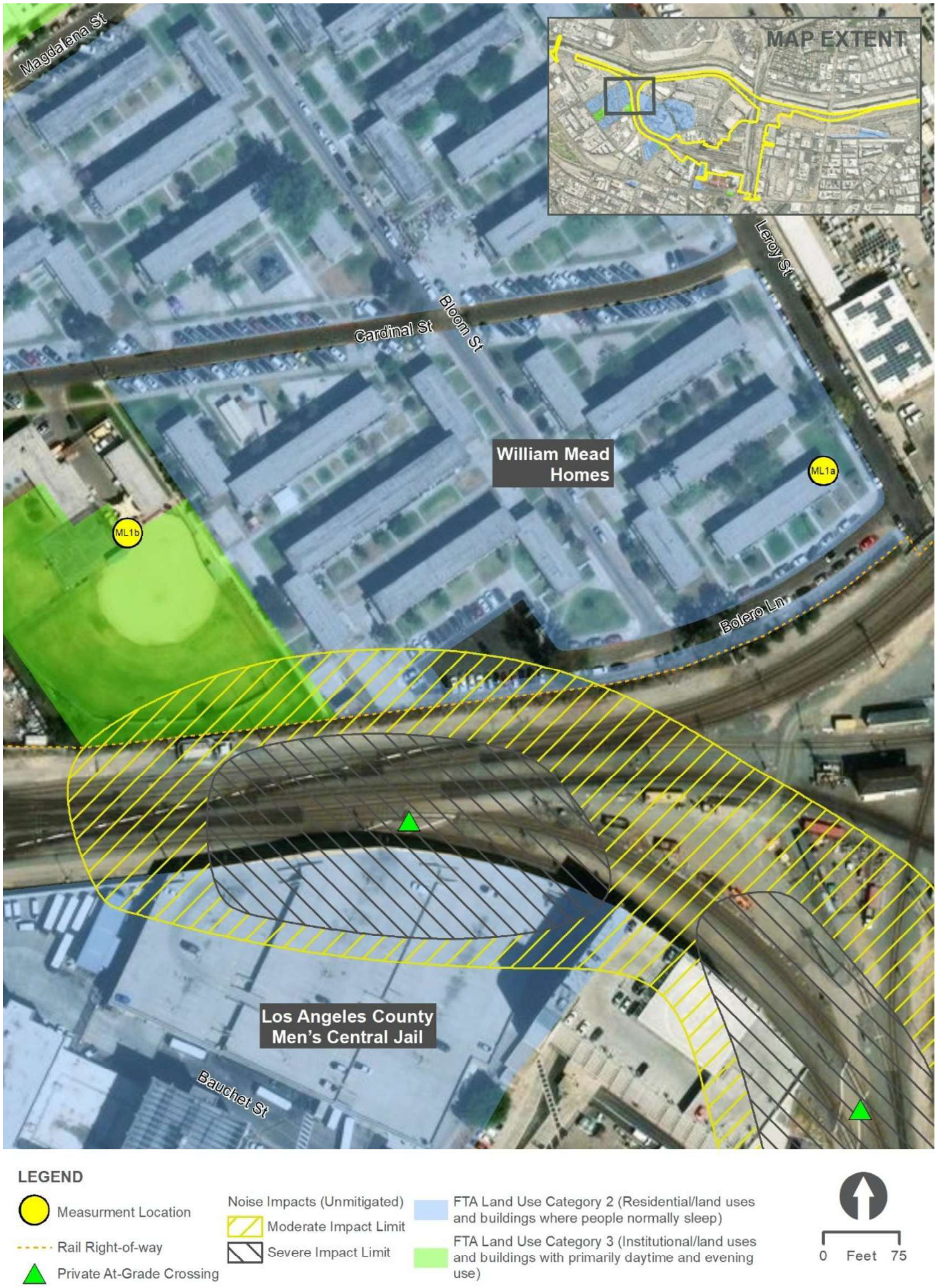
Figure 9-1. Noise Impact Areas at William Mead Homes – Build Alternative (2026 Condition)



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9.1.2 Build Alternative – 2031 Condition

For the 2031 condition, regional/intercity rail service would operate at increased levels compared to existing and 2026 conditions, as described in the *Link US Rail Planning Technical Memorandum* (Metro 2026b). In the throat segment (Segment 1), one new lead track would be constructed within the railroad ROW in closer proximity to William Mead Homes (Building 16) and Care First Village. In the concourse segment (Segment 2), Metro's Gold Line would utilize Tracks 1 and 2 and regional/intercity trains would use the remaining tracks (Tracks 3 through 14). In the run-through segment (Segment 3), construction of additional run-through tracks would result in increased operation-related noise levels for people present nearby.

As shown in Table 9-2, noise levels in the 2031 condition would range from 44 to 75 dBA L_{dn} at Category 2 land uses (i.e., places where people sleep) and 50 to 71 dBA L_{eq} at Category 3 land uses (i.e., Ann Street Elementary School, La Petite Academy, a park/playground at the Care First Village, the park/athletic field near William Mead Homes, and the Metro Gateway Childhood Development Center).

Also shown in Table 9-2, in the 2031 condition, the Build Alternative would result in moderate impacts on 34 multifamily dwelling units (16 William Mead Homes dwelling units, 15 Care First Village dwelling units, and 3 Mozaic Apartment dwelling units) and severe impacts on 34 multifamily dwelling units (24 William Mead Homes dwelling units and 10 dwelling units at the Care First Village) and one park/athletic field near William Mead Homes. Category 2 and 3 land uses that would be subject to severe impacts are shown on Figure 9-2. Land uses not subject to severe noise impacts in the 2031 condition are not depicted on Figure 9-2. The following discussion provides additional information on the impacts to noise-sensitive receptors and the mitigation for each receptor, as applicable:

- For William Mead Homes, severe impacts in the 2031 condition is considered an adverse effect. Mitigation Measure NV-1 (described in Section 11.1) requires Metro to implement a sound wall within the railroad ROW along the perimeter of the William Mead Homes property. Implementation of Mitigation Measure NV-1 would reduce adverse operational noise effects by reducing noise levels lower than the FTA severe impact criteria.
- For the Care First Village, severe impacts in the 2031 condition are considered an adverse effect. Mitigation Measure NV-1 (described in Section 11.1) requires Metro to implement a sound wall within the railroad ROW along the perimeter of the Care First Village property. Implementation of Mitigation Measure NV-1 would reduce adverse operational noise effects by reducing noise levels lower than the FTA severe impact criteria.
- For the Mozaic Apartments, exterior noise levels at the Mozaic Apartments would result in moderate noise impacts at three dwelling units, specifically at the balconies of the units located closest to LAUS. Mitigation measures are not proposed because severe impacts would not occur and the exterior areas (balconies) of the Mozaic Apartments are already exposed to relatively high existing noise levels from transit and railroad operations located at LAUS (see Section 7.1.3). Right of entry to both interior and exterior areas was not granted by the owner of the Mozaic Apartments to document existing noise exposure from

LAUS. The Mozaic Apartments were constructed in 2005 and, as part of the planning process, the developer was required to design the development in accordance with City of Los Angeles Municipal Code, Section 91.1207.14.2 since it is located in close proximity to railroad tracks. The city's code requires that new buildings located in close proximity to train tracks be constructed in such a manner to ensure interior sound levels are 45 dBA L_{dn} or lower. With or without implementation of the Build Alternative, interior sound levels are assumed to be 45 dBA L_{dn} or lower because noise attenuation measures in the form of thick pane windows and concrete structures (as opposed to other noise absorbing materials) are already in place, as required by the City of Los Angeles.

- The Los Angeles County Men's Central Jail and the Twin Towers Correctional Facility do not have outdoor uses and the building interiors are not predicted to be subjected to noise levels that exceed severe or moderate noise limits. Additionally, these two facilities comprises buildings made with concrete with thick windows. Interior noise levels are estimated to be at least 20 dB lower than those experienced at the exterior of these structures consistent with Federal Highway Administration guidance for interior sound level attenuation, which would be similar for railroad noise sources (Federal Highway Administration 2011). Interior noise levels would be below 45 dBA L_{dn}, which is a level that the U.S. Environmental Protection Agency has identified as a level that does not interfere with interior activities (e.g., speech and sleeping) and has a low potential for annoyance (U.S. Environmental Protection Agency 1978). No adverse effect would occur.
- For the Metro Senior Housing, Ann Street Elementary School, La Petite Academy, and One Santa Fe Apartments, no moderate or severe impacts were identified. No adverse effect would occur.

Figure 9-3 depicts the noise contours associated with moderate and severe impact areas at William Mead Homes in the 2031 condition without mitigation. Figure 9-4 depicts the moderate and severe impact areas at Care First Village in the 2031 condition without mitigation. Noise levels at each individual modeled receiver are provided in Appendix C.

Table 9-2. Operational Noise Levels – Build Alternative (2031 Condition)

Noise-Sensitive Area Description	Land Use Category[a]	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Build Alternative		
				Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
William Mead Homes	2	415	69	55–75	24	16
	3	2	66	62–71	1	0
Metro Senior Housing	2	123	60	55	0	0

Table 9-2. Operational Noise Levels – Build Alternative (2031 Condition)						
				Build Alternative		
Noise-Sensitive Area Description	Land Use Category[a]	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
Los Angeles County Men's Central Jail	2	4,000[b]	73	59	0	0
Twin Towers Correctional Facility	2	9,500[b]	73	55	0	0
Mozaic Apartments East Building	2	176	67	49–63	0	3
Mozaic Apartments West Building	2	96	67	47–52	0	0
La Petite Academy (First 5 LA Headquarters)	3	1	64	50	0	0
One Santa Fe Apartments/ Studios	2	438	71	44–59	0	0
Care First Village	2	232	73	52–72	10	15
	3	1	71	65	0	0
Metro Gateway Childhood Development Center	3	1	64	51	0	0

Table 9-2. Operational Noise Levels – Build Alternative (2031 Condition)

Noise-Sensitive Area Description	Land Use Category[a]	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Build Alternative		
				Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
Total	2	14,980[b]	60–73	44–75	34	34
	3	4	64–71	50–71	1	0

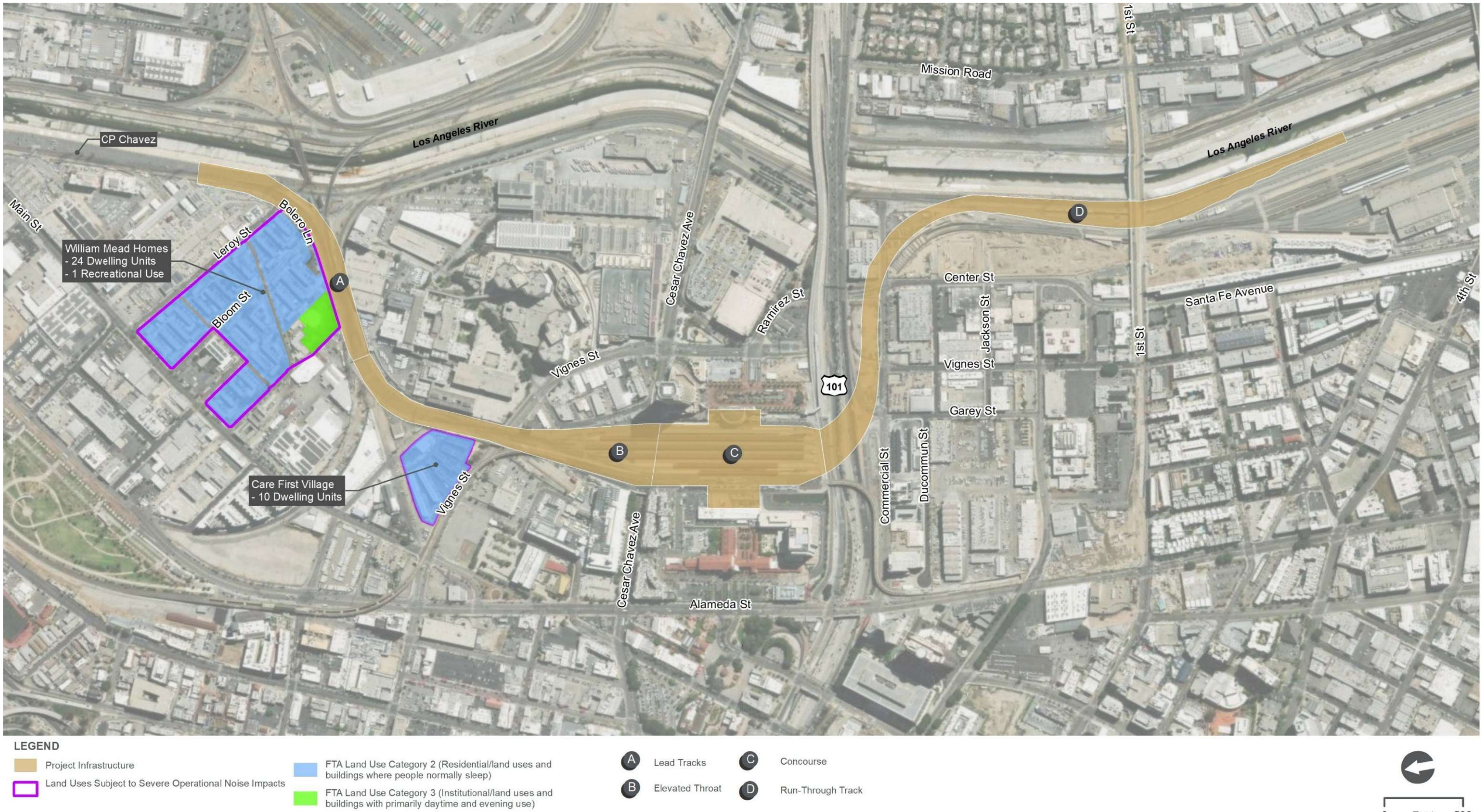
Notes:

[a] Category 2 land uses are assessed using Ldn and Category 3 land uses are assessed using Leq.

[b] Approximately 4,000 inmates are housed at the Los Angeles Central Jail and 9,500 inmates are housed at the Twin Towers Correctional Facilities. Neither facility provides outdoor use areas for prisoners; therefore, only interior noise levels are of concern. The prisons are built out of concrete and have thick windows to keep prisoners inside; therefore, interior sound levels are estimated to be at least 20 dBA lower than those calculated at the exterior of each facility.

dBA=A-weighted decibel; L_{dn}=day-night average sound level used for Category 2 land uses, L_{eq}=equivalent noise level used for Category 3 Land Uses

Figure 9-2. Land Uses Subject to Severe Operational Noise Impacts (2031 and 2040 Condition)



Notes:
Land uses not subject to severe noise impacts in the 2031 and 2040 Condition are not depicted on Figure 9-2.

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Figure 9-3. Noise Impact Areas at William Mead Homes – Build Alternative without Mitigation (2031 Condition)

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Figure 9-4. Noise Impact Areas at the Care First Village – Build Alternative without Mitigation (2031 Condition)

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9.1.3 Build Alternative – 2040 Condition

As shown in Table 9-3, noise levels in the 2040 condition would range from 43 to 75 dBA L_{dn} at Category 2 land uses (i.e., places where people sleep) and 50 to 71 dBA L_{eq} at Category 3 land uses (i.e., Ann Street Elementary, La Petite Academy, the park/playground at the Care First Village, the park/athletic facility near William Mead Homes, and the Metro Gateway Childhood Development Center).

As shown in Table 9-3, in the 2040 condition, the Build Alternative would result in moderate impacts on 25 multifamily dwelling units (16 dwelling units at William Mead Homes and 9 dwelling units at the Mozaic Apartments) and severe impacts on 34 multifamily dwelling units (24 dwelling units at William Mead Homes and 10 dwelling units at Care First Village) and 1 park/athletic field near William Mead Homes. Category 2 and 3 land uses that would be subject to severe impacts are shown on Figure 9-2. Land uses not subject to severe noise impacts in the 2040 condition are not depicted on Figure 9-2. The following discussion provides additional information on the impacts to noise-sensitive receptors and the mitigation for each receptor, as applicable:

- For William Mead Homes, severe impacts in the 2040 condition are considered an adverse effect. Implementation of Mitigation Measure NV-1 (discussed above and described in Section 11.1) would reduce adverse operational noise effects by reducing noise levels lower than the FTA severe impact criteria.
- For the Care First Village, severe impacts in the 2040 condition are considered an adverse effect. Implementation of Mitigation Measure NV-1 (discussed above and described in Section 11.1) would reduce adverse operational noise effects by reducing noise levels lower than the FTA severe impact criteria.
- For the Mozaic Apartments, although noise attenuating measures are already in place, moderate impacts would occur at 9 dwelling units. For the same reasons as described previously, mitigation measures are not proposed for the same reasons described above. Additionally, over 80 percent of the train movements would occur during daytime hours, during the peak-period, rather than during nighttime hours when rail activity could result in greater sleep disturbance. Therefore, no mitigation measures are proposed.
- For the Los Angeles County Men's Central Jail and the Twin Towers Correctional Facility, interior noise levels at the facilities would be 45 dBA L_{dn} or lower for the same reasons described above. No adverse effect would occur.
- For the Metro Senior Housing, Ann Street Elementary School, La Petite Academy, and One Santa Fe Apartments, no moderate or severe impacts were identified. No adverse effect would occur.

Figure 9-5 depicts the noise contours associated with moderate and severe noise impact areas at William Mead Homes in the 2040 condition without mitigation. Figure 9-6 depicts the moderate and severe impact areas at Care First Village in the 2040 condition without mitigation. Noise levels at each individual modeled receiver are provided in Appendix C.

Table 9-3. Operational Noise Levels – Build Alternative (2040 Condition)

Noise-Sensitive Area Description	Land Use Category[a]	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Build Alternative		
				Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
William Mead Homes	2	415	69	51–75	24	16
	3	2	66	55–71	1	0
Metro Senior Housing	2	123	60	51	0	0
Los Angeles County Men's Central Jail	2	4,000[b]	73	59	0	0
Twin Towers Correctional Facility	2	9,500[b]	73	55	0	0
Mozaic Apartments East Building	2	176	67	49–64	0	9
Mozaic Apartments West Building	2	96	67	46–53	0	0
La Petite Academy (First 5 LA Headquarters)	3	1	64	50	0	0
One Santa Fe Apartments/ Studios	2	438	71	43–59	0	0
Care First Village	2	232	73	51–72	10	0
	3	1	71	65	0	0
Metro Gateway Childhood Development Center	3	1	64	52	0	0
Project Total	2	14,980[b]	60–73	43–75	34	25
	3	4	64–71	50–71	1	0

Table 9-3. Operational Noise Levels – Build Alternative (2040 Condition)

Noise-Sensitive Area Description	Land Use Category[a]	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Build Alternative		
				Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts

Notes:

[a] *Category 2 land uses are assessed using Ldn and Category 3 land uses are assessed using Leq.*

[b] *Approximately 4,000 inmates are housed at the Los Angeles Central Jail and 9,500 inmates are housed at the Twin Towers Correctional Facilities. Neither facility provides outdoor use areas for prisoners; therefore, only interior noise levels are of concern. The prisons are built out of concrete and have thick windows to keep prisoners inside; therefore, interior sound levels are estimated to be at least 20 dBA lower than those calculated at the exterior of each facility.*

dBA=A-weighted decibel; L_{dn}=day-night average sound level used for Category 2 land uses, L_{eq}=equivalent noise level used for Category 3 Land Uses

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Figure 9-5. Noise Impact Areas at William Mead Homes – Build Alternative without Mitigation (2040 Condition)

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Figure 9-6. Noise Impact Areas at the Care First Village - Build Alternative without Mitigation (2040 Condition)

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9.1.4 No Action Alternative

Under the No Action Alternative, no Project-related construction noise impacts on sensitive receptors would occur. Reasonably foreseeable future projects, as described in Section 3.16, Cumulative Effects, and other planned improvements as part of the 2020–2045 RTP/SCS would still occur under the No Action Alternative along with other maintenance activities in the railroad ROW. Construction of other projects in the vicinity of sensitive receptors would likely result in some form of construction noise and the magnitude of construction noise impacts would vary depending on the location of each project and the associated construction activities. The impacts of other projects would be addressed during the environmental review and entitlement processes and measures may be required to avoid, minimize, and/or mitigate the potential for adverse effects.

Due to the physical capacity constraints at LAUS, noise levels would remain high for sensitive receptors located near the existing track alignment, and train movements in the Project study area are assumed to remain similar to existing conditions. Operational noise levels are anticipated to correspond to existing frequency for train movements and would therefore remain unchanged. No new severe or moderate impacts would occur at William Mead Homes, Care First Village, or Mozaic Apartments through 2040.

9.2 Operational Vibration

CRITERION B	Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels

Any vibration-sensitive land uses and structures would be limited to those Category 2 land uses within 200 feet of the track alignment (i.e., the screening distance per FTA guidance). Category 2 uses within 200 feet include the first row of buildings at William Mead Homes, about half of each of the two multi-story buildings and most of the single-story buildings at Care First Village, and a portion of the front row building at the Mozaic Apartment complex. The results of the vibration analysis are provided in Table 9-4.

9.2.1 Build Alternative (2026)

In the 2026 condition, although additional train movements would occur, there would be no changes to train speeds or the track alignment in Segment 1 of the Project study area near William Mead Homes or the Care First Village and, consequently, there would be no changes to vibration levels. While the frequency of vibration events would increase with additional rail traffic the corridor is already characterized as a frequent vibration source and assessed accordingly. No adverse effect would occur. In Segments 2 and 3 of the Project study area, the track alignment would change slightly to accommodate Platform 4 modifications, a temporary run-through track ramp, and new run-through tracks crossing US-101. No appreciable change would occur at the front row building of the Mozaic Apartment complex, with regional/intercity rail trains operating at 10 miles per hour on Tracks 3 and 4.

Table 9-4. Groundborne Vibration and Groundborne Noise Levels

Location	Rail Line	Existing Condition	2026 Build Alternative		2031 Build Alternative		2040 Build Alternative	
		VdB	VdB	dBA[a]	VdB	dBA[a]	VdB	dBA[a]
William Mead Homes[b]	HSR	—	No Change		—[c]	—	55	5
	Regional/ Intercity Rail	69			68	18	68	18
Care First Village	HSR	—	No Change		—[c]	—	68	18
	Regional/ Intercity Rail	—			71	21	71	21
Terminal Annex	Gold Line	Not Measured	57	7	57	7	57	7
	HSR		—[c]	—	—[c]	—	54	4
	Regional/ Intercity Rail		53	3	53	3	53	3
Mozaic Apartments	Gold Line	84	55	5	55	5	55	5
	HSR	—	—[c]	—	—[c]	—	43	<1
	Regional/ Intercity Rail	77	56	6	56	6	56	6

Notes:

[a] ***FTA indicates that typical groundborne noise in dBA is calculated by subtracting 50 dB from the calculated VdB value. See Section 5.2 for vibration thresholds.***

[b] ***The westernmost William Mead Home building closest to the Build Alternative is within 200 feet but beyond 100 feet from crossovers.***

[c] ***HSR infrastructure in the interim phase of the Project would operate conventional passenger rail.***

dBA=A-weighted decibel; HSR=high-speed rail; VdB= vibration velocity level in decibels

Table 9-4 identifies that in the 2026 condition, operational groundborne vibration and noise levels would be below the FTA impact criteria for Category 2 and Category 3 land uses (FTA 2018). Additionally, there are no predicted increases of 3 VdB or greater from operation in the 2026 condition; therefore, no operational, groundborne vibration or groundborne noise impacts are predicted. No direct adverse effects would occur during operation of the Build Alternative in the 2026 condition.

9.2.2 Build Alternative (2031)

For the Build Alternative, regional/intercity rail trains would operate on new lead tracks within the existing railroad ROW as close as 100 feet from the buildings within William Mead Homes whereas currently tracks are about 12 feet farther away, all with trains at speeds of up to 35 miles per hour. Trains would operate within 75 feet of the Care First Village at 25 miles per hour.

Table 9-4 identifies that in the 2031 condition, operational, groundborne vibration and noise levels would be below the FTA impact criteria for Category 2 and Category 3 land uses (FTA 2018). Additionally, there are no predicted increases of 3 VdB or greater from operation in the 2031 condition; therefore, no operational, groundborne vibration or groundborne noise impacts are predicted. No direct adverse effects would occur during operation of the Build Alternative in the 2031 condition.

9.2.3 Build Alternative (2040)

For the Build Alternative, in the 2040 condition, regional/intercity trains and HSR trains would operate on shared tracks as close as 100 feet from the William Mead Homes buildings. HSR trains would operate as close as 75 feet from the Care First Village. The Build Alternative in the 2040 condition would result in increased train movements in close proximity to the Mozaic Apartments, with the Gold Line trains as close as 40 feet, HSR trains as close as 75 feet, and regional/intercity rail trains as close as 185 feet. The estimate of train movements is conservative to assess the highest anticipated vibration levels at the Category 2 land uses, meaning that the rail vehicle with the highest potential for operational vibration on a given track is assumed for the analysis.

The Terminal Annex building includes a large computer server. FTA generally does not consider these types of facilities sensitive to vibration; however, to address concerns identified in scoping, this building is considered a Category 3 vibration-sensitive use for the purpose of this analysis. The Terminal Annex is located 85 feet from the Gold Line within the screening distance identified in Chapter 4.0 of this report.

Table 9-4 identifies that in the 2040 condition, operational, groundborne vibration and noise levels would be below the FTA impact criteria for Category 2 and Category 3 land uses (FTA 2018). Additionally, there are no predicted increases of 3 VdB or greater from operation in the 2040 condition; therefore, no operational, groundborne vibration or groundborne noise impacts are predicted. No adverse direct effects would occur during operation of the Build Alternative in the 2040 condition.

9.2.4 No Action Alternative

Under the No Action Alternative, operational vibration levels would remain unchanged from the existing condition. Reasonably foreseeable future projects, as described in Section 3.16, Cumulative Effects of the Link Union Station EIS, and other planned improvements as part of the 2020-2045 RTP/SCS would still occur under the No Action Alternative along with other maintenance activities in the railroad ROW. Construction of other projects in the vicinity of sensitive receptors would likely result in some groundborne vibration if specific construction equipment is used, and the magnitude of groundborne noise impacts would vary depending on the location of each project and the associated construction activities and equipment. The impacts of other projects would be addressed during the environmental review and entitlement processes and measures may be required to avoid, minimize, and/or mitigate the potential for adverse effects. No new operational direct adverse effects would occur.

9.3 Construction Noise

CRITERION D	Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project

9.3.1 Build Alternative

Construction of the Build Alternative would take place in phases over the course of approximately 6 years. Construction activities associated with the Project would result in temporary periods of relatively high noise levels. The noise levels from construction activities were estimated using the method described in Section 4.3. The results are summarized in Table 9-5, which provides estimates of peak day noise levels for each construction phase and segment. This noise and vibration impact evaluation is conservative and adequately addresses any potential effects that could occur in the interim condition because the detailed construction scenario prepared to support the environmental impact evaluation assumes all major Project elements would be constructed concurrently. If run-through track infrastructure south of LAUS is constructed as part of the interim condition prior to the elevated rail yard and new passenger concourse, fewer construction-related noise and vibration impacts (based on reduced equipment use) are anticipated than reported herein because the greatest amount of potential effects are addressed within this analysis.

As an example, if the run-through track infrastructure is constructed as early as 2026, the construction noise and vibration associated with those tracks would not occur in later years as is currently assumed in this analysis. It is anticipated that these run-through tracks would be constructed roughly where existing Tracks 3 and 4 are currently located, which is in close proximity to the Mozaic Apartments. Construction noise and vibration that would have occurred during the build out would no longer occur in later years of Project development; therefore, construction noise levels would be lower than those identified in Table 9-5.

During construction, impacts would occur at Category 2 land uses at distances of up to approximately 250 feet under daytime (7:00 AM to 10:00 PM) impact criteria (i.e., 80 dBA L_{eq}) and approximately 300 feet under nighttime (10:00 PM to 7:00 AM) impact criteria (i.e., 70 dBA L_{eq}). Similar to other recently completed transportation infrastructure projects in the surrounding area, it is anticipated that some construction work would take place during nighttime hours to achieve the efficiencies of working during off-peak times of the day and meet Metro’s desired construction completion timeframe.

As shown on Figure 9-7, the following Category 2 and 3 land uses would be subject to construction noise that exceeds the City's 75 dBA limit:

- William Mead Homes - 41 dwelling units and one recreational use;
- Care First Village - approximately 36 dwelling units and a playground/park;
- Mozaic Apartments - 82 dwelling units; and,
- Metro Gateway Childhood Development Center.

Land uses not subject to severe noise impacts during construction are not depicted on Figure 9-7.

Detailed calculations of construction noise at noise sensitive receptors are provided in Appendix C. This is considered an adverse effect.

In addition to the construction-related impacts of the Build Alternative described above, at William Mead Homes and Care First Village specifically, construction of the sound walls required as part of Mitigation Measure NV-1 (described in Section 11.1) would also result in construction noise impacts from use of heavy machinery as presented in Table 9-6.

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Table 9-5. Construction Noise Levels

Phase	Sub-Phase	Type	Equipment[a]			Composite Sound Level (L_{eq}) at Distance[c] – Variable Distances (feet)					
			Quantity	Usage Factor (%)	L_{max} at 50'[b]	50	100	200	400	800	1,000
Segment 1: Throat Segment	—	Drill rig	1	20	79	86	80	74	68	62	60
		Wheel loader	4	40	79						
		Excavator	3	40	81						
		Concrete mixer truck	1	40	79						
		Crane	1	16	81						
		Forklift	2	20	75						
		Water truck	2	40	74						
Segment 2: Concourse Segment	—	Drill rig	1	20	79	86	80	74	68	62	60
		Wheel loader	4	40	79						
		Excavator	3	40	81						
		Concrete mixer truck	1	40	79						
		Crane	1	16	81						
		Forklift	2	20	75						
		Water truck	2	40	74						

Table 9-5. Construction Noise Levels

Phase	Sub-Phase	Type	Equipment[a]			Composite Sound Level (L_{eq}) at Distance[c]					
						Variable Distances (feet)					
			Quantity	Usage Factor (%)	L_{max} at 50'[b]	50	100	200	400	800	1,000
Segment 3: Run-Through Segment	Cast-in-drilled-hole piles	Drill rig	2	20	79	85	79	73	67	61	59
		Wheel loader	2	40	79						
		Concrete pump	2	20	81						
		Concrete mixer truck	4	40	79						
		Crane	1	16	81						
		Haul truck	2	40	76						
	Superstructure Placement	Concrete pump	2	20	81	83	77	71	65	59	57
		Concrete mixer truck	3	40	79						
		Forklift	2	20	75						
		Crane	2	16	81						
	Pile Driving for Abutments	Pile driving machine	1	20	101	94	88	82	76	70	68
		Wheel loader	1	40	79						
		Crane	1	16	81						
	Bridge Earthwork	Excavator	1	40	81	81	75	69	63	57	55

Table 9-5. Construction Noise Levels

Phase	Sub-Phase	Type	Equipment[a]			Composite Sound Level (L_{eq}) at Distance[c] Variable Distances (feet)					
			Quantity	Usage Factor (%)	L_{max} at 50'[b]	50	100	200	400	800	1,000
		Wheel loader	1	40	79						
		Hauling truck	2	40	76						
		Water truck	1	40	74						
	BNSF West Bank Yard Earthwork	Dozer	2	40	82	84	78	72	66	60	58
		Wheel loader	2	40	79						
		Haul truck	2	40	76						
		Water truck	1	40	74						
	BNSF West Bank Yard Rail Placement	Compactor	1	20	83	85	79	73	67	61	59
		Ballast regulator	4	50	82						

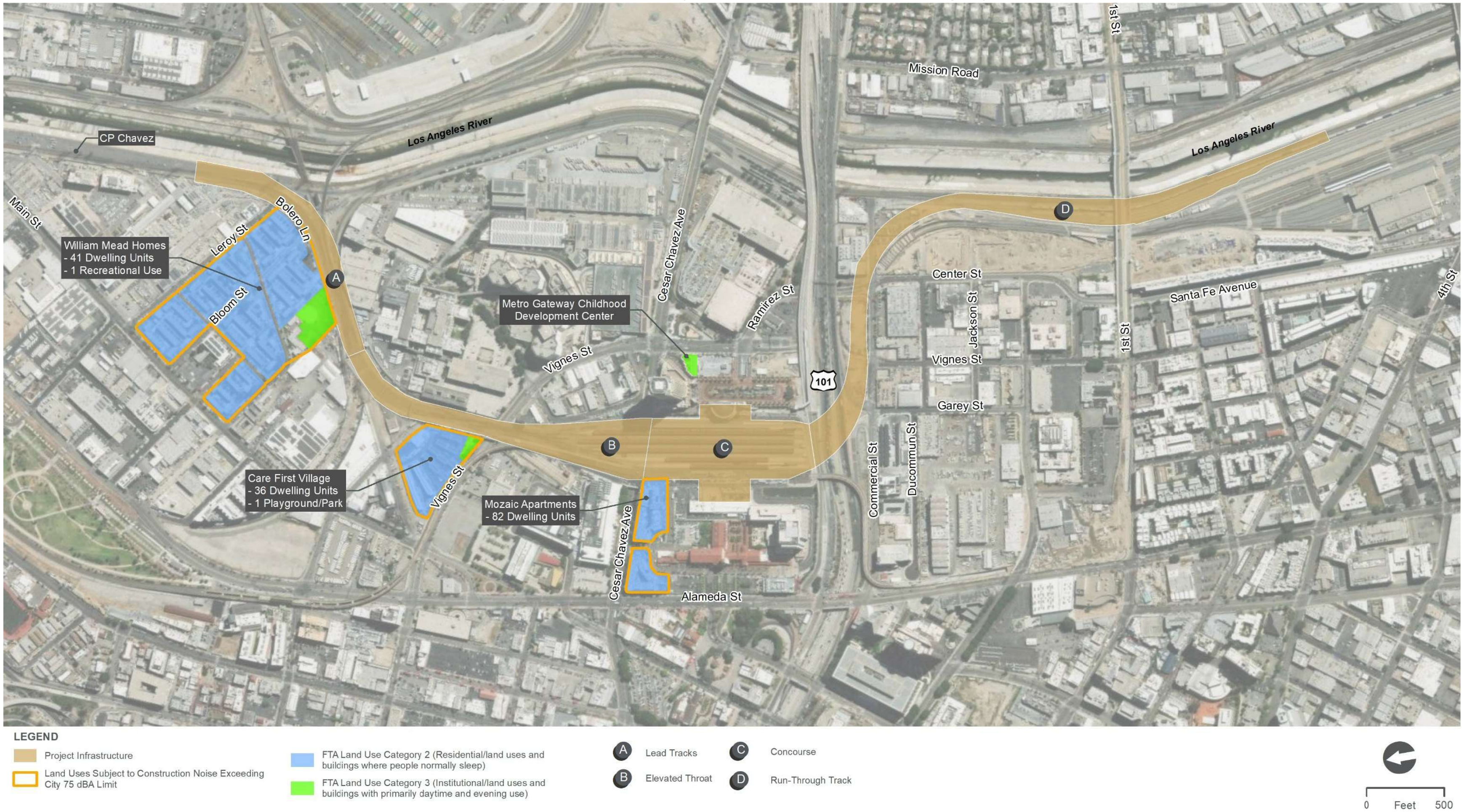
Notes:
[a] *Equipment mix obtained from the proposed action's engineers 7/8/2016*
[b] *Measured Lmax at given reference distance obtained from the FHWA Roadway Construction Noise Model, FHWA 2006 and/or FTA Noise and Vibration Guidance 2006.*
[c] *Distance factor determined by the inverse square law defined as 6 dBA per doubling of distance as sound travels away from an idealized point.*
Usage factor assumed to be that identified in the 2006 FHWA Roadway Construction Noise Model.
L_{eq}=equivalent noise level; L_{max}=maximum sound level

Table 9-6. Sound Wall Construction Noise Levels

Equipment	Quantity	Usage Factor (%)	L_{max} at 50 feet	Composite dBA L_{eq} (hourly) at Distance				
				50 feet	100 feet	200 feet	400 feet	500 feet
Backhoe	1	40	78	79	73	67	61	59
185 cubic foot per minute compressor	1	40	78					
Concrete pump truck	1	20	81					
400-amp welder	1	40	74					

Notes:
Usage factors obtained from the 2006 FHWA Roadway Construction Noise Model
dBA=A-weighted decibel; L_{eq}=equivalent noise level; L_{max}=maximum sound level

Figure 9-7. Land Uses Subject to Construction Noise Exceeding City 75 dBA Limit



Notes:
Land uses not subject to severe noise impacts during construction are not depicted on Figure 9-7.

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For sound wall construction, Category 2 land uses (i.e., residential) within the respective daytime and nighttime impact distances (250 feet and 300 feet) include William Mead Homes and Care First Village; therefore, the construction noise impact from sound wall construction is also considered a temporary adverse effect. Additionally, the city's limit would be exceeded at some receivers. Detailed calculations of construction noise at noise-sensitive receptors are provided in Appendix C. Mitigation Measure NV-2 (described in Section 11.2) requires implementation of noise- and vibration-reducing measures including, but not limited to, constructing walled enclosures around loud activities, restricting pile driving to daytime periods, and rerouting truck traffic away from residential streets. Mitigation Measure NV-3 requires implementation of a proactive Community Notification Plan to address community concerns related to potential noise and vibration impacts. Implementation of Mitigation Measures NV-2 and NV-3 would reduce adverse construction-related noise effects and the annoyances caused by construction-related noise impacts (in addition to vibration impacts). Direct noise impacts would be reduced through implementation of Mitigation Measures NV-2 and NV-3. These mitigation measures are intended to minimize adverse effects by identifying noise exceedances and requiring that the construction contractor address noise exceedances that occur by applying additional mitigation; however, some receptors would still be subject to construction-related noise impacts that would exceed applicable thresholds. Therefore, temporary impacts would remain adverse.

9.3.2 No Action Alternative

Under the No Action Alternative, no Project-related construction noise impacts on sensitive receptors would occur. Therefore, no construction-related direct adverse effects from construction noise would occur.

9.4 Construction Vibration

CRITERION B	Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels.

9.4.1 Build Alternative

Construction of the Build Alternative would result in temporary vibration from use of heavy equipment and machinery. Building demolition would also be required in limited circumstances south of US-101. The vibration levels from construction activities were estimated using the method described above, and the results are summarized in Table 9-7.

Two pieces of construction equipment (pile driver and vibratory roller) were utilized in this assessment because those pieces of equipment have the highest construction vibration levels anticipated to be utilized during construction. Unlike prediction of construction noise where multiple pieces of equipment are additive to predict the overall sound level, typical vibration levels are predicted using the equipment with the highest vibration level and other vibration sources are not additive. Vibration from pile driving has the highest vibratory level. Pile driving would only occur for limited durations and at only a few select locations due to the nature of proposed infrastructure. The vibratory roller is more likely to be used, especially in areas near noise-sensitive receivers. Table 9-7 indicates that beyond approximately 50 feet of pile driving activity, there would be no vibration-related structural damage. The vibratory roller is not predicted to damage structures because the vibratory roller would not be used within 25 feet of a sensitive structure, a distance that eliminates concern of structural damage. The source levels are estimates provided in the FTA guidance and are generally conservative; however, it is possible that ultimately whatever pile driver is used may have a different source level.

From an annoyance perspective, impact pile driving would be characterized as a frequent source of vibration, as there would be more than 70 pile strikes (or events) per day. The Mozaic Apartments are the nearest sensitive land use and are located within 300 feet of where pile driving activities would occur if this construction technique is utilized. Additionally, use of the vibratory roller may occur continuously over the course of several days near sensitive land uses and would be considered a frequent vibration source during construction. The vibratory roller would be used in closer proximity to sensitive areas, such as William Mead Homes (Category 2 land use). Per the FTA manual, the frequent impact threshold for Category 2 land uses is 72 VdB (FTA 2018).

Vibration from construction could be considered an annoyance to residential land uses situated within approximately 300 feet of an impact pile driver and 140 feet of the vibratory roller. However, pile-driving activities would be restricted within 50 feet of a sensitive land use and, therefore, impacts from a damage perspective would not occur. Nevertheless, because construction would occur within 300 feet from sensitive land uses for an impact pile driver and within 140 feet for the vibratory roller, a severe impact may occur at William Mead Homes, Care First Village, and the Mozaic Apartments from an annoyance perspective. This is considered an adverse effect. Mitigation Measure NV-2 (described in Section 11.2) requires implementation of noise- and vibration-reducing measures including, but not limited to, constructing walled enclosures around loud activities, restricting pile driving to daytime periods, and rerouting truck traffic away from residential streets to reduce construction-related vibration impacts. Implementation of Mitigation Measure NV-3 (described in Section 11.2) requires implementation of a proactive Community Notification Plan to address community concerns related to potential noise and vibration impacts. Mitigation Measures NV-2 and NV-3 would reduce the annoyances caused by construction-related vibration impacts and would reduce adverse construction-related vibration effects. Detailed construction vibration calculations are provided in Appendix C.

9.4.2 No Action Alternative

Under the No Action Alternative, no vibration from construction equipment, specifically impact pile drivers and vibratory rollers, would cause annoyance to vibration-sensitive land uses near the construction zones. Therefore, no construction-related direct adverse effects from vibration would occur.

Table 9-7. Groundborne Vibration Levels (Construction)

Equipment	PPV at 25 feet (inch/second)	VdB at 25 feet	50 feet		75 feet		100 feet		150 feet		200 feet		300 feet	
			PPV (inch/second)	VdB	PPV (inch/second)	VdB	PPV (inch/second)	VdB	PPV (inch/second)	VdB	PPV (inch/second)	VdB	PPV (inch/second)	VdB
Impact pile Driver	0.644	104	0.228	95	0.124	90	0.081	86	0.044	80	0.028	77	0.015	72
Vibratory roller	0.21	94	0.074	85	0.040	80	0.026	76	0.014	70	0.009	67	0.005	62

Notes:
PPV=peak particle velocity; VdB=vibration velocity level in decibels

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10.0 Cumulative Impacts Related to Noise and Vibration

Projects considered in the cumulative analysis include local development and transportation projects, as well as general growth within the SCAG region. This noise and vibration analysis includes an assessment of estimated train movements at LAUS and in the Project study area to support forecasted population growth; therefore, the direct impact analysis already considers the cumulative noise levels and associated impacts of regional/intercity rail and HSR operational noise and vibration (2040 condition).

Cumulative noise and vibration impacts were considered by the SCAG as part of the Program Environmental Impact Report (PEIR) prepared for the 2020 RTP/SCS (SCAG 2020). The cumulative regional noise and vibration impacts identified in that PEIR include those typically associated with improvements along transportation corridors (e.g., railroads, highways, and transit). The most prevalent noise sources identified in the 2020 RTP/SCS would be associated with roadway vehicle traffic, rail/transit, and aviation activity. Several impacts were identified within 500 feet of major transportation sources of noise, including rail lines used by regional/intercity rail and HSR.

Construction and operation of cumulative projects, including other infrastructure improvements outside of the Project study area required to implement system-wide efficiencies and changes in regional/intercity operations from implementation of the Southern California Optimized Rail Expansion Program, would add noise to the current noise environment and also reduce noise, if all improvements are fully implemented. For example, if rail projects such as Link US are built, some trips that people would otherwise make by car or via airplane would be offset by using regional/intercity trains. It is anticipated that all transportation sectors would gradually increase in noise as a result of the land use changes and transportation projects identified in the 2020 RTP/SCS PEIR.

Construction of other projects in the Project study area could occur concurrently, which cumulatively could also result in increased noise and vibration at noise-sensitive receptors. The greatest potential for a cumulative impact on the local noise environment would be the incremental addition of new regional/intercity rail service combined with HSR operations. As provided in the Project-level analyses prior to implementation of mitigation, moderate and severe impacts would occur at William Mead Homes, Care First Village, and the Mozaic Apartments. Combined with other cumulative projects, these noise impacts could be cumulatively significant.

Program-level mitigation measures are identified in the RTP/SCS PEIR, demonstrating that some form of mitigation is possible, and should be considered when moderate impacts occur and required when severe impacts occur consistent with FTA and FRA guidance. In the program-level environmental analysis for the RTP/SCS, noise walls near highways are identified as a potential mitigation measure to reduce transportation-related noise.

Construction impacts may overlap with other projects identified in the 2020 RTP/SCS PEIR. However, the operational and construction noise impacts identified in this document are inclusive of cumulative impacts, and mitigation would achieve reductions of direct and cumulative noise and vibration impacts. However, despite the combination of Project construction with other projects, even if the projects follow the application of the proposed mitigation, the noise and vibration impacts could be cumulatively considerable, especially if other cumulative projects include nighttime construction.

As part of the Build Alternative, safety improvements are proposed at North Main Street because Metro is working with the City of Los Angeles to implement a future quiet zone for trains crossing at the North Main Street public at-grade crossing. Potential noise reductions that may occur to sensitive receptors analyzed in this report were estimated if a quiet zone were implemented. Based on the results, noise levels would change only negligibly, mainly due to the distance of the North Main Street public at-grade crossing to sensitive receptors evaluated and because trains are assumed to keep using horns at the two private at-grade crossings in the throat segment adjacent to William Mead Homes. The horns being used at North Main Street would not contribute to substantial noise reductions, although a quiet zone at Main Street would help to reduce some noise levels to sensitive receptors at William Mead Homes. Reduced horn noise at any receptor within William Mead Homes may also result in reduced sleep disturbance. The noise reductions resulting from the City of Los Angeles's implementation of a quiet zone would result in a cumulative benefit.

An additional cumulative noise benefit could also be realized from implementation of the City of Los Angeles's window replacement program for the William Mead Homes buildings located in close proximity to the rail lines. This retrofit project would include acoustical treatments of the buildings, such as sound attenuating windows. Approval of this program is ongoing. As with the quiet zone, the ultimate outcome of this effort is unknown. To be conservative, adjustments to noise levels (and the associated noise reduction benefits) were not considered as part of the quantitative Project-level noise predictions for 2026, 2031, or 2040.

11.0 Mitigation

Implementation of the following mitigation measures would reduce adverse effects.

11.1 Operational Noise Mitigation

Operational noise mitigation is typically achieved at the source (i.e., the train itself) or along the source-to-receiver path. Other mitigation strategies, such as sound insulation and replacing caulking or sealant are generally infeasible for two reasons:

1. At the William Mead Homes, due to the historic nature of the property, window replacement and/or modification would not be consistent with maintaining the historic appearance of the property, or

2. At Care First Village and Mozaic Apartments, the windows and sealant are already of sufficient quality that their replacement would not result in significant differences on interior noise levels.

FTA and FRA require that mitigation be considered to address moderate noise impacts and be required to address severe noise impacts. The following mitigation measures are proposed:

NV-1 **Construct Sound Walls:** As early as possible in the Project construction phase, including prior to any demolition, and in any event prior to substantial construction-related activities, Metro shall construct two permanent sound walls. The first sound wall shall be located between the William Mead Homes and the train tracks near the railroad right-of-way and shall extend to 22 feet in height and 1,144 feet long to reduce operational noise impacts at William Mead Homes. The second sound wall shall be located between the Care First Village and the train tracks near the railroad right-of-way and shall extend to 13-feet in height and 347 feet long to reduce operational noise impacts at Care First Village. The sound walls shall be constructed of materials that achieve similar reductions or insertion loss at impacted receptors and shall have a surface density of at least 4 pounds per square foot.

A sound wall's effectiveness is a function of the path length difference between the noise source (trains), receiver (William Mead Homes and Care First Village residents), and the wall. The projected sound levels at the receiver decrease in response to the placement of a sound wall, which increases the path length difference. Figure 11-1 through Figure 11-4 depict the noise contours after implementation of Mitigation Measure NV-1 and the approximate placement of the sound walls at William Mead Homes and Care First Village, respectively. The exact dimensions of the wall would be identified during final design.

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Figure 11-1. Noise Impact Areas at William Mead Homes – Build Alternative (2031 Condition with Mitigation)

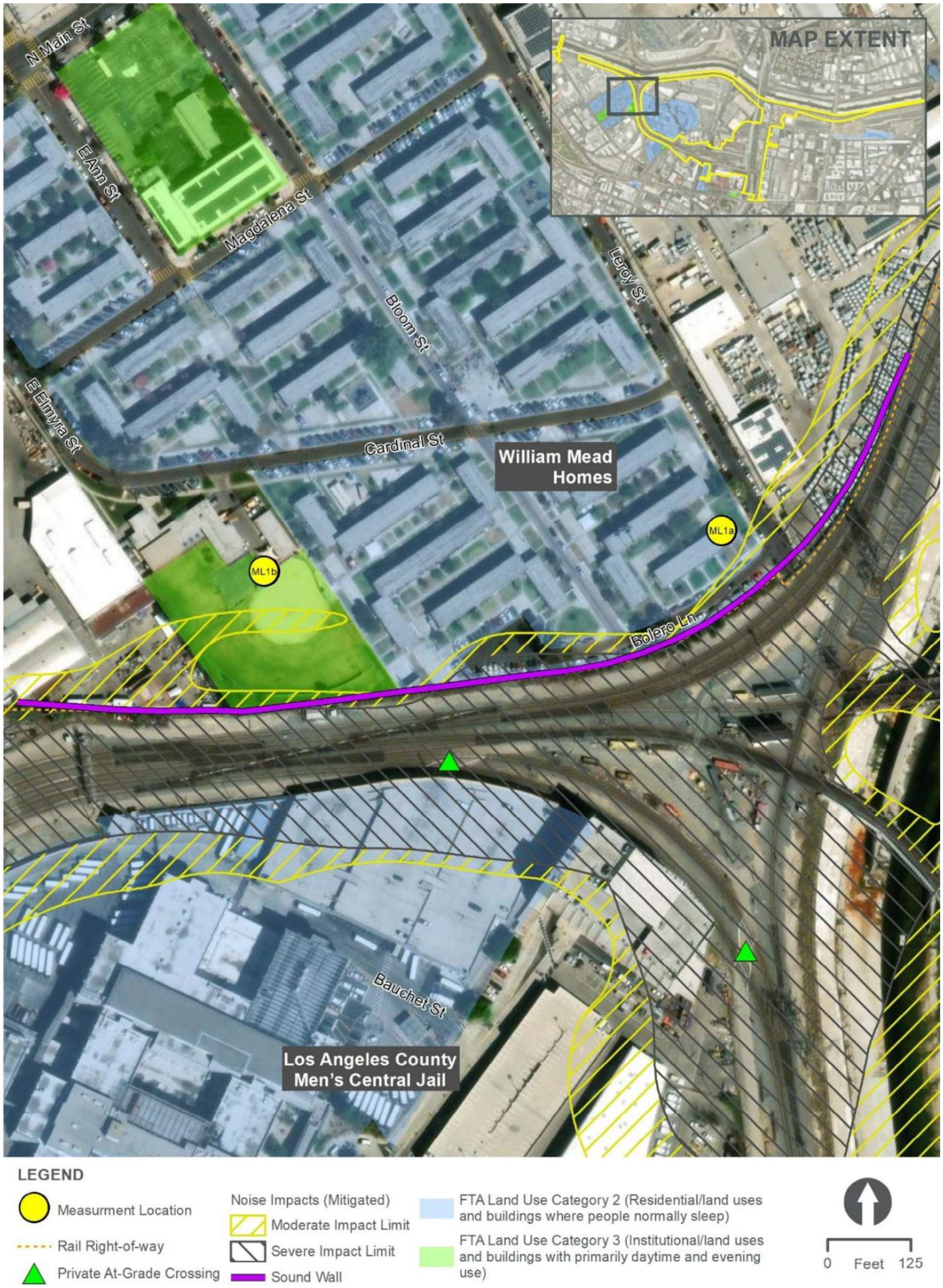

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Figure 11-2. Noise Impact Areas at Care First Village – Build Alternative (2031 Condition with Mitigation)

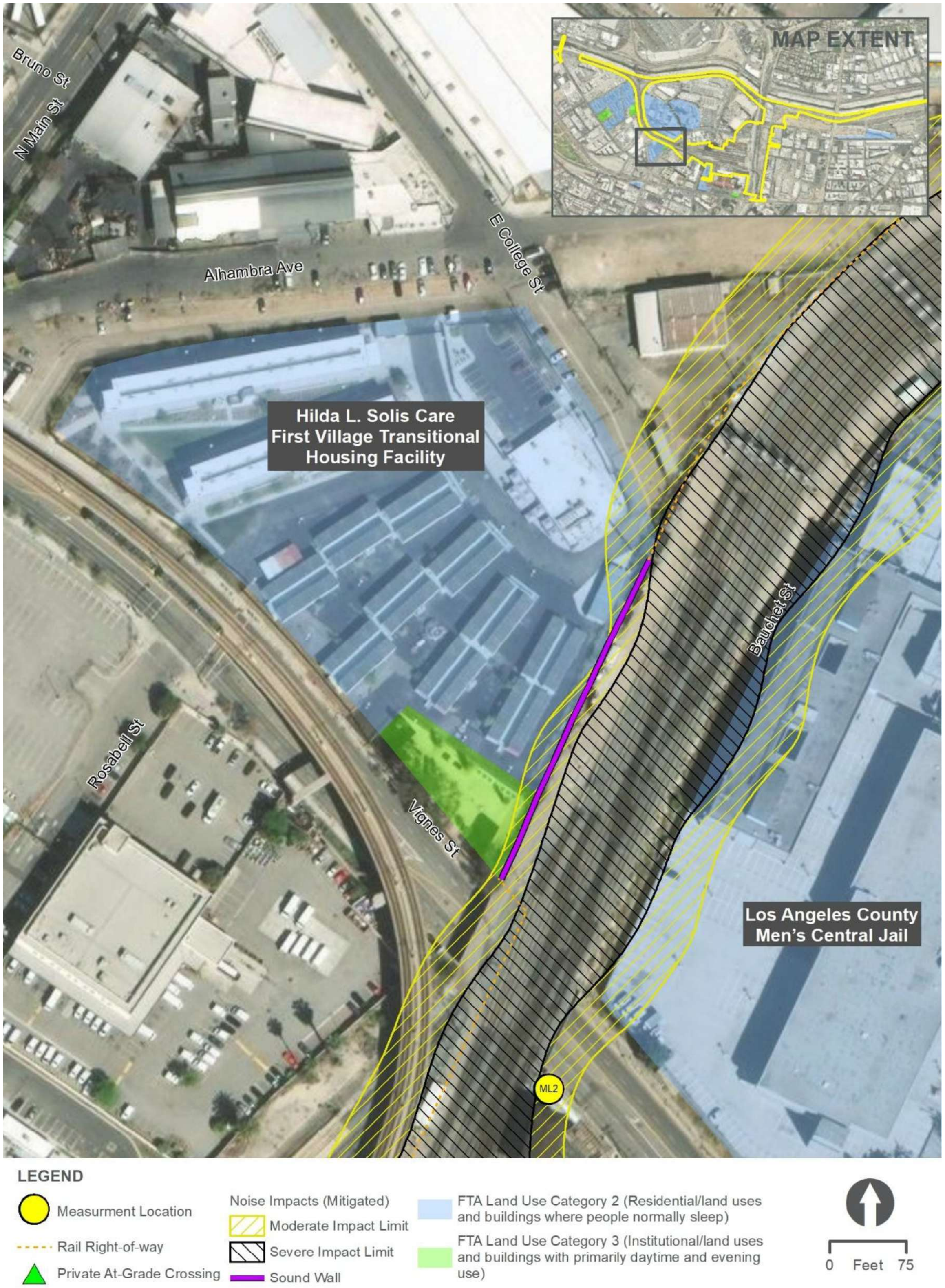

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Figure 11-3. Noise Impact Areas at William Mead Homes – Build Alternative (2040 Condition with Mitigation)

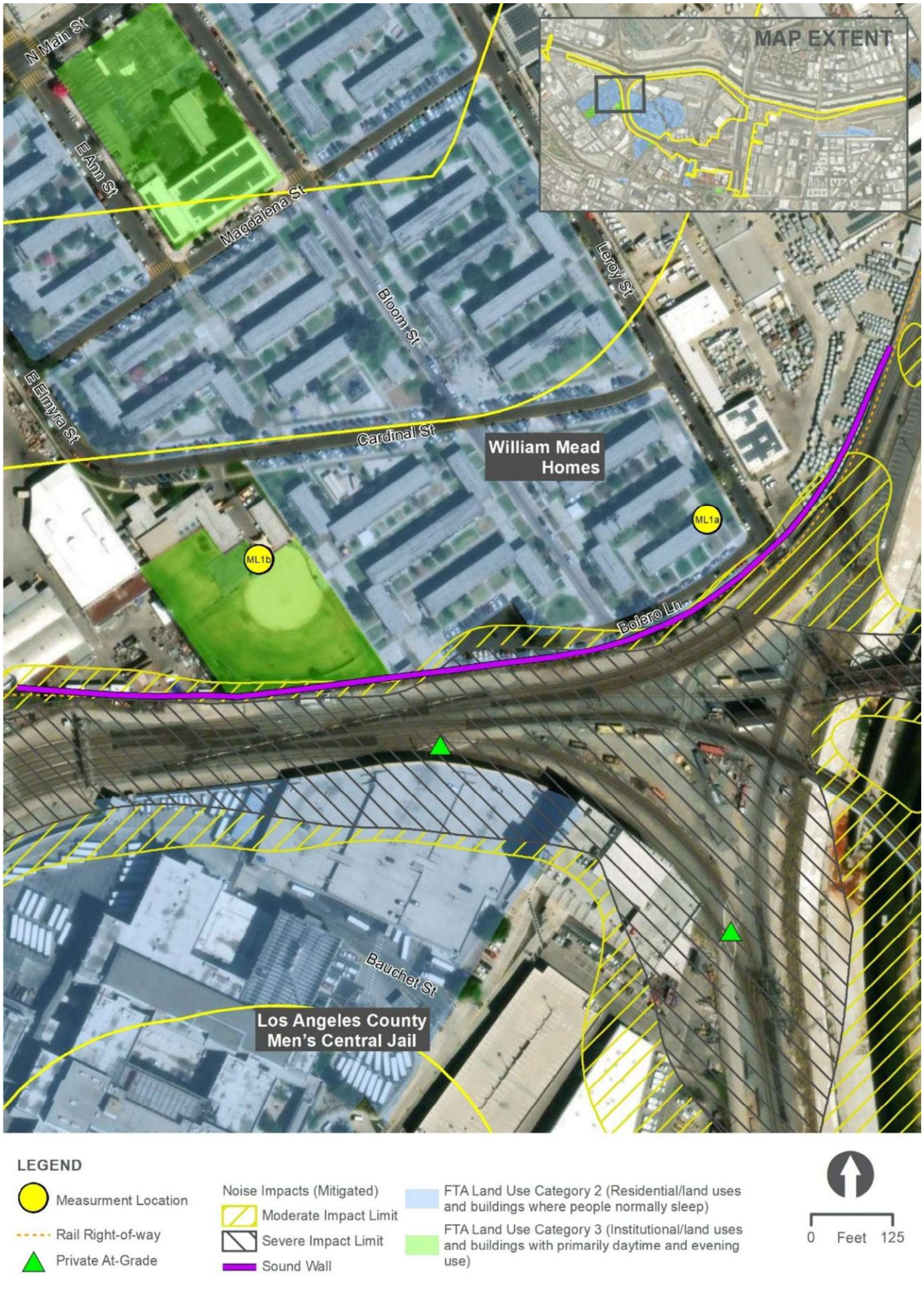

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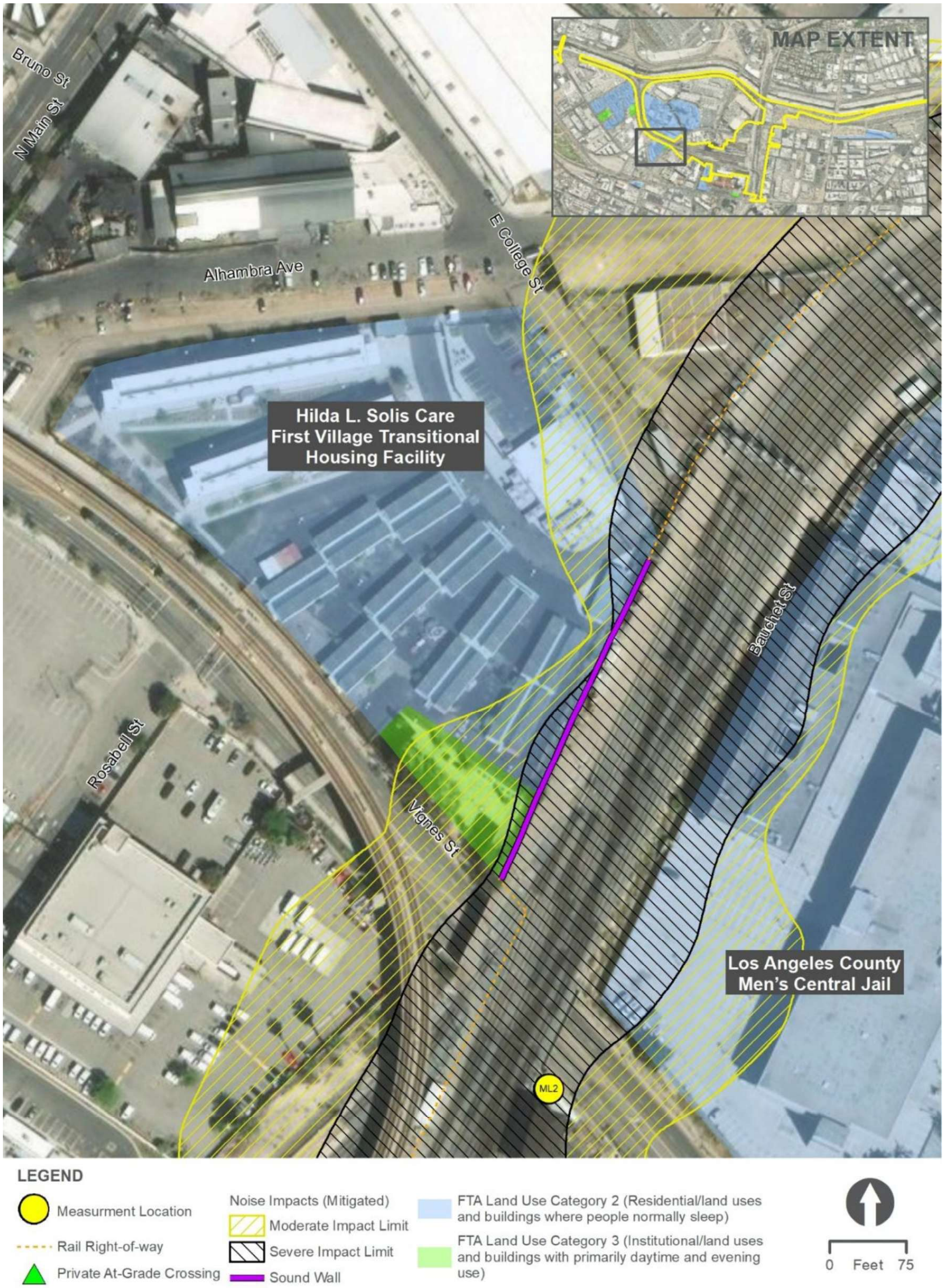
Figure 11-4. Noise Impact Areas at the Care First Village – Build Alternative (2040 Condition with Mitigation)



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11.2 Construction Noise and Vibration Mitigation

General Project construction noise and construction of the sound wall associated with NV-1 (described in Section 11.1) would exceed the FTA's construction noise guidelines at receptors nearest to the proposed alignment(s), including William Mead Homes, the Care First Village, and the Mozaic Apartments. The following mitigation is proposed to reduce construction-related noise impacts:

NV-2 **Employ Noise- and Vibration-Reducing Measures during Construction:** The construction contractor shall employ measures to minimize and reduce construction noise and vibration. Through weekly and monthly meetings with Metro and the contractor, the means and methods to comply with the overall contract specifications and applicable mitigation measures shall be discussed with Metro and applicable parties prior to implementation. Noise and vibration reduction measures to be implemented include, but are not limited to, the following:

- Design considerations and Project layout:
  - Construct temporary noise walls, such as temporary walls or piles of excavated material, between construction activities and noise-sensitive receivers.
  - Acoustic blankets or soundproof window inserts along facades of sensitive buildings as deemed necessary by the construction contractor.
  - Reroute truck traffic away from residential streets, if possible, and select streets with fewest residences if no alternatives are available.
  - When in use, locate equipment on the construction site as far away from noise-sensitive sites as possible.
  - Construct walled enclosures around especially loud activities or clusters of loud equipment (e.g., shields can be used around pavement breakers and loaded vinyl curtains can be draped under elevated structures).
- Sequence of operations:
  - Restrict pile driving to daytime periods.
  - Combine loud operations to occur in the same time period.
    - The total noise level produced would not be substantially greater than the level produced if the operations were performed separately.
  - Avoid nighttime activities to the maximum extent feasible.
    - Sensitivity to noise increases during the nighttime hours in residential neighborhoods.
- Alternative construction methods:
  - Avoid use of an impact pile driver in noise and/or vibration-sensitive areas, where possible.

- Drilled piles or the use of a sonic or vibratory pile driver are quieter alternatives where the geological conditions permit their use.

- Use specially quieted equipment, such as quieted and enclosed air compressors and properly working mufflers on all engines.
- Select quieter demolition methods, where possible (e.g., sawing bridge decks into sections that can be loaded onto trucks results in lower cumulative noise levels than impact demolition by pavement breakers).
- Use vibratory rollers in static mode (vibrating motor turned down or off) when operating in close proximity to sensitive buildings.

In an effort to keep construction noise levels below FTA's construction noise and vibration criteria, Metro shall monitor noise and vibration during the loudest and most vibration intensive types of construction activities. Continuous construction noise and vibration monitoring shall be conducted at the first row of residences at William Mead Homes, the Care First Village, the Metro Gateway Childhood Development Center, and Mozaic Apartments, within approximately 300 feet of construction activities. Monitors shall be deployed closest to the construction activity because demonstration of compliance with the construction thresholds at the nearest locations guarantees compliance farther away. If FTA's construction noise or vibration criteria are exceeded, the contractor shall be alerted and directed by Metro to incorporate additional noise and vibration reduction methods (examples above).

NV-3 **Prepare a Community Notification Plan for Project Construction:** To proactively address community concerns related to construction noise and vibration, prior to construction, Metro and/or the construction contractor shall prepare and maintain a community notification plan. Components of the plan shall include initial information packets prepared and mailed to all residences within a 500-foot radius of Project construction. Updates to the plan shall be prepared as necessary to indicate changes to the construction schedule or other processes. Metro shall identify a Project liaison to be available to respond to questions and complaints from the community or other interested groups.

11.3 Effects after Mitigation

11.3.1 Operation

Construction of sound walls would mitigate all severe operational noise impacts at William Mead Homes and Care First Village in 2031 and 2040 by blocking the line of sight from the receptors to the noise source (e.g., locomotives and railcars). Moderate impacts would also be reduced in the 2026 condition if the sound wall is constructed. Operational noise levels would be reduced by up to 12 dB at impacted locations. Table 11-1 summarizes the impacts before and after mitigation is applied.

Table 11.3-1. Operational Noise Levels – Build Alternative (2031 Condition)

Noise-sensitive Area Description[a]	Land Use Category	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Impacts without Mitigation			Impacts with Mitigation		
				Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts	Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
William Mead Homes	2	415	69	55–75	24	16	55-67	0	24
	3	2	66	62–71	1	0	62-64	0	0
Metro Senior Housing	2	123	60	55	0	0	55	0	0
Los Angeles County Men's Central Jail	2	4,000[a]	73	59	0	0	59	0	0
Twin Towers Correctional Facility	2	9,500[a]	73	55	0	0	55	0	0
Mozaic Apartments East Building	2	176	67	49–63	0	3	49-63	0	3
Mozaic Apartments West Building	2	96	67	47–52	0	0	47-52	0	0
La Petite Academy (First 5 LA Headquarters)	3	1	64	50	0	0	50	0	0
One Santa Fe Apartments/Studios	2	438	71	44–59	0	0	44-59	0	0
Care First Village	2	232	73	52–72	10	15	52-65	0	5
	3	1	71	65	0	0	61	0	0

Table 11.3-1. Operational Noise Levels – Build Alternative (2031 Condition)

Noise-sensitive Area Description[a]	Land Use Category	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Impacts without Mitigation			Impacts with Mitigation		
				Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts	Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
Metro Gateway Childhood Development Center	3	1	64	51	0	0	51	0	0
Total	2	14,980[a]	60–73	44–75	34	34	44-67	0	32
	3	4	64–71	50–71	1	0	50-64	0	0

Source: Link US Noise and Vibration Study (Appendix H of this EIS)
Notes:
[a] ***Approximately 4,000 inmates are housed at the Los Angeles County Men's Central Jail, and 9,500 inmates are housed at the Twin Towers Correctional Facilities. Neither facility provides outdoor use areas for prisoners; therefore, only interior noise levels are of concern. The prisons are built out of concrete, and have thick windows to keep prisoners inside; therefore, interior sound levels are estimated to be at least 20 dBA lower than those calculated at the exterior of each facility.***
dBA=A-weighted decibel; L_{dn}=day-night average sound level; L_{eq}=equivalent noise level

Table 11.3-2. Operational Noise Levels – Build Alternative (2040 Condition)

Noise-sensitive Area Description[a]	Land Use Category	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Impacts without Mitigation			Impacts with Mitigation		
				Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts	Range of Sound Levels (dBA)	Number of Severe Impacts	Number of Moderate Impacts
William Mead Homes	2	415	69	51–75	24	16	50-67	0	24
	3	2	66	55–71	1	0	55-63	0	0
Metro Senior Housing	2	123	60	51	0	0	51	0	0
Los Angeles County Men's Central Jail	2	4,000[a]	73	59	0	0	59	0	0
Twin Towers Correctional Facility	2	9,500[a]	73	55	0	0	55	0	0
Mozaic Apartments East Building	2	176	67	49–64	0	9	49-64	0	9
Mozaic Apartments West Building	2	96	67	46–53	0	0	46-53	0	0
La Petite Academy (First 5 LA Headquarters)	3	1	64	50	0	0	50	0	0
One Santa Fe Apartments/Studios	2	438	71	43–59	0	0	43-59	0	0
Care First Village	2	232	73	51–72	10	0	51-64	0	0
	3	1	71	65	0	0	61	0	0

Table 11.3-2. Operational Noise Levels – Build Alternative (2040 Condition)

Noise-sensitive Area Description[a]	Land Use Category	Number of Dwelling Units (Category 2) or Sensitive Uses (Category 3)	Existing Noise Exposure (dBA)	Impacts without Mitigation: Range of Sound Levels (dBA)	Impacts without Mitigation: Number of Severe Impacts	Impacts without Mitigation: Number of Moderate Impacts	Impacts with Mitigation: Range of Sound Levels (dBA)	Impacts with Mitigation: Number of Severe Impacts	Impacts with Mitigation: Number of Moderate Impacts
Metro Gateway Childhood Development Center	3	1	64	52	0	0	52	0	0
Total	2	14,980[a]	60–73	43–74	34	25	43-67	0	33
	3	4	64–71	50–71	1	0	50-63	0	0

Source: ***Link US Noise and Vibration Study (Appendix H of this EIS)***

Notes:

[a] ***Approximately 4,000 inmates are housed at the Los Angeles County Men's Central Jail, and 9,500 inmates are housed at the Twin Towers Correctional Facilities. Neither facility provides outdoor use areas for prisoners; therefore, only interior noise levels are of concern. The prisons are built out of concrete, and have thick windows to keep prisoners inside; therefore, interior sound levels are estimated to be at least 20 dBA lower than those calculated at the exterior of each facility.***

dBA=A-weighted decibel; L_{dn}=day-night average sound level; L_{eq}=equivalent noise level

11.3.2 Construction

Implementation of Mitigation Measures NV-1 and NV-2 (described in Section 11.1 and 11.2, respectively) would reduce impacts on sensitive receptors associated with temporary, short-term increased equipment noise, groundborne noise, and vibration from construction activities. Mitigation Measure NV-3 (described in Section 11.2) would reduce the annoyance of noise and vibration impacts during the construction phase.

Although the mitigation measures reduce noise generated during construction, noise levels would remain above 80 dBA L_{eq} (within 100 feet) during daytime hours throughout much of Project study area and would result in the most impact within Segment 2, where the Mozaic Apartments occur.

Additionally, nighttime construction activities in close proximity to William Mead Homes, the Care First Village, and the Mozaic Apartments could exceed 70 dBA L_{eq} at distances of up to 300 feet, which would exceed FTA’s 8-hour nighttime noise standard. Based on these considerations, impacts related to construction noise would remain adverse.

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Appendix A:
Federal Transit Administration
Acoustic Modeling Input Data

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Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 1 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	0	16	203	-	51.2	43.7
0	3	1	16	151	-	56.7	52.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386093.644	3768905.678	93.38	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 2 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	1	16	151	-	56.8	52.7
0	1	0	16	203	-	51.2	43.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386104.970	3768904.234	93.32	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 3 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	1	16	151	-	56.7	52.9
0	1	0	16	203	-	51.2	43.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386072.904	3768910.668	93.58	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 4 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	1	16	203	-	51.2	53.8
0	3	1	16	151	-	56.8	52.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386062.371	3768915.046	93.73	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 5 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	1	16	203	-	51.2	53.7
0	3	1	16	151	-	56.8	52.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+398	386134.905	3769300.687	91.92	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 6 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	1	16	203	-	51.2	53.7
0	3	1	16	151	-	56.8	52.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+481	386077.284	3768910.870	89.57	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 7 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	0	16	203	-	51.2	43.7
0	3	1	16	151	-	56.8	52.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386088.708	3768906.239	89.41	-	-	-	-	-

Throat5 Rail track: Direction: Section: 8 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	-	52.3	45.0
0	0	1	32	151	-	-	50.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.875	3769479.511	89.92	-	-	-	-	-
0+427	386528.833	3769712.436	89.92	-	-	-	-	-

Throat5 Rail track: Direction: Section: 9 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	-	52.3	45.0
0	0	1	32	151	-	-	50.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.718	3769479.515	89.92	-	-	-	-	-
0+094	386178.905	3769394.567	91.92	-	-	-	-	-

Noise emissions of railway traffic

Throat5 | Rail track: | Direction: | Section: 10 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	-	52.3	45.0
0	0	1	32	151	-	-	50.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+532	386527.929	3769722.157	89.92	-	-	-	-	-

Throat5 | Rail track: | Direction: | Section: 11 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	-	52.3	45.0
0	0	1	32	151	-	-	50.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.793	3769396.361	89.92	-	-	-	-	-
0+526	386528.159	3769717.272	89.92	-	-	-	-	-

Loop1 | Rail track: | Direction: | Section: 12 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	9	1	32	203	-	59.3	51.9

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386626.714	3768836.135	84.15	-	-	-	-	-
0+754	386721.490	3769547.532	89.92	-	-	-	-	-

Noise emissions of railway traffic

NE_3trk Rail track: Direction: Section: 13 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	2	32	151	-	-	54.7
0	3	0	32	203	-	54.5	47.1

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386528.833	3769712.436	89.92	-	-	-	-	-
0+107	386635.696	3769718.031	91.31	-	-	-	-	-

AmtrakEast and SBL Rail track: Direction: Section: 14 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386603.806	3769725.686	89.92	-	-	-	-	-
0+309	386912.028	3769750.728	91.91	-	-	-	-	-

Riverside Rail track: Direction: Section: 15 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386823.638	3769577.065	89.26	-	-	-	-	-
0+256	386635.696	3769718.031	91.31	-	-	-	-	-

North Rail track: Direction: Section: 16 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	2	32	151	-	-	54.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386592.696	3769724.249	89.92	-	-	-	-	-
0+595	386894.000	3770187.092	91.44	-	-	-	-	-

Noise emissions of railway traffic

South5_noHSR Rail track: Direction: Section: 17 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	8	32	203	-	60.9	61.0
0	48	6	32	151	-	66.3	59.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386460.712	3767860.643	79.58	-	-	-	-	-
0+290	386417.138	3768147.017	80.77	-	-	-	-	-

Loop2_Horn Rail track: Direction: Section: 18 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	5	1	32	203	-	56.3	48.9

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386630.738	3769696.557	90.55	-	-	-	-	-
0+037	386663.231	3769678.137	90.50	-	-	-	-	-

South5_noHSR Rail track: Direction: Section: 19 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	8	32	203	-	60.9	61.0
0	48	6	32	151	-	66.3	59.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386456.132	3767859.838	79.84	-	-	-	-	-
0+177	386425.543	3768034.133	80.77	-	-	-	-	-

Noise emissions of railway traffic

South5_noHSR Rail track: Direction: Section: 20 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	8	32	203	-	60.9	61.0
0	48	6	32	151	-	66.3	59.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.610	3768034.139	80.77	-	-	-	-	-
0+116	386412.591	3768149.464	80.77	-	-	-	-	-

North6 Rail track: Direction: Section: 21 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	6	16	203	-	63.6	62.4
0	48	8	16	151	-	69.1	63.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.905	3769394.567	91.92	-	-	-	-	-
0+104	386134.905	3769300.687	91.92	-	-	-	-	-

North6 Rail track: Direction: Section: 22 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	16	203	-	55.0	47.7
0	0	1	16	151	-	-	53.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+152	386110.318	3769258.991	91.92	-	-	-	-	-

Noise emissions of railway traffic

Throat5 Rail track: Direction: Section: 23 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	-	52.3	45.0
0	0	1	32	151	-	-	50.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386207.420	3769444.399	89.92	-	-	-	-	-
0+420	386491.280	3769703.788	89.92	-	-	-	-	-

Throat5 Rail track: Direction: Section: 24 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	-	52.3	45.0
0	0	1	32	151	-	-	50.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386207.338	3769444.437	89.92	-	-	-	-	-
0+070	386178.406	3769381.047	91.92	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 25 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	0	16	203	-	51.2	43.8
0	3	1	16	151	-	56.7	52.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+075	386203.614	3769425.526	89.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 | Rail track: | Direction: | Section: 26 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	0	16	203	-	51.2	43.7
0	3	1	16	151	-	56.8	52.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386109.172	3768903.494	93.32	-	-	-	-	-

LAUS_12 | Rail track: | Direction: | Section: 27 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	1	16	203	-	51.2	52.9
0	3	0	16	151	-	56.8	43.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386121.048	3768901.251	93.10	-	-	-	-	-

LAUS12_wHSR4 | Rail track: | Direction: | Section: 28 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	0	16	203	-	51.2	43.9
0	3	1	16	151	-	56.8	52.8

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+399	386134.905	3769300.687	91.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS12_wHSR4 Rail track: Direction: Section: 29 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	0	16	203	-	51.2	43.7
0	3	1	16	151	-	56.8	52.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+354	386110.318	3769258.991	91.92	-	-	-	-	-

LAUS12_wHSR4 Rail track: Direction: Section: 30 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	1	0	16	203	-	51.2	43.7
0	3	1	16	151	-	56.8	52.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.318	3769258.991	91.92	-	-	-	-	-
0+358	386026.567	3768912.709	93.81	-	-	-	-	-

GoldNB_Reloc Rail track: Direction: Section: 31 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386006.651	3768862.937	91.29	-	-	-	-	-
0+853	385999.210	3769650.932	88.37	-	-	-	-	-

GoldSB_Reloc Rail track: Direction: Section: 32 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386001.861	3768863.845	89.92	-	-	-	-	-
0+848	385995.788	3769646.440	88.31	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

Loop2_Horn Rail track: Direction: Section: 33 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	5	1	32	203	-	56.3	48.9

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386731.600	3769516.995	89.92	-	-	-	-	-
0+053	386722.218	3769569.313	89.92	-	-	-	-	-

NE_3trk Rail track: Direction: Section: 34 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	2	32	151	-	-	54.7
0	3	0	32	203	-	54.5	47.1

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386527.929	3769722.157	89.92	-	-	-	-	-
0+080	386607.050	3769730.723	89.92	-	-	-	-	-

NE_3trk Rail track: Direction: Section: 35 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	2	32	151	-	-	54.7
0	3	0	32	203	-	54.5	47.1

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386528.159	3769717.272	89.92	-	-	-	-	-
0+065	386592.696	3769724.249	89.92	-	-	-	-	-

Noise emissions of railway traffic

North — Rail track: — Direction: — Section: 36 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	2	32	151	-	-	54.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386607.050	3769730.723	89.92	-	-	-	-	-
0+573	386889.616	3770188.510	91.44	-	-	-	-	-

Throat5 — Rail track: — Direction: — Section: 37 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	1	32	151	yes	-	50.7
0	2	0	32	203	-	52.3	45.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-

Throat5 — Rail track: — Direction: — Section: 38 — Km: 0+221

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	1	32	151	-	-	50.7
0	2	0	32	203	-	52.3	45.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+221	386300.889	3769623.792	89.92	-	-	-	-	-
0+436	386493.600	3769699.206	89.92	-	-	-	-	-

Noise emissions of railway traffic

Loop2_Horn — Rail track: — Direction: — Section: 39 — Km: 0+030

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	5	1	32	203	-	56.3	48.9

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+030	386663.160	3769662.289	90.02	-	-	-	-	-
0+074	386625.852	3769686.136	90.11	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 40 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	yes	69.7	62.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 41 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	70.7	63.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 42 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	yes	69.7	62.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 43 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	yes	69.7	62.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 44 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	yes	69.7	62.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 45 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	yes	69.7	62.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 46 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	yes	69.7	62.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 47 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	2	0	32	203	yes	69.7	62.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

Ventura, LOSSAN, Coast Starlight 2 Rail track: Direction: Section: 48 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	2	32	151	yes	-	72.0
0	3	0	32	203	-	71.5	64.2

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386893.999	3770187.096	90.81	-	-	-	-	-
0+333	386973.752	3770507.725	-	-	-	-	-	-

Ventura, LOSSAN, Coast Starlight 1 Rail track: Direction: Section: 49 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	0	2	32	151	yes	-	72.0
0	3	0	32	203	-	71.5	64.2

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386889.614	3770188.507	91.05	-	-	-	-	-
0+331	386966.343	3770506.879	-	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River — Rail track: — Direction: — Section: 50 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	53.7	46.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 51 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	53.7	46.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 52 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	53.7	46.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 53 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	53.7	46.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River   Rail track: Direction: Section: 54   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	53.7	46.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

ThroatExit_S_W of River   Rail track: Direction: Section: 55   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	53.7	46.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River   Rail track: Direction: Section: 56   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	53.7	46.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

ThroatExit_S_W of River   Rail track: Direction: Section: 57   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	3	0	32	203	yes	53.7	46.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

Noise emissions of railway traffic

South2 Rail track: Direction: Section: 58 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	48	6	16	151	yes	69.1	62.3
0	13	8	16	203	-	63.6	63.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386026.567	3768912.709	93.81	-	-	-	-	-
0+329	386204.848	3768677.695	83.88	-	-	-	-	-

South2 Rail track: Direction: Section: 59 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	48	8	16	151	yes	69.1	63.5
0	13	8	16	203	-	63.6	63.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+311	386206.171	3768683.692	83.93	-	-	-	-	-

South2 Rail track: Direction: Section: 60 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	48	8	32	151	-	66.3	60.7
0	13	8	32	203	-	60.9	61.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.543	3768034.133	80.77	-	-	-	-	-
0+177	386456.132	3767859.838	79.84	-	-	-	-	-

Noise emissions of railway traffic

South2 Rail track: Direction: Section: 61 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	48	8	32	151	-	66.3	60.7
0	13	8	32	203	-	60.9	61.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386206.171	3768683.692	83.93	-	-	-	-	-
0+969	386457.662	3767878.014	79.69	-	-	-	-	-

South4_HSR2 Rail track: Direction: Section: 62 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	48	8	32	151	-	66.3	60.7
0	13	8	32	203	-	60.9	61.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386204.959	3768679.601	83.89	-	-	-	-	-
0+965	386453.503	3767877.061	79.94	-	-	-	-	-

Noise emissions of railway traffic

South10_HSR4 Rail track: Direction: Section: 1 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386026.567	3768912.709	93.81	-	-	-	-	-
0+329	386204.848	3768677.695	83.88	-	-	-	-	-

South10_HSR4 Rail track: Direction: Section: 2 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+316	386204.848	3768677.695	83.88	-	-	-	-	-

South10_HSR4 Rail track: Direction: Section: 3 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+311	386206.171	3768683.692	83.93	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

South10_HSR4 Rail track: Direction: Section: 4 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+298	386206.171	3768683.692	83.93	-	-	-	-	-

South10 Rail track: Direction: Section: 5 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386062.371	3768915.046	93.73	-	-	-	-	-
0+289	386209.772	3768691.097	84.02	-	-	-	-	-

South10 Rail track: Direction: Section: 6 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386072.904	3768910.668	93.58	-	-	-	-	-
0+278	386209.772	3768691.097	84.02	-	-	-	-	-

Noise emissions of railway traffic

South10 Rail track: Direction: Section: 7 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386077.284	3768910.870	89.57	-	-	-	-	-
0+272	386209.772	3768691.097	84.02	-	-	-	-	-

South10 Rail track: Direction: Section: 8 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386088.708	3768906.239	89.41	-	-	-	-	-
0+260	386210.302	3768696.653	84.06	-	-	-	-	-

South10 Rail track: Direction: Section: 9 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	-	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386093.644	3768905.678	93.38	-	-	-	-	-
0+255	386210.302	3768696.653	84.06	-	-	-	-	-

Noise emissions of railway traffic

South10 Rail track: Direction: Section: 10 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	-	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386104.970	3768904.234	93.32	-	-	-	-	-
0+249	386210.302	3768696.653	84.06	-	-	-	-	-

South4 Rail track: Direction: Section: 11 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386209.772	3768691.097	84.02	-	-	-	-	-
0+128	386333.643	3768659.816	83.82	-	-	-	-	-

South2 Rail track: Direction: Section: 12 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.543	3768034.133	80.77	-	-	-	-	-
0+177	386456.132	3767859.838	79.84	-	-	-	-	-

Noise emissions of railway traffic

South2	Rail track:	Direction:	Section: 13	Km: 0+000				
Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)	
0	45	8	32	151	-	66.0	60.7	
0	8	2	32	203	-	59.0	55.0	

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386333.643	3768659.816	83.82	-	-	-	-	-
0+709	386425.610	3768034.139	80.77	-	-	-	-	-

South2	Rail track:	Direction:	Section: 14	Km: 0+000				
Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)	
0	45	8	32	151	-	66.0	60.7	
0	8	2	32	203	-	59.0	55.0	

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386334.825	3768663.917	83.82	-	-	-	-	-
0+890	386460.712	3767860.643	79.58	-	-	-	-	-

South4	Rail track:	Direction:	Section: 15	Km: 0+000				
Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)	
0	45	8	32	151	-	66.0	60.7	
0	8	2	32	203	-	59.0	55.0	

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386210.302	3768696.653	84.06	-	-	-	-	-
0+129	386334.825	3768663.917	83.82	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

Loop1 — Rail track: — Direction: — Section: 16 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386334.825	3768663.917	83.82	-	-	-	-	-
0+368	386626.714	3768836.135	84.15	-	-	-	-	-

South4_HSR2 — Rail track: — Direction: — Section: 17 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386206.171	3768683.692	83.93	-	-	-	-	-
0+969	386457.662	3767878.014	79.69	-	-	-	-	-

South4_HSR2 — Rail track: — Direction: — Section: 18 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386204.959	3768679.601	83.89	-	-	-	-	-
0+965	386453.503	3767877.061	79.94	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 19 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386093.644	3768905.678	93.38	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 20 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386104.970	3768904.234	93.32	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 21 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386072.904	3768910.668	93.58	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 | Rail track: | Direction: | Section: 22 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386062.371	3768915.046	93.73	-	-	-	-	-

LAUS12_futureHSR4 | Rail track: | Direction: | Section: 23 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+398	386134.905	3769300.687	91.92	-	-	-	-	-

LAUS_12 | Rail track: | Direction: | Section: 24 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+481	386077.284	3768910.870	89.57	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 — Rail track: — Direction: — Section: 25 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386088.708	3768906.239	89.41	-	-	-	-	-

Throat6 — Rail track: — Direction: — Section: 26 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	39	7	32	151	-	65.4	60.0
0	7	0	32	203	-	58.1	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.875	3769479.511	89.92	-	-	-	-	-
0+427	386528.833	3769712.436	89.92	-	-	-	-	-

Throat6 — Rail track: — Direction: — Section: 27 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	7	0	32	203	-	58.1	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.718	3769479.515	89.92	-	-	-	-	-
0+094	386178.905	3769394.567	91.92	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

Throat6 Rail track: Direction: Section: 28 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	7	0	32	203	-	58.1	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+531	386527.929	3769722.157	89.92	-	-	-	-	-

Throat6 Rail track: Direction: Section: 29 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	7	0	32	203	-	58.1	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.793	3769396.361	89.92	-	-	-	-	-
0+526	386528.159	3769717.272	89.92	-	-	-	-	-

Loop1 Rail track: Direction: Section: 30 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	60	0	32	151	-	67.3	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386626.714	3768836.135	84.15	-	-	-	-	-
0+754	386721.490	3769547.532	89.92	-	-	-	-	-

Noise emissions of railway traffic

NE_4trk Rail track: Direction: Section: 31 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	10	32	151	-	66.0	61.7
0	10	0	32	203	-	59.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386528.833	3769712.436	89.92	-	-	-	-	-
0+107	386635.696	3769718.031	91.31	-	-	-	-	-

AmtrakEast, SBL, 20% Metrolink N Rail track: Direction: Section: 32 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	12	4	32	151	-	60.3	57.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386603.806	3769725.686	89.92	-	-	-	-	-
0+309	386912.028	3769750.728	91.91	-	-	-	-	-

Riverside Rail track: Direction: Section: 33 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386823.638	3769577.065	89.26	-	-	-	-	-
0+256	386635.696	3769718.031	91.31	-	-	-	-	-

North3 Rail track: Direction: Section: 34 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	56	12	32	151	-	67.0	62.5

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386592.696	3769724.249	89.92	-	-	-	-	-
0+595	386894.000	3770187.092	91.44	-	-	-	-	-

Noise emissions of railway traffic

South5_noHSR Rail track: Direction: Section: 35 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386460.712	3767860.643	79.58	-	-	-	-	-
0+290	386417.138	3768147.017	80.77	-	-	-	-	-

Loop2 Rail track: Direction: Section: 36 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386630.738	3769696.557	90.55	-	-	-	-	-
0+037	386663.231	3769678.137	90.50	-	-	-	-	-

South5_noHSR Rail track: Direction: Section: 37 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386456.132	3767859.838	79.84	-	-	-	-	-
0+177	386425.543	3768034.133	80.77	-	-	-	-	-

Noise emissions of railway traffic

South5_noHSR | Rail track: | Direction: | Section: 38 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.610	3768034.139	80.77	-	-	-	-	-
0+116	386412.591	3768149.464	80.77	-	-	-	-	-

Throa6 | Rail track: | Direction: | Section: 39 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	10	0	32	203	-	59.9	-

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.905	3769394.567	91.92	-	-	-	-	-
0+104	386134.905	3769300.687	91.92	-	-	-	-	-

Throat6 | Rail track: | Direction: | Section: 40 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	10	0	32	203	-	59.9	-

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+152	386110.318	3769258.991	91.92	-	-	-	-	-

Noise emissions of railway traffic

Throat6 Rail track: Direction: Section: 41 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	7	0	32	203	-	58.1	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386207.420	3769444.399	89.92	-	-	-	-	-
0+420	386491.280	3769703.788	89.92	-	-	-	-	-

Throat6 Rail track: Direction: Section: 42 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	7	0	32	203	-	58.1	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386207.338	3769444.437	89.92	-	-	-	-	-
0+070	386178.406	3769381.047	91.92	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 43 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+075	386203.614	3769425.526	89.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 44 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386109.172	3768903.494	93.32	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 45 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386121.048	3768901.251	93.10	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 46 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+399	386134.905	3769300.687	91.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS12 Rail track: Direction: Section: 47 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+354	386110.318	3769258.991	91.92	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 48 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.318	3769258.991	91.92	-	-	-	-	-
0+358	386026.567	3768912.709	93.81	-	-	-	-	-

GoldNB_Reloc Rail track: Direction: Section: 49 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386006.651	3768862.937	91.29	-	-	-	-	-
0+853	385999.210	3769650.932	88.37	-	-	-	-	-

GoldSB_Reloc Rail track: Direction: Section: 50 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386001.861	3768863.845	89.92	-	-	-	-	-
0+848	385995.788	3769646.440	88.31	-	-	-	-	-

Noise emissions of railway traffic

Loop2 Rail track: Direction: Section: 51 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386731.600	3769516.995	89.92	-	-	-	-	-
0+053	386722.218	3769569.313	89.92	-	-	-	-	-

NE_4trk Rail track: Direction: Section: 52 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	10	32	151	-	66.0	61.7
0	10	0	32	203	-	59.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386527.929	3769722.157	89.92	-	-	-	-	-
0+080	386607.050	3769730.723	89.92	-	-	-	-	-

NE_4trk Rail track: Direction: Section: 53 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	10	32	151	-	66.0	61.7
0	10	0	32	203	-	59.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386528.159	3769717.272	89.92	-	-	-	-	-
0+065	386592.696	3769724.249	89.92	-	-	-	-	-

Noise emissions of railway traffic

North2 Rail track: Direction: Section: 54 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	56	12	32	151	-	67.0	62.5

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386607.050	3769730.723	89.92	-	-	-	-	-
0+571	386889.616	3770188.510	91.44	-	-	-	-	-

Throat6 Rail track: Direction: Section: 55 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	yes	64.3	60.0
0	7	0	32	203	-	58.1	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-

Throat6 Rail track: Direction: Section: 56 Km: 0+221

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	7	0	32	203	-	58.1	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+221	386300.889	3769623.792	89.92	-	-	-	-	-
0+436	386493.600	3769699.206	89.92	-	-	-	-	-

Noise emissions of railway traffic

Throat6 plus Alt1 | Rail track: | Direction: | Section: 57 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	yes	64.3	60.0
0	7	0	32	203	-	58.1	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386520.646	3769726.431	89.92	-	-	-	-	-
0+608	386143.202	3769324.760	91.33	-	-	-	-	-

North 2 - Alt1 Shared Track 3 | Rail track: | Direction: | Section: 58 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	56	12	32	151	yes	67.0	62.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386776.713	3769867.608	91.44	-	-	-	-	-
0+226	386605.972	3769735.637	90.09	-	-	-	-	-

HSR_2trk | Rail track: | Direction: | Section: 59 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	yes	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.532	3769245.213	91.92	-	-	-	-	-
0+086	386143.202	3769324.760	91.33	-	-	-	-	-

Noise emissions of railway traffic

Loop2_Horn Rail track: Direction: Section: 60 Km: 0+030

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+030	386663.160	3769662.289	90.02	-	-	-	-	-
0+074	386625.852	3769686.136	90.11	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 61 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 62 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 63 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 64 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 65 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 66 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn — Rail track: — Direction: — Section: 67 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 68 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

Ventura, LOSSAN, Coast Starlight 2 Rail track: Direction: Section: 69 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	84	18	32	151	yes	86.0	81.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386893.999	3770187.096	90.81	-	-	-	-	-
0+333	386973.752	3770507.725	-	-	-	-	-	-

Ventura, LOSSAN, Coast Starlight 1 Rail track: Direction: Section: 70 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	84	18	32	151	yes	86.0	81.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386889.614	3770188.507	91.05	-	-	-	-	-
0+331	386966.343	3770506.879	-	-	-	-	-	-

ThroatExit_S_W of River Rail track: Direction: Section: 71 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

ThroatExit_S_W of River — Rail track: — Direction: — Section: 72 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 73 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 74 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 75 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River — Rail track: — Direction: — Section: 76 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 77 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 78 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	yes	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

Noise emissions of railway traffic

West of NW Merge with SBL/Amtrak East Rail track: Direction: Section: 79 Km: 0+237

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	10	32	151	yes	66.0	61.7
0	10	0	32	203	-	59.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+237	386605.972	3769735.725	90.09	-	-	-	-	-
0+323	386520.823	3769726.431	89.92	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk	Rail track:	Direction:	Section: 1	Km: 0+000				
Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)	
0	42	9	32	151	yes	65.7	61.3	

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386860.517	3770117.624	91.43	-	-	-	-	-
0+012	386864.465	3770129.156	91.43	-	-	-	-	-

HSR_2trk	Rail track:	Direction:	Section: 2	Km: 0+000				
Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)	
0	42	9	32	151	yes	65.7	61.3	

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386864.465	3770129.156	91.43	-	-	-	-	-
0+031	386875.484	3770158.456	91.44	-	-	-	-	-

HSR_2trk	Rail track:	Direction:	Section: 3	Km: 0+000				
Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)	
0	42	9	32	151	yes	65.7	61.3	

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386875.484	3770158.456	91.44	-	-	-	-	-
0+012	386880.201	3770169.696	91.43	-	-	-	-	-

HSR_2trk	Rail track:	Direction:	Section: 4	Km: 0+000				
Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)	
0	42	9	32	151	yes	65.7	61.3	

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386880.201	3770169.696	91.43	-	-	-	-	-
0+039	386895.602	3770205.999	91.09	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk | Rail track: | Direction: | Section: 5 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	42	9	32	151	yes	65.7	61.3

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386796.784	3769931.452	90.62	-	-	-	-	-
0+012	386792.782	3769919.939	91.19	-	-	-	-	-

HSR_1trk | Rail track: | Direction: | Section: 6 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	42	9	32	151	yes	65.7	61.3

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386796.784	3769931.452	90.62	-	-	-	-	-
0+209	386864.465	3770129.156	91.43	-	-	-	-	-

HSR_2trk_throat7 | Rail track: | Direction: | Section: 7 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	42	9	32	151	yes	65.7	61.3

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386520.669	3769727.961	89.92	-	-	-	-	-
0+610	386143.202	3769324.760	91.33	-	-	-	-	-

HSR_2trk_conventional_North4 | Rail track: | Direction: | Section: 8 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	42	9	32	151	yes	65.7	61.3

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386779.890	3769877.260	91.44	-	-	-	-	-
0+237	386606.048	3769737.832	90.09	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk_Throat7 Rail track: Direction: Section: 9 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	yes	63.6	59.3
0	3	0	32	203	-	55.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386524.324	3769733.414	89.89	-	-	-	-	-
0+620	386139.200	3769325.196	91.20	-	-	-	-	-

HSR_2trk_throat7 Rail track: Direction: Section: 10 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	yes	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.532	3769245.213	91.92	-	-	-	-	-
0+086	386143.202	3769324.760	91.33	-	-	-	-	-

HSR_2trk_throat7 Rail track: Direction: Section: 11 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	yes	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386139.200	3769325.196	91.20	-	-	-	-	-
0+072	386110.318	3769258.991	91.92	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk-4trak NOrth | Rail track: | Direction: | Section: 12 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	42	9	32	151	yes	65.7	61.3

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386792.782	3769919.939	91.19	-	-	-	-	-
0+272	386606.968	3769742.417	89.89	-	-	-	-	-

South10_HSR4 | Rail track: | Direction: | Section: 13 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386026.567	3768912.709	93.81	-	-	-	-	-
0+329	386204.848	3768677.695	83.88	-	-	-	-	-

South10_HSR4 | Rail track: | Direction: | Section: 14 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+316	386204.848	3768677.695	83.88	-	-	-	-	-

Noise emissions of railway traffic

South10_HSR4 Rail track: Direction: Section: 15 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+311	386206.171	3768683.692	83.93	-	-	-	-	-

South10_HSR4 Rail track: Direction: Section: 16 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+298	386206.171	3768683.692	83.93	-	-	-	-	-

South10 Rail track: Direction: Section: 17 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386062.371	3768915.046	93.73	-	-	-	-	-
0+289	386209.772	3768691.097	84.02	-	-	-	-	-

Noise emissions of railway traffic

South10 Rail track: Direction: Section: 18 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386072.904	3768910.668	93.58	-	-	-	-	-
0+278	386209.772	3768691.097	84.02	-	-	-	-	-

South10 Rail track: Direction: Section: 19 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386077.284	3768910.870	89.57	-	-	-	-	-
0+272	386209.772	3768691.097	84.02	-	-	-	-	-

South10 Rail track: Direction: Section: 20 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386088.708	3768906.239	89.41	-	-	-	-	-
0+260	386210.302	3768696.653	84.06	-	-	-	-	-

Noise emissions of railway traffic

South10 Rail track: Direction: Section: 21 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	-	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386093.644	3768905.678	93.38	-	-	-	-	-
0+255	386210.302	3768696.653	84.06	-	-	-	-	-

South10 Rail track: Direction: Section: 22 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	-	64.8	59.5
0	3	1	16	203	-	57.7	53.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386104.970	3768904.234	93.32	-	-	-	-	-
0+249	386210.302	3768696.653	84.06	-	-	-	-	-

South4 Rail track: Direction: Section: 23 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386209.772	3768691.097	84.02	-	-	-	-	-
0+128	386333.643	3768659.816	83.82	-	-	-	-	-

Noise emissions of railway traffic

South2 Rail track: Direction: Section: 24 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.543	3768034.133	80.77	-	-	-	-	-
0+177	386456.132	3767859.838	79.84	-	-	-	-	-

South2 Rail track: Direction: Section: 25 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386333.643	3768659.816	83.82	-	-	-	-	-
0+709	386425.610	3768034.139	80.77	-	-	-	-	-

South2 Rail track: Direction: Section: 26 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386334.825	3768663.917	83.82	-	-	-	-	-
0+890	386460.712	3767860.643	79.58	-	-	-	-	-

Noise emissions of railway traffic

South4 Rail track: Direction: Section: 27 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386210.302	3768696.653	84.06	-	-	-	-	-
0+129	386334.825	3768663.917	83.82	-	-	-	-	-

Loop1 Rail track: Direction: Section: 28 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386334.825	3768663.917	83.82	-	-	-	-	-
0+368	386626.714	3768836.135	84.15	-	-	-	-	-

South4_HSR2 Rail track: Direction: Section: 29 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386206.171	3768683.692	83.93	-	-	-	-	-
0+969	386457.662	3767878.014	79.69	-	-	-	-	-

Noise emissions of railway traffic

South4_HSR2 — Rail track: — Direction: — Section: 30 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	8	2	32	203	-	59.0	55.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386204.959	3768679.601	83.89	-	-	-	-	-
0+965	386453.503	3767877.061	79.94	-	-	-	-	-

LAUS_12 — Rail track: — Direction: — Section: 31 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386093.644	3768905.678	93.38	-	-	-	-	-

LAUS_12 — Rail track: — Direction: — Section: 32 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386104.970	3768904.234	93.32	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 33 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386072.904	3768910.668	93.58	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 34 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386062.371	3768915.046	93.73	-	-	-	-	-

LAUS12_futureHSR4 Rail track: Direction: Section: 35 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+398	386134.905	3769300.687	91.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 36 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+481	386077.284	3768910.870	89.57	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 37 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	32	151	-	61.2	56.5
0	3	0	32	203	-	55.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386088.708	3768906.239	89.41	-	-	-	-	-

Throat7 Rail track: Direction: Section: 38 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.875	3769479.511	89.92	-	-	-	-	-
0+427	386528.833	3769712.436	89.92	-	-	-	-	-

Noise emissions of railway traffic

Throat7 Rail track: Direction: Section: 39 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.718	3769479.515	89.92	-	-	-	-	-
0+094	386178.905	3769394.567	91.92	-	-	-	-	-

Throat7 Rail track: Direction: Section: 40 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+532	386527.929	3769722.157	89.92	-	-	-	-	-

Throat7 Rail track: Direction: Section: 41 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.793	3769396.361	89.92	-	-	-	-	-
0+526	386528.159	3769717.272	89.92	-	-	-	-	-

Noise emissions of railway traffic

Loop1 Rail track: Direction: Section: 42 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	60	0	32	151	-	67.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386626.714	3768836.135	84.15	-	-	-	-	-
0+754	386721.490	3769547.532	89.92	-	-	-	-	-

NE_5trk Rail track: Direction: Section: 43 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	8	0	32	203	-	58.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386528.833	3769712.436	89.92	-	-	-	-	-
0+107	386635.696	3769718.031	91.31	-	-	-	-	-

AmtrakEast, SBL, 20% Metrolink N Rail track: Direction: Section: 44 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	12	4	32	151	-	60.3	57.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386603.806	3769725.686	89.92	-	-	-	-	-
0+309	386912.028	3769750.728	91.91	-	-	-	-	-

Riverside Rail track: Direction: Section: 45 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386823.638	3769577.065	89.26	-	-	-	-	-
0+256	386635.696	3769718.031	91.31	-	-	-	-	-

Noise emissions of railway traffic

North4 — Rail track: — Direction: — Section: 46 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	42	9	32	151	-	65.7	61.3

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386592.696	3769724.249	89.92	-	-	-	-	-
0+595	386894.000	3770187.092	91.44	-	-	-	-	-

South5_noHSR — Rail track: — Direction: — Section: 47 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386460.712	3767860.643	79.58	-	-	-	-	-
0+290	386417.138	3768147.017	80.77	-	-	-	-	-

Loop2 — Rail track: — Direction: — Section: 48 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386630.738	3769696.557	90.55	-	-	-	-	-
0+037	386663.231	3769678.137	90.50	-	-	-	-	-

Noise emissions of railway traffic

South5_noHSR Rail track: Direction: Section: 49 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386456.132	3767859.838	79.84	-	-	-	-	-
0+177	386425.543	3768034.133	80.77	-	-	-	-	-

South5_noHSR Rail track: Direction: Section: 50 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.610	3768034.139	80.77	-	-	-	-	-
0+116	386412.591	3768149.464	80.77	-	-	-	-	-

Throat7 Rail track: Direction: Section: 51 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.905	3769394.567	91.92	-	-	-	-	-
0+104	386134.905	3769300.687	91.92	-	-	-	-	-

Noise emissions of railway traffic

Throat7 Rail track: Direction: Section: 52 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+152	386110.318	3769258.991	91.92	-	-	-	-	-

Throat7 Rail track: Direction: Section: 53 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386207.420	3769444.399	89.92	-	-	-	-	-
0+420	386491.280	3769703.788	89.92	-	-	-	-	-

Throat7 Rail track: Direction: Section: 54 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386207.338	3769444.437	89.92	-	-	-	-	-
0+070	386178.406	3769381.047	91.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 55 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+075	386203.614	3769425.526	89.92	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 56 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	6	0	16	203	-	60.1	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386109.172	3768903.494	93.32	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 57 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	6	0	16	203	-	60.1	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386121.048	3768901.251	93.10	-	-	-	-	-

Noise emissions of railway traffic

LAUS12 Rail track: Direction: Section: 58 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+399	386134.905	3769300.687	91.92	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 59 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+354	386110.318	3769258.991	91.92	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 60 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	3	0	16	203	-	57.7	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.318	3769258.991	91.92	-	-	-	-	-
0+358	386026.567	3768912.709	93.81	-	-	-	-	-

Noise emissions of railway traffic

GoldNB_Reloc Rail track: Direction: Section: 61 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386006.651	3768862.937	91.29	-	-	-	-	-
0+853	385999.210	3769650.932	88.37	-	-	-	-	-

GoldSB_Reloc Rail track: Direction: Section: 62 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386001.861	3768863.845	89.92	-	-	-	-	-
0+848	385995.788	3769646.440	88.31	-	-	-	-	-

Loop2 Rail track: Direction: Section: 63 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386731.600	3769516.995	89.92	-	-	-	-	-
0+053	386722.218	3769569.313	89.92	-	-	-	-	-

NE_5trk Rail track: Direction: Section: 64 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	8	0	32	203	-	58.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386527.929	3769722.157	89.92	-	-	-	-	-
0+080	386607.050	3769730.723	89.92	-	-	-	-	-

Noise emissions of railway traffic

NE_5trk Rail track: Direction: Section: 65 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	8	0	32	203	-	58.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386528.159	3769717.272	89.92	-	-	-	-	-
0+065	386592.696	3769724.249	89.92	-	-	-	-	-

North4 Rail track: Direction: Section: 66 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	42	9	32	151	-	65.7	61.3

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386607.050	3769730.723	89.92	-	-	-	-	-
0+573	386889.616	3770188.510	91.44	-	-	-	-	-

Throat7 Rail track: Direction: Section: 67 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	yes	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-

Noise emissions of railway traffic

Throat7 Rail track: Direction: Section: 68 Km: 0+221

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	26	6	32	151	-	63.6	59.3
0	6	0	32	203	-	57.4	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+221	386300.889	3769623.792	89.92	-	-	-	-	-
0+436	386493.600	3769699.206	89.92	-	-	-	-	-

Loop2_Horn Rail track: Direction: Section: 69 Km: 0+030

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+030	386663.160	3769662.289	90.02	-	-	-	-	-
0+074	386625.852	3769686.136	90.11	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 70 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 71 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 72 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 73 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 74 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 75 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 76 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 77 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

Ventura, LOSSAN, Coast Starlight 2 Rail track: Direction: Section: 78 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	84	18	32	151	yes	86.0	81.5

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386893.999	3770187.096	90.81	-	-	-	-	-
0+333	386973.752	3770507.725	-	-	-	-	-	-

Noise emissions of railway traffic

Ventura, LOSSAN, Coast Starlight 1 — Rail track: — Direction: — Section: 79 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	84	18	32	151	yes	86.0	81.5

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386889.614	3770188.507	91.05	-	-	-	-	-
0+331	386966.343	3770506.879	-	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 80 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 81 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 82 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River   Rail track: Direction: Section: 83   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

ThroatExit_S_W of River   Rail track: Direction: Section: 84   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

ThroatExit_S_W of River   Rail track: Direction: Section: 85   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River   Rail track: Direction: Section: 86   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River   Rail track: Direction: Section: 87   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	yes	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

HSR_2trk_West of NW Merge with SBL/AnRail track: Direction: Section: 88   Km: 0+272

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	yes	65.1	60.7
0	8	0	32	203	-	58.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+272	386606.968	3769742.417	89.89	-	-	-	-	-
0+355	386524.324	3769733.414	89.89	-	-	-	-	-

HSR_2trk_West of NW Merge with SBL/AnRail track: Direction: Section: 89   Km: 0+237

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	yes	65.1	60.7
0	8	0	32	203	-	58.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+237	386606.048	3769737.832	90.09	-	-	-	-	-
0+323	386520.669	3769727.961	89.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 1 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386093.644	3768905.678	93.38	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 2 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386104.970	3768904.234	93.32	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 3 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386072.904	3768910.668	93.58	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 — Rail track: — Direction: — Section: 4 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386062.371	3768915.046	93.73	-	-	-	-	-

LAUS12_futureHSR4 — Rail track: — Direction: — Section: 5 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-
0	32	5	16	175	-	49.3	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+398	386134.905	3769300.687	91.92	-	-	-	-	-

LAUS_12 — Rail track: — Direction: — Section: 6 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+481	386077.284	3768910.870	89.57	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 7 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386088.708	3768906.239	89.41	-	-	-	-	-

Throat6 Rail track: Direction: Section: 8 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.875	3769479.511	89.92	-	-	-	-	-
0+427	386528.833	3769712.436	89.92	-	-	-	-	-

Throat6 Rail track: Direction: Section: 9 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.718	3769479.515	89.92	-	-	-	-	-
0+094	386178.905	3769394.567	91.92	-	-	-	-	-

Noise emissions of railway traffic

Throat6 Rail track: Direction: Section: 10 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-
0	64	10	32	175	-	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+532	386527.929	3769722.157	89.92	-	-	-	-	-

Throat6 Rail track: Direction: Section: 11 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.793	3769396.361	89.92	-	-	-	-	-
0+526	386528.159	3769717.272	89.92	-	-	-	-	-

Loop1 Rail track: Direction: Section: 12 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	60	0	32	151	-	67.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386626.714	3768836.135	84.15	-	-	-	-	-
0+754	386721.490	3769547.532	89.92	-	-	-	-	-

Noise emissions of railway traffic

NE_4trk — Rail track: — Direction: — Section: 13 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	10	32	151	-	66.0	61.7
0	14	0	32	203	-	61.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386528.833	3769712.436	89.92	-	-	-	-	-
0+107	386635.696	3769718.031	91.31	-	-	-	-	-

AmtrakEast, SBL, 20% Metrolink N — Rail track: — Direction: — Section: 14 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	180	40	32	151	-	72.0	67.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386603.806	3769725.686	89.92	-	-	-	-	-
0+309	386912.028	3769750.728	91.91	-	-	-	-	-

Riverside — Rail track: — Direction: — Section: 15 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386823.638	3769577.065	89.26	-	-	-	-	-
0+256	386635.696	3769718.031	91.31	-	-	-	-	-

North3 — Rail track: — Direction: — Section: 16 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	-	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386592.696	3769724.249	89.92	-	-	-	-	-
0+595	386894.000	3770187.092	91.44	-	-	-	-	-

Noise emissions of railway traffic

South5_noHSR Rail track: Direction: Section: 17 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	30	14	32	203	-	64.5	63.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386460.712	3767860.643	79.58	-	-	-	-	-
0+290	386417.138	3768147.017	80.77	-	-	-	-	-

Loop2 Rail track: Direction: Section: 18 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386630.738	3769696.557	90.55	-	-	-	-	-
0+037	386663.231	3769678.137	90.50	-	-	-	-	-

South5_noHSR Rail track: Direction: Section: 19 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	30	14	32	203	-	64.5	63.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386456.132	3767859.838	79.84	-	-	-	-	-
0+177	386425.543	3768034.133	80.77	-	-	-	-	-

Noise emissions of railway traffic

South5_noHSR   Rail track: Direction: Section: 20   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	30	14	32	203	-	64.5	63.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.610	3768034.139	80.77	-	-	-	-	-
0+116	386412.591	3768149.464	80.77	-	-	-	-	-

Throa6   Rail track: Direction: Section: 21   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-
0	64	10	32	175	-	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.905	3769394.567	91.92	-	-	-	-	-
0+104	386134.905	3769300.687	91.92	-	-	-	-	-

Throat6   Rail track: Direction: Section: 22   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-
0	64	10	32	175	-	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+152	386110.318	3769258.991	91.92	-	-	-	-	-

Noise emissions of railway traffic

Throat6 Rail track: Direction: Section: 23 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386207.420	3769444.399	89.92	-	-	-	-	-
0+420	386491.280	3769703.788	89.92	-	-	-	-	-

Throat6 Rail track: Direction: Section: 24 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386207.338	3769444.437	89.92	-	-	-	-	-
0+070	386178.406	3769381.047	91.92	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 25 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+075	386203.614	3769425.526	89.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 26 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386109.172	3768903.494	93.32	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 27 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386121.048	3768901.251	93.10	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 28 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-
0	32	5	16	175	-	49.3	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+399	386134.905	3769300.687	91.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS12 Rail track: Direction: Section: 29 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-
0	32	5	16	175	-	49.3	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+354	386110.318	3769258.991	91.92	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 30 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	15	3	16	151	-	64.0	59.3
0	5	0	16	203	-	59.2	-
0	32	5	16	175	-	49.3	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.318	3769258.991	91.92	-	-	-	-	-
0+358	386026.567	3768912.709	93.81	-	-	-	-	-

GoldNB_Reloc Rail track: Direction: Section: 31 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386006.651	3768862.937	91.29	-	-	-	-	-
0+853	385999.210	3769650.932	88.37	-	-	-	-	-

Noise emissions of railway traffic

GoldSB_Reloc Rail track: Direction: Section: 32 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386001.861	3768863.845	89.92	-	-	-	-	-
0+848	385995.788	3769646.440	88.31	-	-	-	-	-

Loop2 Rail track: Direction: Section: 33 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386731.600	3769516.995	89.92	-	-	-	-	-
0+053	386722.218	3769569.313	89.92	-	-	-	-	-

NE_4trk Rail track: Direction: Section: 34 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	10	32	151	-	66.0	61.7
0	14	0	32	203	-	61.3	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386527.929	3769722.157	89.92	-	-	-	-	-
0+080	386607.050	3769730.723	89.92	-	-	-	-	-

Noise emissions of railway traffic

NE_4trk Rail track: Direction: Section: 35 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	10	32	151	-	66.0	61.7
0	14	0	32	203	-	61.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386528.159	3769717.272	89.92	-	-	-	-	-
0+065	386592.696	3769724.249	89.92	-	-	-	-	-

North2 Rail track: Direction: Section: 36 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	-	175	-	50.8	45.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386607.050	3769730.723	89.92	-	-	-	-	-
0+573	386889.616	3770188.510	91.44	-	-	-	-	-

Throat6 Rail track: Direction: Section: 37 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	yes	64.3	60.0
0	9	0	32	203	-	59.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-

Noise emissions of railway traffic

Throat6 Rail track: Direction: Section: 38 Km: 0+221

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	7	32	151	-	64.3	60.0
0	9	0	32	203	-	59.5	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+221	386300.889	3769623.792	89.92	-	-	-	-	-
0+436	386493.600	3769699.206	89.92	-	-	-	-	-

Throat6 plus Alt1 Rail track: Direction: Section: 39 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2
0	9	0	32	203	-	59.5	-
0	30	7	32	151	-	64.3	60.0

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386520.669	3769727.961	89.92	-	-	-	-	-
0+610	386143.202	3769324.760	91.33	-	-	-	-	-

North 2 - Alt1 Rail track: Direction: Section: 40 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386779.890	3769877.260	91.44	-	-	-	-	-
0+237	386606.048	3769737.832	90.09	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk Rail track: Direction: Section: 41 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2
0	9	0	32	203	-	59.5	-
0	30	7	32	151	-	64.3	60.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.532	3769245.213	91.92	-	-	-	-	-
0+086	386143.202	3769324.760	91.33	-	-	-	-	-

Loop2_Horn Rail track: Direction: Section: 42 Km: 0+030

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+030	386663.160	3769662.289	90.02	-	-	-	-	-
0+074	386625.852	3769686.136	90.11	-	-	-	-	-

ThroatExit_S_W of River w Horn Rail track: Direction: Section: 43 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn   Rail track: Direction: Section: 44   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn   Rail track: Direction: Section: 45   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

ThroatExit_S_W of River w Horn   Rail track: Direction: Section: 46   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

ThroatExit_S_W of River w Horn   Rail track: Direction: Section: 47   Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 48 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 49 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 50 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

Noise emissions of railway traffic

Ventura, LOSSAN, Coast Starlight 2 — Rail track: — Direction: — Section: 51 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	10	3	32	203	yes	76.7	73.7
0	78	20	32	175	-	55.9	52.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386893.999	3770187.096	90.81	-	-	-	-	-
0+333	386973.752	3770507.725	-	-	-	-	-	-

Ventura, LOSSAN, Coast Starlight 1 — Rail track: — Direction: — Section: 52 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	10	3	32	203	yes	76.7	73.7
0	78	20	32	175	-	55.9	52.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386889.614	3770188.507	91.05	-	-	-	-	-
0+331	386966.343	3770506.879	-	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 53 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River Rail track: Direction: Section: 54 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River Rail track: Direction: Section: 55 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

ThroatExit_S_W of River Rail track: Direction: Section: 56 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

ThroatExit_S_W of River Rail track: Direction: Section: 57 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River | Rail track: | Direction: | Section: 58 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River | Rail track: | Direction: | Section: 59 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

ThroatExit_S_W of River | Rail track: | Direction: | Section: 60 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	yes	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

Noise emissions of railway traffic

South10_HSR4 Rail track: Direction: Section: 61 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	6	3	16	203	-	60.2	59.1
0	16	15	16	175	-	46.3	48.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386026.567	3768912.709	93.81	-	-	-	-	-
0+329	386204.848	3768677.695	83.88	-	-	-	-	-

South10_HSR4 Rail track: Direction: Section: 62 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	6	3	16	203	-	60.2	59.1
0	16	15	16	175	-	46.3	48.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+316	386204.848	3768677.695	83.88	-	-	-	-	-

South10_HSR4 Rail track: Direction: Section: 63 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	6	3	16	203	-	60.2	59.1
0	16	15	16	175	-	46.3	48.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+311	386206.171	3768683.692	83.93	-	-	-	-	-

Noise emissions of railway traffic

South10_HSR4 Rail track: Direction: Section: 64 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	6	3	16	203	-	60.2	59.1
0	16	15	16	175	-	46.3	48.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+298	386206.171	3768683.692	83.93	-	-	-	-	-

South10 Rail track: Direction: Section: 65 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	6	3	16	203	-	60.2	59.1

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386062.371	3768915.046	93.73	-	-	-	-	-
0+289	386209.772	3768691.097	84.02	-	-	-	-	-

South10 Rail track: Direction: Section: 66 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	6	3	16	203	-	60.2	59.1

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386072.904	3768910.668	93.58	-	-	-	-	-
0+278	386209.772	3768691.097	84.02	-	-	-	-	-

Noise emissions of railway traffic

South10 Rail track: Direction: Section: 67 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	6	3	16	203	-	60.2	59.1

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386077.284	3768910.870	89.57	-	-	-	-	-
0+272	386209.772	3768691.097	84.02	-	-	-	-	-

South10 Rail track: Direction: Section: 68 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	yes	64.8	59.5
0	6	3	16	203	-	60.2	59.1

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386088.708	3768906.239	89.41	-	-	-	-	-
0+260	386210.302	3768696.653	84.06	-	-	-	-	-

South10 Rail track: Direction: Section: 69 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	-	64.8	59.5
0	6	3	16	203	-	60.2	59.1

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386093.644	3768905.678	93.38	-	-	-	-	-
0+255	386210.302	3768696.653	84.06	-	-	-	-	-

Noise emissions of railway traffic

South10 | Rail track: | Direction: | Section: 70 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	18	3	16	151	-	64.8	59.5
0	6	3	16	203	-	60.2	59.1

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386104.970	3768904.234	93.32	-	-	-	-	-
0+249	386210.302	3768696.653	84.06	-	-	-	-	-

South4 | Rail track: | Direction: | Section: 71 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	15	7	32	203	-	61.5	60.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386209.772	3768691.097	84.02	-	-	-	-	-
0+128	386333.643	3768659.816	83.82	-	-	-	-	-

South2 | Rail track: | Direction: | Section: 72 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	30	14	32	203	-	64.5	63.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.543	3768034.133	80.77	-	-	-	-	-
0+177	386456.132	3767859.838	79.84	-	-	-	-	-

Noise emissions of railway traffic

South2 Rail track: Direction: Section: 73 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	15	7	32	203	-	61.5	60.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386333.643	3768659.816	83.82	-	-	-	-	-
0+709	386425.610	3768034.139	80.77	-	-	-	-	-

South2 Rail track: Direction: Section: 74 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	15	7	32	203	-	61.5	60.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386334.825	3768663.917	83.82	-	-	-	-	-
0+890	386460.712	3767860.643	79.58	-	-	-	-	-

South4 Rail track: Direction: Section: 75 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	45	8	32	151	-	66.0	60.7
0	15	7	32	203	-	61.5	60.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386210.302	3768696.653	84.06	-	-	-	-	-
0+129	386334.825	3768663.917	83.82	-	-	-	-	-

Noise emissions of railway traffic

Loop1 Rail track: Direction: Section: 76 Km: 0+000

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386334.825	3768663.917	83.82	-	-	-	-	-
0+368	386626.714	3768836.135	84.15	-	-	-	-	-

South4_HSR2 Rail track: Direction: Section: 77 Km: 0+000

Train type	Number of trains day	night	Speed km/h	Length per train m	Max	Emission level day dB(A)	night dB(A)
0	45	8	32	151	-	66.0	60.7
0	14	7	32	203	-	61.2	60.4
0	32	30	32	175	-	52.0	54.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386206.171	3768683.692	83.93	-	-	-	-	-
0+969	386457.662	3767878.014	79.69	-	-	-	-	-

South4_HSR2 Rail track: Direction: Section: 78 Km: 0+000

Train type	Number of trains day	night	Speed km/h	Length per train m	Max	Emission level day dB(A)	night dB(A)
0	45	8	32	151	-	66.0	60.7
0	15	7	32	203	-	61.5	60.4
0	32	30	32	175	-	52.0	54.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386204.959	3768679.601	83.89	-	-	-	-	-
0+965	386453.503	3767877.061	79.94	-	-	-	-	-

Noise emissions of railway traffic

Alt1 West of NW Merge with SBL/Amtrak ERail track: Direction: Section: 79 Km: 0+237

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2
0	14	0	32	203	-	61.3	-
0	45	10	32	151	-	66.0	61.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+237	386606.048	3769737.832	90.09	-	-	-	-	-
0+323	386520.669	3769727.961	89.92	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk — Rail track: — Direction: — Section: 1 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386860.517	3770117.624	91.43	-	-	-	-	-
0+012	386864.465	3770129.156	91.43	-	-	-	-	-

HSR_2trk — Rail track: — Direction: — Section: 2 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386864.465	3770129.156	91.43	-	-	-	-	-
0+031	386875.484	3770158.456	91.44	-	-	-	-	-

HSR_2trk — Rail track: — Direction: — Section: 3 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386875.484	3770158.456	91.44	-	-	-	-	-
0+012	386880.201	3770169.696	91.43	-	-	-	-	-

HSR_2trk — Rail track: — Direction: — Section: 4 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386880.201	3770169.696	91.43	-	-	-	-	-
0+039	386895.602	3770205.999	91.09	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk Rail track: Direction: Section: 5 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386796.784	3769931.452	90.62	-	-	-	-	-
0+012	386792.782	3769919.939	91.19	-	-	-	-	-

HSR_1trk Rail track: Direction: Section: 6 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386796.784	3769931.452	90.62	-	-	-	-	-
0+209	386864.465	3770129.156	91.43	-	-	-	-	-

HSR_2trk_throat7 Rail track: Direction: Section: 7 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386520.669	3769727.961	89.92	-	-	-	-	-
0+610	386143.202	3769324.760	91.33	-	-	-	-	-

HSR_2trk_conventional_North4 Rail track: Direction: Section: 8 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386779.890	3769877.260	91.44	-	-	-	-	-
0+237	386606.048	3769737.832	90.09	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk_Throat7 Rail track: Direction: Section: 9 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386524.324	3769733.414	89.89	-	-	-	-	-
0+620	386139.200	3769325.196	91.20	-	-	-	-	-

HSR_2trk_throat7 Rail track: Direction: Section: 10 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.532	3769245.213	91.92	-	-	-	-	-
0+086	386143.202	3769324.760	91.33	-	-	-	-	-

HSR_2trk_throat7 Rail track: Direction: Section: 11 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386139.200	3769325.196	91.20	-	-	-	-	-
0+072	386110.318	3769258.991	91.92	-	-	-	-	-

HSR_2trk-4trak NOrth Rail track: Direction: Section: 12 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386792.782	3769919.939	91.19	-	-	-	-	-
0+272	386606.968	3769742.417	89.89	-	-	-	-	-

Noise emissions of railway traffic

South10_HSR4 Rail track: Direction: Section: 13 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	19	5	16	175	yes	47.2	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386026.567	3768912.709	93.81	-	-	-	-	-
0+329	386204.848	3768677.695	83.88	-	-	-	-	-

South10_HSR4 Rail track: Direction: Section: 14 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	19	5	16	203	yes	65.3	61.6

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+316	386204.848	3768677.695	83.88	-	-	-	-	-

South10_HSR4 Rail track: Direction: Section: 15 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	19	5	16	175	yes	47.2	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+311	386206.171	3768683.692	83.93	-	-	-	-	-

South10_HSR4 Rail track: Direction: Section: 16 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	19	5	16	175	yes	47.2	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+298	386206.171	3768683.692	83.93	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

South10 Rail track: Direction: Section: 17 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	5	16	151	yes	67.0	61.7
0	12	3	16	203	-	63.4	58.6

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386062.371	3768915.046	93.73	-	-	-	-	-
0+289	386209.772	3768691.097	84.02	-	-	-	-	-

South10 Rail track: Direction: Section: 18 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	5	16	151	yes	67.0	61.7
0	12	3	16	203	-	63.4	58.6

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386072.904	3768910.668	93.58	-	-	-	-	-
0+278	386209.772	3768691.097	84.02	-	-	-	-	-

South10 Rail track: Direction: Section: 19 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	5	16	151	yes	67.0	61.7
0	12	3	16	203	-	63.4	58.6

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386077.284	3768910.870	89.57	-	-	-	-	-
0+272	386209.772	3768691.097	84.02	-	-	-	-	-

Noise emissions of railway traffic

South10 Rail track: Direction: Section: 20 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	5	16	151	yes	67.0	61.7
0	12	3	16	203	-	63.4	58.6

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386088.708	3768906.239	89.41	-	-	-	-	-
0+260	386210.302	3768696.653	84.06	-	-	-	-	-

South10 Rail track: Direction: Section: 21 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	5	16	151	-	67.0	61.7
0	12	3	16	203	-	63.4	58.6

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386093.644	3768905.678	93.38	-	-	-	-	-
0+255	386210.302	3768696.653	84.06	-	-	-	-	-

South10 Rail track: Direction: Section: 22 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	5	16	151	-	67.0	61.7
0	12	3	16	203	-	63.4	58.6

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386104.970	3768904.234	93.32	-	-	-	-	-
0+249	386210.302	3768696.653	84.06	-	-	-	-	-

Noise emissions of railway traffic

South4 Rail track: Direction: Section: 23 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	38	7	32	203	-	65.5	60.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386209.772	3768691.097	84.02	-	-	-	-	-
0+128	386333.643	3768659.816	83.82	-	-	-	-	-

South2 Rail track: Direction: Section: 24 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	17	4	32	203	-	62.0	58.0

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.543	3768034.133	80.77	-	-	-	-	-
0+177	386456.132	3767859.838	79.84	-	-	-	-	-

South2 Rail track: Direction: Section: 25 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	38	7	32	203	-	65.5	60.7

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386333.643	3768659.816	83.82	-	-	-	-	-
0+709	386425.610	3768034.139	80.77	-	-	-	-	-

Noise emissions of railway traffic

South2 Rail track: Direction: Section: 26 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	38	7	32	203	-	65.5	60.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386334.825	3768663.917	83.82	-	-	-	-	-
0+890	386460.712	3767860.643	79.58	-	-	-	-	-

South4 Rail track: Direction: Section: 27 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	38	7	32	203	-	65.5	60.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386210.302	3768696.653	84.06	-	-	-	-	-
0+129	386334.825	3768663.917	83.82	-	-	-	-	-

Loop1 Rail track: Direction: Section: 28 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386334.825	3768663.917	83.82	-	-	-	-	-
0+368	386626.714	3768836.135	84.15	-	-	-	-	-

Noise emissions of railway traffic

South4_HSR2 Rail track: Direction: Section: 29 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	39	10	32	175	-	52.9	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386206.171	3768683.692	83.93	-	-	-	-	-
0+969	386457.662	3767878.014	79.69	-	-	-	-	-

South4_HSR2 Rail track: Direction: Section: 30 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	39	10	32	175	-	52.9	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386204.959	3768679.601	83.89	-	-	-	-	-
0+965	386453.503	3767877.061	79.94	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 31 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386093.644	3768905.678	93.38	-	-	-	-	-

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 32 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+457	386104.970	3768904.234	93.32	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 33 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386072.904	3768910.668	93.58	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 34 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386062.371	3768915.046	93.73	-	-	-	-	-

Noise emissions of railway traffic

LAUS12_futureHSR4 Rail track: Direction: Section: 35 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	32	5	16	175	-	49.3	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386056.081	3768911.282	93.66	-	-	-	-	-
0+398	386134.905	3769300.687	91.92	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 36 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+481	386077.284	3768910.870	89.57	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 37 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.406	3769381.047	91.92	-	-	-	-	-
0+483	386088.708	3768906.239	89.41	-	-	-	-	-

Noise emissions of railway traffic

Throat7 | Rail track: | Direction: | Section: 38 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.875	3769479.511	89.92	-	-	-	-	-
0+427	386528.833	3769712.436	89.92	-	-	-	-	-

Throat7 | Rail track: | Direction: | Section: 39 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386218.718	3769479.515	89.92	-	-	-	-	-
0+094	386178.905	3769394.567	91.92	-	-	-	-	-

Throat7 | Rail track: | Direction: | Section: 40 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Coordinates of track axis Y	Coordinates of track axis Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+532	386527.929	3769722.157	89.92	-	-	-	-	-

Noise emissions of railway traffic

Throat7 | Rail track: | Direction: | Section: 41 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.793	3769396.361	89.92	-	-	-	-	-
0+526	386528.159	3769717.272	89.92	-	-	-	-	-

Loop1 | Rail track: | Direction: | Section: 42 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	60	0	32	151	-	67.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386626.714	3768836.135	84.15	-	-	-	-	-
0+754	386721.490	3769547.532	89.92	-	-	-	-	-

NE_5trk | Rail track: | Direction: | Section: 43 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	60	13	32	151	-	67.3	63.0
0	19	0	32	203	-	62.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386528.833	3769712.436	89.92	-	-	-	-	-
0+107	386635.696	3769718.031	91.31	-	-	-	-	-

Noise emissions of railway traffic

AmtrakEast, SBL, 20% Metrolink N — Rail track: — Direction: — Section: 44 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	180	40	32	151	-	72.0	67.7

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386603.806	3769725.686	89.92	-	-	-	-	-
0+309	386912.028	3769750.728	91.91	-	-	-	-	-

Riverside — Rail track: — Direction: — Section: 45 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386823.638	3769577.065	89.26	-	-	-	-	-
0+256	386635.696	3769718.031	91.31	-	-	-	-	-

North4 — Rail track: — Direction: — Section: 46 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386592.696	3769724.249	89.92	-	-	-	-	-
0+595	386894.000	3770187.092	91.44	-	-	-	-	-

South5_noHSR — Rail track: — Direction: — Section: 47 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	30	14	32	203	-	64.5	63.4

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386460.712	3767860.643	79.58	-	-	-	-	-
0+290	386417.138	3768147.017	80.77	-	-	-	-	-

Noise emissions of railway traffic

Loop2 | Rail track: | Direction: | Section: 48 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386630.738	3769696.557	90.55	-	-	-	-	-
0+037	386663.231	3769678.137	90.50	-	-	-	-	-

South5_noHSR | Rail track: | Direction: | Section: 49 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	30	14	32	203	-	64.5	63.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386456.132	3767859.838	79.84	-	-	-	-	-
0+177	386425.543	3768034.133	80.77	-	-	-	-	-

South5_noHSR | Rail track: | Direction: | Section: 50 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	89	16	32	151	-	69.0	63.8
0	30	14	32	203	-	64.5	63.4

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386425.610	3768034.139	80.77	-	-	-	-	-
0+116	386412.591	3768149.464	80.77	-	-	-	-	-

Noise emissions of railway traffic

Throat7 — Rail track: — Direction: — Section: 51 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386178.905	3769394.567	91.92	-	-	-	-	-
0+104	386134.905	3769300.687	91.92	-	-	-	-	-

Throat7_HSR — Rail track: — Direction: — Section: 52 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	-	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386174.760	3769396.376	89.92	-	-	-	-	-
0+152	386110.318	3769258.991	91.92	-	-	-	-	-

Throat7 — Rail track: — Direction: — Section: 53 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386207.420	3769444.399	89.92	-	-	-	-	-
0+420	386491.280	3769703.788	89.92	-	-	-	-	-

Noise emissions of railway traffic

Throat7 Rail track: Direction: Section: 54 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386207.338	3769444.437	89.92	-	-	-	-	-
0+070	386178.406	3769381.047	91.92	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 55 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386177.817	3769354.950	91.92	-	-	-	-	-
0+075	386203.614	3769425.526	89.92	-	-	-	-	-

LAUS_12 Rail track: Direction: Section: 56 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386109.172	3768903.494	93.32	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

LAUS_12 Rail track: Direction: Section: 57 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	22	4	16	151	-	65.8	61.0
0	7	0	16	203	-	60.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-
0+532	386121.048	3768901.251	93.10	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 58 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	32	5	16	175	-	49.3	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386044.035	3768914.069	93.78	-	-	-	-	-
0+399	386134.905	3769300.687	91.92	-	-	-	-	-

LAUS12 Rail track: Direction: Section: 59 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	32	5	16	175	-	49.3	43.5

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386039.054	3768912.182	93.75	-	-	-	-	-
0+354	386110.318	3769258.991	91.92	-	-	-	-	-

Noise emissions of railway traffic

LAUS12 Rail track: Direction: Section: 60 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	32	5	16	175	-	49.3	43.5

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386110.318	3769258.991	91.92	-	-	-	-	-
0+358	386026.567	3768912.709	93.81	-	-	-	-	-

GoldNB_Reloc Rail track: Direction: Section: 61 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386006.651	3768862.937	91.29	-	-	-	-	-
0+853	385999.210	3769650.932	88.37	-	-	-	-	-

GoldSB_Reloc Rail track: Direction: Section: 62 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386001.861	3768863.845	89.92	-	-	-	-	-
0+848	385995.788	3769646.440	88.31	-	-	-	-	-

Loop2 Rail track: Direction: Section: 63 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386731.600	3769516.995	89.92	-	-	-	-	-
0+053	386722.218	3769569.313	89.92	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

NE_5trk | Rail track: | Direction: | Section: 64 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	60	13	32	151	-	67.3	63.0
0	19	0	32	203	-	62.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386527.929	3769722.157	89.92	-	-	-	-	-
0+080	386607.050	3769730.723	89.92	-	-	-	-	-

NE_5trk | Rail track: | Direction: | Section: 65 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	60	13	32	151	-	67.3	63.0
0	19	0	32	203	-	62.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386528.159	3769717.272	89.92	-	-	-	-	-
0+065	386592.696	3769724.249	89.92	-	-	-	-	-

North4 | Rail track: | Direction: | Section: 66 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386607.050	3769730.723	89.92	-	-	-	-	-
0+573	386889.616	3770188.510	91.44	-	-	-	-	-

1/9/2020

Noise emissions of railway traffic

Throat7 | Rail track: | Direction: | Section: 67 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	yes	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+000	386203.614	3769425.526	89.92	-	-	-	-	-

Throat7 | Rail track: | Direction: | Section: 68 | Km: 0+221

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	36	8	32	151	-	65.1	60.7
0	11	0	32	203	-	60.3	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+221	386300.889	3769623.792	89.92	-	-	-	-	-
0+436	386493.600	3769699.206	89.92	-	-	-	-	-

Loop2_Horn | Rail track: | Direction: | Section: 69 | Km: 0+030

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	-	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	night
0+030	386663.160	3769662.289	90.02	-	-	-	-	-
0+074	386625.852	3769686.136	90.11	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 70 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 71 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 72 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 73 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 74 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 75 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 76 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

ThroatExit_S_W of River w Horn | Rail track: | Direction: | Section: 77 | Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	13	0	32	203	yes	77.9	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

Noise emissions of railway traffic

Ventura, LOSSAN, Coast Starlight 2 — Rail track: — Direction: — Section: 78 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	10	3	32	203	yes	76.7	73.7
0	78	20	32	175	-	55.9	52.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386893.999	3770187.096	90.81	-	-	-	-	-
0+333	386973.752	3770507.725	-	-	-	-	-	-

Ventura, LOSSAN, Coast Starlight 1 — Rail track: — Direction: — Section: 79 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	10	3	32	203	yes	76.7	73.7
0	78	20	32	175	-	55.9	52.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386889.614	3770188.507	91.05	-	-	-	-	-
0+331	386966.343	3770506.879	-	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 80 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386625.852	3769686.136	90.11	-	-	-	-	-
0+098	386530.357	3769701.484	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River — Rail track: — Direction: — Section: 81 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386663.431	3769678.014	90.52	-	-	-	-	-
0+127	386722.216	3769569.318	89.92	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 82 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386715.203	3769579.068	89.92	-	-	-	-	-
0+061	386689.207	3769634.305	90.24	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 83 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.098	3769706.166	89.92	-	-	-	-	-
0+102	386630.738	3769696.557	90.55	-	-	-	-	-

ThroatExit_S_W of River — Rail track: — Direction: — Section: 84 — Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386491.286	3769703.728	89.92	-	-	-	-	-
0+039	386530.098	3769706.166	89.92	-	-	-	-	-

Noise emissions of railway traffic

ThroatExit_S_W of River Rail track: Direction: Section: 85 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386530.357	3769701.484	89.92	-	-	-	-	-
0+037	386493.600	3769699.206	89.92	-	-	-	-	-

ThroatExit_S_W of River Rail track: Direction: Section: 86 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	17	0	32	203	yes	62.0	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386721.464	3769547.605	89.92	-	-	-	-	-
0+032	386715.197	3769579.095	89.92	-	-	-	-	-

ThroatExit_S_W of River Rail track: Direction: Section: 87 Km: 0+000

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	30	0	32	203	yes	64.5	-

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+000	386689.207	3769634.305	90.24	-	-	-	-	-
0+038	386663.062	3769662.269	90.04	-	-	-	-	-

HSR_2trk_West of NW Merge with SBL/AnRail track: Direction: Section: 88 Km: 0+272

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+272	386606.968	3769742.417	89.89	-	-	-	-	-
0+355	386524.324	3769733.414	89.89	-	-	-	-	-

Noise emissions of railway traffic

HSR_2trk_West of NW Merge with SBL/AnRail track: Direction: Section: 89 Km: 0+237

Train type	Number of trains day	Number of trains night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Emission level night dB(A)
0	64	10	32	175	yes	55.0	49.2

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Corrected Emission level night
0+237	386606.048	3769737.832	90.09	-	-	-	-	-
0+323	386520.669	3769727.961	89.92	-	-	-	-	-

Appendix B:
Monitoring Data and Photos

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Table B-1. Monitoring Location 1a Acoustic Measurements

Date	Time	dBA L_{eq}
01-24-2017	10:00 AM	61.8
01-24-2017	11:00 AM	63.4
01-24-2017	12:00 PM	66.1
01-24-2017	1:00 PM	61.3
01-24-2017	2:00 PM	65.4
01-24-2017	3:00 PM	68.2
01-24-2017	4:00 PM	67.1
01-24-2017	5:00 PM	66.5
01-24-2017	6:00 PM	65.6
01-24-2017	7:00 PM	64.0
01-24-2017	8:00 PM	64.6
01-24-2017	9:00 PM	61.3
01-24-2017	10:00 PM	65.4
01-24-2017	11:00 PM	63.1
01-25-2017	12:00 AM	55.0
01-25-2017	1:00 AM	58.6
01-25-2017	2:00 AM	58.4
01-25-2017	3:00 AM	60.1
01-25-2017	4:00 AM	61.9
01-25-2017	5:00 AM	63.0
01-25-2017	6:00 AM	63.9
01-25-2017	7:00 AM	67.4
01-25-2017	8:00 AM	68.5
01-25-2017	9:00 AM	66.3

Table B-1. Monitoring Location 1a Acoustic Measurements

Date	Time	dBA L_{eq}

dBA=A-weighted decibel; L_{eq}=equivalent noise level

Table B-2. Monitoring Location 1b Acoustic Measurements

Date	Time	dBA L_{eq}
1/24/2017	10:00 AM	72.0
1/24/2017	11:00 AM	64.3
1/24/2017	12:00 PM	66.1
1/24/2017	1:00 PM	65.1
1/24/2017	2:00 PM	61.0
1/24/2017	3:00 PM	66.1
1/24/2017	4:00 PM	64.8
1/24/2017	5:00 PM	63.6
1/24/2017	6:00 PM	63.8
1/24/2017	7:00 PM	62.9
1/24/2017	8:00 PM	69.4
1/24/2017	9:00 PM	65.8
1/24/2017	10:00 PM	67.3
1/24/2017	11:00 PM	57.8
1/25/2017	12:00 AM	55.8
1/25/2017	1:00 AM	58.4
1/25/2017	2:00 AM	56.5
1/25/2017	3:00 AM	56.8
1/25/2017	4:00 AM	58.6
1/25/2017	5:00 AM	60.7
1/25/2017	6:00 AM	61.7
1/25/2017	7:00 AM	62.3

Table B-2. Monitoring Location 1b Acoustic Measurements

Date	Time	dBA L_{eq}
1/25/2017	8:00 AM	69.1
1/25/2017	9:00 AM	65.2

dBA=A-weighted decibel; L_{eq}=equivalent noise level

Table B-3. Monitoring Location 2 Acoustic Measurements

Date	Time	dBA L_{eq}
1/25/2017	2:00 PM	68.7
1/25/2017	3:00 PM	70.6
1/25/2017	4:00 PM	71.0
1/25/2017	5:00 PM	71.2
1/25/2017	6:00 PM	70.6
1/25/2017	7:00 PM	69.3
1/25/2017	8:00 PM	69.2
1/25/2017	9:00 PM	66.6
1/25/2017	10:00 PM	66.1
1/25/2017	11:00 PM	65.0
1/26/2017	12:00 AM	68.3
1/26/2017	1:00 AM	62.2
1/26/2017	2:00 AM	60.9
1/26/2017	3:00 AM	59.6
1/26/2017	4:00 AM	62.2
1/26/2017	5:00 AM	68.1
1/26/2017	6:00 AM	69.5
1/26/2017	7:00 AM	71.5
1/26/2017	8:00 AM	73.6

Table B-3. Monitoring Location 2 Acoustic Measurements

Date	Time	dBA L_{eq}
1/26/2017	9:00 AM	72.4
1/26/2017	10:00 AM	69.6
1/26/2017	11:00 AM	68.9
1/26/2017	12:00 PM	68.0
1/26/2017	1:00 PM	67.4

dBA=A-weighted decibel; L_{eq}=equivalent noise level

Table B-4. Monitoring Location 3 Acoustic Measurements

Date	Time	dBA L_{eq}
1/24/2017	1:00 PM	60.9
1/24/2017	2:00 PM	63.5
1/24/2017	3:00 PM	63.5
1/24/2017	4:00 PM	64.7
1/24/2017	5:00 PM	63.8
1/24/2017	6:00 PM	63.1
1/24/2017	7:00 PM	62.3
1/24/2017	8:00 PM	60.4
1/24/2017	9:00 PM	59
1/24/2017	10:00 PM	57.6
1/24/2017	11:00 PM	59.1
1/25/2017	12:00 AM	58
1/25/2017	1:00 AM	61
1/25/2017	2:00 AM	57.2
1/25/2017	3:00 AM	58.1
1/25/2017	4:00 AM	59.6
1/25/2017	5:00 AM	62.5

Table B-4. Monitoring Location 3 Acoustic Measurements

Date	Time	dBA L_{eq}
1/25/2017	6:00 AM	63.4
1/25/2017	7:00 AM	66.4
1/25/2017	8:00 AM	64.6
1/25/2017	9:00 AM	67.1
1/25/2017	10:00 AM	63.4
1/25/2017	11:00 AM	61.4
1/25/2017	12:00 PM	63

dBA=A-weighted decibel; L_{eq}=equivalent noise level

Table B-5. Monitoring Location 4 Acoustic Measurements

Date	Time	dBA L_{eq}
1/25/2017	11:00 AM	64.2
1/25/2017	12:00 PM	63.2
1/25/2017	1:00 PM	67.2
1/25/2017	2:00 PM	64.7
1/25/2017	3:00 PM	67.3
1/25/2017	4:00 PM	61.8
1/25/2017	5:00 PM	62.0
1/25/2017	6:00 PM	61.3
1/25/2017	7:00 PM	63.7
1/25/2017	8:00 PM	64.9
1/25/2017	9:00 PM	62.3
1/25/2017	10:00 PM	61.0
1/25/2017	11:00 PM	60.9
1/26/2017	12:00 AM	60.0

Table B-5. Monitoring Location 4 Acoustic Measurements

Date	Time	dBA L_{eq}
1/26/2017	1:00 AM	61.8
1/26/2017	2:00 AM	58.2
1/26/2017	3:00 AM	60.5
1/26/2017	4:00 AM	63.6
1/26/2017	5:00 AM	70.7
1/26/2017	6:00 AM	64.0
1/26/2017	7:00 AM	63.8
1/26/2017	8:00 AM	65.0
1/26/2017	9:00 AM	63.8
1/26/2017	10:00 AM	64.0

dBA=A-weighted decibel; L_{eq}=equivalent noise level

Figure B-1. Monitoring Location 1a Noise Meter, #1

Figure B-2. Monitoring Location 1a Noise Meter, #2

Figure B-3. Monitoring Location 1a Noise Meter from Sidewalk, #1

Figure B-4. Monitoring Location 1a Noise Meter from Sidewalk, #2

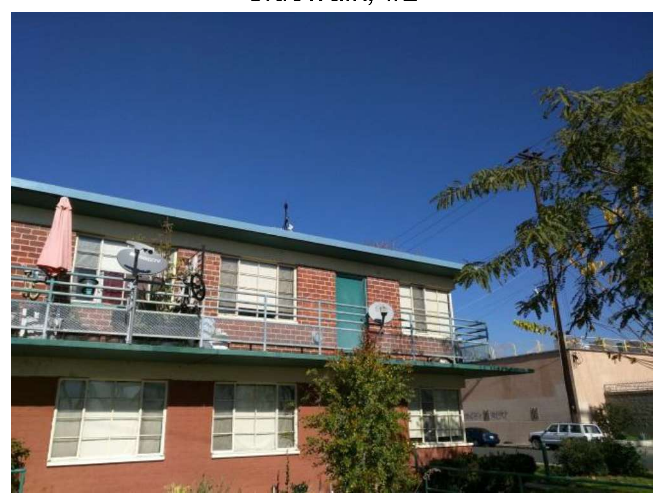


Figure B-5. Monitoring Location 1a Noise Meter from Street

Figure B-6. Monitoring Location 1b Noise Meter, #1

Figure B-7. Monitoring Location 1b Noise Meter, #2

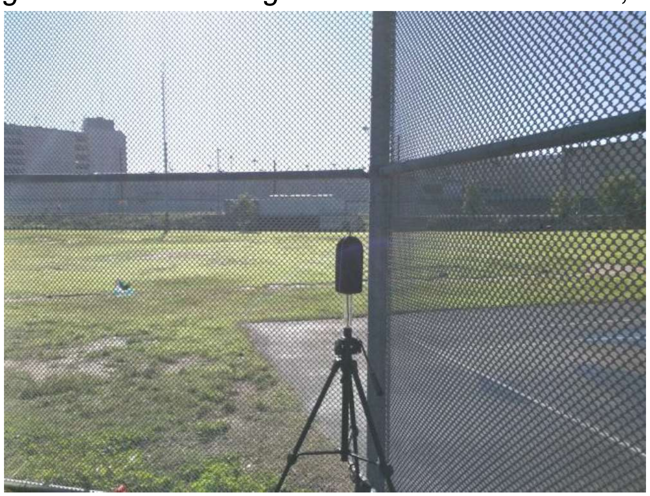


Figure B-8. Monitoring Location 1b Noise Meter, #3

Figure B-9. Monitoring Location 2 Noise Meter, #1

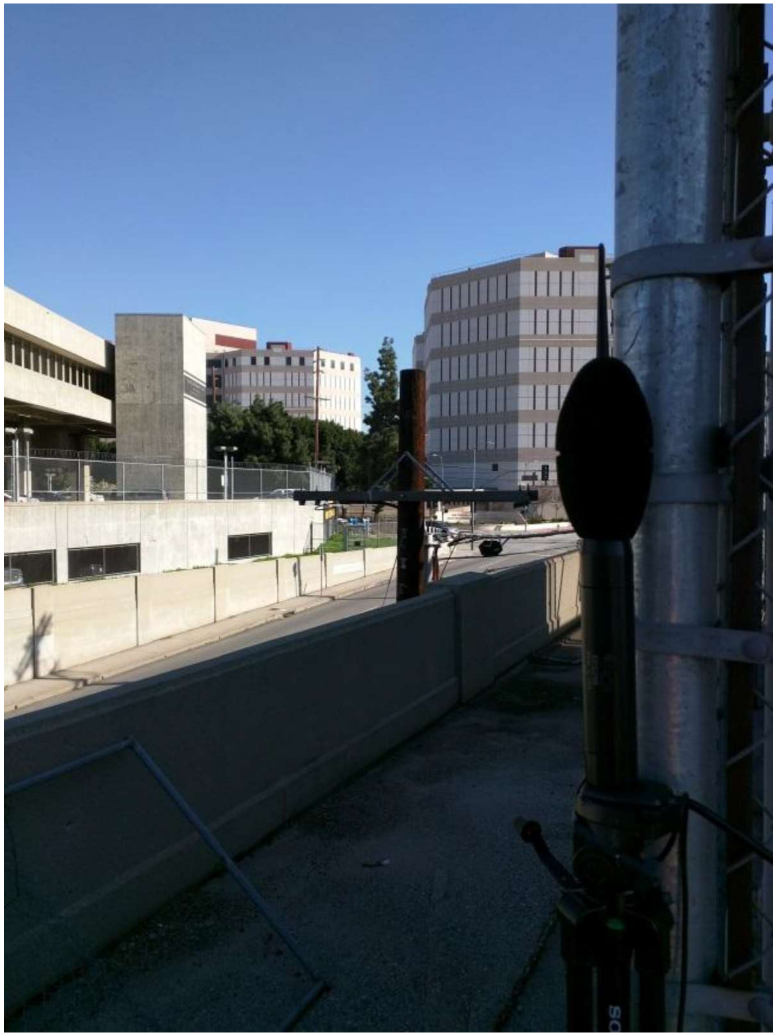


Figure B-10. Monitoring Location 2 Noise Meter, #2

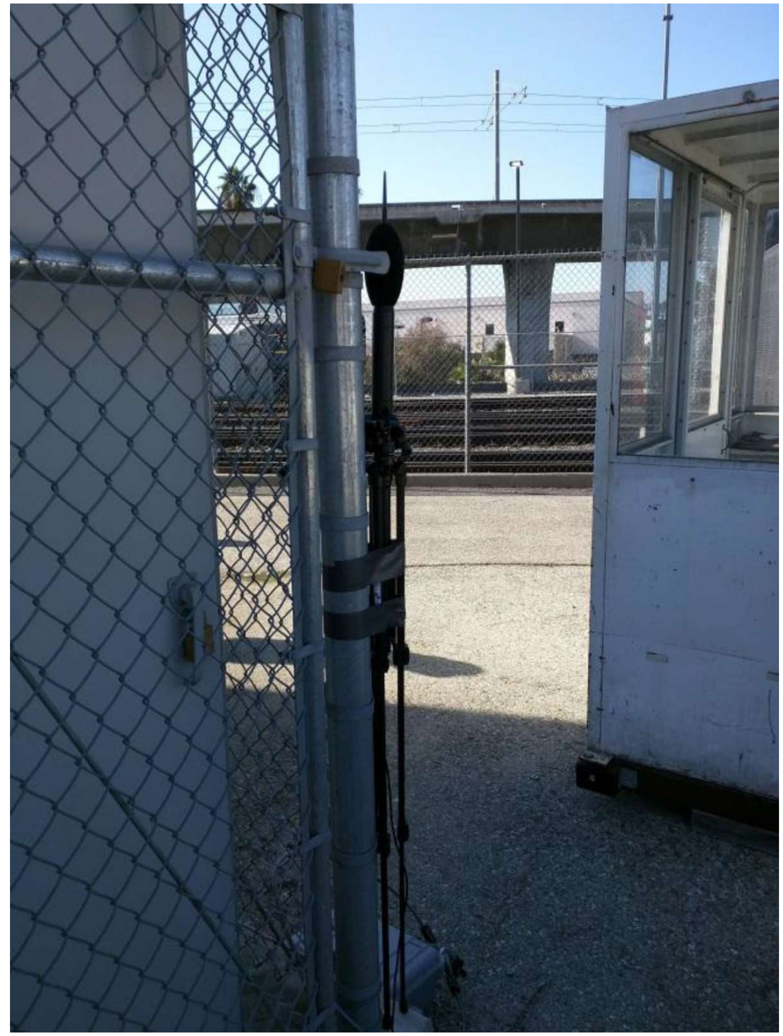


Figure B-11. Monitoring Location 2 Noise Meter, #3

Figure B-12. Monitoring Location 2 Noise Meter, #4

Figure B-15. Monitoring Location 3 Noise Meter, #3

Figure B-16. Monitoring Location 3 Noise Meter View of Tracks

Figure B-17. Monitoring Location 3 Vibration Measurement, #1

Figure B-18. Monitoring Location 3 Vibration Measurement, #2

Figure B-19. Monitoring Location 3 Vibration Meter Setup, #1

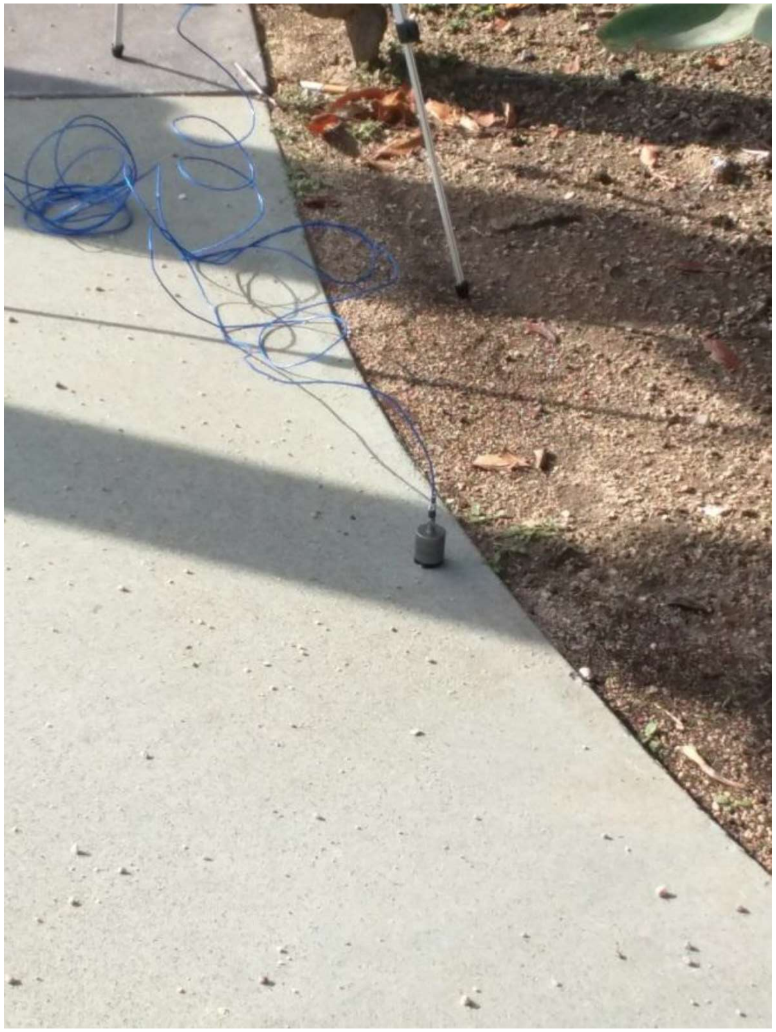
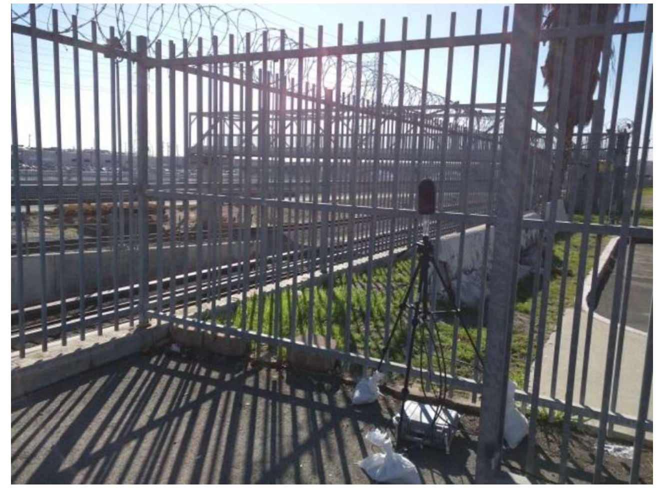


Figure B-20. Monitoring Location 3 Vibration Meter Setup, #2

Figure B-21. Monitoring Location 4 Noise Meter, #1

Figure B-22. Monitoring Location 4 Noise Meter, #2



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Appendix C:
Detailed Acoustic and Vibration Modeling and Predictions Results

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Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
William Mead Homes	WM1	3	1	66	50	67	72	0	2	5	None
	WM2	2	40	69	51	64	69	0	2	5	None
	WM3	2	40	69	48	64	69	0	2	5	None
	WM4	2	12	69	45	64	69	0	2	5	None
	WM5	2	11	69	49	64	69	0	2	5	None
	WM6	2	16	69	58	64	69	0	2	5	None
	WM7	2	38	69	50	64	69	0	2	5	None
	WM8	2	24	69	67	64	69	2	2	5	Moderate
	WM9	2	46	69	49	64	69	0	2	5	None
	WM10	2	20	69	51	64	69	0	2	5	None
	WM11	2	40	69	46	64	69	0	2	5	None
	WM12	2	40	69	45	64	69	0	2	5	None
	WM13	2	32	69	45	64	69	0	2	5	None
	WM14	2	40	69	51	64	69	0	2	5	None
	WM15	2	16	69	47	64	69	0	2	5	None
	PK1	3	1	66	62	67	72	2	2	5	None
Care First Village	HFC1	2	5	73	59	65	70	0	2	5	None
	HFC2	2	5	73	59	65	70	0	2	5	None
	HFC3	2	5	73	56	65	70	0	2	5	None
	HFC4	2	5	73	54	65	70	0	2	5	None
	HFC5	2	5	73	50	65	70	0	2	5	None

Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
	HFC6	2	5	73	50	65	70	0	2	5	None
	HFC7	2	5	73	46	65	70	0	2	5	None
	HFC8	2	5	73	49	65	70	0	2	5	None
	HFC9	2	5	73	45	65	70	0	2	5	None
	HFC10	2	5	73	44	65	70	0	2	5	None
	HFC13	2	20	73	46	65	70	0	2	5	None
	HFC13	2	20	73	46	65	70	0	2	5	None
	HFC13	2	20	73	46	65	70	0	2	5	None
	HFC16	2	24	73	47	65	70	0	2	5	None
	HFC16	2	24	73	47	65	70	0	2	5	None
	HFC16	2	24	73	47	65	70	0	2	5	None
	HFC17	0	0	73	52	65	70	0	2	5	None
	HFC18	2	5	73	53	65	70	0	2	5	None
	HFC19	2	5	73	53	65	70	0	2	5	None
	HFC20	2	5	73	49	65	70	0	2	5	None
	HFC21	2	5	73	51	65	70	0	2	5	None
	HFC22	2	5	73	44	65	70	0	2	5	None
	HFC23	2	5	73	43	65	70	0	2	5	None
	HFC24	2	5	73	43	65	70	0	2	5	None
	HFC25	2	5	73	43	65	70	0	2	5	None
	HFC26	2	5	73	42	65	70	0	2	5	None

Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
	HFC27	2	5	73	43	65	70	0	2	5	None
	HFC28	3	1	71	54	75	80	0	3	5	None
Metro Senior Housing	MT1	2	123	60	45	58	63	0	2	5	None
Los Angeles County Men's Central Jail	CJ1	2	4000	73	49	66	71	0	2	5	None
Twin Towers Correctional Facility	TT1	2	9500	73	50	66	71	0	2	5	None
Mozaic Apartments East Building	MA12a	2	3	67	55	63	67	0	2	5	None
	MA13a	2	3	67	53	63	67	0	2	5	None
	MA14a	2	3	67	51	63	67	0	2	5	None
	MA15a	2	3	67	49	63	67	0	2	5	None
	MA1a	2	3	67	52	63	67	0	2	5	None
	MA2a	2	3	67	51	63	67	0	2	5	None
	MA3a	2	3	67	49	63	67	0	2	5	None
	MA4a	2	3	67	48	63	67	0	2	5	None
	MA5a	2	3	67	46	63	67	0	2	5	None
	MA11a	2	3	67	43	63	67	0	2	5	None
	MA10a	2	3	67	44	63	67	0	2	5	None
	MA9a	2	3	67	44	63	67	0	2	5	None
	MA8a	2	3	67	45	63	67	0	2	5	None
	MA7a	2	3	67	45	63	67	0	2	5	None
	MA6a	2	3	67	46	63	67	0	2	5	None

Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
	MA12b	2	3	67	56	63	67	0	2	5	None
	MA13b	2	3	67	54	63	67	0	2	5	None
	MA14b	2	3	67	52	63	67	0	2	5	None
	MA15b	2	3	67	50	63	67	0	2	5	None
	MA1b	2	3	67	55	63	67	0	2	5	None
	MA2b	2	3	67	52	63	67	0	2	5	None
	MA3b	2	3	67	50	63	67	0	2	5	None
	MA4b	2	3	67	49	63	67	0	2	5	None
	MA5b	2	3	67	47	63	67	0	2	5	None
	MA11b	2	3	67	43	63	67	0	2	5	None
	MA10b	2	3	67	44	63	67	0	2	5	None
	MA9b	2	3	67	44	63	67	0	2	5	None
	MA8b	2	3	67	45	63	67	0	2	5	None
	MA7b	2	3	67	45	63	67	0	2	5	None
	MA6b	2	3	67	46	63	67	0	2	5	None
	MA12c	2	3	67	57	63	67	0	2	5	None
	MA13c	2	3	67	55	63	67	0	2	5	None
	MA14c	2	3	67	54	63	67	0	2	5	None
	MA15c	2	3	67	51	63	67	0	2	5	None
	MA1c	2	3	67	56	63	67	0	2	5	None
	MA2c	2	3	67	53	63	67	0	2	5	None

Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
	MA3c	2	3	67	51	63	67	0	2	5	None
	MA4c	2	3	67	49	63	67	0	2	5	None
	MA5c	2	3	67	48	63	67	0	2	5	None
	MA11c	2	3	67	43	63	67	0	2	5	None
	MA10c	2	3	67	44	63	67	0	2	5	None
	MA9c	2	3	67	44	63	67	0	2	5	None
	MA8c	2	3	67	45	63	67	0	2	5	None
	MA7c	2	3	67	45	63	67	0	2	5	None
	MA6c	2	3	67	46	63	67	0	2	5	None
	MA12d	2	3	67	58	63	67	0	2	5	None
	MA13d	2	3	67	55	63	67	0	2	5	None
	MA14d	2	3	67	54	63	67	0	2	5	None
	MA15d	2	3	67	53	63	67	0	2	5	None
	MA1d	2	3	67	57	63	67	0	2	5	None
	MA2d	2	3	67	54	63	67	0	2	5	None
	MA3d	2	3	67	52	63	67	0	2	5	None
	MA4d	2	3	67	50	63	67	0	2	5	None
	MA5d	2	3	67	48	63	67	0	2	5	None
	MA11d	2	3	67	43	63	67	0	2	5	None
	MA10d	2	3	67	44	63	67	0	2	5	None
	MA9d	2	3	67	44	63	67	0	2	5	None

Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
	MA8d	2	3	67	45	63	67	0	2	5	None
	MA7d	2	3	67	45	63	67	0	2	5	None
	MA6d	2	3	67	46	63	67	0	2	5	None
Mozaic Apartments West Building	MA16a	2	2	67	45	63	67	0	2	5	None
	MA17a	2	2	67	44	63	67	0	2	5	None
	MA18a	2	2	67	44	63	67	0	2	5	None
	MA19a	2	2	67	43	63	67	0	2	5	None
	MA20a	2	2	67	41	63	67	0	2	5	None
	MA21a	2	2	67	41	63	67	0	2	5	None
	MA22a	2	2	67	41	63	67	0	2	5	None
	MA23a	2	2	67	41	63	67	0	2	5	None
	MA24a	2	2	67	41	63	67	0	2	5	None
	MA25a	2	2	67	44	63	67	0	2	5	None
	MA26a	2	2	67	41	63	67	0	2	5	None
	MA16b	2	2	67	46	63	67	0	2	5	None
	MA17b	2	2	67	45	63	67	0	2	5	None
	MA18b	2	2	67	44	63	67	0	2	5	None
	MA19b	2	2	67	44	63	67	0	2	5	None
	MA20b	2	2	67	41	63	67	0	2	5	None
	MA21b	2	2	67	41	63	67	0	2	5	None
	MA22b	2	2	67	41	63	67	0	2	5	None

Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
	MA23b	2	2	67	41	63	67	0	2	5	None
	MA24b	2	2	67	41	63	67	0	2	5	None
	MA25b	2	2	67	44	63	67	0	2	5	None
	MA26b	2	2	67	41	63	67	0	2	5	None
	MA16c	2	2	67	46	63	67	0	2	5	None
	MA17c	2	2	67	45	63	67	0	2	5	None
	MA18c	2	2	67	45	63	67	0	2	5	None
	MA19c	2	2	67	44	63	67	0	2	5	None
	MA20c	2	2	67	41	63	67	0	2	5	None
	MA21c	2	2	67	41	63	67	0	2	5	None
	MA22c	2	2	67	41	63	67	0	2	5	None
	MA23c	2	2	67	41	63	67	0	2	5	None
	MA24c	2	2	67	41	63	67	0	2	5	None
	MA25c	2	2	67	45	63	67	0	2	5	None
	MA26c	2	2	67	41	63	67	0	2	5	None
	MA16d	2	2	67	47	63	67	0	2	5	None
	MA17d	2	2	67	46	63	67	0	2	5	None
	MA18d	2	2	67	45	63	67	0	2	5	None
	MA19d	2	2	67	45	63	67	0	2	5	None
	MA20d	2	2	67	41	63	67	0	2	5	None
	MA21d	2	2	67	41	63	67	0	2	5	None

Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
	MA22d	2	2	67	41	63	67	0	2	5	None
	MA23d	2	2	67	41	63	67	0	2	5	None
	MA24d	2	2	67	41	63	67	0	2	5	None
	MA25d	2	2	67	47	63	67	0	2	5	None
	MA26d	2	2	67	41	63	67	0	2	5	None
La Petite Academy (First 5)	First5	3	1	64	47	66	70	0	4	7	None
One Santa Fe Apartments	SF1	2	13	71	40	66	70	0	3	7	None
	SF2	2	13	71	50	66	70	0	3	7	None
	SF3	2	13	71	41	66	70	0	3	7	None
	SF4	2	13	71	50	66	70	0	3	7	None
	SF5	2	13	71	42	66	70	0	3	7	None
	SF6	2	13	71	52	66	70	0	3	7	None
	SF7	2	13	71	42	66	70	0	3	7	None
	SF8	2	13	71	54	66	70	0	3	7	None
	SF9	2	13	71	43	66	70	0	3	7	None
	SF10	2	13	71	55	66	70	0	3	7	None
	SF11	2	13	71	44	66	70	0	3	7	None
	SF12	2	13	71	57	66	70	0	3	7	None
	SF13	2	13	71	44	66	70	0	3	7	None
	SF14	2	13	71	44	66	70	0	3	7	None
	SF15	2	13	71	43	66	70	0	3	7	None

Table C-1. Operational Noise Levels – Build Alternative (2026)

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
					Build Alternative	Moderate	Severe	Build Alternative	Moderate	Severe	Build Alternative
	SF16	2	13	71	43	66	70	0	3	7	None
	SF17	2	13	71	42	66	70	0	3	7	None
	SF18	2	13	71	42	66	70	0	3	7	None
	SF19	2	13	71	42	66	70	0	3	7	None
	SF20	2	13	71	42	66	70	0	3	7	None
	SF21	2	13	71	43	66	70	0	3	7	None
	SF22	2	13	71	43	66	70	0	3	7	None
	SF23	2	13	71	44	66	70	0	3	7	None
	SF24	2	13	71	56	66	70	0	3	7	None
	SF25	2	13	71	44	66	70	0	3	7	None
	SF26	2	13	71	56	66	70	0	3	7	None
	SF27	2	13	71	45	66	70	0	3	7	None
	SF28	2	13	71	56	66	70	0	3	7	None
	SF29	2	13	71	45	66	70	0	3	7	None
	SF30	2	13	71	56	66	70	0	3	7	None
	SF31	2	13	71	45	66	70	0	3	7	None
	SF32	2	13	71	45	66	70	0	3	7	None
	SF33	2	13	71	45	66	70	0	3	7	None
	SF34	2	13	71	45	66	70	0	3	7	None
Metro Gateway Childhood Development Center	GCC	3	1	64	46	66	70	0	3	7	None

dBA=A-weighted decibel; FTA=Federal Transit Administration; ID=identification; L_{dn}=day-night average sound level; L_{eq}=equivalent noise level; Metro=Los Angeles County Metropolitan Transportation Authority

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
William Mead Homes	WM1	3	1	66	62	67	72	1	2	5	None
	WM2	2	40	69	62	64	69	1	2	5	None
	WM3	2	40	69	60	64	69	1	2	5	None
	WM4	2	12	69	55	64	69	0	2	5	None
	WM5	2	11	69	58	64	69	0	2	5	None
	WM6	2	16	69	68	64	69	3	2	5	Moderate
	WM7	2	38	69	59	64	69	0	2	5	None
	WM8	2	24	69	75	64	69	7	2	5	Severe
	WM9	2	46	69	58	64	69	0	2	5	None
	WM10	2	20	69	59	64	69	0	2	5	None
	WM11	2	40	69	57	64	69	0	2	5	None
	WM12	2	40	69	56	64	69	0	2	5	None
	WM13	2	32	69	56	64	69	0	2	5	None
	WM14	2	40	69	60	64	69	0	2	5	None
	WM15	2	16	69	59	64	69	0	2	5	None
	PK1	3	1	66	71	67	72	6	2	5	Severe
Care First Village	HFC1	2	5	73	71	65	70	2	2	5	Severe
	HFC2	2	5	73	72	65	70	2	2	5	Severe
	HFC3	2	5	73	65	65	70	1	2	5	Moderate
	HFC4	2	5	73	65	65	70	1	2	5	Moderate
	HFC5	2	5	73	58	65	70	0	2	5	None
	HFC6	2	5	73	57	65	70	0	2	5	None

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	HFC7	2	5	73	57	65	70	0	2	5	None
	HFC8	2	5	73	55	65	70	0	2	5	None
	HFC9	2	5	73	54	65	70	0	2	5	None
	HFC10	2	5	73	54	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC17	0	0	73	64	65	70	1	2	5	None
	HFC18	2	5	73	62	65	70	0	2	5	None
	HFC19	2	5	73	65	65	70	1	2	5	Moderate
	HFC20	2	5	73	60	65	70	0	2	5	None
	HFC21	2	5	73	60	65	70	0	2	5	None
	HFC22	2	5	73	53	65	70	0	2	5	None
	HFC23	2	5	73	53	65	70	0	2	5	None
	HFC24	2	5	73	53	65	70	0	2	5	None
	HFC25	2	5	73	52	65	70	0	2	5	None
	HFC26	2	5	73	52	65	70	0	2	5	None
	HFC27	2	5	73	52	65	70	0	2	5	None
	HFC28	3	1	71	65	75	80	1	3	5	None

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
Metro Senior Housing	MT1	2	123	60	55	58	63	1	2	5	None
Los Angeles Central Jail	CJ1	2	4000	73	59	66	71	0	2	5	None
Twin Towers Correctional Facility	TT1	2	9500	73	55	66	71	0	2	5	None
Mozaic Apartments East Building	MA12a	2	3	67	61	63	67	1	2	5	None
	MA13a	2	3	67	58	63	67	1	2	5	None
	MA14a	2	3	67	56	63	67	0	2	5	None
	MA15a	2	3	67	54	63	67	0	2	5	None
	MA1a	2	3	67	57	63	67	0	2	5	None
	MA2a	2	3	67	56	63	67	0	2	5	None
	MA3a	2	3	67	54	63	67	0	2	5	None
	MA4a	2	3	67	53	63	67	0	2	5	None
	MA5a	2	3	67	52	63	67	0	2	5	None
	MA11a	2	3	67	49	63	67	0	2	5	None
	MA10a	2	3	67	49	63	67	0	2	5	None
	MA9a	2	3	67	50	63	67	0	2	5	None
	MA8a	2	3	67	50	63	67	0	2	5	None
	MA7a	2	3	67	51	63	67	0	2	5	None
	MA6a	2	3	67	51	63	67	0	2	5	None
	MA12b	2	3	67	62	63	67	1	2	5	None
	MA13b	2	3	67	59	63	67	1	2	5	None
	MA14b	2	3	67	57	63	67	0	2	5	None
	MA15b	2	3	67	55	63	67	0	2	5	None

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA1b	2	3	67	60	63	67	1	2	5	None
	MA2b	2	3	67	57	63	67	0	2	5	None
	MA3b	2	3	67	55	63	67	0	2	5	None
	MA4b	2	3	67	54	63	67	0	2	5	None
	MA5b	2	3	67	52	63	67	0	2	5	None
	MA11b	2	3	67	49	63	67	0	2	5	None
	MA10b	2	3	67	49	63	67	0	2	5	None
	MA9b	2	3	67	50	63	67	0	2	5	None
	MA8b	2	3	67	50	63	67	0	2	5	None
	MA7b	2	3	67	51	63	67	0	2	5	None
	MA6b	2	3	67	51	63	67	0	2	5	None
	MA12c	2	3	67	62	63	67	1	2	5	None
	MA13c	2	3	67	60	63	67	1	2	5	None
	MA14c	2	3	67	58	63	67	1	2	5	None
	MA15c	2	3	67	57	63	67	0	2	5	None
	MA1c	2	3	67	61	63	67	1	2	5	None
	MA2c	2	3	67	58	63	67	1	2	5	None
	MA3c	2	3	67	56	63	67	0	2	5	None
	MA4c	2	3	67	54	63	67	0	2	5	None
	MA5c	2	3	67	53	63	67	0	2	5	None
	MA11c	2	3	67	49	63	67	0	2	5	None
	MA10c	2	3	67	49	63	67	0	2	5	None

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA9c	2	3	67	50	63	67	0	2	5	None
	MA8c	2	3	67	50	63	67	0	2	5	None
	MA7c	2	3	67	51	63	67	0	2	5	None
	MA6c	2	3	67	51	63	67	0	2	5	None
	MA12d	2	3	67	63	63	67	1	2	5	Moderate
	MA13d	2	3	67	60	63	67	1	2	5	None
	MA14d	2	3	67	59	63	67	1	2	5	None
	MA15d	2	3	67	58	63	67	0	2	5	None
	MA1d	2	3	67	62	63	67	1	2	5	None
	MA2d	2	3	67	59	63	67	1	2	5	None
	MA3d	2	3	67	57	63	67	0	2	5	None
	MA4d	2	3	67	55	63	67	0	2	5	None
	MA5d	2	3	67	54	63	67	0	2	5	None
	MA11d	2	3	67	49	63	67	0	2	5	None
	MA10d	2	3	67	49	63	67	0	2	5	None
	MA9d	2	3	67	50	63	67	0	2	5	None
	MA8d	2	3	67	50	63	67	0	2	5	None
	MA7d	2	3	67	51	63	67	0	2	5	None
	MA6d	2	3	67	51	63	67	0	2	5	None
Mozaic Apartments West Building	MA16a	2	2	67	50	63	67	0	2	5	None
	MA17a	2	2	67	50	63	67	0	2	5	None
	MA18a	2	2	67	49	63	67	0	2	5	None

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA19a	2	2	67	49	63	67	0	2	5	None
	MA20a	2	2	67	47	63	67	0	2	5	None
	MA21a	2	2	67	47	63	67	0	2	5	None
	MA22a	2	2	67	47	63	67	0	2	5	None
	MA23a	2	2	67	47	63	67	0	2	5	None
	MA24a	2	2	67	47	63	67	0	2	5	None
	MA25a	2	2	67	49	63	67	0	2	5	None
	MA26a	2	2	67	47	63	67	0	2	5	None
	MA16b	2	2	67	51	63	67	0	2	5	None
	MA17b	2	2	67	50	63	67	0	2	5	None
	MA18b	2	2	67	50	63	67	0	2	5	None
	MA19b	2	2	67	49	63	67	0	2	5	None
	MA20b	2	2	67	47	63	67	0	2	5	None
	MA21b	2	2	67	47	63	67	0	2	5	None
	MA22b	2	2	67	47	63	67	0	2	5	None
	MA23b	2	2	67	47	63	67	0	2	5	None
	MA24b	2	2	67	47	63	67	0	2	5	None
	MA25b	2	2	67	50	63	67	0	2	5	None
	MA26b	2	2	67	47	63	67	0	2	5	None
	MA16c	2	2	67	51	63	67	0	2	5	None
	MA17c	2	2	67	50	63	67	0	2	5	None
	MA18c	2	2	67	50	63	67	0	2	5	None

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA19c	2	2	67	50	63	67	0	2	5	None
	MA20c	2	2	67	47	63	67	0	2	5	None
	MA21c	2	2	67	47	63	67	0	2	5	None
	MA22c	2	2	67	47	63	67	0	2	5	None
	MA23c	2	2	67	47	63	67	0	2	5	None
	MA24c	2	2	67	47	63	67	0	2	5	None
	MA25c	2	2	67	51	63	67	0	2	5	None
	MA26c	2	2	67	47	63	67	0	2	5	None
	MA16d	2	2	67	52	63	67	0	2	5	None
	MA17d	2	2	67	51	63	67	0	2	5	None
	MA18d	2	2	67	51	63	67	0	2	5	None
	MA19d	2	2	67	50	63	67	0	2	5	None
	MA20d	2	2	67	47	63	67	0	2	5	None
	MA21d	2	2	67	47	63	67	0	2	5	None
	MA22d	2	2	67	47	63	67	0	2	5	None
	MA23d	2	2	67	47	63	67	0	2	5	None
	MA24d	2	2	67	47	63	67	0	2	5	None
	MA25d	2	2	67	52	63	67	0	2	5	None
	MA26d	2	2	67	47	63	67	0	2	5	None
La Petite Academy (First 5)	First5	3	1	64	50	66	70	0	4	7	None
One Santa Fe Apartments	SF1	2	13	71	44	66	70	0	3	7	None
	SF2	2	13	71	52	66	70	0	3	7	None

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	SF3	2	13	71	45	66	70	0	3	7	None
	SF4	2	13	71	52	66	70	0	3	7	None
	SF5	2	13	71	46	66	70	0	3	7	None
	SF6	2	13	71	54	66	70	0	3	7	None
	SF7	2	13	71	45	66	70	0	3	7	None
	SF8	2	13	71	56	66	70	0	3	7	None
	SF9	2	13	71	46	66	70	0	3	7	None
	SF10	2	13	71	57	66	70	0	3	7	None
	SF11	2	13	71	47	66	70	0	3	7	None
	SF12	2	13	71	59	66	70	0	3	7	None
	SF13	2	13	71	47	66	70	0	3	7	None
	SF14	2	13	71	46	66	70	0	3	7	None
	SF15	2	13	71	46	66	70	0	3	7	None
	SF16	2	13	71	46	66	70	0	3	7	None
	SF17	2	13	71	46	66	70	0	3	7	None
	SF18	2	13	71	46	66	70	0	3	7	None
	SF19	2	13	71	45	66	70	0	3	7	None
	SF20	2	13	71	45	66	70	0	3	7	None
	SF21	2	13	71	46	66	70	0	3	7	None
	SF22	2	13	71	46	66	70	0	3	7	None
	SF23	2	13	71	46	66	70	0	3	7	None
	SF24	2	13	71	58	66	70	0	3	7	None

Table C-2. Build Alternative – 2031 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	SF25	2	13	71	47	66	70	0	3	7	None
	SF26	2	13	71	58	66	70	0	3	7	None
	SF27	2	13	71	47	66	70	0	3	7	None
	SF28	2	13	71	59	66	70	0	3	7	None
	SF29	2	13	71	47	66	70	0	3	7	None
	SF30	2	13	71	59	66	70	0	3	7	None
	SF31	2	13	71	47	66	70	0	3	7	None
	SF32	2	13	71	47	66	70	0	3	7	None
	SF33	2	13	71	47	66	70	0	3	7	None
	SF34	2	13	71	48	66	70	0	3	7	None
Metro Gateway Childhood Development Center	GCC	3	1	64	51	66	70	0	3	7	None

dBA=A-weighted decibel; FTA=Federal Transit Administration; ID=identification; L_{dn}=day-night average sound level; L_{eq}=equivalent noise level; Metro=Los Angeles County Metropolitan Transportation Authority

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
William Mead Homes	WM1	3	1	66	55	67	72	0	2	5	None
	WM2	2	40	69	58	64	69	0	2	5	None
	WM3	2	40	69	54	64	69	0	2	5	None
	WM4	2	12	69	52	64	69	0	2	5	None
	WM5	2	11	69	57	64	69	0	2	5	None
	WM6	2	16	69	67	64	69	2	2	5	Moderate
	WM7	2	38	69	58	64	69	0	2	5	None
	WM8	2	24	69	75	64	69	7	2	5	Severe
	WM9	2	46	69	57	64	69	0	2	5	None
	WM10	2	20	69	58	64	69	0	2	5	None
	WM11	2	40	69	53	64	69	0	2	5	None
	WM12	2	40	69	51	64	69	0	2	5	None
	WM13	2	32	69	52	64	69	0	2	5	None
	WM14	2	40	69	59	64	69	0	2	5	None
	WM15	2	16	69	53	64	69	0	2	5	None
	PK1	3	1	66	71	67	72	6	2	5	Severe
Care First Village	HFC1	2	5	73	71	65	70	2	2	5	Severe
	HFC2	2	5	73	72	65	70	2	2	5	Severe
	HFC3	2	5	73	64	65	70	0	2	5	None
	HFC4	2	5	73	64	65	70	0	2	5	None
	HFC5	2	5	73	58	65	70	0	2	5	None
	HFC6	2	5	73	57	65	70	0	2	5	None

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	HFC7	2	5	73	57	65	70	0	2	5	None
	HFC8	2	5	73	56	65	70	0	2	5	None
	HFC9	2	5	73	54	65	70	0	2	5	None
	HFC10	2	5	73	53	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC17	0	0	73	64	65	70	1	2	5	None
	HFC18	2	5	73	61	65	70	0	2	5	None
	HFC19	2	5	73	63	65	70	0	2	5	None
	HFC20	2	5	73	60	65	70	0	2	5	None
	HFC21	2	5	73	59	65	70	0	2	5	None
	HFC22	2	5	73	53	65	70	0	2	5	None
	HFC23	2	5	73	53	65	70	0	2	5	None
	HFC24	2	5	73	52	65	70	0	2	5	None
	HFC25	2	5	73	52	65	70	0	2	5	None
	HFC26	2	5	73	51	65	70	0	2	5	None
	HFC27	2	5	73	52	65	70	0	2	5	None
	HFC28	3	1	71	65	75	80	1	3	5	None

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
Metro Senior Housing	MT1	2	123	60	51	58	63	0	2	5	None
Los Angeles Central Jail	CJ1	2	4000	73	59	66	71	0	2	5	None
Twin Towers Correctional Facility	TT1	2	9500	73	55	66	71	0	2	5	None
	MA12a	2	3	67	62	63	67	1	2	5	None
	MA13a	2	3	67	59	63	67	1	2	5	None
	MA14a	2	3	67	58	63	67	0	2	5	None
	MA15a	2	3	67	56	63	67	0	2	5	None
	MA1a	2	3	67	58	63	67	0	2	5	None
	MA2a	2	3	67	57	63	67	0	2	5	None
	MA3a	2	3	67	55	63	67	0	2	5	None
	MA4a	2	3	67	54	63	67	0	2	5	None
	MA5a	2	3	67	52	63	67	0	2	5	None
Mozaic Apartments East Building	MA11a	2	3	67	49	63	67	0	2	5	None
	MA10a	2	3	67	50	63	67	0	2	5	None
	MA9a	2	3	67	50	63	67	0	2	5	None
	MA8a	2	3	67	51	63	67	0	2	5	None
	MA7a	2	3	67	51	63	67	0	2	5	None
	MA6a	2	3	67	52	63	67	0	2	5	None
	MA12b	2	3	67	63	63	67	1	2	5	Moderate
	MA13b	2	3	67	60	63	67	1	2	5	None
	MA14b	2	3	67	59	63	67	1	2	5	None
	MA15b	2	3	67	57	63	67	0	2	5	None

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA1b	2	3	67	60	63	67	1	2	5	None
	MA2b	2	3	67	58	63	67	1	2	5	None
	MA3b	2	3	67	56	63	67	0	2	5	None
	MA4b	2	3	67	54	63	67	0	2	5	None
	MA5b	2	3	67	53	63	67	0	2	5	None
	MA11b	2	3	67	49	63	67	0	2	5	None
	MA10b	2	3	67	50	63	67	0	2	5	None
	MA9b	2	3	67	50	63	67	0	2	5	None
	MA8b	2	3	67	51	63	67	0	2	5	None
	MA7b	2	3	67	51	63	67	0	2	5	None
	MA6b	2	3	67	52	63	67	0	2	5	None
	MA12c	2	3	67	63	63	67	2	2	5	Moderate
	MA13c	2	3	67	61	63	67	1	2	5	None
	MA14c	2	3	67	60	63	67	1	2	5	None
	MA15c	2	3	67	58	63	67	0	2	5	None
	MA1c	2	3	67	61	63	67	1	2	5	None
	MA2c	2	3	67	59	63	67	1	2	5	None
	MA3c	2	3	67	57	63	67	0	2	5	None
	MA4c	2	3	67	55	63	67	0	2	5	None
	MA5c	2	3	67	53	63	67	0	2	5	None
	MA11c	2	3	67	49	63	67	0	2	5	None
	MA10c	2	3	67	50	63	67	0	2	5	None

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA9c	2	3	67	50	63	67	0	2	5	None
	MA8c	2	3	67	51	63	67	0	2	5	None
	MA7c	2	3	67	51	63	67	0	2	5	None
	MA6c	2	3	67	52	63	67	0	2	5	None
	MA12d	2	3	67	64	63	67	2	2	5	Moderate
	MA13d	2	3	67	62	63	67	1	2	5	None
	MA14d	2	3	67	60	63	67	1	2	5	None
	MA15d	2	3	67	59	63	67	1	2	5	None
	MA1d	2	3	67	62	63	67	1	2	5	None
	MA2d	2	3	67	60	63	67	1	2	5	None
	MA3d	2	3	67	57	63	67	0	2	5	None
	MA4d	2	3	67	56	63	67	0	2	5	None
	MA5d	2	3	67	54	63	67	0	2	5	None
	MA11d	2	3	67	49	63	67	0	2	5	None
	MA10d	2	3	67	50	63	67	0	2	5	None
	MA9d	2	3	67	50	63	67	0	2	5	None
	MA8d	2	3	67	51	63	67	0	2	5	None
	MA7d	2	3	67	51	63	67	0	2	5	None
	MA6d	2	3	67	52	63	67	0	2	5	None
Mozaic Apartments West Building	MA16a	2	2	67	50	63	67	0	2	5	None
	MA17a	2	2	67	50	63	67	0	2	5	None
	MA18a	2	2	67	49	63	67	0	2	5	None

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA19a	2	2	67	49	63	67	0	2	5	None
	MA20a	2	2	67	46	63	67	0	2	5	None
	MA21a	2	2	67	46	63	67	0	2	5	None
	MA22a	2	2	67	46	63	67	0	2	5	None
	MA23a	2	2	67	46	63	67	0	2	5	None
	MA24a	2	2	67	47	63	67	0	2	5	None
	MA25a	2	2	67	50	63	67	0	2	5	None
	MA26a	2	2	67	47	63	67	0	2	5	None
	MA16b	2	2	67	51	63	67	0	2	5	None
	MA17b	2	2	67	50	63	67	0	2	5	None
	MA18b	2	2	67	50	63	67	0	2	5	None
	MA19b	2	2	67	49	63	67	0	2	5	None
	MA20b	2	2	67	46	63	67	0	2	5	None
	MA21b	2	2	67	46	63	67	0	2	5	None
	MA22b	2	2	67	46	63	67	0	2	5	None
	MA23b	2	2	67	46	63	67	0	2	5	None
	MA24b	2	2	67	47	63	67	0	2	5	None
	MA25b	2	2	67	50	63	67	0	2	5	None
	MA26b	2	2	67	47	63	67	0	2	5	None
	MA16c	2	2	67	52	63	67	0	2	5	None
	MA17c	2	2	67	51	63	67	0	2	5	None
	MA18c	2	2	67	50	63	67	0	2	5	None

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA19c	2	2	67	50	63	67	0	2	5	None
	MA20c	2	2	67	46	63	67	0	2	5	None
	MA21c	2	2	67	46	63	67	0	2	5	None
	MA22c	2	2	67	46	63	67	0	2	5	None
	MA23c	2	2	67	46	63	67	0	2	5	None
	MA24c	2	2	67	47	63	67	0	2	5	None
	MA25c	2	2	67	51	63	67	0	2	5	None
	MA26c	2	2	67	47	63	67	0	2	5	None
	MA16d	2	2	67	52	63	67	0	2	5	None
	MA17d	2	2	67	51	63	67	0	2	5	None
	MA18d	2	2	67	51	63	67	0	2	5	None
	MA19d	2	2	67	50	63	67	0	2	5	None
	MA20d	2	2	67	46	63	67	0	2	5	None
	MA21d	2	2	67	46	63	67	0	2	5	None
	MA22d	2	2	67	46	63	67	0	2	5	None
	MA23d	2	2	67	46	63	67	0	2	5	None
	MA24d	2	2	67	47	63	67	0	2	5	None
	MA25d	2	2	67	53	63	67	0	2	5	None
	MA26d	2	2	67	47	63	67	0	2	5	None
La Petite Academy (First 5)	First5	3	1	64	50	66	70	0	4	7	None
One Santa Fe Apartments	SF1	2	13	71	43	66	70	0	3	7	None
	SF2	2	13	71	53	66	70	0	3	7	None

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	SF3	2	13	71	44	66	70	0	3	7	None
	SF4	2	13	71	53	66	70	0	3	7	None
	SF5	2	13	71	45	66	70	0	3	7	None
	SF6	2	13	71	55	66	70	0	3	7	None
	SF7	2	13	71	45	66	70	0	3	7	None
	SF8	2	13	71	56	66	70	0	3	7	None
	SF9	2	13	71	46	66	70	0	3	7	None
	SF10	2	13	71	58	66	70	0	3	7	None
	SF11	2	13	71	47	66	70	0	3	7	None
	SF12	2	13	71	59	66	70	0	3	7	None
	SF13	2	13	71	47	66	70	0	3	7	None
	SF14	2	13	71	46	66	70	0	3	7	None
	SF15	2	13	71	46	66	70	0	3	7	None
	SF16	2	13	71	46	66	70	0	3	7	None
	SF17	2	13	71	45	66	70	0	3	7	None
	SF18	2	13	71	45	66	70	0	3	7	None
	SF19	2	13	71	45	66	70	0	3	7	None
	SF20	2	13	71	45	66	70	0	3	7	None
	SF21	2	13	71	46	66	70	0	3	7	None
	SF22	2	13	71	46	66	70	0	3	7	None
	SF23	2	13	71	46	66	70	0	3	7	None
	SF24	2	13	71	59	66	70	0	3	7	None

Table C-3. Build Alternative – 2040 Operational Noise Levels

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	SF25	2	13	71	47	66	70	0	3	7	None
	SF26	2	13	71	59	66	70	0	3	7	None
	SF27	2	13	71	47	66	70	0	3	7	None
	SF28	2	13	71	59	66	70	0	3	7	None
	SF29	2	13	71	48	66	70	0	3	7	None
	SF30	2	13	71	59	66	70	0	3	7	None
	SF31	2	13	71	48	66	70	0	3	7	None
	SF32	2	13	71	48	66	70	0	3	7	None
	SF33	2	13	71	48	66	70	0	3	7	None
	SF34	2	13	71	48	66	70	0	3	7	None
Metro Gateway Childhood Development Center	GCC	3	1	64	52	66	70	0	3	7	None

dBA=A-weighted decibel; FTA=Federal Transit Administration; ID=identification; L_{dn}=day-night average sound level; L_{eq}=equivalent noise level; Metro=Los Angeles County Metropolitan Transportation Authority

Table C-4. Build Alternative – 2031 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
William Mead Homes	WM1	3	1	66	62	67	72	1	2	5	None
	WM2	2	40	69	61	64	69	1	2	5	None
	WM3	2	40	69	60	64	69	0	2	5	None
	WM4	2	12	69	55	64	69	0	2	5	None
	WM5	2	11	69	57	64	69	0	2	5	None
	WM6	2	16	69	63	64	69	1	2	5	None
	WM7	2	38	69	58	64	69	0	2	5	None
	WM8	2	24	69	63	64	69	1	2	5	None
	WM9	2	46	69	57	64	69	0	2	5	None
	WM10	2	20	69	58	64	69	0	2	5	None
	WM11	2	40	69	56	64	69	0	2	5	None
	WM12	2	40	69	56	64	69	0	2	5	None
	WM13	2	32	69	56	64	69	0	2	5	None
	WM14	2	40	69	59	64	69	0	2	5	None
	WM15	2	16	69	59	64	69	0	2	5	None
	PK1	3	1	66	64	67	72	2	2	5	None
Care First Village	HFC1	2	5	73	64	65	70	0	2	5	None
	HFC2	2	5	73	62	65	70	0	2	5	None
	HFC3	2	5	73	65	65	70	1	2	5	Moderate
	HFC4	2	5	73	64	65	70	1	2	5	None
	HFC5	2	5	73	58	65	70	0	2	5	None
	HFC6	2	5	73	57	65	70	0	2	5	None
	HFC7	2	5	73	55	65	70	0	2	5	None
	HFC8	2	5	73	55	65	70	0	2	5	None
	HFC9	2	5	73	54	65	70	0	2	5	None

Table C-4. Build Alternative – 2031 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	HFC10	2	5	73	54	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC17	0	0	73	62	65	70	0	2	5	None
	HFC18	2	5	73	61	65	70	0	2	5	None
	HFC19	2	5	73	64	65	70	1	2	5	None
	HFC20	2	5	73	60	65	70	0	2	5	None
	HFC21	2	5	73	59	65	70	0	2	5	None
	HFC22	2	5	73	53	65	70	0	2	5	None
	HFC23	2	5	73	53	65	70	0	2	5	None
	HFC24	2	5	73	53	65	70	0	2	5	None
	HFC25	2	5	73	52	65	70	0	2	5	None
	HFC26	2	5	73	52	65	70	0	2	5	None
	HFC27	2	5	73	52	65	70	0	2	5	None
	HFC28	3	1	71	61	75	80	0	3	5	None
Metro Senior Housing	MT1	2	123	60	55	58	63	1	2	5	None
Los Angeles Central Jail	CJ1	2	4000	73	59	66	71	0	2	5	None
Twin Towers Correctional Facility	TT1	2	9500	73	55	66	71	0	2	5	None
Mozaic Apartments East Building	MA12a	2	3	67	61	63	67	1	2	5	None
	MA13a	2	3	67	58	63	67	1	2	5	None

Table C-4. Build Alternative – 2031 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA14a	2	3	67	56	63	67	0	2	5	None
	MA15a	2	3	67	54	63	67	0	2	5	None
	MA1a	2	3	67	57	63	67	0	2	5	None
	MA2a	2	3	67	56	63	67	0	2	5	None
	MA3a	2	3	67	54	63	67	0	2	5	None
	MA4a	2	3	67	53	63	67	0	2	5	None
	MA5a	2	3	67	52	63	67	0	2	5	None
	MA11a	2	3	67	49	63	67	0	2	5	None
	MA10a	2	3	67	49	63	67	0	2	5	None
	MA9a	2	3	67	50	63	67	0	2	5	None
	MA8a	2	3	67	50	63	67	0	2	5	None
	MA7a	2	3	67	51	63	67	0	2	5	None
	MA6a	2	3	67	51	63	67	0	2	5	None
	MA12b	2	3	67	62	63	67	1	2	5	None
	MA13b	2	3	67	59	63	67	1	2	5	None
	MA14b	2	3	67	57	63	67	0	2	5	None
	MA15b	2	3	67	55	63	67	0	2	5	None
	MA1b	2	3	67	60	63	67	1	2	5	None
	MA2b	2	3	67	57	63	67	0	2	5	None
	MA3b	2	3	67	55	63	67	0	2	5	None
	MA4b	2	3	67	54	63	67	0	2	5	None
	MA5b	2	3	67	52	63	67	0	2	5	None
	MA11b	2	3	67	49	63	67	0	2	5	None
	MA10b	2	3	67	49	63	67	0	2	5	None
	MA9b	2	3	67	50	63	67	0	2	5	None

Table C-4. Build Alternative – 2031 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA8b	2	3	67	50	63	67	0	2	5	None
	MA7b	2	3	67	51	63	67	0	2	5	None
	MA6b	2	3	67	51	63	67	0	2	5	None
	MA12c	2	3	67	62	63	67	1	2	5	None
	MA13c	2	3	67	60	63	67	1	2	5	None
	MA14c	2	3	67	58	63	67	1	2	5	None
	MA15c	2	3	67	57	63	67	0	2	5	None
	MA1c	2	3	67	61	63	67	1	2	5	None
	MA2c	2	3	67	58	63	67	1	2	5	None
	MA3c	2	3	67	56	63	67	0	2	5	None
	MA4c	2	3	67	54	63	67	0	2	5	None
	MA5c	2	3	67	53	63	67	0	2	5	None
	MA11c	2	3	67	49	63	67	0	2	5	None
	MA10c	2	3	67	49	63	67	0	2	5	None
	MA9c	2	3	67	50	63	67	0	2	5	None
	MA8c	2	3	67	50	63	67	0	2	5	None
	MA7c	2	3	67	51	63	67	0	2	5	None
	MA6c	2	3	67	51	63	67	0	2	5	None
	MA12d	2	3	67	63	63	67	1	2	5	Moderate
	MA13d	2	3	67	60	63	67	1	2	5	None
	MA14d	2	3	67	59	63	67	1	2	5	None
	MA15d	2	3	67	58	63	67	0	2	5	None
	MA1d	2	3	67	61	63	67	1	2	5	None
	MA2d	2	3	67	59	63	67	1	2	5	None
	MA3d	2	3	67	57	63	67	0	2	5	None

Table C-4. Build Alternative – 2031 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA4d	2	3	67	55	63	67	0	2	5	None
	MA5d	2	3	67	54	63	67	0	2	5	None
	MA11d	2	3	67	49	63	67	0	2	5	None
	MA10d	2	3	67	49	63	67	0	2	5	None
	MA9d	2	3	67	50	63	67	0	2	5	None
	MA8d	2	3	67	50	63	67	0	2	5	None
	MA7d	2	3	67	51	63	67	0	2	5	None
	MA6d	2	3	67	51	63	67	0	2	5	None
Mozaic Apartments West Building	MA16a	2	2	67	50	63	67	0	2	5	None
	MA17a	2	2	67	50	63	67	0	2	5	None
	MA18a	2	2	67	49	63	67	0	2	5	None
	MA19a	2	2	67	49	63	67	0	2	5	None
	MA20a	2	2	67	47	63	67	0	2	5	None
	MA21a	2	2	67	47	63	67	0	2	5	None
	MA22a	2	2	67	47	63	67	0	2	5	None
	MA23a	2	2	67	47	63	67	0	2	5	None
	MA24a	2	2	67	47	63	67	0	2	5	None
	MA25a	2	2	67	49	63	67	0	2	5	None
	MA26a	2	2	67	47	63	67	0	2	5	None
	MA16b	2	2	67	51	63	67	0	2	5	None
	MA17b	2	2	67	50	63	67	0	2	5	None
	MA18b	2	2	67	50	63	67	0	2	5	None
	MA19b	2	2	67	49	63	67	0	2	5	None
	MA20b	2	2	67	47	63	67	0	2	5	None
	MA21b	2	2	67	47	63	67	0	2	5	None

Table C-4. Build Alternative – 2031 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA22b	2	2	67	47	63	67	0	2	5	None
	MA23b	2	2	67	47	63	67	0	2	5	None
	MA24b	2	2	67	47	63	67	0	2	5	None
	MA25b	2	2	67	50	63	67	0	2	5	None
	MA26b	2	2	67	47	63	67	0	2	5	None
	MA16c	2	2	67	51	63	67	0	2	5	None
	MA17c	2	2	67	50	63	67	0	2	5	None
	MA18c	2	2	67	50	63	67	0	2	5	None
	MA19c	2	2	67	50	63	67	0	2	5	None
	MA20c	2	2	67	47	63	67	0	2	5	None
	MA21c	2	2	67	47	63	67	0	2	5	None
	MA22c	2	2	67	47	63	67	0	2	5	None
	MA23c	2	2	67	47	63	67	0	2	5	None
	MA24c	2	2	67	47	63	67	0	2	5	None
	MA25c	2	2	67	51	63	67	0	2	5	None
	MA26c	2	2	67	47	63	67	0	2	5	None
	MA16d	2	2	67	52	63	67	0	2	5	None
	MA17d	2	2	67	51	63	67	0	2	5	None
	MA18d	2	2	67	51	63	67	0	2	5	None
	MA19d	2	2	67	50	63	67	0	2	5	None
	MA20d	2	2	67	47	63	67	0	2	5	None
	MA21d	2	2	67	47	63	67	0	2	5	None
	MA22d	2	2	67	47	63	67	0	2	5	None
	MA23d	2	2	67	47	63	67	0	2	5	None
	MA24d	2	2	67	47	63	67	0	2	5	None

Table C-4. Build Alternative – 2031 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA25d	2	2	67	52	63	67	0	2	5	None
	MA26d	2	2	67	47	63	67	0	2	5	None
La Petite Academy (First 5)	First5	3	1	64	50	66	70	0	4	7	None
One Santa Fe Apartments	SF1	2	13	71	44	66	70	0	3	7	None
	SF2	2	13	71	52	66	70	0	3	7	None
	SF3	2	13	71	45	66	70	0	3	7	None
	SF4	2	13	71	52	66	70	0	3	7	None
	SF5	2	13	71	46	66	70	0	3	7	None
	SF6	2	13	71	54	66	70	0	3	7	None
	SF7	2	13	71	45	66	70	0	3	7	None
	SF8	2	13	71	56	66	70	0	3	7	None
	SF9	2	13	71	46	66	70	0	3	7	None
	SF10	2	13	71	57	66	70	0	3	7	None
	SF11	2	13	71	47	66	70	0	3	7	None
	SF12	2	13	71	59	66	70	0	3	7	None
	SF13	2	13	71	47	66	70	0	3	7	None
	SF14	2	13	71	46	66	70	0	3	7	None
	SF15	2	13	71	46	66	70	0	3	7	None
	SF16	2	13	71	46	66	70	0	3	7	None
	SF17	2	13	71	46	66	70	0	3	7	None
	SF18	2	13	71	46	66	70	0	3	7	None
	SF19	2	13	71	45	66	70	0	3	7	None
	SF20	2	13	71	45	66	70	0	3	7	None
	SF21	2	13	71	46	66	70	0	3	7	None
	SF22	2	13	71	46	66	70	0	3	7	None

Table C-4. Build Alternative – 2031 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	SF23	2	13	71	46	66	70	0	3	7	None
	SF24	2	13	71	58	66	70	0	3	7	None
	SF25	2	13	71	47	66	70	0	3	7	None
	SF26	2	13	71	58	66	70	0	3	7	None
	SF27	2	13	71	47	66	70	0	3	7	None
	SF28	2	13	71	59	66	70	0	3	7	None
	SF29	2	13	71	47	66	70	0	3	7	None
	SF30	2	13	71	59	66	70	0	3	7	None
	SF31	2	13	71	47	66	70	0	3	7	None
	SF32	2	13	71	47	66	70	0	3	7	None
	SF33	2	13	71	47	66	70	0	3	7	None
	SF34	2	13	71	48	66	70	0	3	7	None
Metro Gateway Childhood Development Center	GCC	3	1	64	51	66	70	0	3	7	None

dBA=A-weighted decibel; FTA=Federal Transit Administration; ID=identification; L_{dn}=day-night average sound level; L_{eq}=equivalent noise level; Metro=Los Angeles County Metropolitan Transportation Authority

Table C-5. Build Alternative – 2040 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
William Mead Homes	WM1	3	1	66	55	67	72	0	2	5	None
	WM2	2	40	69	57	64	69	0	2	5	None
	WM3	2	40	69	54	64	69	0	2	5	None
	WM4	2	12	69	50	64	69	0	2	5	None
	WM5	2	11	69	54	64	69	0	2	5	None
	WM6	2	16	69	61	64	69	1	2	5	None
	WM7	2	38	69	58	64	69	0	2	5	None
	WM8	2	24	69	67	64	69	2	2	5	Moderate
	WM9	2	46	69	56	64	69	0	2	5	None
	WM10	2	20	69	58	64	69	0	2	5	None
	WM11	2	40	69	52	64	69	0	2	5	None
	WM12	2	40	69	51	64	69	0	2	5	None
	WM13	2	32	69	51	64	69	0	2	5	None
	WM14	2	40	69	58	64	69	0	2	5	None
	WM15	2	16	69	53	64	69	0	2	5	None
	PK1	3	1	66	63	67	72	2	2	5	None
Care First Village	HFC1	2	5	73	63	65	70	0	2	5	None
	HFC2	2	5	73	61	65	70	0	2	5	None
	HFC3	2	5	73	64	65	70	0	2	5	None
	HFC4	2	5	73	63	65	70	0	2	5	None
	HFC5	2	5	73	58	65	70	0	2	5	None
	HFC6	2	5	73	57	65	70	0	2	5	None
	HFC7	2	5	73	55	65	70	0	2	5	None
	HFC8	2	5	73	56	65	70	0	2	5	None
	HFC9	2	5	73	54	65	70	0	2	5	None

Table C-5. Build Alternative – 2040 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	HFC10	2	5	73	53	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC13	2	20	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC16	2	24	73	55	65	70	0	2	5	None
	HFC17	0	0	73	63	65	70	0	2	5	None
	HFC18	2	5	73	61	65	70	0	2	5	None
	HFC19	2	5	73	62	65	70	0	2	5	None
	HFC20	2	5	73	59	65	70	0	2	5	None
	HFC21	2	5	73	59	65	70	0	2	5	None
	HFC22	2	5	73	53	65	70	0	2	5	None
	HFC23	2	5	73	53	65	70	0	2	5	None
	HFC24	2	5	73	52	65	70	0	2	5	None
	HFC25	2	5	73	52	65	70	0	2	5	None
	HFC26	2	5	73	51	65	70	0	2	5	None
	HFC27	2	5	73	52	65	70	0	2	5	None
	HFC28	3	1	71	61	75	80	0	3	5	None
Metro Senior Housing	MT1	2	123	60	51	58	63	0	2	5	None
Los Angeles Central Jail	CJ1	2	4000	73	59	66	71	0	2	5	None
Twin Towers Correctional Facility	TT1	2	9500	73	55	66	71	0	2	5	None
Mozaic Apartments East Building	MA12a	2	3	67	62	63	67	1	2	5	None
	MA13a	2	3	67	59	63	67	1	2	5	None

Table C-5. Build Alternative – 2040 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA14a	2	3	67	58	63	67	0	2	5	None
	MA15a	2	3	67	56	63	67	0	2	5	None
	MA1a	2	3	67	58	63	67	0	2	5	None
	MA2a	2	3	67	57	63	67	0	2	5	None
	MA3a	2	3	67	55	63	67	0	2	5	None
	MA4a	2	3	67	54	63	67	0	2	5	None
	MA5a	2	3	67	52	63	67	0	2	5	None
	MA11a	2	3	67	49	63	67	0	2	5	None
	MA10a	2	3	67	50	63	67	0	2	5	None
	MA9a	2	3	67	50	63	67	0	2	5	None
	MA8a	2	3	67	51	63	67	0	2	5	None
	MA7a	2	3	67	51	63	67	0	2	5	None
	MA6a	2	3	67	52	63	67	0	2	5	None
	MA12b	2	3	67	63	63	67	1	2	5	Moderate
	MA13b	2	3	67	60	63	67	1	2	5	None
	MA14b	2	3	67	59	63	67	1	2	5	None
	MA15b	2	3	67	57	63	67	0	2	5	None
	MA1b	2	3	67	60	63	67	1	2	5	None
	MA2b	2	3	67	58	63	67	1	2	5	None
	MA3b	2	3	67	56	63	67	0	2	5	None
	MA4b	2	3	67	54	63	67	0	2	5	None
	MA5b	2	3	67	53	63	67	0	2	5	None
	MA11b	2	3	67	49	63	67	0	2	5	None
	MA10b	2	3	67	50	63	67	0	2	5	None
	MA9b	2	3	67	50	63	67	0	2	5	None

Table C-5. Build Alternative – 2040 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA8b	2	3	67	51	63	67	0	2	5	None
	MA7b	2	3	67	51	63	67	0	2	5	None
	MA6b	2	3	67	52	63	67	0	2	5	None
	MA12c	2	3	67	63	63	67	2	2	5	Moderate
	MA13c	2	3	67	61	63	67	1	2	5	None
	MA14c	2	3	67	60	63	67	1	2	5	None
	MA15c	2	3	67	58	63	67	0	2	5	None
	MA1c	2	3	67	61	63	67	1	2	5	None
	MA2c	2	3	67	59	63	67	1	2	5	None
	MA3c	2	3	67	57	63	67	0	2	5	None
	MA4c	2	3	67	55	63	67	0	2	5	None
	MA5c	2	3	67	53	63	67	0	2	5	None
	MA11c	2	3	67	49	63	67	0	2	5	None
	MA10c	2	3	67	50	63	67	0	2	5	None
	MA9c	2	3	67	50	63	67	0	2	5	None
	MA8c	2	3	67	51	63	67	0	2	5	None
	MA7c	2	3	67	51	63	67	0	2	5	None
	MA6c	2	3	67	52	63	67	0	2	5	None
	MA12d	2	3	67	64	63	67	2	2	5	Moderate
	MA13d	2	3	67	62	63	67	1	2	5	None
	MA14d	2	3	67	60	63	67	1	2	5	None
	MA15d	2	3	67	59	63	67	1	2	5	None
	MA1d	2	3	67	62	63	67	1	2	5	None
	MA2d	2	3	67	60	63	67	1	2	5	None
	MA3d	2	3	67	57	63	67	0	2	5	None

Table C-5. Build Alternative – 2040 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA4d	2	3	67	56	63	67	0	2	5	None
	MA5d	2	3	67	54	63	67	0	2	5	None
	MA11d	2	3	67	49	63	67	0	2	5	None
	MA10d	2	3	67	50	63	67	0	2	5	None
	MA9d	2	3	67	50	63	67	0	2	5	None
	MA8d	2	3	67	51	63	67	0	2	5	None
	MA7d	2	3	67	51	63	67	0	2	5	None
	MA6d	2	3	67	52	63	67	0	2	5	None
Mozaic Apartments West Building	MA16a	2	2	67	50	63	67	0	2	5	None
	MA17a	2	2	67	50	63	67	0	2	5	None
	MA18a	2	2	67	49	63	67	0	2	5	None
	MA19a	2	2	67	49	63	67	0	2	5	None
	MA20a	2	2	67	46	63	67	0	2	5	None
	MA21a	2	2	67	46	63	67	0	2	5	None
	MA22a	2	2	67	46	63	67	0	2	5	None
	MA23a	2	2	67	46	63	67	0	2	5	None
	MA24a	2	2	67	47	63	67	0	2	5	None
	MA25a	2	2	67	50	63	67	0	2	5	None
	MA26a	2	2	67	47	63	67	0	2	5	None
	MA16b	2	2	67	51	63	67	0	2	5	None
	MA17b	2	2	67	50	63	67	0	2	5	None
	MA18b	2	2	67	50	63	67	0	2	5	None
	MA19b	2	2	67	49	63	67	0	2	5	None
	MA20b	2	2	67	46	63	67	0	2	5	None
	MA21b	2	2	67	46	63	67	0	2	5	None

Table C-5. Build Alternative – 2040 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA22b	2	2	67	46	63	67	0	2	5	None
	MA23b	2	2	67	46	63	67	0	2	5	None
	MA24b	2	2	67	47	63	67	0	2	5	None
	MA25b	2	2	67	50	63	67	0	2	5	None
	MA26b	2	2	67	47	63	67	0	2	5	None
	MA16c	2	2	67	52	63	67	0	2	5	None
	MA17c	2	2	67	51	63	67	0	2	5	None
	MA18c	2	2	67	50	63	67	0	2	5	None
	MA19c	2	2	67	50	63	67	0	2	5	None
	MA20c	2	2	67	46	63	67	0	2	5	None
	MA21c	2	2	67	46	63	67	0	2	5	None
	MA22c	2	2	67	46	63	67	0	2	5	None
	MA23c	2	2	67	46	63	67	0	2	5	None
	MA24c	2	2	67	47	63	67	0	2	5	None
	MA25c	2	2	67	51	63	67	0	2	5	None
	MA26c	2	2	67	47	63	67	0	2	5	None
	MA16d	2	2	67	52	63	67	0	2	5	None
	MA17d	2	2	67	51	63	67	0	2	5	None
	MA18d	2	2	67	51	63	67	0	2	5	None
	MA19d	2	2	67	50	63	67	0	2	5	None
	MA20d	2	2	67	46	63	67	0	2	5	None
	MA21d	2	2	67	46	63	67	0	2	5	None
	MA22d	2	2	67	46	63	67	0	2	5	None
	MA23d	2	2	67	46	63	67	0	2	5	None
	MA24d	2	2	67	47	63	67	0	2	5	None

Table C-5. Build Alternative – 2040 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	MA25d	2	2	67	53	63	67	0	2	5	None
	MA26d	2	2	67	47	63	67	0	2	5	None
La Petite Academy (First 5)	First5	3	1	64	50	66	70	0	4	7	None
One Santa Fe Apartments	SF1	2	13	71	43	66	70	0	3	7	None
	SF2	2	13	71	53	66	70	0	3	7	None
	SF3	2	13	71	44	66	70	0	3	7	None
	SF4	2	13	71	53	66	70	0	3	7	None
	SF5	2	13	71	45	66	70	0	3	7	None
	SF6	2	13	71	55	66	70	0	3	7	None
	SF7	2	13	71	45	66	70	0	3	7	None
	SF8	2	13	71	56	66	70	0	3	7	None
	SF9	2	13	71	46	66	70	0	3	7	None
	SF10	2	13	71	58	66	70	0	3	7	None
	SF11	2	13	71	47	66	70	0	3	7	None
	SF12	2	13	71	59	66	70	0	3	7	None
	SF13	2	13	71	47	66	70	0	3	7	None
	SF14	2	13	71	46	66	70	0	3	7	None
	SF15	2	13	71	46	66	70	0	3	7	None
	SF16	2	13	71	46	66	70	0	3	7	None
	SF17	2	13	71	45	66	70	0	3	7	None
	SF18	2	13	71	45	66	70	0	3	7	None
	SF19	2	13	71	45	66	70	0	3	7	None
	SF20	2	13	71	45	66	70	0	3	7	None
	SF21	2	13	71	46	66	70	0	3	7	None
	SF22	2	13	71	46	66	70	0	3	7	None

Table C-5. Build Alternative – 2040 Operational Noise Levels with Mitigation

Noise-Sensitive Area Description	Receptor ID	Land Use Category	Number of Noise-Sensitive Sites Represented	Existing Noise Exposure (dBA L_{dn} or L_{eq})	Project Noise Exposure (dBA L_{dn} or L_{eq})	Absolute Impact Thresholds		Cumulative Increase (dBA L_{dn} or L_{eq})	Increase in Cumulative Noise Level Thresholds		FTA Level of Noise Impact
	SF23	2	13	71	46	66	70	0	3	7	None
	SF24	2	13	71	59	66	70	0	3	7	None
	SF25	2	13	71	47	66	70	0	3	7	None
	SF26	2	13	71	59	66	70	0	3	7	None
	SF27	2	13	71	47	66	70	0	3	7	None
	SF28	2	13	71	59	66	70	0	3	7	None
	SF29	2	13	71	48	66	70	0	3	7	None
	SF30	2	13	71	59	66	70	0	3	7	None
	SF31	2	13	71	48	66	70	0	3	7	None
	SF32	2	13	71	48	66	70	0	3	7	None
	SF33	2	13	71	48	66	70	0	3	7	None
	SF34	2	13	71	48	66	70	0	3	7	None
Metro Gateway Childhood Development Center	GCC	3	1	64	52	66	70	0	3	7	None

dBA=A-weighted decibel; FTA=Federal Transit Administration; ID=identification; L_{dn}=day-night average sound level; L_{eq}=equivalent noise level; Metro=Los Angeles County Metropolitan Transportation Authority

Table C-6. Build Alternative Construction Noise (dBA Leq)

Noise Sensitive Area Description	Receptor ID	Land Use Category	# of Noise-Sensitive Sites Represented	Segment 1: Throat Segment	Segment 2: Concourse Segment	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Westbank Yard	Segment 3 Westbank Yard	Noise Walls
						Cast-in-drilled-hole piles	Superstructure placement	Pile driving for abutments	Bridge earthwork	Commercial Street earthwork	Commercial Street paving	Commercial Street concrete work	BNSF West Bank Yard earthwork	BNSF West Bank Yard rail placement	
William Mead Homes	WM1	3	1	61	51	47	45	56	43	46	45	46	47	48	54
	WM2	2	40	61	50	47	45	56	43	45	44	45	47	48	54
	WM3	2	40	60	50	47	45	56	43	45	44	45	47	48	52
	WM4	2	12	63	52	48	46	57	44	46	45	46	47	48	57
	WM5	2	11	61	51	47	45	56	43	46	45	46	47	48	55
	WM6	2	16	79	51	48	46	57	44	46	45	46	49	50	76
	WM7	2	38	72	51	48	46	57	44	46	45	46	49	50	66
	WM8	2	24	76	52	48	46	57	44	47	46	47	49	50	70
	WM9	2	46	71	52	48	46	57	44	47	46	47	49	50	66
	WM10	2	20	67	51	47	45	56	43	46	45	46	48	49	61
	WM11	2	40	64	51	47	45	56	43	46	45	46	48	49	58
	WM12	2	40	62	51	47	45	56	43	45	44	45	47	48	56
	WM13	2	32	64	51	48	46	57	44	46	45	46	48	49	57
	WM14	2	40	66	52	48	46	57	44	46	45	46	48	49	60
	WM15	2	16	65	52	48	46	57	44	46	45	46	48	49	59
	PK1	3	1	79	53	49	47	58	45	47	46	47	49	50	75
Metro Senior Housing	TT1	2	123	67	62	54	52	63	50	52	51	52	53	54	51
Los Angeles Central Jail	CJ1	2	4000	74	59	53	51	62	49	50	49	50	51	52	54
Twin Towers Correctional Facility	MT1	2	9500	58	55	50	48	59	46	47	46	47	47	48	49
Mozaic Apartments East Building	MA12a	2	3	75	84	60	58	69	56	55	54	55	52	53	46
	MA13a	2	3	73	82	59	57	68	55	54	53	54	52	53	46
	MA14a	2	3	71	80	59	57	68	55	54	53	54	52	53	46
	MA15a	2	3	70	76	59	57	68	55	54	53	54	52	53	46
	MA1a	2	3	80	80	58	56	67	54	54	53	54	52	53	47
	MA2a	2	3	75	75	58	56	67	54	54	53	54	51	52	47
	MA3a	2	3	72	72	58	56	67	54	53	52	53	51	52	47

Table C-6. Build Alternative Construction Noise (dBA Leq)

Noise Sensitive Area Description	Receptor ID	Land Use Category	# of Noise-Sensitive Sites Represented	Segment 1: Throat Segment	Segment 2: Concourse Segment	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Westbank Yard	Segment 3 Westbank Yard	Noise Walls
						Cast-in-drilled-hole piles	Superstructure placement	Pile driving for abutments	Bridge earthwork	Commercial Street earthwork	Commercial Street paving	Commercial Street concrete work	BNSF West Bank Yard earthwork	BNSF West Bank Yard rail placement	
	MA4a	2	3	70	70	57	55	66	53	53	52	53	51	52	46
	MA5a	2	3	68	68	57	55	66	53	53	52	53	51	52	46
	MA11a	2	3	70	72	58	56	67	54	53	52	53	51	52	46
	MA10a	2	3	71	73	58	56	67	54	54	53	54	51	52	46
	MA9a	2	3	73	74	58	56	67	54	54	53	54	51	52	46
	MA8a	2	3	74	75	59	57	68	55	54	53	54	52	53	46
	MA7a	2	3	76	77	59	57	68	55	54	53	54	52	53	46
	MA6a	2	3	78	80	59	57	68	55	54	53	54	52	53	46
	MA12b	2	3	75	84	60	58	69	56	55	54	55	52	53	46
	MA13b	2	3	73	82	59	57	68	55	54	53	54	52	53	46
	MA14b	2	3	71	80	59	57	68	55	54	53	54	52	53	46
	MA15b	2	3	70	76	59	57	68	55	54	53	54	52	53	46
	MA1b	2	3	80	80	58	56	67	54	54	53	54	52	53	47
	MA2b	2	3	75	75	58	56	67	54	54	53	54	51	52	47
	MA3b	2	3	72	72	58	56	67	54	53	52	53	51	52	47
	MA4b	2	3	70	70	57	55	66	53	53	52	53	51	52	46
	MA5b	2	3	68	68	57	55	66	53	53	52	53	51	52	46
	MA11b	2	3	70	72	58	56	67	54	53	52	53	51	52	46
	MA10b	2	3	71	73	58	56	67	54	54	53	54	51	52	46
	MA9b	2	3	73	74	58	56	67	54	54	53	54	51	52	46
	MA8b	2	3	74	75	59	57	68	55	54	53	54	52	53	46
	MA7b	2	3	76	77	59	57	68	55	54	53	54	52	53	46
	MA6b	2	3	78	80	59	57	68	55	54	53	54	52	53	46
	MA12c	2	3	75	84	60	58	69	56	55	54	55	52	53	46
	MA13c	2	3	73	82	59	57	68	55	54	53	54	52	53	46
	MA14c	2	3	71	80	59	57	68	55	54	53	54	52	53	46
	MA15c	2	3	70	76	59	57	68	55	54	53	54	52	53	46
	MA1c	2	3	80	80	58	56	67	54	54	53	54	52	53	47

Table C-6. Build Alternative Construction Noise (dBA Leq)

Noise Sensitive Area Description	Receptor ID	Land Use Category	# of Noise-Sensitive Sites Represented	Segment 1: Throat Segment	Segment 2: Concourse Segment	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Westbank Yard	Segment 3 Westbank Yard	Noise Walls
						Cast-in-drilled-hole piles	Superstructure placement	Pile driving for abutments	Bridge earthwork	Commercial Street earthwork	Commercial Street paving	Commercial Street concrete work	BNSF West Bank Yard earthwork	BNSF West Bank Yard rail placement	
	MA2c	2	3	75	75	58	56	67	54	54	53	54	51	52	47
	MA3c	2	3	72	72	58	56	67	54	53	52	53	51	52	47
	MA4c	2	3	70	70	57	55	66	53	53	52	53	51	52	46
	MA5c	2	3	68	68	57	55	66	53	53	52	53	51	52	46
	MA11c	2	3	70	72	58	56	67	54	53	52	53	51	52	46
	MA10c	2	3	71	73	58	56	67	54	54	53	54	51	52	46
	MA9c	2	3	73	74	58	56	67	54	54	53	54	51	52	46
	MA8c	2	3	74	75	59	57	68	55	54	53	54	52	53	46
	MA7c	2	3	76	77	59	57	68	55	54	53	54	52	53	46
	MA6c	2	3	78	80	59	57	68	55	54	53	54	52	53	46
	MA12d	2	3	75	84	60	58	69	56	55	54	55	52	53	46
	MA13d	2	3	73	82	59	57	68	55	54	53	54	52	53	46
	MA14d	2	3	71	80	59	57	68	55	54	53	54	52	53	46
	MA15d	2	3	70	76	59	57	68	55	54	53	54	52	53	46
	MA1d	2	3	80	80	58	56	67	54	54	53	54	52	53	47
	MA2d	2	3	75	75	58	56	67	54	54	53	54	51	52	47
	MA3d	2	3	72	72	58	56	67	54	53	52	53	51	52	47
	MA4d	2	3	70	70	57	55	66	53	53	52	53	51	52	46
	MA5d	2	3	68	68	57	55	66	53	53	52	53	51	52	46
	MA11d	2	3	70	72	58	56	67	54	53	52	53	51	52	46
	MA10d	2	3	71	73	58	56	67	54	54	53	54	51	52	46
	MA9d	2	3	73	74	58	56	67	54	54	53	54	51	52	46
	MA8d	2	3	74	75	59	57	68	55	54	53	54	52	53	46
	MA7d	2	3	76	77	59	57	68	55	54	53	54	52	53	46
	MA6d	2	3	78	80	59	57	68	55	54	53	54	52	53	46
Mozaic Apartments West Building	MA16a	2	2	66	66	57	55	66	53	52	51	52	50	51	46
	MA17a	2	2	64	65	56	54	65	52	52	51	52	50	51	46
	MA18a	2	2	64	65	56	54	65	52	52	51	52	50	51	46

Table C-6. Build Alternative Construction Noise (dBA Leq)

Noise Sensitive Area Description	Receptor ID	Land Use Category	# of Noise-Sensitive Sites Represented	Segment 1: Throat Segment	Segment 2: Concourse Segment	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Westbank Yard	Segment 3 Westbank Yard	Noise Walls
						Cast-in-drilled-hole piles	Superstructure placement	Pile driving for abutments	Bridge earthwork	Commercial Street earthwork	Commercial Street paving	Commercial Street concrete work	BNSF West Bank Yard earthwork	BNSF West Bank Yard rail placement	
	MA19a	2	2	63	64	56	54	65	52	52	51	52	50	51	46
	MA20a	2	2	62	63	56	54	65	52	52	51	52	50	51	46
	MA21a	2	2	62	64	56	54	65	52	52	51	52	50	51	45
	MA22a	2	2	62	64	57	55	66	53	52	51	52	50	51	45
	MA23a	2	2	62	64	57	55	66	53	52	51	52	50	51	45
	MA24a	2	2	64	66	57	55	66	53	53	52	53	50	51	45
	MA25a	2	2	66	68	58	56	67	54	53	52	53	51	52	46
	MA26a	2	2	64	65	57	55	66	53	52	51	52	50	51	46
	MA16b	2	2	66	66	57	55	66	53	52	51	52	50	51	46
	MA17b	2	2	64	65	56	54	65	52	52	51	52	50	51	46
	MA18b	2	2	64	65	56	54	65	52	52	51	52	50	51	46
	MA19b	2	2	63	64	56	54	65	52	52	51	52	50	51	46
	MA20b	2	2	62	63	56	54	65	52	52	51	52	50	51	46
	MA21b	2	2	62	64	56	54	65	52	52	51	52	50	51	45
	MA22b	2	2	62	64	57	55	66	53	52	51	52	50	51	45
	MA23b	2	2	62	64	57	55	66	53	52	51	52	50	51	45
	MA24b	2	2	64	66	57	55	66	53	53	52	53	50	51	45
	MA25b	2	2	66	68	58	56	67	54	53	52	53	51	52	46
	MA26b	2	2	64	65	57	55	66	53	52	51	52	50	51	46
	MA16c	2	2	66	66	57	55	66	53	52	51	52	50	51	46
	MA17c	2	2	64	65	56	54	65	52	52	51	52	50	51	46
	MA18c	2	2	64	65	56	54	65	52	52	51	52	50	51	46
	MA19c	2	2	63	64	56	54	65	52	52	51	52	50	51	46
	MA20c	2	2	62	63	56	54	65	52	52	51	52	50	51	46
	MA21c	2	2	62	64	56	54	65	52	52	51	52	50	51	45
	MA22c	2	2	62	64	57	55	66	53	52	51	52	50	51	45
	MA23c	2	2	62	64	57	55	66	53	52	51	52	50	51	45
	MA24c	2	2	64	66	57	55	66	53	53	52	53	50	51	45

Table C-6. Build Alternative Construction Noise (dBA Leq)

Noise Sensitive Area Description	Receptor ID	Land Use Category	# of Noise-Sensitive Sites Represented	Segment 1: Throat Segment	Segment 2: Concourse Segment	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Westbank Yard	Segment 3 Westbank Yard	Noise Walls
						Cast-in-drilled-hole piles	Superstructure placement	Pile driving for abutments	Bridge earthwork	Commercial Street earthwork	Commercial Street paving	Commercial Street concrete work	BNSF West Bank Yard earthwork	BNSF West Bank Yard rail placement	
	MA25c	2	2	66	68	58	56	67	54	53	52	53	51	52	46
	MA26c	2	2	64	65	57	55	66	53	52	51	52	50	51	46
	MA16d	2	2	66	66	57	55	66	53	52	51	52	50	51	46
	MA17d	2	2	64	65	56	54	65	52	52	51	52	50	51	46
	MA18d	2	2	64	65	56	54	65	52	52	51	52	50	51	46
	MA19d	2	2	63	64	56	54	65	52	52	51	52	50	51	46
	MA20d	2	2	62	63	56	54	65	52	52	51	52	50	51	46
	MA21d	2	2	62	64	56	54	65	52	52	51	52	50	51	45
	MA22d	2	2	62	64	57	55	66	53	52	51	52	50	51	45
	MA23d	2	2	62	64	57	55	66	53	52	51	52	50	51	45
	MA24d	2	2	64	66	57	55	66	53	53	52	53	50	51	45
	MA25d	2	2	66	68	58	56	67	54	53	52	53	51	52	46
	MA26d	2	2	64	65	57	55	66	53	52	51	52	50	51	46
One Santa Fe Apartments	SF1	2	13	46	48	49	47	58	45	48	47	48	61	62	36
	SF2	2	13	46	48	49	47	58	45	49	48	49	62	63	37
	SF3	2	13	47	49	49	47	58	45	49	48	49	61	62	37
	SF4	2	13	47	49	49	47	58	45	49	48	49	63	64	37
	SF5	2	13	47	49	49	47	58	45	49	48	49	62	63	37
	SF6	2	13	47	49	49	47	58	45	49	48	49	64	65	37
	SF7	2	13	47	49	50	48	59	46	49	48	49	63	64	37
	SF8	2	13	47	49	50	48	59	46	50	49	50	65	66	37
	SF9	2	13	47	49	50	48	59	46	50	49	50	64	65	37
	SF10	2	13	47	50	50	48	59	46	50	49	50	66	67	37
	SF11	2	13	48	50	50	48	59	46	50	49	50	65	66	37
	SF12	2	13	48	50	51	49	60	47	50	49	50	67	68	37
	SF13	2	13	48	50	51	49	60	47	50	49	50	64	65	37
	SF14	2	13	48	50	51	49	60	47	50	49	50	64	65	37
	SF15	2	13	47	50	50	48	59	46	50	49	50	63	64	37

Table C-6. Build Alternative Construction Noise (dBA Leq)

Noise Sensitive Area Description	Receptor ID	Land Use Category	# of Noise-Sensitive Sites Represented	Segment 1: Throat Segment	Segment 2: Concourse Segment	Segment 3 Viaduct: Cast-in-drilled-hole piles	Segment 3 Viaduct: Superstructure placement	Segment 3 Viaduct: Pile driving for abutments	Segment 3 Viaduct: Bridge earthwork	Segment 3 Commercial Street: Commercial Street earthwork	Segment 3 Commercial Street: Commercial Street paving	Segment 3 Commercial Street: Commercial Street concrete work	Segment 3 Westbank Yard: BNSF West Bank Yard earthwork	Segment 3 Westbank Yard: BNSF West Bank Yard rail placement	Noise Walls
	SF16	2	13	47	50	50	48	59	46	50	49	50	63	64	37
	SF17	2	13	47	49	50	48	59	46	50	49	50	63	64	37
	SF18	2	13	47	49	50	48	59	46	49	48	49	63	64	37
	SF19	2	13	47	49	50	48	59	46	49	48	49	62	63	37
	SF20	2	13	47	49	50	48	59	46	50	49	50	62	63	37
	SF21	2	13	47	50	50	48	59	46	50	49	50	62	63	37
	SF22	2	13	48	50	51	49	60	47	50	49	50	63	64	37
	SF23	2	13	48	50	51	49	60	47	51	50	51	63	64	37
	SF24	2	13	48	50	51	49	60	47	51	50	51	65	66	38
	SF25	2	13	48	51	52	50	61	48	51	50	51	64	65	38
	SF26	2	13	48	51	52	50	61	48	52	51	52	65	66	38
	SF27	2	13	49	51	52	50	61	48	52	51	52	64	65	38
	SF28	2	13	49	51	53	51	62	49	52	51	52	66	67	38
	SF29	2	13	49	52	53	51	62	49	53	52	53	65	66	38
	SF30	2	13	49	52	53	51	62	49	53	52	53	67	68	38
	SF31	2	13	49	52	54	52	63	50	53	52	53	65	66	38
	SF32	2	13	49	52	54	52	63	50	54	53	54	65	66	39
	SF33	2	13	50	53	54	52	63	50	54	53	54	66	67	39
	SF34	2	13	50	53	54	52	63	50	54	53	54	66	67	39
Care First Village	HFC 1	2	5	82	69	62	60	71	58	60	59	60	60	61	75
	HFC 2	2	5	82	68	62	60	71	58	60	59	60	60	61	75
	HFC 3	2	5	76	69	62	60	71	58	60	59	60	60	61	69
	HFC 4	2	5	77	68	62	60	71	58	60	59	60	60	61	70
	HFC 5	2	5	72	69	62	60	71	58	60	59	60	60	61	65
	HFC 6	2	5	73	68	62	60	71	58	60	59	60	60	61	66
	HFC 7	2	5	74	68	62	60	71	58	59	58	59	60	61	67
	HFC 8	2	5	69	68	62	60	71	58	60	59	60	60	61	62
	HFC 9	2	5	70	68	62	60	71	58	59	58	59	60	61	63

Table C-6. Build Alternative Construction Noise (dBA Leq)

Noise Sensitive Area Description	Receptor ID	Land Use Category	# of Noise-Sensitive Sites Represented	Segment 1: Throat Segment	Segment 2: Concourse Segment	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Viaduct	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Commercial Street	Segment 3 Westbank Yard	Segment 3 Westbank Yard	Noise Walls
						Cast-in-drilled-hole piles	Superstructure placement	Pile driving for abutments	Bridge earthwork	Commercial Street earthwork	Commercial Street paving	Commercial Street concrete work	BNSF West Bank Yard earthwork	BNSF West Bank Yard rail placement	
	HFC 10	2	5	72	68	62	60	71	58	59	58	59	60	61	65
	HFC 13	2	60	68	67	61	59	70	57	59	58	59	59	60	61
	HFC 16	2	72	67	67	61	59	70	57	59	58	59	59	60	60
	HFC 17	2	0	80	67	62	60	71	58	59	58	59	60	61	73
	HFC 18	2	5	79	69	62	60	71	58	60	59	60	60	61	72
	HFC 19	2	5	80	68	62	60	71	58	60	59	60	60	61	73
	HFC 20	2	5	76	68	62	60	71	58	60	59	60	60	61	69
	HFC 21	2	5	75	69	62	60	71	58	60	59	60	60	61	68
	HFC 22	2	5	71	69	62	60	71	58	60	59	60	60	61	64
	HFC 23	2	5	72	68	62	60	71	58	60	59	60	60	61	65
	HFC 24	2	5	73	68	62	60	71	58	59	58	59	60	61	66
	HFC 25	2	5	69	68	62	60	71	58	59	58	59	59	60	62
	HFC 26	2	5	70	68	62	60	71	58	59	58	59	59	60	63
	HFC 27	2	5	71	68	62	60	71	58	59	58	59	60	61	64
	HFC 28	3	1	80	69	63	61	72	59	60	59	60	60	61	73
Metro Gateway Childhood Development Center	GCC	3	1	67	75	60	58	69	56	57	56	57	56	57	60

dBA=A-weighted decibel; FTA=Federal Transit Administration; ID=identification; L_{eq}=equivalent noise level

Table C-7. Build Alternative 1 Construction Vibration

Receptor ID	# of Noise-Sensitive Sites Represented	Pile Driver Typical PPV	Pile Driver Typical VdB	Roller PPV	Roller VdB	Damage Threshold PPV	Annoyance Threshold VdB	Pile Driver Typical Damage Impact	Pile Driver Typical Annoyance Impact	Roller Damage Impact	Roller Annoyance Impact
WM2	40	0.003	57	0.001	47	0.2	80	No Impact	No Impact	No Impact	No Impact
WM3	40	0.002	55	0.001	45	0.2	80	No Impact	No Impact	No Impact	No Impact
WM4	12	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
WM5	11	0.003	58	0.001	48	0.2	80	No Impact	No Impact	No Impact	No Impact
WM6	16	0.074	85	0.024	75	0.2	80	No Impact	Impact	No Impact	No Impact
WM7	38	0.022	74	0.007	64	0.2	80	No Impact	No Impact	No Impact	No Impact
WM8	24	0.039	80	0.013	70	0.2	80	No Impact	No Impact	No Impact	No Impact
WM9	46	0.017	73	0.006	63	0.2	80	No Impact	No Impact	No Impact	No Impact
WM10	20	0.009	67	0.003	57	0.2	80	No Impact	No Impact	No Impact	No Impact
WM11	40	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
WM12	40	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact
WM13	32	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
WM14	40	0.007	65	0.002	55	0.2	80	No Impact	No Impact	No Impact	No Impact
WM15	16	0.006	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact
TT1	123	0.009	67	0.003	57	0.2	80	No Impact	No Impact	No Impact	No Impact
CJ1	4000	0.030	77	0.010	67	0.2	80	No Impact	No Impact	No Impact	No Impact
MT1	9500	0.002	53	0.001	43	0.2	80	No Impact	No Impact	No Impact	No Impact
MA12a	3	0.034	78	0.011	68	0.2	80	No Impact	No Impact	No Impact	No Impact
MA13a	3	0.026	76	0.008	66	0.2	80	No Impact	No Impact	No Impact	No Impact
MA14a	3	0.019	73	0.006	63	0.2	80	No Impact	No Impact	No Impact	No Impact
MA15a	3	0.014	71	0.005	61	0.2	80	No Impact	No Impact	No Impact	No Impact
MA1a	3	0.084	86	0.027	76	0.2	80	No Impact	Impact	No Impact	No Impact
MA2a	3	0.037	79	0.012	69	0.2	80	No Impact	No Impact	No Impact	No Impact
MA3a	3	0.020	74	0.007	64	0.2	80	No Impact	No Impact	No Impact	No Impact

Table C-7. Build Alternative 1 Construction Vibration

Receptor ID	# of Noise-Sensitive Sites Represented	Pile Driver Typical PPV	Pile Driver Typical VdB	Roller PPV	Roller VdB	Damage Threshold PPV	Annoyance Threshold VdB	Pile Driver Typical Damage Impact	Pile Driver Typical Annoyance Impact	Roller Damage Impact	Roller Annoyance Impact
MA4a	3	0.014	71	0.004	61	0.2	80	No Impact	No Impact	No Impact	No Impact
MA5a	3	0.010	68	0.003	58	0.2	80	No Impact	No Impact	No Impact	No Impact
MA11a	3	0.013	70	0.004	60	0.2	80	No Impact	No Impact	No Impact	No Impact
MA10a	3	0.017	72	0.005	62	0.2	80	No Impact	No Impact	No Impact	No Impact
MA9a	3	0.023	75	0.007	65	0.2	80	No Impact	No Impact	No Impact	No Impact
MA8a	3	0.030	77	0.010	67	0.2	80	No Impact	No Impact	No Impact	No Impact
MA7a	3	0.040	80	0.013	70	0.2	80	No Impact	No Impact	No Impact	No Impact
MA6a	3	0.056	83	0.018	73	0.2	80	No Impact	Impact	No Impact	No Impact
MA12b	3	0.034	78	0.011	68	0.2	80	No Impact	No Impact	No Impact	No Impact
MA13b	3	0.026	76	0.008	66	0.2	80	No Impact	No Impact	No Impact	No Impact
MA14b	3	0.019	73	0.006	63	0.2	80	No Impact	No Impact	No Impact	No Impact
MA15b	3	0.014	71	0.005	61	0.2	80	No Impact	No Impact	No Impact	No Impact
MA1b	3	0.084	86	0.027	76	0.2	80	No Impact	Impact	No Impact	No Impact
MA2b	3	0.037	79	0.012	69	0.2	80	No Impact	No Impact	No Impact	No Impact
MA3b	3	0.020	74	0.007	64	0.2	80	No Impact	No Impact	No Impact	No Impact
MA4b	3	0.014	71	0.004	61	0.2	80	No Impact	No Impact	No Impact	No Impact
MA5b	3	0.010	68	0.003	58	0.2	80	No Impact	No Impact	No Impact	No Impact
MA11b	3	0.013	70	0.004	60	0.2	80	No Impact	No Impact	No Impact	No Impact
MA10b	3	0.017	72	0.005	62	0.2	80	No Impact	No Impact	No Impact	No Impact
MA9b	3	0.023	75	0.007	65	0.2	80	No Impact	No Impact	No Impact	No Impact
MA8b	3	0.030	77	0.010	67	0.2	80	No Impact	No Impact	No Impact	No Impact
MA7b	3	0.040	80	0.013	70	0.2	80	No Impact	No Impact	No Impact	No Impact
MA6b	3	0.056	83	0.018	73	0.2	80	No Impact	Impact	No Impact	No Impact
MA12c	3	0.034	78	0.011	68	0.2	80	No Impact	No Impact	No Impact	No Impact

Table C-7. Build Alternative 1 Construction Vibration

Receptor ID	# of Noise-Sensitive Sites Represented	Pile Driver Typical PPV	Pile Driver Typical VdB	Roller PPV	Roller VdB	Damage Threshold PPV	Annoyance Threshold VdB	Pile Driver Typical Damage Impact	Pile Driver Typical Annoyance Impact	Roller Damage Impact	Roller Annoyance Impact
MA13c	3	0.026	76	0.008	66	0.2	80	No Impact	No Impact	No Impact	No Impact
MA14c	3	0.019	73	0.006	63	0.2	80	No Impact	No Impact	No Impact	No Impact
MA15c	3	0.014	71	0.005	61	0.2	80	No Impact	No Impact	No Impact	No Impact
MA1c	3	0.084	86	0.027	76	0.2	80	No Impact	Impact	No Impact	No Impact
MA2c	3	0.037	79	0.012	69	0.2	80	No Impact	No Impact	No Impact	No Impact
MA3c	3	0.020	74	0.007	64	0.2	80	No Impact	No Impact	No Impact	No Impact
MA4c	3	0.014	71	0.004	61	0.2	80	No Impact	No Impact	No Impact	No Impact
MA5c	3	0.010	68	0.003	58	0.2	80	No Impact	No Impact	No Impact	No Impact
MA11c	3	0.013	70	0.004	60	0.2	80	No Impact	No Impact	No Impact	No Impact
MA10c	3	0.017	72	0.005	62	0.2	80	No Impact	No Impact	No Impact	No Impact
MA9c	3	0.023	75	0.007	65	0.2	80	No Impact	No Impact	No Impact	No Impact
MA8c	3	0.030	77	0.010	67	0.2	80	No Impact	No Impact	No Impact	No Impact
MA7c	3	0.040	80	0.013	70	0.2	80	No Impact	No Impact	No Impact	No Impact
MA6c	3	0.056	83	0.018	73	0.2	80	No Impact	Impact	No Impact	No Impact
MA12d	3	0.034	78	0.011	68	0.2	80	No Impact	No Impact	No Impact	No Impact
MA13d	3	0.026	76	0.008	66	0.2	80	No Impact	No Impact	No Impact	No Impact
MA14d	3	0.019	73	0.006	63	0.2	80	No Impact	No Impact	No Impact	No Impact
MA15d	3	0.014	71	0.005	61	0.2	80	No Impact	No Impact	No Impact	No Impact
MA1d	3	0.084	86	0.027	76	0.2	80	No Impact	Impact	No Impact	No Impact
MA2d	3	0.037	79	0.012	69	0.2	80	No Impact	No Impact	No Impact	No Impact
MA3d	3	0.020	74	0.007	64	0.2	80	No Impact	No Impact	No Impact	No Impact
MA4d	3	0.014	71	0.004	61	0.2	80	No Impact	No Impact	No Impact	No Impact
MA5d	3	0.010	68	0.003	58	0.2	80	No Impact	No Impact	No Impact	No Impact
MA11d	3	0.013	70	0.004	60	0.2	80	No Impact	No Impact	No Impact	No Impact

Table C-7. Build Alternative 1 Construction Vibration

Receptor ID	# of Noise-Sensitive Sites Represented	Pile Driver Typical PPV	Pile Driver Typical VdB	Roller PPV	Roller VdB	Damage Threshold PPV	Annoyance Threshold VdB	Pile Driver Typical Damage Impact	Pile Driver Typical Annoyance Impact	Roller Damage Impact	Roller Annoyance Impact
MA10d	3	0.017	72	0.005	62	0.2	80	No Impact	No Impact	No Impact	No Impact
MA9d	3	0.023	75	0.007	65	0.2	80	No Impact	No Impact	No Impact	No Impact
MA8d	3	0.030	77	0.010	67	0.2	80	No Impact	No Impact	No Impact	No Impact
MA7d	3	0.040	80	0.013	70	0.2	80	No Impact	No Impact	No Impact	No Impact
MA6d	3	0.056	83	0.018	73	0.2	80	No Impact	Impact	No Impact	No Impact
MA16a	2	0.007	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact
MA17a	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA18a	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA19a	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA20a	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA21a	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA22a	2	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact
MA23a	2	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact
MA24a	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA25a	2	0.007	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact
MA26a	2	0.005	61	0.002	51	0.2	80	No Impact	No Impact	No Impact	No Impact
MA16b	2	0.007	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact
MA17b	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA18b	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA19b	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA20b	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA21b	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA22b	2	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact
MA23b	2	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact

Table C-7. Build Alternative 1 Construction Vibration

Receptor ID	# of Noise-Sensitive Sites Represented	Pile Driver Typical PPV	Pile Driver Typical VdB	Roller PPV	Roller VdB	Damage Threshold PPV	Annoyance Threshold VdB	Pile Driver Typical Damage Impact	Pile Driver Typical Annoyance Impact	Roller Damage Impact	Roller Annoyance Impact
MA24b	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA25b	2	0.007	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact
MA26b	2	0.005	61	0.002	51	0.2	80	No Impact	No Impact	No Impact	No Impact
MA16c	2	0.007	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact
MA17c	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA18c	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA19c	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA20c	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA21c	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA22c	2	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact
MA23c	2	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact
MA24c	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA25c	2	0.007	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact
MA26c	2	0.005	61	0.002	51	0.2	80	No Impact	No Impact	No Impact	No Impact
MA16d	2	0.007	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact
MA17d	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA18d	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA19d	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA20d	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA21d	2	0.004	60	0.001	50	0.2	80	No Impact	No Impact	No Impact	No Impact
MA22d	2	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact
MA23d	2	0.004	59	0.001	49	0.2	80	No Impact	No Impact	No Impact	No Impact
MA24d	2	0.005	62	0.002	52	0.2	80	No Impact	No Impact	No Impact	No Impact
MA25d	2	0.007	64	0.002	54	0.2	80	No Impact	No Impact	No Impact	No Impact

Table C-7. Build Alternative 1 Construction Vibration

Receptor ID	# of Noise-Sensitive Sites Represented	Pile Driver Typical PPV	Pile Driver Typical VdB	Roller PPV	Roller VdB	Damage Threshold PPV	Annoyance Threshold VdB	Pile Driver Typical Damage Impact	Pile Driver Typical Annoyance Impact	Roller Damage Impact	Roller Annoyance Impact
MA26d	2	0.005	61	0.002	51	0.2	80	No Impact	No Impact	No Impact	No Impact
SF1	13	0.000	36	0.000	26	0.2	80	No Impact	No Impact	No Impact	No Impact
SF2	13	0.000	36	0.000	26	0.2	80	No Impact	No Impact	No Impact	No Impact
SF3	13	0.000	36	0.000	26	0.2	80	No Impact	No Impact	No Impact	No Impact
SF4	13	0.000	36	0.000	26	0.2	80	No Impact	No Impact	No Impact	No Impact
SF5	13	0.000	36	0.000	26	0.2	80	No Impact	No Impact	No Impact	No Impact
SF6	13	0.000	36	0.000	26	0.2	80	No Impact	No Impact	No Impact	No Impact
SF7	13	0.000	36	0.000	26	0.2	80	No Impact	No Impact	No Impact	No Impact
SF8	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF9	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF10	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF11	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF12	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF13	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF14	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF15	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF16	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF17	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF18	13	0.000	36	0.000	26	0.2	80	No Impact	No Impact	No Impact	No Impact
SF19	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF20	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF21	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF22	13	0.000	37	0.000	27	0.2	80	No Impact	No Impact	No Impact	No Impact
SF23	13	0.000	38	0.000	28	0.2	80	No Impact	No Impact	No Impact	No Impact

Table C-7. Build Alternative 1 Construction Vibration

Receptor ID	# of Noise-Sensitive Sites Represented	Pile Driver Typical PPV	Pile Driver Typical VdB	Roller PPV	Roller VdB	Damage Threshold PPV	Annoyance Threshold VdB	Pile Driver Typical Damage Impact	Pile Driver Typical Annoyance Impact	Roller Damage Impact	Roller Annoyance Impact
SF24	13	0.000	38	0.000	28	0.2	80	No Impact	No Impact	No Impact	No Impact
SF25	13	0.000	38	0.000	28	0.2	80	No Impact	No Impact	No Impact	No Impact
SF26	13	0.000	39	0.000	29	0.2	80	No Impact	No Impact	No Impact	No Impact
SF27	13	0.000	39	0.000	29	0.2	80	No Impact	No Impact	No Impact	No Impact
SF28	13	0.000	39	0.000	29	0.2	80	No Impact	No Impact	No Impact	No Impact
SF29	13	0.000	39	0.000	29	0.2	80	No Impact	No Impact	No Impact	No Impact
SF30	13	0.000	40	0.000	30	0.2	80	No Impact	No Impact	No Impact	No Impact
SF31	13	0.000	40	0.000	30	0.2	80	No Impact	No Impact	No Impact	No Impact
SF32	13	0.000	40	0.000	30	0.2	80	No Impact	No Impact	No Impact	No Impact
SF33	13	0.000	40	0.000	30	0.2	80	No Impact	No Impact	No Impact	No Impact
SF34	13	0.000	41	0.000	31	0.2	80	No Impact	No Impact	No Impact	No Impact
WM1	1	0.003	57	0.001	47	0.2	80	No Impact	No Impact	No Impact	No Impact
PK1	1	0.065	84	0.021	74	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 1	5	0.656	104	0.214	94	0.2	80	Impact	Impact	Impact	Impact
HFC 2	5	0.711	105	0.232	95	0.2	80	Impact	Impact	Impact	Impact
HFC 3	5	0.241	95	0.079	85	0.2	80	Impact	Impact	No Impact	Impact
HFC 4	5	0.293	97	0.096	87	0.2	80	Impact	Impact	No Impact	Impact
HFC 5	5	0.117	89	0.038	79	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 6	5	0.135	90	0.044	80	0.2	80	No Impact	Impact	No Impact	Impact
HFC 7	5	0.177	93	0.058	83	0.2	80	No Impact	Impact	No Impact	Impact
HFC 8	5	0.078	86	0.025	76	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 9	5	0.090	87	0.029	77	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 10	5	0.119	89	0.039	79	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 13	60	0.061	84	0.020	74	0.2	80	No Impact	Impact	No Impact	No Impact

Table C-7. Build Alternative 1 Construction Vibration

Receptor ID	# of Noise-Sensitive Sites Represented	Pile Driver Typical PPV	Pile Driver Typical VdB	Roller PPV	Roller VdB	Damage Threshold PPV	Annoyance Threshold VdB	Pile Driver Typical Damage Impact	Pile Driver Typical Annoyance Impact	Roller Damage Impact	Roller Annoyance Impact
HFC 16	72	0.048	81	0.016	71	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 17	0	0.447	101	0.146	91	0.2	80	Impact	Impact	No Impact	Impact
HFC 18	5	0.440	101	0.143	91	0.2	80	Impact	Impact	No Impact	Impact
HFC 19	5	0.480	101	0.157	91	0.2	80	Impact	Impact	No Impact	Impact
HFC 20	5	0.224	95	0.073	85	0.2	80	Impact	Impact	No Impact	Impact
HFC 21	5	0.193	94	0.063	84	0.2	80	No Impact	Impact	No Impact	Impact
HFC 22	5	0.105	88	0.034	78	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 23	5	0.115	89	0.037	79	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 24	5	0.151	91	0.049	81	0.2	80	No Impact	Impact	No Impact	Impact
HFC 25	5	0.072	85	0.023	75	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 26	5	0.082	86	0.027	76	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 27	5	0.105	88	0.034	78	0.2	80	No Impact	Impact	No Impact	No Impact
HFC 28	1	0.457	101	0.149	91	0.2	80	Impact	Impact	No Impact	Impact
GCC	1	0.008	66	0.003	56	0.2	80	No Impact	No Impact	No Impact	No Impact

Notes:
ID=identification; PPV=peak particle velocity; VdB=Vibration velocity level in decibels