Appendix J

Noise and Vibration

Technical Memorandum

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DATE: August 24, 2021

RE: Los Angeles River Valley Bikeway and Greenway Project -
Van Alden Avenue to Balboa Boulevard– Noise and Vibration Technical Memorandum
Prepared in accordance with the California Environmental Quality Act (CEQA)

Summary

The purpose of this Technical Memorandum is to evaluate potential noise and vibration impacts in accordance with CEQA requirements. The Los Angeles River Valley Bikeway and Greenway Project – Van Alden Avenue to Balboa Boulevard (Project) includes the installation of bicycle and pedestrian pathways and the construction of undercrossings and river parks. The Project also includes on-street improvements to increase access to the LA River Bikeway and improve local connectivity for bicyclists. The Project would not result in a significant noise or vibration impact in the context of the Appendix G Environmental Checklist criteria during construction or operational activities. Therefore, the Project would satisfy the requirements of a Class 32 exemption.

Project Description

The Project is located along the Los Angeles (LA) River extending from Van Alden Avenue to Balboa Boulevard and goes through the communities of Reseda, Lake Balboa, and Encino in the City of Los Angeles. The LA River Bikeway between Van Alden Avenue and Balboa Boulevard would include a Class I bicycle path, bikeway undercrossings, fencing and protective barriers, lighting, landscaping, drainage improvements and bioswales, way-finding signage, and interpretive elements. The Project would include on-street improvements at several streets adjacent to the LA River to increase access to the LA River trail. On-street improvements would vary for each location and would generally include signalized pedestrian crossings, striping for new crosswalks, striping of existing roadways for bike lanes, painting existing roadways with green-backed sharrows, construction of new mini traffic circles, and ramp restructuring for Americans with Disabilities Act (ADA) compliance. The regional location of the Project is shown in **Figure 1**. **Figure 2** shows the location of LA River Bikeway and various components.

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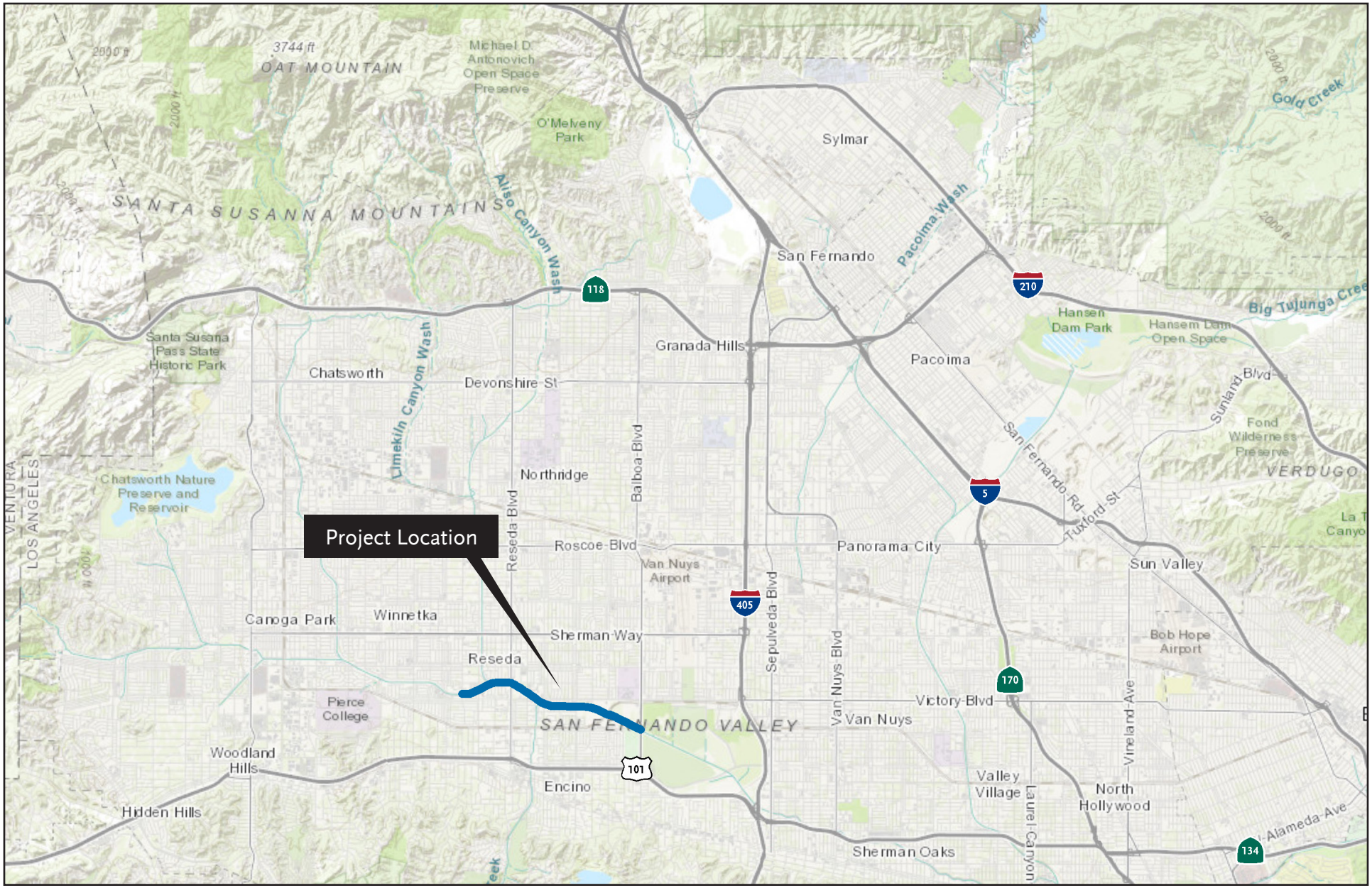

Source: TAHA, 2018.

Los Angeles River Valley Bikeway and Greenway Project
Vanalden Avenue to Balboa Boulevard

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FIGURE 1

REGIONAL PROJECT LOCATION

Source: Gruen Associates, 2018.

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Los Angeles River Valley Bikeway and Greenway Project
Vanalden Avenue to Balboa Boulevard

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FIGURE 2

LOCAL PROJECT LOCATION

Noise and Vibration Fundamentals

Noise

The following is a brief discussion of fundamental traffic noise concepts. For a detailed discussion, refer to Caltrans' Technical Noise Supplement. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound. The standard unit of measurement for noise is the decibel (dB). The human ear is not equally sensitive to sound at all frequencies. The A-weighted scale, abbreviated dBA, reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dBA.

The noise analysis discusses sound levels in terms of Equivalent Noise Level (L_{eq}) and Community Noise Equivalent Level (CNEL). L_{eq} is the average noise level on an energy basis for any specific time period. The L_{eq} for one hour is the energy average noise level during the hour. The average noise level is based on the energy content (acoustic energy) of the sound. L_{eq} can be thought of as the level of a continuous noise which has the same energy content as the fluctuating noise level. The equivalent noise level is expressed in units of dBA. CNEL is an average sound level during a 24-hour period. CNEL is a noise measurement scale, which accounts for noise source, distance, single-event duration, single-event occurrence, frequency and time of day. Due to the lower background noise level, human reaction to sound between 7:00 p.m. and 10:00 p.m. is as if the sound were actually 5 dBA higher than if it occurred from 7:00 a.m. to 7:00 p.m. From 10:00 p.m. to 7:00 a.m., humans perceive sound as if it were 10 dBA higher. Hence, the CNEL is obtained by adding an additional 5 dBA to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and 10 dBA to sound levels in the night from 10:00 p.m. to 7:00 a.m. Because CNEL accounts for human sensitivity to sound, CNEL is always a higher number than the actual 24-hour average sound level.

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or "point source," decreases by approximately 6 dBA over hard surfaces (e.g., reflective surfaces such as parking lots or smooth bodies of water) and 7.5 dBA over soft surfaces (e.g., absorptive surfaces such as soft dirt, grass, or scattered bushes and trees) for each doubling of the distance. For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then the noise level is 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet. Noise generated by a mobile source decreases by approximately 3 dBA over hard surfaces and 4.8 dBA over soft surfaces for each doubling of the distance. Generally, noise is most audible when the source is in a direct line-of-sight of the receiver. Barriers, such as walls, berms, or buildings that break the line-of-sight between the source and the receiver greatly reduce noise levels from the source since sound can only reach the receiver by bending over the top of the barrier. However, if a barrier is not sufficiently high or long to break the line-of-sight from the source to the receiver, its effectiveness is greatly reduced.

Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3 dBA. A change of at least 5 dBA would be noticeable and may evoke a community reaction. A 10-dBA increase is subjectively heard as a doubling in loudness and would likely cause a negative community reaction.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities, such as rock blasting, pile driving, and heavy earth-moving equipment. High levels of vibration may cause physical personal injury or damage to buildings. However, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that may affect concentration or disturb sleep. In addition, high levels of vibration may damage fragile buildings or interfere with equipment that is highly sensitive to vibration (e.g., electron microscopes).

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The VdB acts to compress the range of numbers required to describe vibration.[1]

Regulatory Framework

Noise

Federal. The Noise Control Act of 1972 established programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, the United States Environmental Protection Agency (USEPA) determined that subjective issues such as noise would be better addressed at local levels of government, thereby allowing more individualized control for specific issues by designated federal, state, and local government agencies. Consequently, in 1982, responsibilities for regulating noise control policies were transferred to specific federal agencies, and state and local governments. However, noise control guidelines and regulations contained in the USEPA rulings in prior years remain in place. No federal noise regulations are directly applicable to the Project.

State. The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. State regulations governing noise levels generated by individual motor vehicles and occupational noise control are not applicable to planning efforts, nor are these areas typically subject to CEQA analysis.

Local. The City has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses. Regarding construction, LAMC Section 41.40 (Noise Due to Construction, Excavation Work – When Prohibited) states that no construction or repair work shall be performed between the hours of 9:00 p.m. and 7:00 a.m. on Monday through Friday since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment, or other place of residence. Further, no person, other than an individual home owner engaged in the repair or construction of his/her single-family dwelling, shall perform any construction or repair work

[1]Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, September 2018.

of any kind or perform such work within 500 feet of land so occupied before 8:00 a.m. or after 6:00 p.m. on any Saturday, nor at any time on any Sunday or on a federal holiday.

LAMC Section 112.01 (Radios, Television Sets, and Similar Devices) states that it is unlawful to use or operate any radio, musical instrument, television receiver, or other machine or device for the producing, reproducing or amplification of the human voice, music, or any other sound, in such a manner, as to disturb the peace, quiet, and comfort of neighbor occupants or any reasonable person residing or working in the area. A violation of the LAMC results if the noise level caused by such use or operation which is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source, within any residential zone of the City or within 500 feet thereof. In addition, a violation results if any noise level caused by such use or operation which exceeds the ambient noise level on the premises of any other occupied property by more than 5 dBA.

LAMC Section 112.04 (Powered Equipment Intended for Repetitive Use in Residential Areas and Other Machinery, Equipment, and Devices) specifies that no person shall operate any lawn mower, backpack blower, lawn edger, riding tractor, or any other machinery, equipment, or other mechanical or electrical device, or any hand tool which creates a loud, raucous or impulsive sound, within any residential zone or within 500 feet of a residence between the hours of 10:00 p.m. and. 7:00 a.m. of the following day.

LAMC Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools) specifies the maximum noise level of powered equipment or powered hand tools. Any powered equipment or hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means the above noise limitation cannot be met despite the use of mufflers, shields, sound barriers and/or any other noise-reduction device or techniques during the operation of equipment.

LAMC Section 116.01 (Loud, Unnecessary, and Unusual Noise) states that it shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary, and unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

In addition to the LAMC, the Noise Element of the General Plan includes noise compatibility guidelines. These guidelines may be used to assess potential effects of new projects to the local community. The Noise Compatibility Guidelines are shown in **Table 1**.

Vibration

The City has not established significance thresholds related to vibration. In the absence of City thresholds, Federal Transit Administration (FTA) guidance may be used to assess the potential for vibration-related damage and annoyance.[2] For damage, the impact criteria are established based on the structural foundation of the potentially impacted building. Site visits indicate that the buildings near the project site are constructed with engineer concrete or reinforced concrete and steel. Vibration levels that exceed a PPV of 0.3 inches per second could potentially damage these thresholds.

[2]FTA, *Transit Noise and Vibration Impact Assessment*, May 2006.

TABLE 1: GUIDELINES FOR NOISE COMPATIBLE LAND USE

Land Use Category	Community Noise Exposure (dBA, CNEL)						
	55	60	65	70	75	80	
Residential - Low Density Single-Family, Duplex, Mobile Homes							
Residential - Multi-Family							
Transient Lodging - Motels Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

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

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

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

Clearly Unacceptable - New construction or development should generally not be undertaken.

SOURCE: California Office of Noise Control, Department of Health Services.

Existing Conditions

The Project area is surrounded primarily by medium- and low-residential communities in addition to open space and recreational areas, including the Reseda Park and Recreation Center, Sepulveda Basin Recreation area, Lake Balboa/Anthony C. Beilenson Park, Balboa Sports Center, and Balboa & Encino Gold Course. There are also education uses such as Reseda Charter High School, Magnolia Science Academy 5 School, and Zane Grey Continuation School. Religious institutions such as the Islamic Center of Reseda and day care centers such as ONEgeneration Child Daycare are also located near the Project Area. Parks are not considered sensitive to noise due to their urban nature, however the residential uses, educational uses, day care centers, and religious institutions would be sensitive to project related noise. Sensitive receptors would typically be located 50 feet or more away from the project site. At some locations such as for bikeway construction and river end street parks sensitive receptors could be located adjacent to the project site.

The existing noise levels were monitored at sensitive receptors near the Project. The measurements were conducted on November 15, 2018 from 9:30 a.m. to 2:30 p.m. in 15-minute increments. This time of day represents a typical construction time without the added noise source of peak hour traffic. Monitored noise levels ranged from 46.9 to 69.7 dBA L_{eq}. The monitoring locations are shown in **Figure 3** and monitored noise levels are shown in **Table 2**.

TABLE 2: EXISTING AMBIENT NOISE LEVELS

Noise Measurement Site (Figure 3)	Noise Monitoring Location	Noise Level (dBA, L_{eq})
1	Residence (19101 Kittridge St.)	63.5
2	Residence (6420 Van Alden Ave.)	53.7
3	Wilbur Ave. and LA River	68.0
4	Residence (6551 Amigo Ave.)	46.9
5	Residence (6545 Reseda Blvd.)	69.7
6	Reseda Charter High School (18230 Kittridge St.)	52.1
7	Residence (18103 Jaguar Ct.)	65.5
8	Residence (6331 Zelzah Ave.)	52.9
9	Residence (6600 Balcom Ave.)	67.8
10	White Oak Ave. and LA River	63.9
11	ONEgeneration Child Daycare Park (17400 Victory Blvd.)	51.9

SOURCE: TAHA, 2018.

Significance Thresholds

In order to satisfy the requirements of environmental review to obtain a Class 32 Exemption, it must be demonstrated that the Project would not result in significant noise impacts. According to the City of Los Angeles guidance for Categorical Exemptions (See City Form CP-7828 Class 32 CE Specialized Instructions), a project's compliance with LAMC Chapter XI, Article 2, Section 112.05 on construction noise may be used to demonstrate that the project will not result in a significant impact. Under this standard, the applicant must at a minimum demonstrate compliance with LAMC Section 112.05. The assessment has considered the potential to result in significant environmental impacts related to noise or vibration in the context of the Appendix G Environmental Checklist criteria of the CEQA Statute and Guidelines.

Source: Gruen Associates, 2018; TAHA, 2018.

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Los Angeles River Valley Bikeway and Greenway Project
Vanalden Avenue to Balboa Boulevard

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FIGURE 3

NOISE MONITORING LOCATIONS

Implementation of the Project may result in a significant environmental impact related to noise and vibration if the Project would:

a) Result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
b) Result in the generation of excessive ground-borne vibration or ground-borne noise levels; and/or
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

Noise

The Project would exceed local standards in the LAMC and significantly increase temporary construction noise levels if:

- Construction activities would occur within 500 feet of a noise-sensitive use and outside the hours allowed in the LAMC. The allowable hours of construction in the LAMC include 7:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 6:00 p.m. on Saturday. No construction activity is allowed on Sundays or federal holidays; and/or
- Equipment noise levels would exceed 75 dBA L_{eq} at 50 feet unless technically infeasible.

The Project would exceed local standards and significantly increase permanent operational noise levels if:

- Permanent ambient noise level measured at the property line of affected uses increases by 3 dBA CNEL to or within the "normally unacceptable" or "clearly unacceptable" categories, as shown in **Table 1**, or any 5 dBA CNEL or more increase in noise level.

Vibration

The construction-related vibration analysis considers the potential for building damage. Maximum vibration levels were assessed based frequent vibration events happening more than 70 times in one day, which would be consistent with the movement of construction equipment. The Project would result in a significant construction or operational vibration impact if:

- Vibration levels would exceed 0.3 inches per second at non-historic structures.
- Vibration levels would exceed 0.12 inches per second at historic structures.

Methodology

The noise and vibration analysis consider construction and operational sources. Noise levels associated with typical construction equipment were obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM).[3] This model predicts noise from construction based on a compilation of empirical data and the application of acoustical propagation formulas. Maximum equipment noise levels were adjusted based on

[3]Federal Highway Administration, *Roadway Construction Noise Model*, Version 1.1, August 2006.

anticipated percent of use. Combined construction activity noise levels were estimated by combining anticipated equipment for each activity using RCNM. The projected noise level during the construction period at receptors was calculated by (1) making a distance adjustment to the construction source sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level. According to California Department of Transportation (Caltrans) guidance, air temperature and humidity affect molecular absorption differently depending on the frequency spectrum and can vary significantly over long distances in a complex manner. Molecular absorption in air also reduces noise levels with distance. According to Caltrans, this process only accounts for about 1 dBA per 1,000 feet, which is an inaudible and negligible difference in noise levels. Noise levels have been estimated using a decrease of 6 dBA over hard surfaces for each doubling of the distance. The methodology and formulas obtained from the Caltrans Technical Noise Supplement can be viewed below.

(1) *Noise Distance Attenuation Formula:* $dBA_2 = dBA_1 + 20 \times LOG_{10} (D_1/D_2)$

Where:

dBA_1 = *Noise level at the reference distance of 50 feet*

dBA_2 = *Noise level at the receptor*

D_1 = *Reference distance (50 feet)*

D_2 = *Distance from source to receptor (measured distance)*

(2) Logarithmic Noise Level Addition Formula: Nc = 10 x LOG10 ((10^(N1/10)) + (10^(N2/10)))

Where:

Nc = Combined noise level

N1 = Noise level one

N2 = Noise level two

Vibration levels were estimated using example vibration levels and propagation formulas provided by FTA.[4] The methodology and formulas obtained from the FTA Transit Noise and Vibration Assessment guidance can be viewed below. (3) Vibration damage is assessed using formula and (4) vibration annoyance is assessed using formula.

(3) *Vibration Damage Attenuation Formula:* $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

Where:

PPV_{equip} = *Peak particles velocity in inches per second of the equipment adjusted for distance*

PPV_{ref} = *Reference vibration level in inches per second at 25 feet*

D = Distance from the equipment to the receptor in feet

(4) *Vibration Annoyance Attenuation Formula:* $Lv_{equip} = Lv_{ref} - 30 \times LOG (D/25)$

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

Where:

Lv_{equip} = Vibration level in vibration decibels of equipment adjusted for distance

Lv_{ref} = Reference vibration level in vibration decibels at 25 feet

D = Distance from the equipment to the receptor in feet

Operational noise was assessed qualitatively based upon the potential for the Project to alter traffic conditions and result in atypical noise levels at the parks and bike path. The potential for a traffic noise impact was analyzed using guidance from the Caltrans, which states that a doubling of traffic would be necessary for an audible increase along a roadway to result. Operational noise at parks and the bike path was assessed assuming conversational noise would be the primary noise source.

Impact Assessment

a) Would the Project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (No Impact)

The impact analysis is predicated on the location of noise- and vibration-sensitive land uses and the existing setting. Sensitive receptors are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. They typically include residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas.

The Project Area is surrounded primarily by medium- and low-residential communities in addition to open space and recreational areas, including the Reseda Park and Recreation Center, Sepulveda Basin Recreation area, Lake Balboa/Anthony C. Beilenson Park, Balboa Sports Center, and Balboa & Encino Gold Course. There are also education uses such as Reseda Charter High School, Magnolia Science Academy 5 School, and Zane Grey Continuation School. Religious institutions such as the Islamic Center of Reseda and day care centers such as ONEgeneration Child Daycare are also located near the Project Area. Parks are not considered sensitive to noise due to their urban nature, however the residential uses, educational uses, day care centers, and religious institutions would be sensitive to the Project related noise. Sensitive receptors would typically be located 50 feet or more away from the project site. At some locations such as for bikeway construction and river end street parks sensitive receptors could be located adjacent to the project site.

The existing noise levels were monitored at sensitive receptors near the Project. The measurements were conducted on November 15, 2018 from 9:30 a.m. to 2:30 p.m. using a SoundPro DL Sound Level Meter and were taken in 15-minute increments. The time of day represents a typical construction time without the added noise source of peak hour traffic. Monitored noise levels ranged from 46.9 dBA L_{eq} to 70.9 dBA L_{eq}. The monitored noise levels are shown in **Table 2**.

Construction. Construction activities would include mobilization, demolition (i.e., demolition of existing concrete maintenance paths); site preparation (i.e., clearing and grubbing of vegetation and preparation of all construction areas); site grading (i.e., soil re-compaction and/or scarification of soil to improve accessible vegetation seeding); site construction (i.e., bikeway, pedestrian paths, channel undercrossings, and on-street improvements); and architectural finishing landscaping activities, and construction of pocket parks. Construction would begin approximately in Spring of 2021 and conclude in the Winter of 2024.

During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by the City of Los Angeles Noise Ordinance. **Table 3** summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from approximately 67.7 dBA L_{eq} to 82.6 dBA L_{eq} at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. **Table 4** takes into account that multiple pieces of construction equipment would be operating simultaneously. When considered as an entire process with multiple pieces of equipment, project-related activity (i.e., ground clearing and site preparation) would generate noise levels between 77.0 and 87.2 dBA L_{eq} at 50 feet.

Construction noise is not typically a concern for human health and is a common occurrence within the urban environment. Demolition activity would conservatively generate the loudest noise level of 87.2 dBA L_{eq} with the conservative assumption all equipment would be utilized during a single hour. However, demolition would occur over a four-month period and would move along the linear project site such that demolition activities would not remain in one location for the entire duration. Noise levels associated with other phases of construction activity would typically be approximately 80 dBA L_{eq} at 50 feet. As with demolition activity, construction activities related to the bikeway would move along the proposed alignment and equipment would typically not be located at one location for extended periods of time such that individual sensitive receptors would generally not be exposed to prolonged periods of construction noise. Noise associated with construction of a bridge at Caballero creek and undercrossings would result in longer exposure of adjacent residents to construction noise. Construction work related to undercrossings would likely result in lower noise levels as some noise shielding would be provided by the channel walls and the blockage of the line-of-sight of the noise source to sensitive receptors.

TABLE 3: NOISE LEVEL RANGES OF TYPICAL CONSTRUCTION EQUIPMENT	
Construction Equipment	**Noise Level at 50 feet (dBA)**
MOBILIZATION	
None	None
DEMOLITION	
Rubber Tire Dozer	77.7
Concrete/Industrial Saws	82.6
Scrapers	79.6
Front End Loader	75.1
Miscellaneous Demolition Equipment	82.0
SITE PREPARATION	
Front End Loader	75.1
Dump Truck	72.5
SITE GRADING	
Bull Dozers	77.7
Hydraulic Excavator	76.7
Dump Truck	72.5
Compactor	76.2
Front End Loader	75.1
Water Truck	74.4
SITE CONSTRUCTION	
Forklift	79.4
Scissor Lift	67.7
Concrete Truck	74.8
Vibrator	73.0
Generator	77.6
Electric Power Tools	82.0
Water Truck	74.4
ARCHITECTUAL FINISHING, LANDSCAPING, AND POCKET PARKS	
Electric Power Tools	82.0
Forklifts	79.4
Generator	77.6
Water Truck	74.4
RIVER END STREET PARKS	
Generator	77.6
Water Truck	74.4
SOURCE: FHWA, *Roadway Construction Noise Model*, Version 1.1, 2008.	

TABLE 4: TYPICAL OUTDOOR CONSTRUCTION NOISE LEVELS BY ACTIVITY	
Construction Method	**Noise Level at 50 feet (dBA, L_{eq})**
Mobilization	None
Demolition	87.2
Site Preparation	77.0
Site Grading	83.5
Site Construction	85.9
Architectural, Finishing, Landscaping, and Pocket Parks	85.2
River End Street Parks	79.3
SOURCE: FHWA, *Roadway Construction Noise Model*, Version 1.1, 2008.	

The impact analysis is based on the construction limits in the LAMC. Construction activity would comply with the allowable hours of construction in the LAMC, including 7:00 a.m. to 9:00 p.m. Monday through Friday, 8:00 a.m. to 6:00 p.m. on Saturday, and no construction activity on Sundays or federal holidays. The LAMC limits equipment noise levels to 75 dBA L_{eq} at 50 feet unless technically infeasible. Best Management Practices (BMPs) 1 through 4 shown below illustrate the requirements of the LAMC which help to limit noise to less sensitive hours and through standard noise reduction measures. The use of mufflers can produce between 5 dB to 25 dB in noise reductions while enclosures can produce approximately a 10 dB to 20 dB reduction. Noise levels with conservative estimates of noise reduction associated with implementation of standard BMPs are shown in **Table 5**. The proposed project would not result in a short-term, temporary noise impact from construction equipment.

BMP-1: Compliance with the City of Los Angeles Noise Ordinance Nos. 144,331 and 161,574 (see Los Angeles Municipal Code (LAMC) Section 112.05), and any subsequent ordinances, which prohibit the emission or creation of noise beyond certain levels.

BMP-2: Construction restricted to the hours of 7:00 a.m. to 9:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. Construction activity is not permitted on any Sunday or national holiday.

BMP-3: Per LAMC Section 112.05, noise-generating equipment operated at the Project Site to be equipped with the most effective and technologically feasible noise control devices, such as mufflers, lagging (enclosures for exhaust pipes), and/or motor enclosures.

BMP-4: Compliance with the City of Los Angeles Building Regulations Ordinance No. 178,048 (see LAMC Section 91.106.4.8), which requires a construction site notice to be provided that includes the following information: job site address, permit number, name and phone number of the contractor and owner or owner's agent, hours of construction allowed by code or any discretionary approval for the site, and City telephone numbers where violations can be reported. The notice shall be posted and maintained at the construction site prior to the start of construction and displayed in a location that is readily visible to the public.

TABLE 5: CONSTRUCTION NOISE LEVELS WITH IMPLEMENTATION OF BMPS (50 feet)

Construction Method	Noise Level with no BMPs (dBA, L_{eq})	Noise level with Mufflers (dBA, L_{eq}) /a/	Noise level with Mufflers and Noise Reduction Enclosures (dBA, L_{eq}) /b/
Mobilization	None	None	None
Demolition	87.2	82.2	72.2
Site Preparation	77.0	72.0	62.0
Site Grading	83.5	78.5	68.5
Site Construction	85.9	80.9	70.9
Architectural, Finishing, Landscaping, and Pocket Parks	85.2	80.2	70.2
River End Street Parks	79.3	74.3	64.3

/a/ Conservatively, includes a 5 dB reduction for construction equipment mufflers
/b/ Conservatively, includes a 10 dB reduction for construction noise reduction enclosures.

SOURCE: FHWA, *Roadway Construction Noise Model*, Version 1.1, 2008.

In addition to on-site construction activities, noise would be generated off-site by construction-related trucks. The demolition and site grading phases would require the greatest number of daily haul trucks trips. During demolition the Project would require the export of 7,000 cubic yards of asphalt concrete. Site grading would require the export of approximately 8,500 cubic yards of soil over a two-month period. It is not anticipated that either of these phases would require more than ten truck trips per day. A doubling of traffic volume is typically needed to audibly increase noise levels along a roadway segment. An additional ten trucks per day would not double the volume on any roadway segment in the Project area. It is not anticipated that off-site vehicle activity would audibly change average daily noise levels due to the low volume of haul truck trips per day. The Project would not result in a short-term and temporary noise impact from construction trucks.

Operations. The roadway restriping, mini-traffic circles, and pedestrian crossings would not result in an increase in traffic volumes along roadways or a substantial change in traffic patterns and speed. Peak hour traffic volumes would not change and the elimination of stop signs would reduce noise from cars stopping and starting. This is because the majority of engine noise occurs in low gear when cars are trying to get up to speed. Mini-traffic circles would use yield signs which would reduce the need for cars to stop and shift into low gear, thereby reducing engine revving noise. Therefore, no operational noise impacts would occur related to the on-street improvements.

The primary sources of operational noise would be people conversing and playing in the parks and along the bike path. The parks would largely include passive uses such as benches and small play areas and would not result in the creation of a new substantial noise source, such as a soccer field. Similarly, the bike path would largely be passive and would not constitute a new substantial noise source. In social situations, people often talk at distances of approximately three to 12 feet. A typical normal voice level at this distance is approximately 48 to 60 dBA. Children playing may involve shouting and could result in noise levels of 66 to 78 dBA at distances of 3 and 12 feet, respectively.[5] Activities at parks and along the bike path would largely be intermittent and dissipate as people move down the path or around the parks. Furthermore, noise generating

[5]The Engineering Toolbox, *Voice Level and Distance*, http://www.engineeringtoolbox.com/voicelevel-d_938.html, accessed December 18, 2018.

park and bike path activities (e.g., landscaping activities) would be regulated by LAMC Section 112.01 (Radios, Television Sets, and Similar Devices), LAMC Section 112.04 (Powered Equipment Intended for Repetitive Use In Residential Areas and Other Machinery, Equipment, and Devices), LAMC Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools), LAMC Section 115.02 (Amplified Sound Prohibitions and Regulations), and LAMC Section 116.01 (Loud, Unnecessary, and Unusual Noise), which would be enforced through the Los Angeles Police Department.

The Project would not include a significant source of permanent noise and implementation of the Project components would be consistent with the LAMC. There is no potential for the Project to increase daily noise levels by 3 dBA CNEL or more in the local communities. The Project would not result in a long-term and permanent noise impact.

b) Would the Project result in generation of excessive ground-borne vibration or ground-borne noise levels? (No Impact)

Construction. Construction activity can generate varying degrees of vibration, depending on the procedure and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of a construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, and to slight damage at the highest levels. In most cases, the primary concern regarding construction vibration relates to damage.

Vibration levels for various types of construction equipment with an average source level reported in terms of velocity are shown in **Table 6**. Based on visual characteristics of adjacent structures (e.g., age), the adjacent building foundations are assumed to be constructed of engineered concrete and masonry. According to the FTA guidance, these buildings can withstand up to 0.3 inches per second without experiencing damage. The nearest structures to the project site would be those adjacent to bikeway construction, which would be 15 feet or further from the construction activity. A large bulldozer would generate vibration levels at this structure of approximately 0.19 inches per second, which would be below the damage threshold of 0.3 inches per second. In addition to on-site construction activities, construction trucks on the roadway network have the potential to expose vibration-sensitive land uses. Rubber-tired vehicles, including trucks, rarely generate perceptible vibration.[6] It is not anticipated that project-related trucks would generate perceptible vibration adjacent to the roadway network. Therefore, no impact would occur related to construction vibration.

TABLE 6: TYPICAL OUTDOOR CONSTRUCTION VIBRATION LEVELS

Equipment	PPV at 25 feet (Inches/Second)
Jackhammer	0.035
Large Bulldozer	0.089
Loaded Trucks	0.076
Small Bulldozer	0.003

SOURCE: FTA, *Transit Noise and Vibration Impact Assessment*, September 2018.

[6] FTA, *Transit Noise and Vibration Impact Assessment*, September 2018.

Operations. The primary sources of operational-related vibration would include vehicles traveling to the project site for events. Vehicular movements would generate similar vibration levels as existing traffic conditions. The Project would not introduce any significant stationary sources of vibration that would be perceptible off the Project Site. Therefore, no impact would occur related to operational vibration.

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

The project site is not located within an airport land use plan. However, the Project Site would be located approximately one mile southwest of the Van Nuys Airport. The Project is a bikeway with river end pocket parks and mini-traffic circles and would be located in an area with similar existing uses such as the Sepulveda Basin Recreation Area which do not currently expose people to excessive aircraft noise. There is no potential for the Project to expose people working or residing in the Project Area to excessive aircraft noise. Therefore, no impact would occur.

References

California Department of Transportation, *Technical Noise Supplement*, September 2013.

Federal Highway Administration, *Roadway Construction Noise Model, Software Version 1.1*, 2008.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, September 2018.

Los Angeles Municipal Code, *Section 41.40 (Noise Due to Construction, Excavation Work – When Prohibited*).

Los Angeles Municipal Code, *Section 91.106.4.8*.

Los Angeles Municipal Code, *Section 112.01 (Radios, Television Sets, and Similar Devices)*.

Los Angeles Municipal Code, *Section 112.04 (Powered Equipment Intended for Repetitive Use in Residential Areas and Other Machinery, Equipment, and Devices).*

Los Angeles Municipal Code, *Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools*).

Los Angeles Municipal Code, *Section 115.02 (Amplified Sound Prohibitions and Regulations)*.

Los Angeles Municipal Code, *Section 116.01 (Loud, Unnecessary, and Unusual Noise)*.

Appendix

Noise Formulas

Noise Distance Attenuation

Hard Site

Equation: Ni = No - 20 X (log Di/Do)

Di = distance to receptor (Di>Do)

Ni = attenuated noise level of interest

Do = reference distance

No = reference noise level

Source: (Bolt, Beranek, and Newman, 1971)

Summation of Noise Levels

Equation: Ns=10 x LOG10((10^(N1/10))+(10^(N2/10))+(10^(N3/10))+(10^(N4/10)))

Ns = Noise Level Sum
N1 = Noise Level 1
N2 = Noise Level 2
N3 = Noise Level 3
N4 = Noise Level 4

Efficient Summation Formula
=10*LOG(SUM(10^(UserRange/10)))
Source: California Department of Transportation, *Technical Noise Supplement* , 2013

Construction Equipment Noise Levels	
Construction Equipment	**Noise Level at 50 feet (dBA)**
MOBILIZATION	
None	None
DEMOLITION	
Rubber Tire Dozer	77.7
Concrete/Industrial Saws	82.6
Miscellaneous Demolition Equipment	82
Scrapers	79.6
Front End Loader	75.1
SITE PREPARATION	
Front End Loader	75.1
Dump Truck	72.5
SITE GRADING	
Bull Dozers	77.7
Hydraulic Excavator	76.7
Dump Truck	72.5
Compactor	76.2
Front End Loader	75.1
Water Truck	74.4
SITE CONSTRUCTION	
Scissor Lift	67.7
Concrete Truck	74.8
Vibrator	73
Generator	77.6
Forklift	79.4
Electric Power Tools	82
Water Truck	74.4
ARCHITECTUAL FINISHING, LANDSCAPING, AND POCKET PARKS	
Electric Power Tools	82
Forklifts	79.4
Generator	77.6
Water Truck	74.4
RIVER END STREET PARKS	
Generator	77.6
Water Truck	74.4

Source: FHWA, *Roadway Construction Noise Model, Version 1.1* , 2008.

Construction Phase Noise Levels	
Construction Phase	**Noise Level At 50 Feet (dBA)**
Mobilization	None
Demolition	87.2
Site Preparation	77.0
Site Grading	83.5
Site Construction	85.9
Architectural, Finishing, Landscaping, and Pocket Parks	85.2
River End Street Parks	79.3

Source: FHWA, *Roadway Construction Noise Model, Version 1.1,* 2008.

Mitigated Construction Noise Levels at 50 Feet			
Construction Phase	**Noise Level At 50 Feet (dBA)**	**Noise Level At 50 Feet with Mufflers (dBA) /a/**	**Noise Level At 50 Feet with Mufflers and Noise Reduction Enclosure (dBA) /b/**
Mobilization	None	None	None
Demolition	87.2	82.2	72.2
Site Preparation	77.0	72.0	62.0
Site Grading	83.5	78.5	68.5
Site Construction	85.9	80.9	70.9
Architectural, Finishing, Landscaping, and Pocket Parks	85.2	80.2	70.2
River End Street Parks	79.3	74.3	64.3

/a/ Mufflers provide approximately 5 dB of attenatuation
/b/ Noise reduction enclosures provide approxiamtely 10 dB of attenuation

Vibration PPV Attenuation

Equation: PPVequip = PPVref x (25/D)^1.5
PPV (equip) is the peak particle velocity in in/sec of the equipment adjusted for distance
PPV (ref) is the reference vibration level in in/sec at 25 feet from Table 12-2
D is the distance from the equipment to the receiver.

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

LABikewayGreenway_ST1

11/26/2018

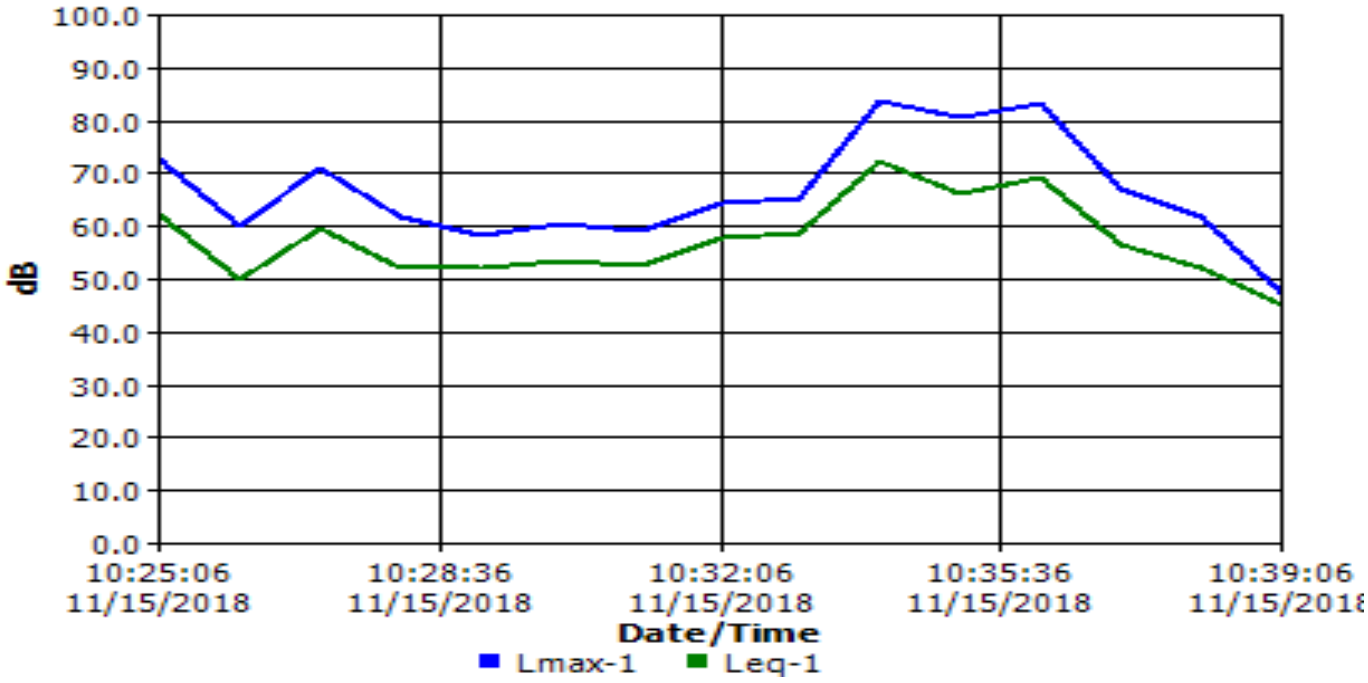
Information Panel

Name	LABikewayGreenway_ST1
Start Time	Thursday, November 15, 2018 10:24:06
Stop Time	Thursday, November 15, 2018 10:40:14
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	63.5 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 10:25:06 AM	72.8	62.1
11/15/2018 10:26:06 AM	59.7	49.7
11/15/2018 10:27:06 AM	71.0	59.6
11/15/2018 10:28:06 AM	61.8	51.9
11/15/2018 10:29:06 AM	58.3	52.0
11/15/2018 10:30:06 AM	60.4	53.5
11/15/2018 10:31:06 AM	59.2	52.5
11/15/2018 10:32:06 AM	64.2	57.8
11/15/2018 10:33:06 AM	65.0	58.6
11/15/2018 10:34:06 AM	83.6	72.3
11/15/2018 10:35:06 AM	80.5	66.0
11/15/2018 10:36:06 AM	82.9	69.2
11/15/2018 10:37:06 AM	66.9	56.4
11/15/2018 10:38:06 AM	61.6	52.1
11/15/2018 10:39:06 AM	47.2	45.0

Noise Measurement Report Form

Project: LA Bikeway / Greenway Contract No (s): N/A

Date: 11/15/2018 Day of Week: Thursday Time: Kittridge / Vanalden 9:32a

Monitoring Site Number: 1 Monitoring Site Address:

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 2mph mph [km/hr] Approximate Wind Direction: From the N

Approximate distance of Sound Level Meter from Receptor Location: 10ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts

During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	63.6		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1. Standard residential conditions, No emergency vehicles or helicopters
2.
3.
4.

LABikewayGreenway_ST2

11/26/2018

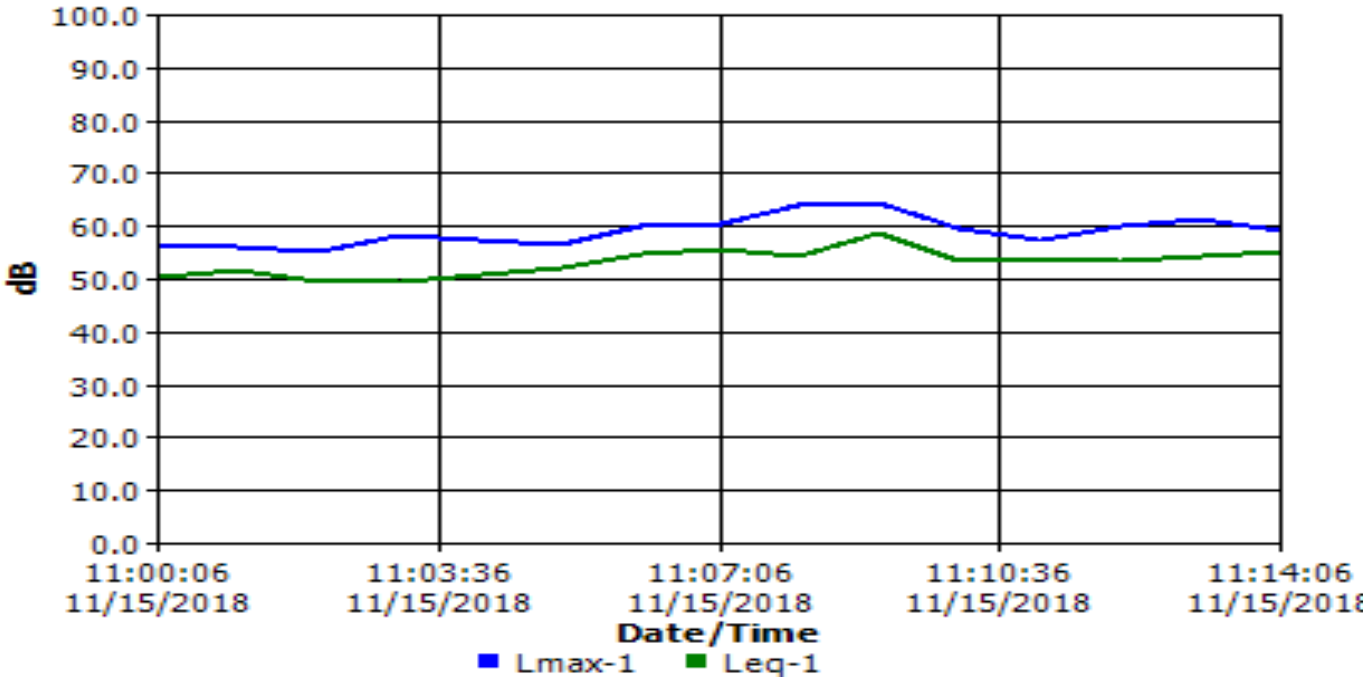
Information Panel

Name	LABikewayGreenway_ST2
Start Time	Thursday, November 15, 2018 10:59:06
Stop Time	Thursday, November 15, 2018 11:14:06
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	53.7 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 11:00:06 AM	56.0	50.4
11/15/2018 11:01:06 AM	56.0	51.7
11/15/2018 11:02:06 AM	55.2	49.3
11/15/2018 11:03:06 AM	58.0	49.3
11/15/2018 11:04:06 AM	57.1	50.6
11/15/2018 11:05:06 AM	56.5	51.9
11/15/2018 11:06:06 AM	60.0	54.7
11/15/2018 11:07:06 AM	60.4	55.3
11/15/2018 11:08:06 AM	63.7	54.2
11/15/2018 11:09:06 AM	64.4	58.7
11/15/2018 11:10:06 AM	59.6	53.2
11/15/2018 11:11:06 AM	57.4	53.1
11/15/2018 11:12:06 AM	59.9	53.3
11/15/2018 11:13:06 AM	61.4	54.1
11/15/2018 11:14:06 AM	59.2	55.1

Noise Measurement Report Form

Project: LA Bikeway / Greenway Contract No (s): N/A

Date: 11-15-2018 Day of Week: Thursday Time: 10:02

Monitoring Site Number: 2 Monitoring Site Address: Vanalden / LA River

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 3 mph [km/hr] Approximate Wind Direction: From the N

Approximate distance of Sound Level Meter from Receptor Location: 30 ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	53.7		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1. Standard Residential Conditions.
2.
3.
4.

LABikewayGreenway_ST3

11/26/2018

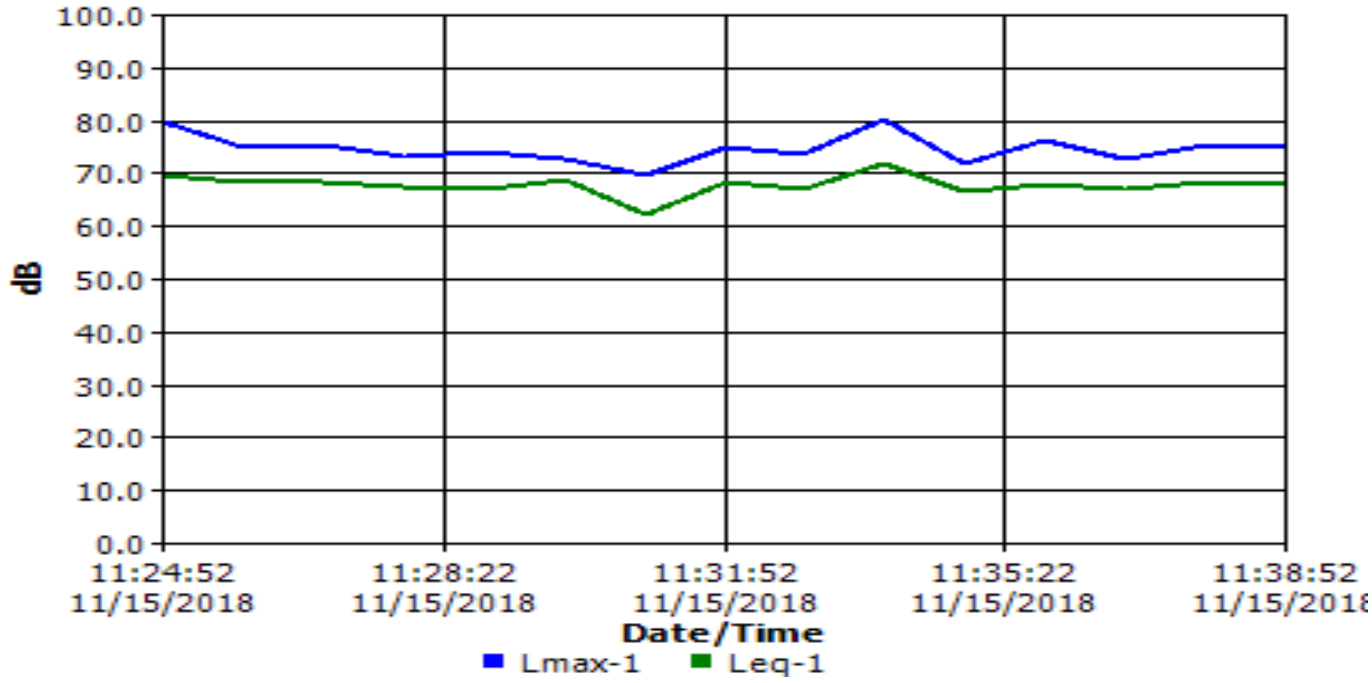
Information Panel

Name	LABikewayGreenway_ST3
Start Time	Thursday, November 15, 2018 11:23:52
Stop Time	Thursday, November 15, 2018 11:38:52
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	68 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 11:24:52 AM	79.7	69.3
11/15/2018 11:25:52 AM	74.6	68.3
11/15/2018 11:26:52 AM	75.2	68.1
11/15/2018 11:27:52 AM	72.9	67.3
11/15/2018 11:28:52 AM	74.1	67.0
11/15/2018 11:29:52 AM	72.8	68.8
11/15/2018 11:30:52 AM	69.7	61.9
11/15/2018 11:31:52 AM	74.8	68.3
11/15/2018 11:32:52 AM	73.3	67.0
11/15/2018 11:33:52 AM	79.9	71.6
11/15/2018 11:34:52 AM	71.9	66.4
11/15/2018 11:35:52 AM	75.9	67.9
11/15/2018 11:36:52 AM	72.4	66.7
11/15/2018 11:37:52 AM	75.1	68.1
11/15/2018 11:38:52 AM	74.6	67.8

Noise Measurement Report Form

Project: LA Bikeway / Greenway Contract No (s): N/A

Date: 11-15-2018 Day of Week: Thursday Time: 10:24

Monitoring Site Number: 3 Monitoring Site Address: Wilbur LA River

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 3 mph [km/hr] Approximate Wind Direction: From the N

Approximate distance of Sound Level Meter from Receptor Location: 30ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts

During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	68.0		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1. Standard Residential area. This site is along an arterial Street
2.
3. Final Calibration number was 113.9
4.

LABikewayGreenway_ST4

11/26/2018

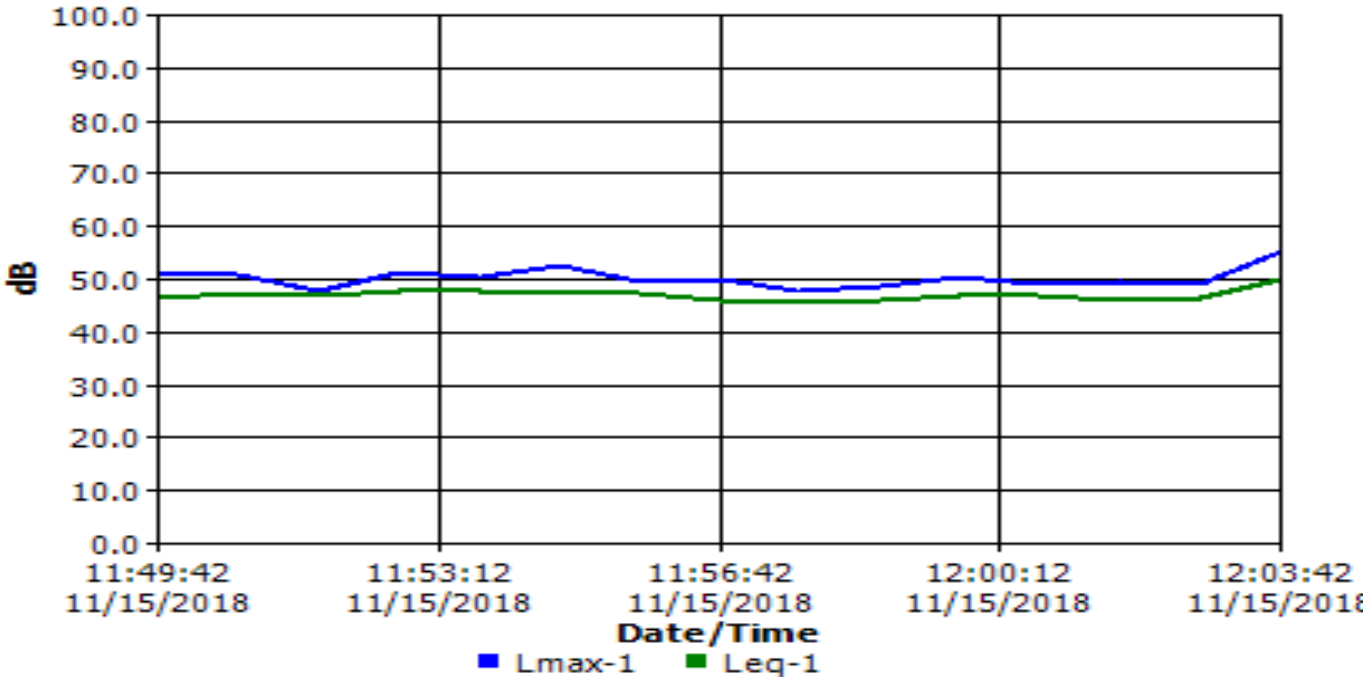
Information Panel

Name	LABikewayGreenway_ST4
Start Time	Thursday, November 15, 2018 11:48:42
Stop Time	Thursday, November 15, 2018 12:03:42
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	46.9 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 11:49:42 AM	50.7	46.2
11/15/2018 11:50:42 AM	50.7	47.2
11/15/2018 11:51:42 AM	47.7	46.6
11/15/2018 11:52:42 AM	51.3	47.8
11/15/2018 11:53:42 AM	50.1	47.7
11/15/2018 11:54:42 AM	52.5	47.3
11/15/2018 11:55:42 AM	49.4	47.1
11/15/2018 11:56:42 AM	49.9	45.9
11/15/2018 11:57:42 AM	47.7	45.3
11/15/2018 11:58:42 AM	48.6	45.8
11/15/2018 11:59:42 AM	50.4	46.6
11/15/2018 12:00:42 PM	48.8	46.6
11/15/2018 12:01:42 PM	49.3	45.9
11/15/2018 12:02:42 PM	48.9	46.2
11/15/2018 12:03:42 PM	54.9	49.7

Noise Measurement Report Form

Project: LA Bikepath / Greenway Contract No (s): N/A

Date: 11-15-2018 Day of Week: Thursday Time: 10:47

Monitoring Site Number: 4 Monitoring Site Address: Amigo / LA River

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 3 mph [km/hr] Approximate Wind Direction: From the N

Approximate distance of Sound Level Meter from Receptor Location: 10 ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts

During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	46.9		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1. Standard Residential Conditions
2.
3.
4.


SLM
SLM-U2000

LABikewayGreenway_ST5

11/26/2018

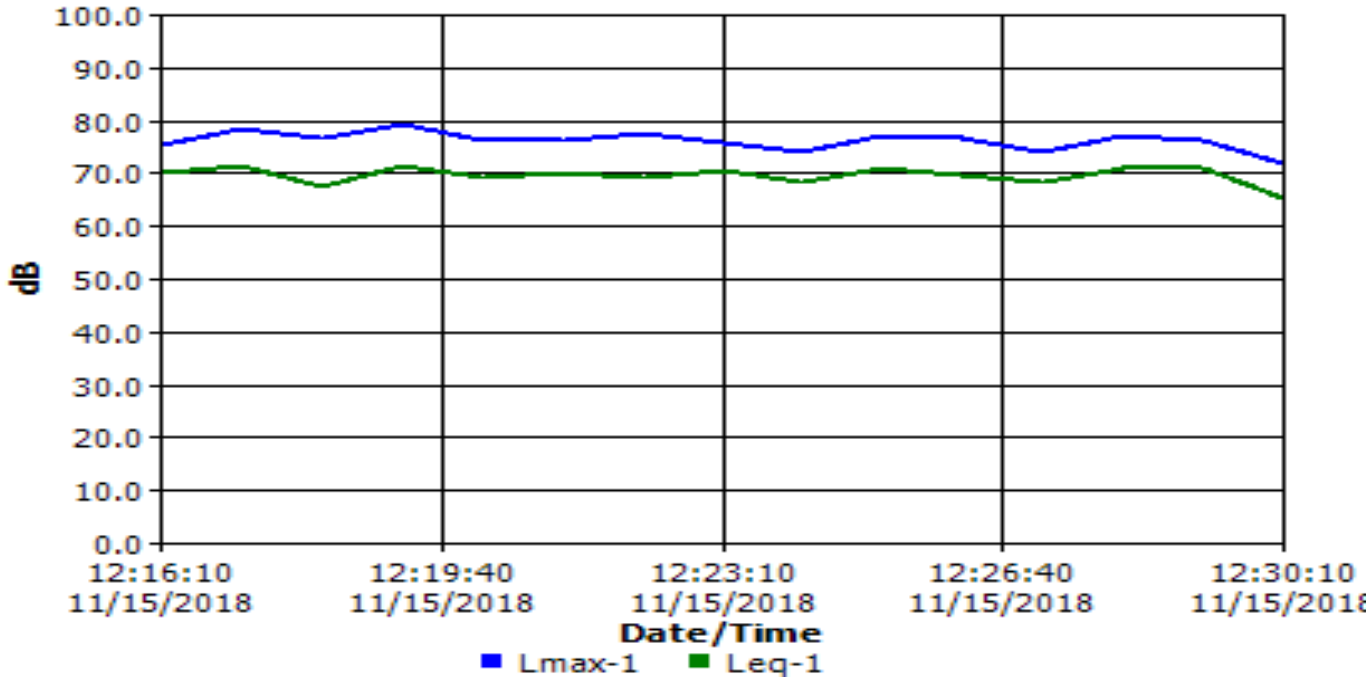
Information Panel

Name	LABikewayGreenway_ST5
Start Time	Thursday, November 15, 2018 12:15:10
Stop Time	Thursday, November 15, 2018 12:30:10
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	69.7 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 12:16:10 PM	75.4	70.1
11/15/2018 12:17:10 PM	78.5	71.1
11/15/2018 12:18:10 PM	76.7	67.5
11/15/2018 12:19:10 PM	79.1	71.4
11/15/2018 12:20:10 PM	76.1	69.2
11/15/2018 12:21:10 PM	75.9	69.9
11/15/2018 12:22:10 PM	77.2	69.1
11/15/2018 12:23:10 PM	75.8	70.4
11/15/2018 12:24:10 PM	74.0	68.2
11/15/2018 12:25:10 PM	76.8	70.7
11/15/2018 12:26:10 PM	76.4	69.5
11/15/2018 12:27:10 PM	73.7	68.0
11/15/2018 12:28:10 PM	77.1	71.0
11/15/2018 12:29:10 PM	76.3	70.9
11/15/2018 12:30:10 PM	71.5	65.2

Noise Measurement Report Form

Project: LA Bikepath / Greenway Contract No (s): N/A

Date: 11-15-2018 Day of Week: Thursday Time: 11:15

Monitoring Site Number: 5 Monitoring Site Address: Reseda BLVD / LA River

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 5 mph [km/hr] Approximate Wind Direction: From the N

Approximate distance of Sound Level Meter from Receptor Location: 10 ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	69.7		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1. Multi-Family Complex facing major Street.
2.
3.
4.


QUEST
50
140
70.7 dB LASeq
Stop
Run
Pause
On/Off
Esc

LABikewayGreenway_ST6

11/26/2018

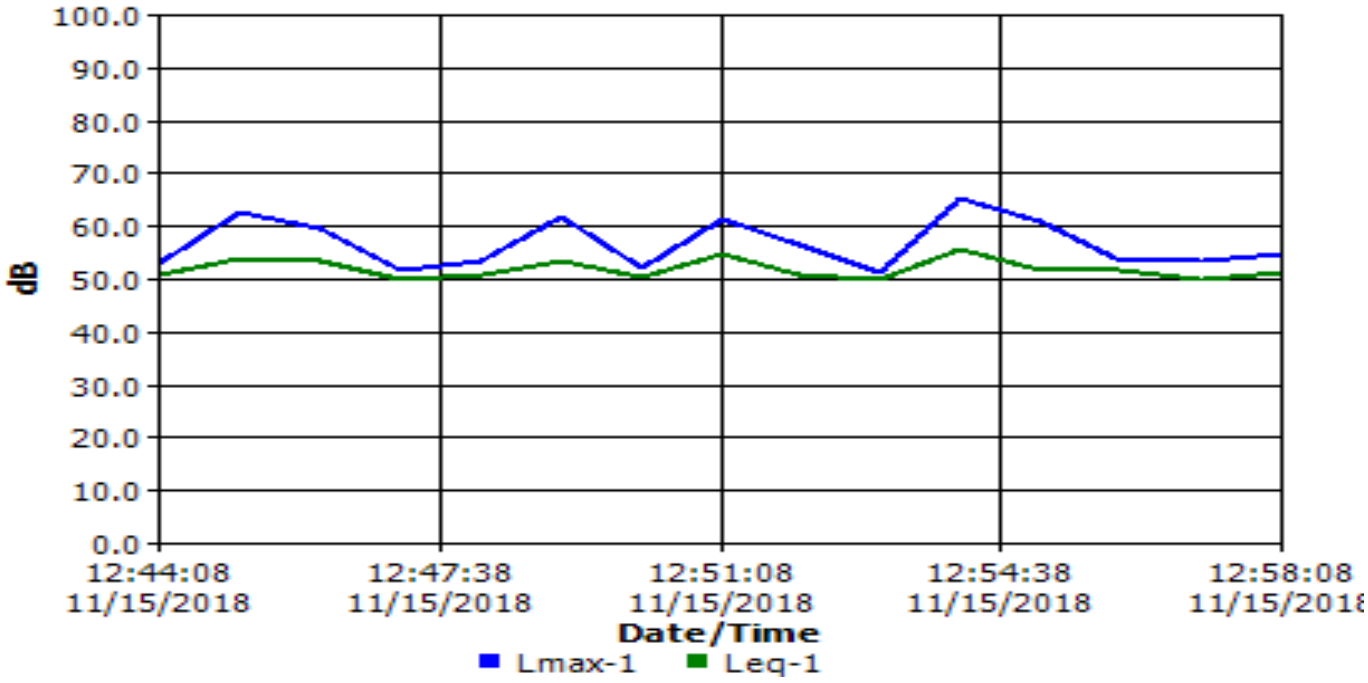
Information Panel

Name	LABikewayGreenway_ST6
Start Time	Thursday, November 15, 2018 12:43:08
Stop Time	Thursday, November 15, 2018 12:58:08
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	52.1 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 12:44:08 PM	52.9	50.7
11/15/2018 12:45:08 PM	62.5	53.6
11/15/2018 12:46:08 PM	59.4	53.4
11/15/2018 12:47:08 PM	51.7	50.0
11/15/2018 12:48:08 PM	53.4	50.8
11/15/2018 12:49:08 PM	61.5	53.1
11/15/2018 12:50:08 PM	51.8	50.1
11/15/2018 12:51:08 PM	61.1	54.5
11/15/2018 12:52:08 PM	56.2	50.7
11/15/2018 12:53:08 PM	51.1	50.0
11/15/2018 12:54:08 PM	65.0	55.5
11/15/2018 12:55:08 PM	60.7	51.7
11/15/2018 12:56:08 PM	53.5	51.4
11/15/2018 12:57:08 PM	53.5	49.9
11/15/2018 12:58:08 PM	54.5	51.2

Noise Measurement Report Form

Project: LA Bikepath / Greenway Contract No (s): N/A

Date: 11-15-2018 Day of Week: Thursday Time: 11:45

Monitoring Site Number: 6 Monitoring Site Address: Etiwanda / LA River

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 5 mph [km/hr] Approximate Wind Direction: From the N

Approximate distance of Sound Level Meter from Receptor Location: 5 ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	52.1		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1. Location is right next to Reseda High School
2.
3.
4.

LABikewayGreenway_ST7

11/26/2018

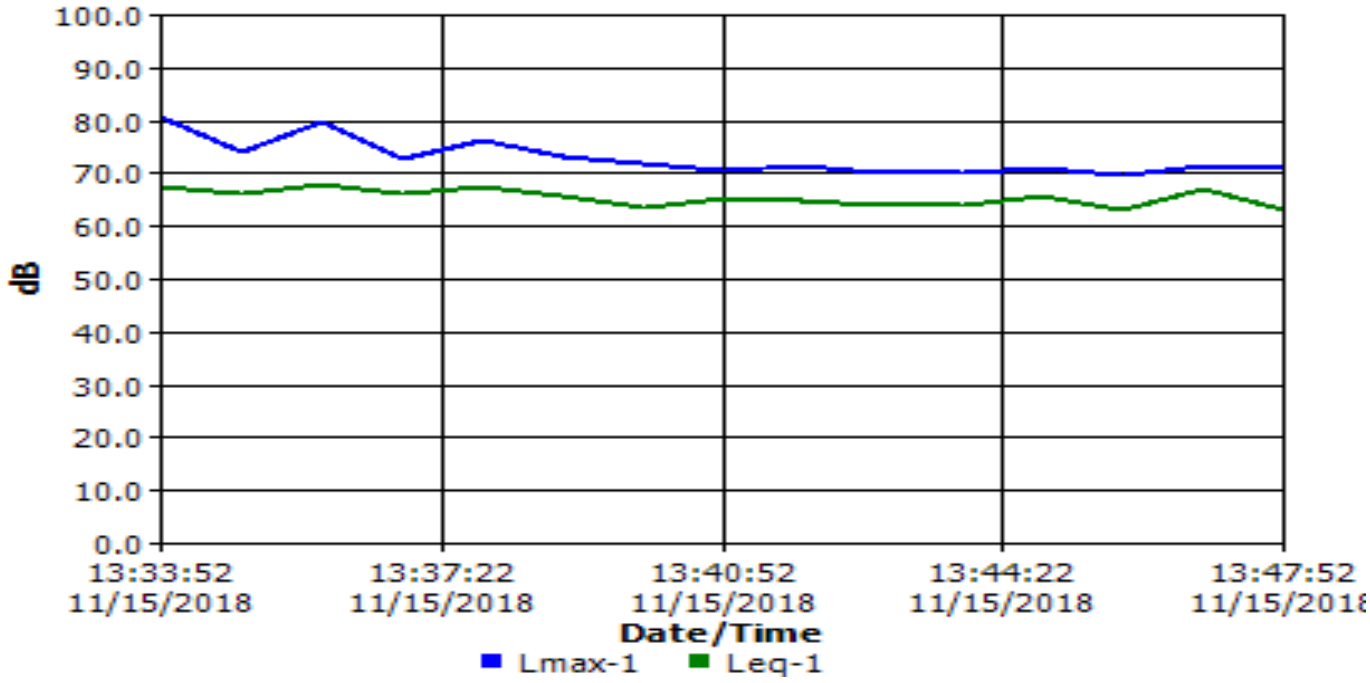
Information Panel

Name	LABikewayGreenway_ST7
Start Time	Thursday, November 15, 2018 13:32:52
Stop Time	Thursday, November 15, 2018 13:47:52
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	65.5 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 1:33:52 PM	80.5	67.4
11/15/2018 1:34:52 PM	73.8	65.8
11/15/2018 1:35:52 PM	79.6	67.6
11/15/2018 1:36:52 PM	72.6	66.1
11/15/2018 1:37:52 PM	76.3	67.2
11/15/2018 1:38:52 PM	72.9	65.6
11/15/2018 1:39:52 PM	71.6	63.4
11/15/2018 1:40:52 PM	70.3	65.2
11/15/2018 1:41:52 PM	71.1	64.5
11/15/2018 1:42:52 PM	69.9	63.6
11/15/2018 1:43:52 PM	70.0	63.6
11/15/2018 1:44:52 PM	70.9	65.7
11/15/2018 1:45:52 PM	69.5	63.0
11/15/2018 1:46:52 PM	71.3	67.0
11/15/2018 1:47:52 PM	71.0	62.9

Noise Measurement Report Form

Project: LA Bike path / Greenway Contract No (s): N/A

Date: 11-15-2018 Day of Week: Thursday Time: 12:32

Monitoring Site Number: 87 Monitoring Site Address: Lindley Ave / LA River

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 4 mph [km/hr] Approximate Wind Direction: From the NNW

Approximate distance of Sound Level Meter from Receptor Location: 15 ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	65.5		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1. No emergency vehicles present
2.
3.
4.


TRESPASSING
PARKING
DUMPING
PUBLIC PARKING IS PROHIBITED.

LABikewayGreenway_ST8

11/26/2018

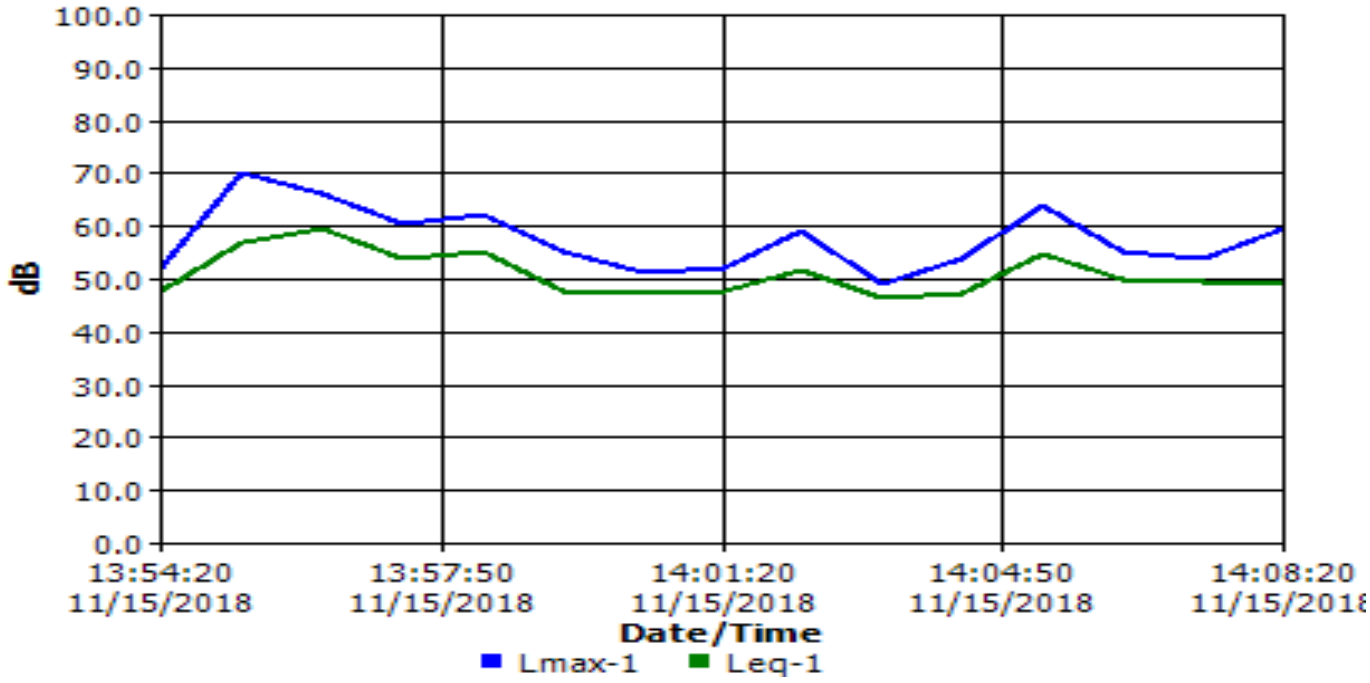
Information Panel

Name	LABikewayGreenway_ST8
Start Time	Thursday, November 15, 2018 13:53:20
Stop Time	Thursday, November 15, 2018 14:08:20
Device Model Type	SoundPro DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	52.9 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 1:54:20 PM	51.8	47.5
11/15/2018 1:55:20 PM	69.8	56.8
11/15/2018 1:56:20 PM	66.2	59.6
11/15/2018 1:57:20 PM	60.4	53.7
11/15/2018 1:58:20 PM	62.0	55.0
11/15/2018 1:59:20 PM	55.2	47.4
11/15/2018 2:00:20 PM	51.1	47.2
11/15/2018 2:01:20 PM	51.8	47.6
11/15/2018 2:02:20 PM	58.8	51.7
11/15/2018 2:03:20 PM	48.8	46.3
11/15/2018 2:04:20 PM	53.6	47.3
11/15/2018 2:05:20 PM	63.7	54.8
11/15/2018 2:06:20 PM	55.0	50.0
11/15/2018 2:07:20 PM	53.7	49.3
11/15/2018 2:08:20 PM	59.5	49.0

Noise Measurement Report Form

Project: LA Bikepath / Greenway Contract No (s): N/A

Date: 11-15-2018 Day of Week: Thursday Time: 12:54pm

Monitoring Site Number: 8 Monitoring Site Address: Erwin St / Zelzah Ave

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 4 mph [km/hr] Approximate Wind Direction: From the NNW

Approximate distance of Sound Level Meter from Receptor Location: 5 ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts During of Measurement:

Check the measurement purpose:

☐ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	53.00		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1.

2.

3.

4.


STOP
QUEST
557

LABikewayGreenway_ST9

11/26/2018

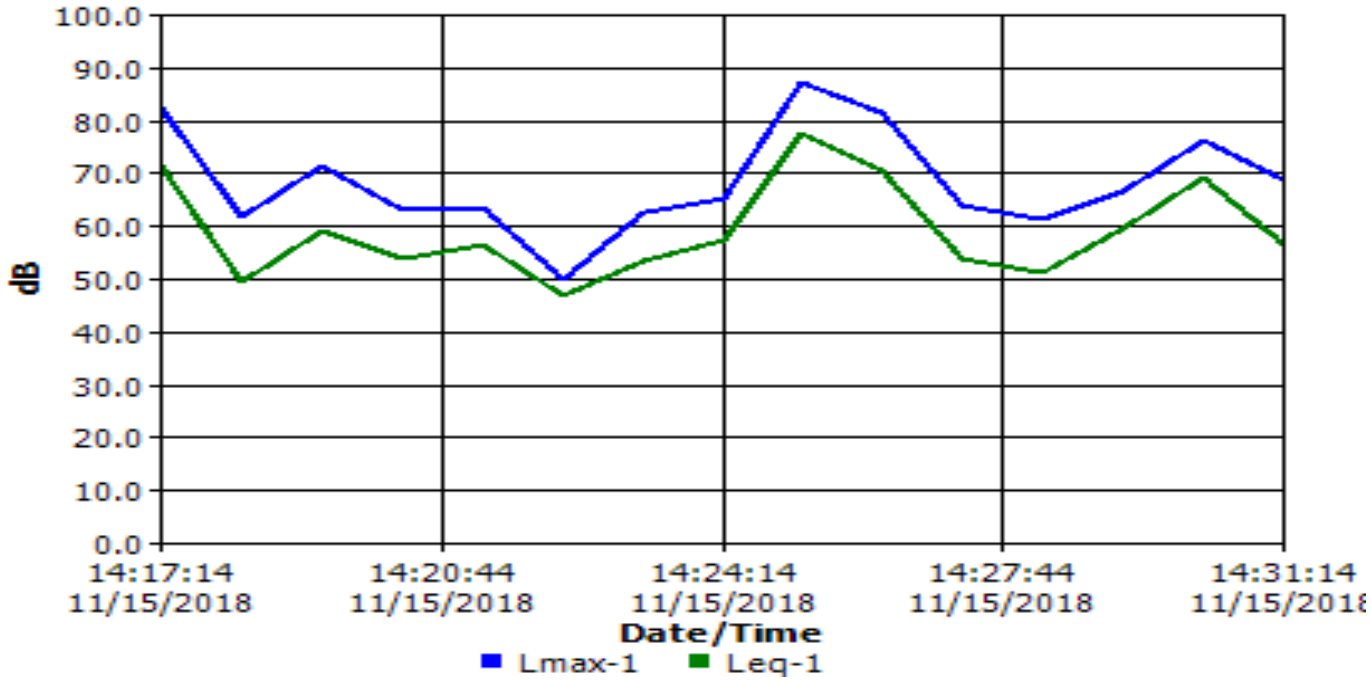
Information Panel

Name	LABikewayGreenway_ST9 Thursday,
Start Time	November 15, 2018 14:16:14 Thursday,
Stop Time	November 15, 2018 14:31:14 SoundPro
Device Model Type	DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	67.8 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 2:17:14 PM	82.2	71.4
11/15/2018 2:18:14 PM	61.5	49.2
11/15/2018 2:19:14 PM	71.3	59.0
11/15/2018 2:20:14 PM	62.9	53.8
11/15/2018 2:21:14 PM	63.3	56.2
11/15/2018 2:22:14 PM	49.7	46.7
11/15/2018 2:23:14 PM	62.7	53.4
11/15/2018 2:24:14 PM	65.3	57.2
11/15/2018 2:25:14 PM	87.1	77.3
11/15/2018 2:26:14 PM	81.2	70.4
11/15/2018 2:27:14 PM	63.7	53.6
11/15/2018 2:28:14 PM	61.1	51.1
11/15/2018 2:29:14 PM	66.4	59.4
11/15/2018 2:30:14 PM	76.1	69.0
11/15/2018 2:31:14 PM	68.7	56.4

Noise Measurement Report Form

Project: LA Bikepath / Greenway Contract No (s): N/A

Date: 11/15/2018 Day of Week: Thursday Time: 1:15pm

Monitoring Site Number: TQ 9 Monitoring Site Address: Balcom Ave / Kittridge Ave

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 4 mph [km/hr] Approximate Wind Direction: From the WNW

Approximate distance of Sound Level Meter from Receptor Location: 0 ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114	n/a	n/a
L_{eq}	67.8		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1. No emergency vehicles present
2. Waste Pick up @ the 8'.45 minute mark and the ~13:45 mark
3.
4.


AHEAD

LABikewayGreenway_ST10

11/26/2018

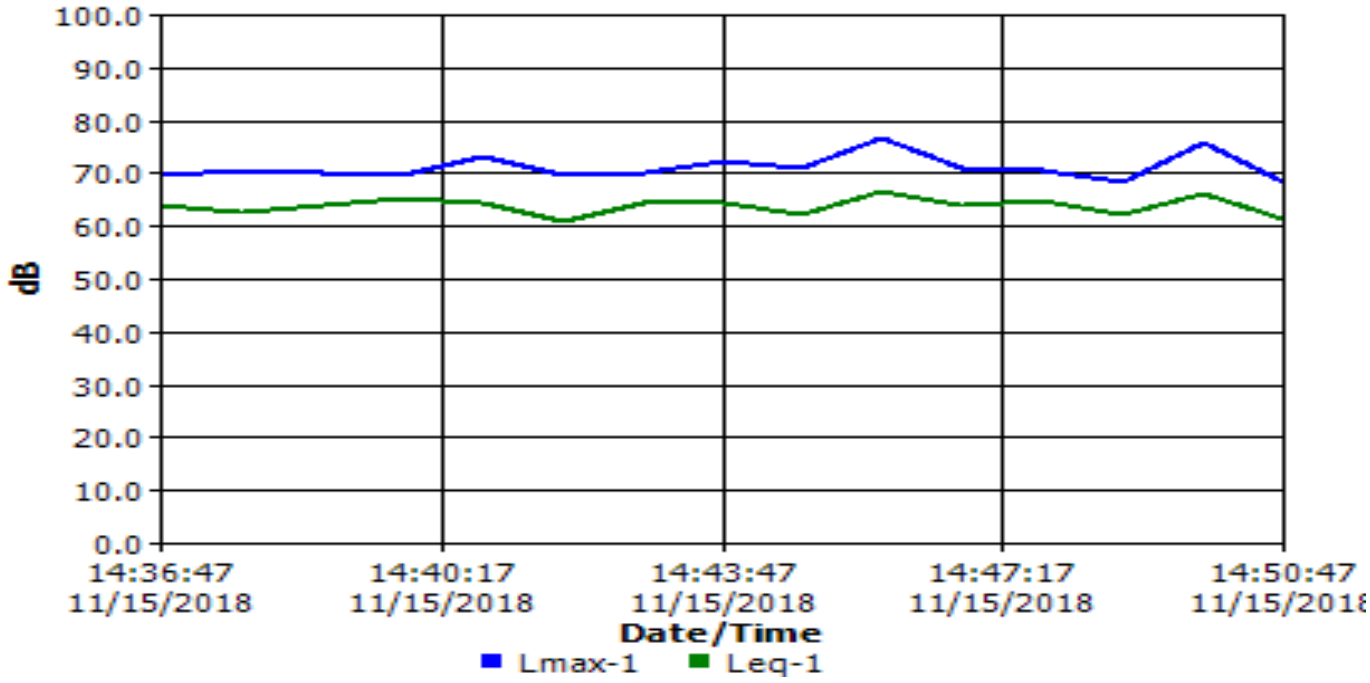
Information Panel

Name	LABikewayGreenway_ST10 Thursday,
Start Time	November 15, 2018 14:35:47 Thursday,
Stop Time	November 15, 2018 14:50:47 SoundPro
Device Model Type	DL
Comments	

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	63.9 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	OFF	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

Logged Data Chart



Logged Data Table

Timestamp	Lmax-1	Leq-1
11/15/2018 2:36:47 PM	69.6	63.6
11/15/2018 2:37:47 PM	70.3	62.7
11/15/2018 2:38:47 PM	69.9	63.7
11/15/2018 2:39:47 PM	69.4	65.1
11/15/2018 2:40:47 PM	73.2	64.3
11/15/2018 2:41:47 PM	69.4	60.6
11/15/2018 2:42:47 PM	70.1	64.2
11/15/2018 2:43:47 PM	72.0	64.1
11/15/2018 2:44:47 PM	71.0	62.1
11/15/2018 2:45:47 PM	76.7	66.4
11/15/2018 2:46:47 PM	70.8	63.6
11/15/2018 2:47:47 PM	70.4	64.9
11/15/2018 2:48:47 PM	68.3	62.1
11/15/2018 2:49:47 PM	75.6	66.0
11/15/2018 2:50:47 PM	68.3	61.3

Noise Measurement Report Form

Project: LA Bikepath / Greenway Contract No (s): N/A

Date: 11/15/2018 Day of Week: Thursday Time: 1:35pm

Monitoring Site Number: #10 Monitoring Site Address: White Oak Ave / LA River

Measurement Taken By: Jairus Williams

Approximate Wind Speed: 4 mph [km/hr] Approximate Wind Direction: From the WNW

Approximate distance of Sound Level Meter from Receptor Location: 5 Ft

Approximate distance of Sound Level Meter from Project Site:

Receptor Land Use (Check One) ☑ Residential / Institutional ☐ Commercial / Recreational

Sound Level Meter: Make and Model: Serial Number:

Meter Setting ☐ A-Weighted Sound Level (SLOW) ☐ C-Weighted Sound Level (FAST) for Impacts

During of Measurement:

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Major change ☐ Complaint response

Measurement Results:

Measurement Type	Measured Level	Noise Criteria Threshold	Exceedance
Calibration	114 db	n/a	n/a
L_{eq}	63.9db		
L_{max}			
L_{dn}			
CNEL			

Field Notes:

1.

2.

3.

4.