Washington Boulevard/Andora Bridge Improvement Project

DRAFT Noise Abatement Decision Report

Reference: Washington Boulevard/Andora Bridge Improvement Project Noise Study Report

City of Roseville, California

District 3-03-PLA-25501

CML 5182 (074)

December 2017

Caltrans

Draft

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December 2017

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List of Abbreviated Terms

CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CIDH	cast-in-drilled-hole
ED	environmental document
FHWA	Federal Highway Administration
LOS	level of service
NAC	Noise Abatement Criteria
NADR	Noise Abatement Decision Report
NSR	noise study report
Protocol	Caltrans Traffic Noise Analysis Protocol
ROW	Right of Way
SR	State Route
TNM 2.5	Traffic Noise Model 2.5

Chapter 1 Introduction

The City of Roseville (City) is proposing to improve a 0.85-mile section of Washington Boulevard. The proposed project involves widening a two-lane section of Washington Boulevard between Sawtell Road and Pleasant Grove Boulevard to four lanes and replacing the existing 100-year-old undercrossing (Andora Underpass) beneath the Union Pacific Railroad (UPRR) Andora bridge on Washington Boulevard. The addition of two new lanes would provide a continuous four-lane thoroughfare between Sawtell Road and Pleasant Grove Boulevard and improve traffic circulation and pedestrian traffic through the area.

The Noise Abatement Decision Report (NADR) presents the preliminary noise abatement decision, as defined in the California Department of Transportation (Caltrans) Traffic Noise Analysis Protocol (Protocol). This report has been approved by a California licensed professional civil engineer. The project-level Noise Study Report (NSR) for the Washington Boulevard/Andora Bridge Improvement Project, dated July 2017, and approved by Caltrans on October 15, 2017, is hereby incorporated by reference.

1.1 Noise Abatement Assessment Requirements

Title 23, Code of Federal Regulations (CFR), Part 772 of the Federal Highway Administration (FHWA) standards (23 CFR 772), and the Protocol require that noise abatement be considered for projects that are predicted to result in traffic noise impacts. A traffic noise impact is considered to occur when future predicted design-year noise levels with the project "approach or exceed" noise abatement criteria (NAC), as defined in 23 CFR 772, or when the predicted design-year noise levels with the project substantially exceed existing noise levels. A predicted design-year noise level is considered to "approach" the NAC when it is within 1 decibel (dB) of the NAC. A substantial increase is defined as a 12 dB increase above existing conditions. Furthermore, 23 CFR 772 requires noise abatement measures that are reasonable and feasible and likely to be incorporated into the project to be identified before adoption of the final environmental document (ED).

The Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the draft ED, a *preliminary noise abatement decision* is made. The preliminary noise abatement decision is based on the *feasibility* of evaluated abatement and the *preliminary reasonableness determination.* Noise abatement is considered to be acoustically feasible if it is predicted to reduce noise by at least 5 A-weighted decibels (dBA) at an affected receptor. A receptor that is expected to receive a noise reduction of at least 5 dBA from the proposed abatement measure is a benefited receptor. Other non-acoustical factors related to geometric standards (e.g., sight distances), safety, maintenance, and security can also affect feasibility.

The overall reasonableness of noise abatement is determined by the following three factors:

- The viewpoints of benefited receptors

- The cost of noise abatement
- The noise reduction design goal

The preliminary reasonableness determination reported in this document is based on the noise reduction design goal and the cost of abatement. The viewpoints of benefited receptors are determined from a survey, which is normally conducted during the public review period for the project ED.

Under Caltrans' noise reduction design goals, a barrier must be predicted to provide at least 7 dB of noise reduction at one or more benefited receptors. The cost reasonableness of abatement is determined by calculating a cost allowance, which is considered to be a reasonable amount of money to spend on abatement. This *reasonable allowance* is then compared to the engineer's cost estimate for the abatement. If the engineer's cost estimate is less than the allowance and the abatement will provide at least 7 dB of noise reduction at one or more benefited receptors, then the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance or if the design goal cannot be achieved, the preliminary determination is that abatement is not reasonable.[1]

The NADR presents the preliminary noise abatement decision, based on acoustical and non-acoustical feasibility factors, the design goal, and the relationship between noise abatement allowances and the engineer's cost estimate. The NADR does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best available information at the time the draft ED is published. The final overall reasonableness decision will take this information into account, along with the results of the survey of benefited receptors conducted during the environmental review process.

At the end of the public review process for the ED, the final noise abatement decision is made and presented in the final ED. The preliminary noise abatement decision will become the final noise abatement decision unless compelling information received during the environmental review process indicates that it should be changed.

1.2 Purpose of the Noise Abatement Decision Report

The purpose of the NADR is to:

- Summarize the conclusions of the NSR related to acoustical feasibility, the design goal, and the reasonable allowances for the abatement evaluated.
- Present the project engineer's cost estimate for evaluated abatement.
- Present the engineer's evaluation of non-acoustical feasibility issues.
- Present the preliminary noise abatement decision.

[1] If the reasonableness allowance is within 10% of the engineer's cost to construct, the barrier will be considered reasonable and will be recommended as abatement.

- Present preliminary information on secondary effects of abatement (e.g., impacts on cultural resources, scenic views, hazardous materials, biology, etc.).

The NADR does not address issues related to noise barriers or other noise-reducing treatments required as mitigation for significant adverse environmental effects, as identified under the California Environmental Quality Act (CEQA).

1.3 Project Description

1.3.1 Background

Washington Boulevard generally runs north-south and begins in downtown Roseville, at its junction with Oak Street, and ends at State Route (SR) 65. The boulevard provides an important local connection between downtown Roseville and North Central Roseville, Northwest Roseville, and North Industrial areas through its connections with other major local thoroughfares, including Foothills Boulevard, Pleasant Grove Boulevard, Roseville Parkway, Industrial Boulevard, and Blue Oaks Boulevard. Washington Boulevard provides a vital economic link from residential areas to shopping and employment centers in downtown Roseville.

Washington Boulevard was constructed as a two-lane road as part of the State Highway System approximately 100 years ago. The City decided to widen Washington Boulevard to improve the level of service (LOS) and other traffic performance measures and to accommodate increasing traffic volumes. The City elected to delay improvements to the 0.85-mile segment of Washington Boulevard associated with the proposed project because of the extensive coordination necessary with UPRR and the costs associated with widening the Andora Underpass.

The City's Transportation System 2035 Capital Improvement Program identifies improvements to Washington Boulevard, including the widening of Washington Boulevard between Sawtell Road and Pleasant Grove Boulevard, to improve traffic circulation and pedestrian traffic through the area. Approximately 18,000 vehicles per day presently travel through this segment, and the road improvements would enhance accessibility for motorists, pedestrians, and cyclists along Washington Boulevard and nearby intersections. To enable roadway widening at the narrow Andora Underpass, the existing structure must be removed and replaced. The Andora Underpass would need to remain open and accessible to rail traffic during project construction because approximately 25 trains travel over it each day.

In summer and fall 2016, the City and the Project Design Team met with residents and local businesses about the proposed project. More than 45 community members attended two meetings with the Project Design Team to discuss the project, ask questions, and provide feedback on the project and proposed construction approach.

1.3.2 Project Limits and Surrounding Land Uses

The proposed project is in the city of Roseville, Placer County, along an approximately 0.85-mile segment of Washington Boulevard between Sawtell Road and Pleasant Grove Boulevard (Figure 1, included in Appendix A). At the southern end of the project area, the UPRR line runs along the east side of Washington Boulevard, crosses over the road just south of the South Branch Pleasant Grove Creek, and continues along the west side of the road toward Pleasant Grove Boulevard. The southern end of the project area is surrounded by commercial development to the east and residential areas to the west. The Diamond Oaks and Kaseberg-Kingswood neighborhoods are adjacent to the central and northern portions of the project area. City general open space and preserve open space lands occupy the area immediately west of the Andora Underpass. Residential development is present on both sides of Washington Boulevard between the Andora Underpass and Pleasant Grove Boulevard. An existing Class 1 (i.e., off-street) bike path along the east side of Washington Boulevard connects Diamond Oaks Road to Derek Place. Figure 2, included in Appendix A, shows an overview of the proposed project (including project components) and existing conditions described above.

1.3.3 Project Alternatives

After extensive engineering and traffic analysis efforts, as well as review and screening of design concepts, two Build Alternatives that would meet the project's purpose and need and objectives surfaced for consideration and analysis. Alternatives 1 and 2 would involve the same project components described above. The primary differences between the Build Alternatives are the construction access and traffic diversion options and the associated staging and duration of construction. Alternative 1 would involve complete road closure and rerouting of traffic for a period of 5 months and an estimated construction duration of 13 months; Alternative 2 would leave one lane open during construction and would require an estimated 20 months of construction.

1.3.3.1 Alternative 1 (Build Alternative/Proposed Project)

Alternative 1 (the proposed project) would include the following elements:

- Widening approximately 0.85 mile of Washington Boulevard from two to four lanes with a raised median separating northbound and southbound traffic.
- Widening the Andora Underpass to a two-span bridge with columns located in the roadway median island to accommodate the additional two lanes.
- Adding 8-foot-wide Class 2 (i.e., on-street with appropriate signing and striping) bike lanes along both sides of Washington Boulevard.
- Expanding the existing Class 1 bike path on the east side of Washington Boulevard from Diamond Oaks Road to Derek Place with a 10- to 12-foot-wide path parallel to Washington Boulevard and connecting it to Sawtell Road.

- Removing the existing bicycle/pedestrian crossing under UPRR and providing a new connection between the existing Derek Place trail and the new Class 1 bike path along Washington Boulevard (described above).
- Adding a new 8- to 12-foot-wide multiuse path on the west side of Washington Boulevard between Emerald Oaks Road and Kaseberg Drive. Portions of the proposed multiuse path may be deferred until additional construction funding is available.
- Providing traffic signal modifications. The existing traffic signal at Diamond Oaks Road would be modified to conform to the new four-lane roadway.
- Conducting floodplain, water quality, and drainage improvements.
- Relocating existing utilities, including sewer, water, telecommunications, and natural gas.
- Temporally restriping Foothills Boulevard at Junction Boulevard to provide two left-turn lanes from southbound Foothills Boulevard to eastbound Junction Boulevard.

The proposed project would not alter the existing bus turnout adjacent to southbound Washington Boulevard and south of Pleasant Grove Boulevard. Each of the major proposed project components is described in greater detail below. Figure 2 (included in Appendix A) provides an overview of these components.

1.3.3.2 Washington Boulevard Widening

The proposed project would consist of widening Washington Boulevard to allow two through lanes in each direction with a raised median separating the northbound and southbound traffic. Concrete curbs would define the new edge of roadway and separate the vehicular traffic from the pedestrians.

1.3.3.3 Andora Underpass and Bridge Widening

The existing Andora Underpass has substandard vertical clearance. To provide standard vertical clearance, the profile grade of Washington Boulevard would be lowered approximately 3 feet. The lowering of the roadway would also require removal and replacement of two drainage culvert crossings.

Widening the Andora Underpass would involve broadening the existing bridge structure to a two-span bridge with columns located in the roadway median island. The existing 100-year-old roadway crosses beneath the UPRR tracks at a 45-degree angle. Because UPRR now limits bridge skews to a maximum of 30 degrees, the proposed bridge median columns would be slightly skewed by approximately 15 degrees. The existing Andora Underpass can accommodate two railroad tracks, although only one track currently exists at this location. The proposed project design could accommodate two UPRR tracks.

The Andora Underpass would have concrete abutments and wingwalls. The concrete surface would have some relief to mimic the appearance of an old style Works Progress Administration bridge. There is also the potential for incorporating architectural enhancements, color, and features into the concrete facade to provide additional visual

interest and character for the structure. The superstructure would consist of painted steel girders with painted steel hand railings extending above the track level. The bottom of the structure (soffit) would show the individual steel girders and not be smooth like a normal concrete highway bridge.

No second track is proposed as part of this project; however, the ability to easily add a second track to the structure without needing to widen the concrete abutments is a project requirement. According to UPRR, there are no reasonably foreseeable plans to install a second track.

1.3.3.4 Alternative 2 (One Lane Closure during Construction)

Alternative 2 is designed to satisfy the project objectives identified in Section 1.2, *Purpose and Need*, while avoiding or minimizing environmental impacts associated with the project. The alignment and associated project components for Alternative 2 are the same as described for Alternative 1 and involve the same improvements to Washington Boulevard; however, it differs in its construction approach, including traffic diversion and schedule. The main difference from the proposed project is that Alternative 2 would leave one lane open during construction and would require an estimated 20 to 24 months to construct because a temporary railroad bridge is required over Washington Boulevard to maintain train traffic.

Under Alternative 2, Washington Boulevard vehicular traffic would be allowed to pass through the project site under the control of one-way flagging operations during some of the construction phases. However, the travelling public would still be significantly delayed during construction under Alternative 2 because it would not be possible to maintain two lanes of traffic flow during most of the construction period; therefore, more than half of the normal traffic would use an alternative route.

1.3.3.5 No Project Alternative

The No Project Alternative would not involve any improvements to Washington Boulevard. The existing roadway and Andora Underpass would remain in their current state.

1.4 Affected Land Uses

A field investigation was conducted to identify land uses in the project area. The land uses within the project area are mostly single-family residential, with a few multi-family residential and some commercial/light industrial land uses in the southern portion of the project area. Nearby residences are located along Washington Boulevard as well as the nearby side streets perpendicular to this main thoroughfare. Sensitive receptors located near the project area are almost exclusively Activity Category B (residential) land uses, with some Activity Category G (undeveloped land) land uses near the project alignment as well.

Chapter 2 Results of the Noise Study Report

The NSR for this project was prepared by ICF in July of 2017, and was approved by Caltrans on October 15, 2017.

FHWA Traffic Noise Model 2.5 (TNM 2.5) was utilized for modeling future noise levels. As stated in the Protocol, noise abatement measures are considered when predicted noise levels in the design year approach or exceed the NAC or when a predicted noise level includes a *substantial increase* (i.e., 12 dBA or more). A total of 55 representative receivers were used to model existing and future land uses in the project area (land uses within close proximity of the project alignment) for the design year (2035). These modeled locations are representative of Activity Category B and G land uses along the project alignment. Noise-sensitive land uses (Activity Categories B for this project) are located along the project alignment, with a greater density of residences located in the northern portion of the project area. Other modeled receivers are representative of undeveloped lands (Activity Category G), which are not noise sensitive but were included in the analysis for completeness, pursuant to the Protocol. The topography of the project area is generally relatively flat, with some areas of mild slopes.

Although all developed land uses are addressed under the Protocol, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, the impact analysis in the NSR focuses on locations with defined outdoor activity areas associated with residential backyards exposed to traffic noise from Washington Boulevard. Most of Washington Boulevard is already developed with solid sound-attenuating walls (e.g., concrete block walls). The noise reduction that results from these walls is included in the modeling results.

When traffic noise impacts are identified, noise abatement measures must be considered. Noise impacts occur when a substantial noise increase[2] is predicted or when predicted noise levels under future build conditions come within 1 dB of or exceed the NAC.

The predicted traffic noise levels under design-year conditions were found to approach or exceed the NAC of 67 dBA for Activity Category B at 6 of the 55 representative modeled locations for the Build Alternative. Note that these 6 modeled receivers are representative of a total of 8 residential receptors. Modeled receptors are shown in Figure 3 (which is included in Appendix A to this NADR).

For noise-sensitive receptors where traffic noise levels would approach or exceed the NAC, noise abatement in the form of sound walls was considered. According to the noise abatement criteria adopted in the Protocol, for a proposed noise abatement to be considered feasible, the noise abatement must be designed to provide a minimum of 5 dBA of noise reduction at affected receptors. In addition to meeting the feasibility criteria, the proposed

[2] "Substantial increase" is defined in the Protocol as future noise levels with the project that exceed existing noise levels by 12 dB.

noise abatement should meet the design goal (i.e., 7 dBA insertion loss at a minimum of one benefitted receptor) and be reasonable from a cost perspective.

Two noise barriers were analyzed (NB-1 and NB-2) in the NSR. The evaluated noise barriers are shown in Figure 3 (along with the modeled receptor locations), which is included as Appendix A to this NADR. Wall heights in the range of 6 to 16 feet were analyzed. These barriers were analyzed to provide abatement for outdoor frequent-use areas that would be exposed to traffic noise levels that would approach or exceed the NAC. The noise barriers were analyzed for feasibility (i.e., providing a minimum noise reduction of 5 dB at affected receivers) as well as the ability to break the line of sight of an 11.5-foot truck stack. Both evaluated barriers were found to meet the feasibility requirement at certain heights.

Table 2-1, below, provides a summary of barrier evaluations, including locations, heights, and the calculated reasonable allowances of the modeled barriers.

Table 2-1. Summary of Barrier Evaluation from Noise Study Report

Barrier	Location	Height (feet)	Acoustically Feasible?	Number of Benefited Residences or Residential Equivalents	Design Goal Achieved?	Reasonable Allowance per Residence	Total Reasonable Allowance
NB-1	Eastern side of Washington Blvd between Pleasant Grove Blvd and Diamond Oaks Rd. Top of Berm.	6	Yes	4	Yes	$92,000	$368,000
		8	Yes	4	Yes	$92,000	$368,000
		10	Yes	7	Yes	$92,000	$644,000
		12	Yes	7	Yes	$92,000	$644,000
		14	Yes	7	Yes	$92,000	$644,000
		16[a]	Yes	7	Yes	$92,000	$644,000
NB-2	Western side of Washington Boulevard North of Kaseberg Drive along existing fence line.	6	No	0	No	$0	$0
		8	No	0	No	$0	$0
		10	Yes	1	No	$0	$0
		12	Yes	1	Yes	$92,000	$92,000
		14	Yes	1	Yes	$92,000	$92,000
		16[a]	Yes	1	Yes	$92,000	$92,000

[a.] Breaks line of sight of an 11.5-foot truck stack at *all* benefited receptors (noting that lower wall heights may break line of sight at some or most benefited receptors for a given wall).

Chapter 3 Preliminary Noise Abatement Decision

3.1 Summary of Key Information

The preliminary noise abatement decision is based on the Washington Boulevard/Andora Bridge Improvement Project NSR (ICF 2017). In the NSR, two noise barriers were found to be feasible. For Barrier NB-1, barriers ranging from 6 to 16 feet in height were found to be feasible, providing a minimum reduction of 5 dB. The design goal of 7 dB would also be achieved at wall heights between 6 and 16 feet. For Barrier NB-2, barriers ranging from 10 to 16 feet in height were found to be feasible, providing a minimum reduction of 5 dB. The design goal of 7 dB would be achieved at wall heights between 12 and 16 feet. The cost estimates were based on anticipated earthwork, structural requirements, drainage modifications, ROW costs, mobilization, miscellaneous items, and contingencies. The noise barriers were assumed to be constructed of masonry block, in accordance with Caltrans Standard Specifications, and will have drilled pile foundations cast-in-drilled-hole (CIDH) piles.

Table 3-1 summarizes the acoustical feasibility of the noise barriers, estimated cost of construction compared to the reasonable allowable cost for each noise barrier height, the number of benefited receptors, and the height at which the line-of-sight criteria would be met.[3] The estimated costs of construction were prepared by the project engineer, Garry Horton, P.E., with Mark Thomas (Horton pers. comm.).

Costs associated with the mitigation of secondary effects from abatement were not available at the time this NADR was written; therefore, they are not included in the abatement construction cost estimate. If secondary effects are identified, the cost to construct may need to be updated. Examples of these types of mitigation include, but are not limited to:

- Mitigation of effects related to hazardous materials (i.e., removal of materials).
- Mitigation of effects on cultural resources (i.e., removal of buried artifacts).

The reasonableness of a noise barrier was determined by comparing the estimated construction cost of the noise barrier against the total reasonable allowance. The total reasonable allowance was based on the number of benefited residences or, in this case, residential equivalents multiplied by the reasonable allowance per residential equivalent. If the estimated noise barrier construction cost exceeds the total reasonable allowance, the noise barrier is determined to be not reasonable.

[3] The line-of-sight criteria are met when a noise barriers intercepts the line of sight between the exhaust stack (assumed 11.5 feet) of a truck and a benefited receptor.

Table 3-1. Summary of Abatement Key Information

Barrier	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Design Goal Achieved?	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?
Noise Barrier NB-1	6	Yes	4	Yes	$368,000	$300,000	Yes
	8	Yes	4	Yes	$368,000	$344,000	Yes
	10	Yes	7	Yes	$644,000	$389,000	Yes
	12	Yes	7	Yes	$644,000	$433,000	Yes
	14	Yes	7	Yes	$644,000	$481,000	Yes
	16[a]	Yes	7	Yes	$644,000	$529,000	Yes
Noise Barrier NB-2	12	Yes	1	Yes	$92,000	$112,000	No
	14	Yes	1	Yes	$92,000	$124,000	No
	16[a]	Yes	1	Yes	$92,000	$136,000	No

[a] Breaks line of sight of an 11.5-foot truck stack at all benefited receptors.

3.2 Non-Acoustical Factors Related to Feasibility

The non-acoustical factors considered are geometric standards (e.g., sight distances), safety, maintenance, security, geotechnical issues, utility relocations, and aesthetics.

Based on preliminary project and abatement designs, no non-acoustical factors related to feasibility have been identified.

3.3 Preliminary Recommendation and Decision

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change, and takes into consideration existing adjacent wall heights and physical characteristics of the area. As such, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed or eliminated from the final project design. A final decision to construct noise abatement will be made upon completion of the project design. The preliminary noise abatement decision presented here will be included in the draft environmental document (ED), which will be circulated for public review.

3.3.1 Noise Barrier NB-1

Noise Barrier NB-1 was found to be acoustically feasible if constructed at heights ranging from 6 to 16 feet but would meet the design goal of 7 dB insertion loss at the design receiver (M-19) at 6 feet. At heights of 6 feet and 8 feet, there would be 4 benefited receptors. At wall heights of 10 through 16 feet, there would be 7 benefited receptors. The length of the

wall that would benefit all receptors at a height of 10 or more feet would be approximately 829 feet. Noise Barrier NB-1 would be constructed on the right-of-way along the existing fence line (at the property line) at the top of the slope/berm on the eastern side of Washington Boulevard. The wall would connect with the existing wall that is located north of the modeled receiver M-16. This wall was found to be feasible for, and capable of meeting the design goal at, all heights (6 through 16 feet). The 16-foot barrier height would block the line of sight to an 11.5-foot truck stack at all the benefited receptors, but lower wall heights would also block the line of sight to a truck stack for some of the benefited receptors. A 6-foot wall would block the line of sight at two receptors. An 8-foot wall would block the line of sight at 4 receptors, and a 12-foot wall would block the line of sight at 6 receptors.

Noise Barrier NB-1 would benefit (receive at least 5 dB reduction from the wall) 4 receptors at heights of 6 to 8 feet and would have a total reasonable allowance of $368,000 at these two heights. A 6-foot wall (829 feet in length) was estimated to cost $300,000, and an 8-foot wall in this location was estimated to cost $344,000. A 10-foot wall would benefit all receptors, and would cost approximately $389,000. The reasonable allowance for a wall that would benefit all 7 receptors would be $644,000. Construction costs for these walls do not exceed the reasonable applicable allowances. Therefore, these walls are considered to be reasonable from a cost perspective. Based on this information the Project Design Team has determined that the preliminary noise abatement decision is that Noise Barrier NB-1 should be constructed at a height of 6 feet. The 6-foot wall height was selected because this wall height is consistent with adjacent walls and in character with the neighborhood.

Note that these estimated construction costs assume that the wall would be constructed within the City right-of-way and that no right-of-way acquisition costs would be required to construct the wall. If there are any acquisition costs associated with constructing the wall those costs would need to be included in the construction cost estimate and may result in the wall being unreasonable from a cost perspective.

3.3.2 Noise Barrier NB-2

Noise Barrier NB-2 was found to be acoustically feasible if constructed at heights ranging from 10 to 16 feet and would meet the design goal of 7 dB insertion loss at the design receiver (M-52) at 12 feet, with a length of approximately 212 feet. The 16-foot barrier height would block the line of sight to an 11.5-foot truck stack at the single benefited receptor.

Noise Barrier NB-2 would provide benefit for one benefited receptor, and have a total reasonable allowance of $92,000 versus a construction cost of $112,000 at the design height (12 feet), which would meet the design goal. Because the construction cost exceeds the reasonable allowance, construction of Noise Barrier NB-2 is not considered to be reasonable from a cost perspective. Based on this information the Project Design Team has determined that the preliminary noise abatement decision is that Noise Barrier NB-2 should not be constructed.

Chapter 4 Secondary Effects of Abatement

Noise abatement recommended in the preliminary noise abatement decision may have the potential to result in secondary effects on cultural resources, scenic views, hazardous materials, biological resources, or other resources. However, based on currently available information the proposed abatement would not be expected result in any secondary impacts.

Chapter 5 References

ICF. 2017. Noise Study Report, Washington Boulevard/Andora Bridge Improvement Project. July. Sacramento, CA. Prepared for City of Roseville, California.

Mark Thomas. 2017. Pers. Comm. November 21, 2017.

Horton, Garry. Senior Project Manager. Mark Thomas. November 21, 2017. Email to Elizabeth Scott, Noise Specialist, ICF, Sacramento, CA.

Appendix A Figures