

3.5 NOISE

This section describes the current and predicted noise levels along the highway during the loudest traffic hour. By predicting the noise levels associated with the proposed Build Alternatives, analysts can determine whether there would be impacts to nearby residences, businesses, parks, and other adjacent properties. If noise impacts are identified, options for reducing the amount of noise heard at impacted properties are examined.

3.5.1 Noise Abatement Guidelines

To address traffic-related noise, CDOT follows FHWA regulations (23 Code of Federal Regulations [CFR] 772), the Highway Traffic Noise: Analysis and Abatement Guidance (FHWA, 2011), and the CDOT Noise Analysis and Abatement Guidelines (CDOT, 2011a). These guidelines

establish “noise abatement criteria,” which represent the maximum noise impact thresholds that various land uses can be exposed to before considering noise reduction or abatement measures. The noise abatement criteria for different activity categories are shown in **Exhibit 3.5-1**.

Noise abatement criteria established by CDOT are expressed in A-weighted decibels (dBA). A dBA measures the magnitude of sounds at different frequencies, as perceived by the human ear.

According to FHWA guidelines, a traffic noise impact occurs when: 1) predicted peak-hour noise levels at a location approach or exceed the noise abatement criteria; or 2) predicted noise levels substantially increase over the current noise levels (even though the predicted levels may not exceed noise abatement criteria).

EXHIBIT 3.5-1
Colorado Department of Transportation Traffic Noise Abatement Criteria

Activity Category	L _{eq} ¹ (dBA)	Description of Activity Category
A	56 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ²	66 (Exterior)	Residential.
C ²	66 (Exterior)	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	51 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E ²	71 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	NA (NA)	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing.
G	NA (NA)	Undeveloped lands that are not permitted for development.

Source: Hankard Environmental, Inc., 2012

dBA = A-weighted decibel

L_{eq} = equivalent level

¹ Road noise changes from moment to moment, but noise energy over time can be described in terms of its “equivalent level” (abbreviated L_{eq}). The L_{eq} is a single level that has the same sound energy as the fluctuating level over a stated time. The L_{eq} used for the noise abatement criteria is the hourly A-weighted equivalent level for the “noisiest hour” of the day in the design year.

² Includes undeveloped lands permitted for this activity category.

FHWA provides state highway agencies the flexibility in establishing their own definition of what defines “approach” and constitutes a “substantial” increase. CDOT defines “approach” as noise levels within 1 dBA of the noise abatement criteria. For Activity Categories B and C, this is equal to 66 dBA. For Activity Category E, this is equal to 71 dBA. CDOT defines “substantial increase” as an increase of greater than 10 dBA over existing noise level conditions.

3.5.2 Methodology

Traffic noise is primarily related to traffic volumes and speed. When more traffic is added to the highway, noise levels increase as long as there is no decrease in speed. At the point when capacity of the highway is met and congestion occurs, there is a decrease in both vehicular speeds and noise levels; therefore, the “loudest hour” for highway noise occurs just before and just after periods of congestion. This is known as level of service (LOS) C: significant traffic volume traveling at relatively high speeds. LOS A and B have lower volumes, and LOS D, E, and F have lower speeds. A more detailed description of LOS can be found in **Section 3.1 Transportation**.

The TNM 2.5 computer model is used to predict noise levels for expected loudest-hour noise conditions. The noise prediction model considers factors such as roadway geometry, terrain, location, and land use of noise-sensitive areas (called “receptors”), and current traffic data (for example, volumes, speeds, and vehicle mix).

Noise specialists selected 40 receptor locations near I-25 that were representative of the residences, parks, and businesses in the area (these are mapped in **Exhibits 3.5-4, 3.5-6, 3.5-8, and 3.5-9**). All of these locations are considered to be either Activity Category B or Activity Category C. Noise levels were predicted for conditions from 2003 when this study began, No Action Alternative conditions (year 2035 traffic volumes), and the two Build Alternative conditions (year 2035 traffic volumes). These impacts are discussed in Section 3.5.3.

The TNM 2.5 noise model was also used to predict the level of traffic noise reduction that could be achieved with a barrier or wall at impacted receptors. According to CDOT’s noise policy, for a barrier to be implemented, it must be considered feasible and reasonable, meeting the minimum criteria described below.

Feasibility is based on a minimum required noise reduction and constructability. The noise barrier must provide a minimum noise reduction of 5 dBA for at least one impacted receptor, and the barrier must be compatible with safety, drainage, utility, and constructability considerations.

The reasonableness evaluation is based on the noise reduction design goal, cost-effectiveness, and viewpoints of the benefited property owners and/or tenants. The noise barrier must achieve a 7 dBA noise reduction design goal at a minimum of one benefited receptor. A benefited receptor, whether impacted or not, is one that receives at least 5 dBA of noise reduction. The cost to construct the barrier should not exceed \$6,800 per benefited receptor per decibel of reduction. A unit cost of \$45 per square foot was used to calculate barrier cost. If the barrier is determined to meet the design goal and be cost-effective, the viewpoints of the benefited property owners and/or tenants must be solicited to determine the desire for building the noise barrier. These surveys will be conducted by CDOT ahead of signing of a Record of Decision that includes proposed noise mitigation.

If they are both feasible and reasonable, mitigation measures must be considered by CDOT for areas that would be impacted by future noise levels. Details regarding recommended mitigation associated with the Build Alternatives are included in Section 3.5.5.

3.5.3 Affected Environment

The noise study area extended approximately 500 feet beyond the project limits from the 29th Street interchange in the north to the Pueblo Boulevard interchange in the south. Year 2003 loudest-hour noise levels throughout the corridor were predicted as a baseline, against which the increase in future noise levels for each of the three alternatives could be compared. As shown in **Exhibit 3.5-2**, under year 2003 baseline conditions, five of the 40 selected receptor locations representing sensitive land use areas near I-25 were predicted to meet or exceed CDOT’s noise abatement criteria levels.

3.5.4 Environmental Consequences

3.5.4.1 No Action Alternative

Noise levels from I-25 would increase between year 2003 baseline conditions and conditions for the design year (2035) primarily due to changes in traffic volume and traffic

speed. Noise levels predicted for the No Action Alternative in the design year (2035) for the impacted representative receptor locations are shown in **Exhibits 3.5-3, 3.5-5, and 3.5-7** for the North (Phase 1), South (Phase 2), and Central (Phase 2) areas, respectively.

The Central Area (Phase 2) of the corridor is currently operating near peak capacity; therefore, this area cannot absorb additional traffic without increasing traffic congestion and lowering speeds. Lower speeds result in reductions in traffic noise levels.

Under the No Action Alternative, none of the receptor locations would experience a substantial noise increase as defined by CDOT's 10 dBA increase criterion; however, seven of the 40 representative receptor locations would meet or exceed CDOT's noise abatement criteria. Most of the impacted receptors are concentrated in the northern and southern parts of the project area between US 50 and 13th Street and Aqua Avenue and Pueblo Boulevard, respectively. In general, residential-type locations within approximately 250 to 300 feet of the highway centerline would be impacted by noise under the No Action Alternative.

3.5.4.2 Build Alternatives

Noise levels for both Build Alternatives are anticipated to increase over year 2003 baseline conditions and No Action conditions. Noise level increases would be higher under the Build Alternatives than under the No Action Alternative primarily because the alignment of I-25 would be modified, thus bringing the highway closer to some receptors. Eighteen of the 40 representative receptor locations would meet or exceed the noise abatement criteria under the

Existing I-25 Alternative, and 12 of the 40 representative receptor locations would meet or exceed the noise abatement criteria under the Modified I-25 Alternative (Preferred Alternative). The noise levels are predicted to increase up to 12 dBA under the Existing I-25 Alternative and up to 8 dBA under the Modified I-25 Alternative (Preferred Alternative). Two of the receptors would experience a substantial noise increase under the Existing I-25 Alternative as defined by CDOT's 10 dBA increase criterion. None would experience substantial noise increases under the Modified I-25 Alternative (Preferred Alternative). For the majority of areas, noise levels are predicted to increase by an average of 3 dBA under the Existing I-25 Alternative and 2 dBA under the Modified I-25 Alternative (Preferred Alternative). A change in noise level of less than 3 dBA is not perceptible by the human ear. Noise levels are predicted to decrease for areas where the Build Alternatives would shift away from that area.

Under both Build Alternatives, construction would generate noise from construction equipment. Construction noise at receptor locations would be dependent on the equipment operating at any given moment. Noise levels from diesel-powered equipment range from 80 dBA to 95 dBA at a distance of 50 feet, while impact equipment such as rock drills and pile drivers can generate louder noise levels. Construction noise impacts are temporary and can be mitigated as detailed in Section 3.5.5.

Impacts to noise receptors and general impact areas are discussed below for each separate area of the corridor: north, south, and central. The first exhibit provided for each area (**Exhibits 3.5-3, 3.5-5, and 3.5-7**) lists the receptors that would experience noise impacts under one or more of

EXHIBIT 3.5-2

Receptors that Exceed the Noise Abatement Criteria under Year 2003 Baseline Conditions

Noise Receptor #	Activity Category Type	General Location	Year 2003 Noise Level (dBA)
32	Residential	24th Street and Main Street	67
28	Park	Fountain Creek Park Land	66
6	Residential	Emerson Avenue and Abriendo Avenue	69
4	Residential	Aqua Avenue and Evans Avenue	70

Source: Hankard Environmental, Inc., 2012.

dBA = A-weighted decibel

the alternatives. All of the receptors subject to the Activity Category B and C noise abatement criteria of 66 dBA are residences or parks. Noise measurements noted with an asterisk in these tables indicate that noise levels meet or exceed the Category B 66 dBA noise abatement criteria. The second exhibit provided for each area (**Exhibits 3.5-4, 3.5-6, 3.5-8, and 3.5-9**) geographically illustrates the locations of the receptors and locations identified as impacted.

North Area (Phase 1)

The predicted noise levels for noise receptors in the North Area (Phase 1) would be the same under both Build Alternatives because the alternatives share the same alignment in the North Area (Phase 1). Seven representative receptors, identified in **Exhibit 3.5-3**, would

meet or exceed CDOT's noise abatement criteria. The North Area (Phase 1) would experience greater impacts than other areas of the corridor because this area contains more noise-sensitive receptors with higher existing noise levels than other areas of the corridor; therefore, even a small increase in future noise levels would cause noise levels to meet or exceed the noise abatement criteria at many receptors in this area. **Exhibit 3.5-4** illustrates areas of Build Alternative noise impacts in the North Area (Phase 1), where representative receptors indicate that noise levels would exceed the noise abatement criteria at sensitive receptors. **Exhibit 3.5-4** also shows the locations of proposed noise mitigation structures in the North Area (Phase 1). Noise mitigation structures are discussed in detail in Section 3.5.5.

EXHIBIT 3.5-3

North Area (Phase 1) Noise-Impacted Representative Receptors by Alternative (dBA)

Noise Receptor #	General Location	Baseline Conditions (2003)	Noise Abatement Criteria	No Action Alternative (2035)	Existing and Modified I-25 Alternatives (2035)	Increase Over Existing Levels
NORTH AREA (PHASE 1)						
22	Goat Hill Area – Kelly Avenue	65	66	66	71	6
23 ¹	Goat Hill Area – Bradford Street	61	66	62	67	6
27	Mineral Palace Park	65	66	65	69	4
28	Fountain Creek Park Land	67	66	67	69	2
29	Open Field-SE Corner of I-25 and US 50B	61	66	61	68	7
30	20th Street and Santa Fe Avenue	65	66	66	67	2
37	27 th Street and Court Avenue	66	66	69	69	3

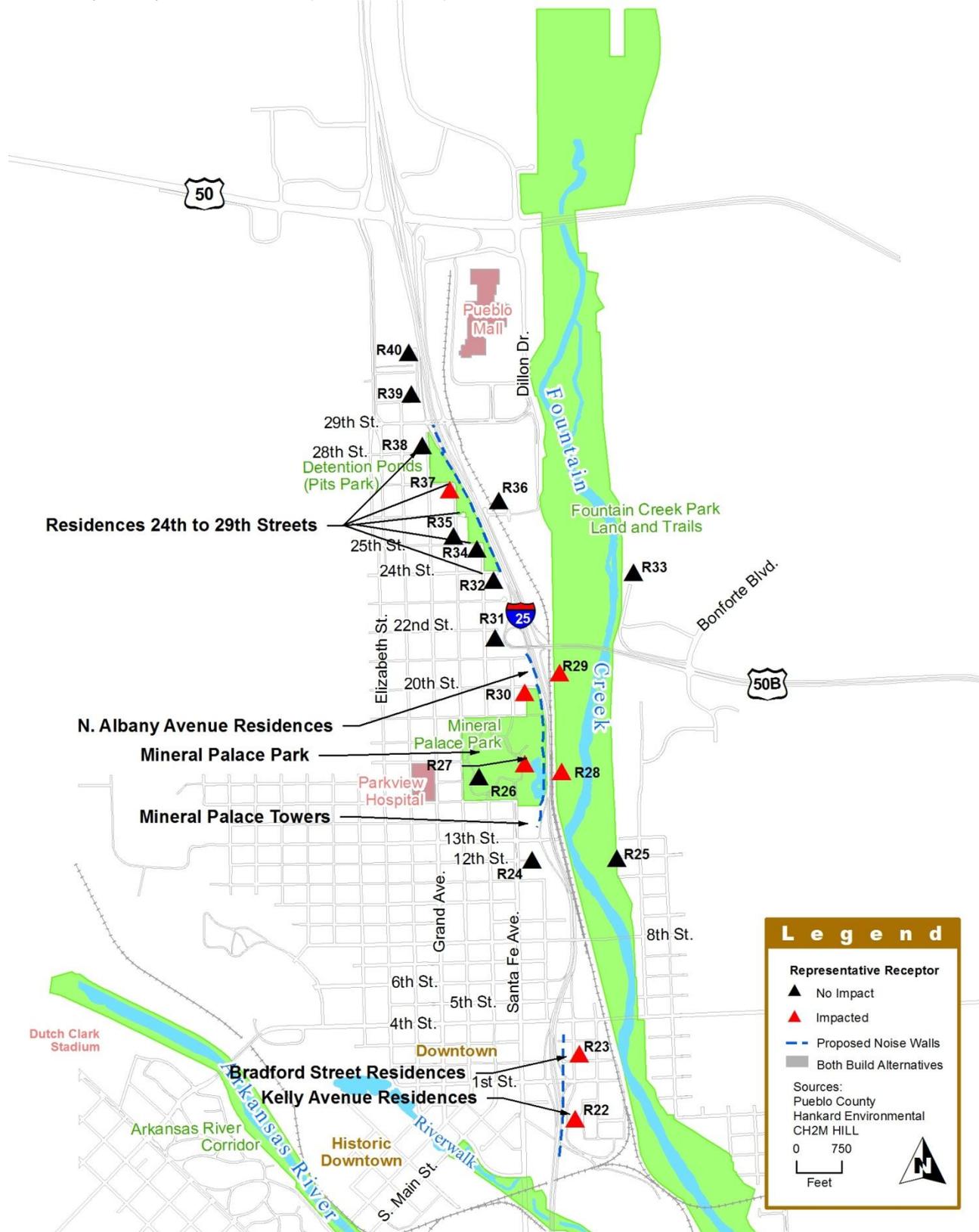
Source: Hankard Environmental, Inc., 2004; 2010.

dBA = A-weighted decibel

I-25 = Interstate 25

¹This measurement was taken at receptor R23, which represents the second row of homes.

EXHIBIT 3.5-4
North Area (Phase 1) Build Alternative Representative Receptors



South Area (Phase 2)

The predicted noise levels at representative receptors in the South Area (Phase 2) were the same for both Build Alternatives because they share the same alignment in the South Area (Phase 2). Two representative receptors, shown in **Exhibit 3.5-5**, would meet or exceed CDOT's noise abatement criteria.

Exhibit 3.5-6 shows the areas of noise impacts in the South Area (Phase 2) where noise levels would exceed the noise abatement criteria at noise-sensitive receptors.

Exhibit 3.5-6 also shows the locations of proposed noise mitigation structures in the South Area (Phase 2). Noise mitigation structures are discussed in detail in Section 3.5.5.

Central Area (Phase 2)

The predicted noise levels for noise receptors in the Central Area (Phase 2) would differ between the two Build Alternatives because the alternatives would follow different alignments.

Existing I-25 Alternative

Exhibit 3.5-7 shows that, under the Existing I-25 Alternative, five receptors would meet or exceed CDOT's noise abatement criteria. Of these five receptors, none would experience substantial increases in noise levels over existing conditions.

Exhibit 3.5-8 shows the areas of noise impacts for the Existing I-25 Alternative in the Central Area (Phase 2), where noise levels would exceed the noise abatement criteria at sensitive receptors, and the location of proposed noise mitigation structures. Noise mitigation structures are discussed in detail in Section 3.5.5.

Modified I-25 Alternative (Preferred Alternative)

Under the Modified I-25 Alternative (Preferred Alternative), one receptor would meet or exceed CDOT's noise abatement criteria. None of the receptors would experience substantial increases in noise levels over existing conditions.

Exhibit 3.5-9 shows the areas of noise impacts for the Modified I-25 Alternative (Preferred Alternative) in the Central Area (Phase 2), where noise levels would exceed the noise abatement criteria at the sensitive receptor, and the location of proposed noise mitigation structures. Noise mitigation structures are discussed in detail in Section 3.5.5.

3.5.4.3 Indirect Effects

Indirect impacts would be limited to the noise barriers proposed for noise abatement (see Section 3.5.5). These barriers might interfere with the passage of air, interrupt scenic views, or create objectionable shadows. They could also create maintenance access problems, make it difficult to maintain landscaping, create drainage problems, and provide pockets for trash to accumulate.

EXHIBIT 3.5-5

South Area (Phase 2) Noise-Impacted Representative Receptors by Alternative (dBA)

Noise Receptor #	General Location	Baseline Conditions (2003)	Noise Abatement Criteria	No Action Alternative (2035)	Existing and Modified I-25 Alternatives (2035)	Increase Over Existing Levels
SOUTH AREA (PHASE 2)						
2	JJ Raigoza Park	64	66	65	69	5
3	Iowa Avenue and Evans Avenue	64	66	65	67	3

Source: Hankard Environmental, Inc., 2004; 2010.

dBA = A-weighted decibel

I-25 = Interstate 25

EXHIBIT 3.5-6
 South Area (Phase 2) Build Alternative Representative Receptors

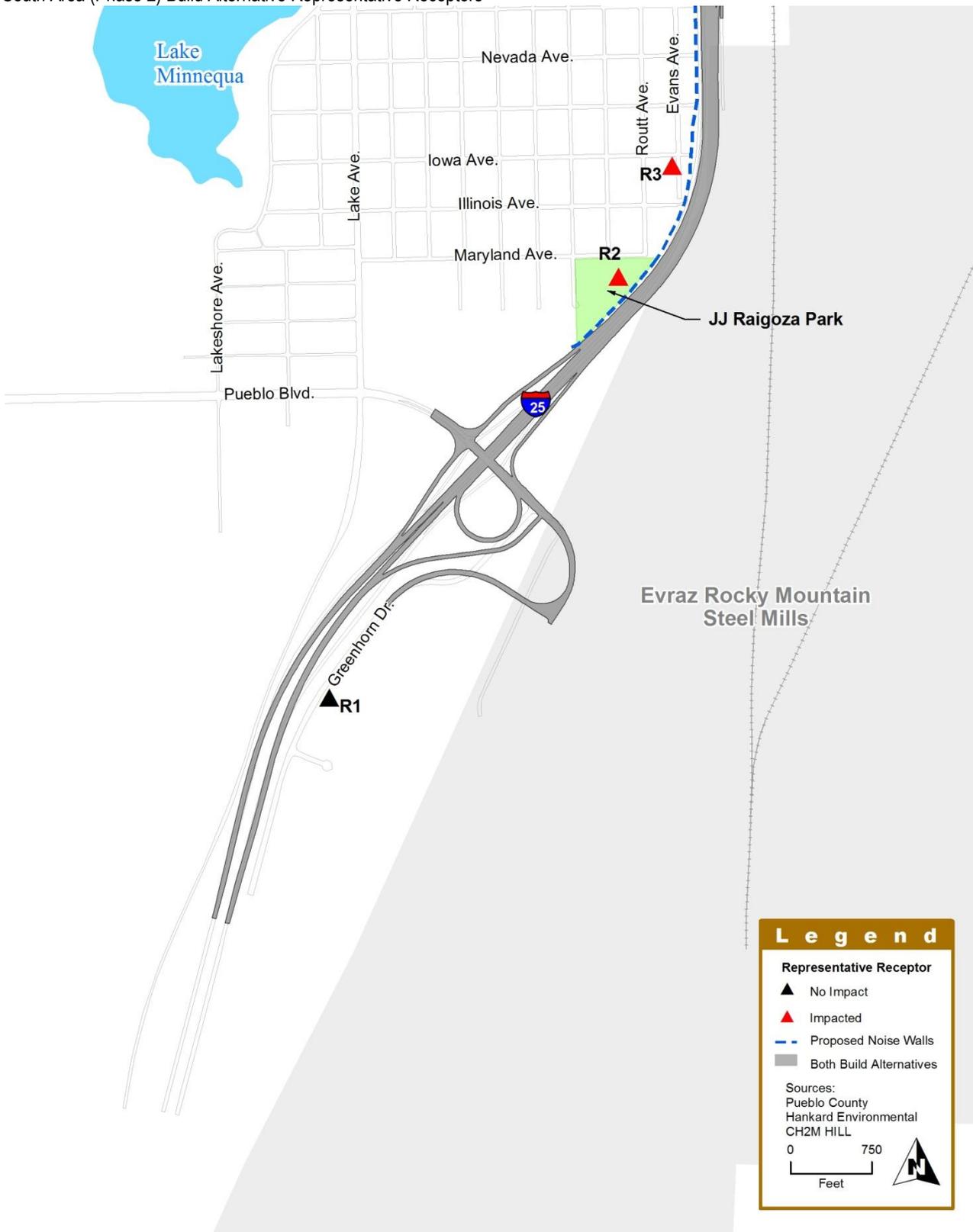


EXHIBIT 3.5-7**Central Area (Phase 2) Noise-Impacted Representative Receptors by Alternative (dBA)**

Noise Receptor #	General Location	Baseline Conditions (2003)	Noise Abatement Criteria	No Action Alternative (2035)	Existing I-25 Alternative (2035)	Modified I-25 Alternative (Preferred Alternative) (2035)	Increase Over Existing Levels (Existing I-25 Alternative)	Increase Over Existing Levels (Modified I-25 Alternative)
CENTRAL AREA (PHASE 2)								
4	Aqua Avenue and Evans Avenue	70	66	71	74	69	4	-1
5	Minnequa Avenue and Evans Avenue	61	66	62	66	63	5	2
6	Emerson Avenue and Abriendo Avenue	69	66	70	71	65	2	-4
18	B Street and Rush Street	65	66	66	67	60	2	-5
19	Locust Street and Moffat Street	64	66	65	66	-- ¹	1	2

Source: Hankard Environmental, Inc., 2012.

dBA = A-weighted decibel

I-25 = Interstate 25

¹ This property would be acquired under the Modified I-25 Alternative (Preferred Alternative).

EXHIBIT 3.5-8
Existing I-25 Alternative Central Area (Phase 2) Noise Representative Receivers



*R15 would be acquired under the Existing I-25 Alternative for right-of-way. No noise impact would occur.

EXHIBIT 3.5-9

Modified I-25 Alternative (Preferred Alternative) Central Area (Phase 2) Noise Representative Receivers



*R19 would be acquired under the Modified I-25 Alternative (Preferred Alternative) for right-of-way. No noise impact would occur.

3.5.5 Mitigation

Unless otherwise specified, the following mitigations apply to both the Existing I-25 Alternative and the Modified I-25 Alternative (Preferred Alternative). Details regarding the predicted noise level reductions with mitigation, barrier effectiveness, cost, and other criteria used to determine the reasonableness and feasibility of noise mitigation are included in the *Noise Technical Memorandum, New Pueblo Freeway* (Hankard Environmental, Inc., 2012).

Some sites also qualify as Section 4(f) resources and are further protected by regulations that manage impacts to qualifying resources. Mineral Palace Park and JJ Raigoza Park are recommended for mitigation and have been evaluated for noise barriers. While the Fountain Creek Park Land is also a Section 4(f) resource, there are no active recreational uses within the area impacted by noise, and mitigation is not recommended at this time. **Chapter 4 – Section 4(f) Evaluation** provides additional details on Section 4(f) resources.

Due to the limited space adjacent to the I-25 corridor, only noise walls were analyzed for mitigation in most locations. Other types of mitigation measures, such as landscape berms, require more space than would be available and were therefore not considered. The one exception is Mineral Palace Park, where space is available and there is a public desire for berms, which better fit the context of the park. In this case, both noise walls and landscape berms are proposed for noise mitigation. Conceptual drawings of the proposed noise walls are shown in **Exhibits 3.5-10 and 3.5-11**. The *New Pueblo Freeway Aesthetic Guidelines* (see **Appendix C**) provide additional details on the aesthetics of these walls. If necessary, Options for other types of mitigation structures will be evaluated during final design.

As part of the CDOT Noise Analysis and Abatement Guidelines (CDOT, 2011a), CDOT will solicit current residential occupants and property owners' opinions on whether to build or not build the abatement measures recommended for the Modified I-25 Alternative (Preferred Alternative). A vote of equal standing will be provided one resident and one owner per benefited dwelling unit prior to the signing of the Record of Decision. When construction occurs in residential areas or other noise-sensitive areas, such as parks or hospitals, construction noise impacts will

be mitigated by restricting construction to daylight hours when possible and requiring contractors to use well-maintained equipment. Additional noise analysis will be performed during final design to refine the final mitigation measures and dimensions.

North Area (Phase 1)

Exhibit 3.5-12 lists the properties in the North Area (Phase 1) that were evaluated for noise wall feasibility and reasonableness. **Exhibit 3.5-4** shows the locations of the noise impacted areas and the noise mitigation structures that will be constructed.

- ❖ Approximately 7,660 linear feet of noise mitigation structures will be constructed by CDOT to reduce the noise impact for either of the Build Alternatives in the North Area (Phase 1).

South Area (Phase 2)

Exhibit 3.5-13 lists the properties that were evaluated for noise wall feasibility and reasonableness. **Exhibit 3.5-6** shows the locations of the noise impacted areas and the noise mitigation structures that will be constructed.

- ❖ Approximately 4,840 linear feet of noise mitigation structures will be constructed by CDOT to reduce the noise impact at JJ Raigoza Park and the residences located along Evans Avenue between Maryland and Nevada in the South Area (Phase 2) of the corridor for either Build Alternative.

Central Area (Phase 2)

Under the Existing I-25 Alternative, there were two areas in the Grove Neighborhood – Grove Residential Area (B Street to C Street) and Moffat Street (Locust Street to Juniper Street) – for which noise mitigation was considered but ultimately not included because a 5 dBA noise reduction could not be achieved with a noise mitigation structure or because the cost would exceed the allowable cost per receptor per dBA of reduction. These areas are located on both sides of I-25 just north of the Arkansas River crossing. A total of 71 residences in these two areas would be impacted by noise levels exceeding the Category B noise abatement criterion.

The Modified I-25 Alternative (Preferred Alternative) would not create noise impacts in the Grove Neighborhood at Moffat Street (Locust Street to Juniper Street) because it would acquire all of the homes in the vicinity of the new alignment; thus, there would be no homes to impact. The

EXHIBIT 3.5-10
Noise Wall Mitigation Concepts



EXHIBIT 3.5-11
Noise Wall Mitigation from the New Pueblo Freeway Aesthetic Guidelines

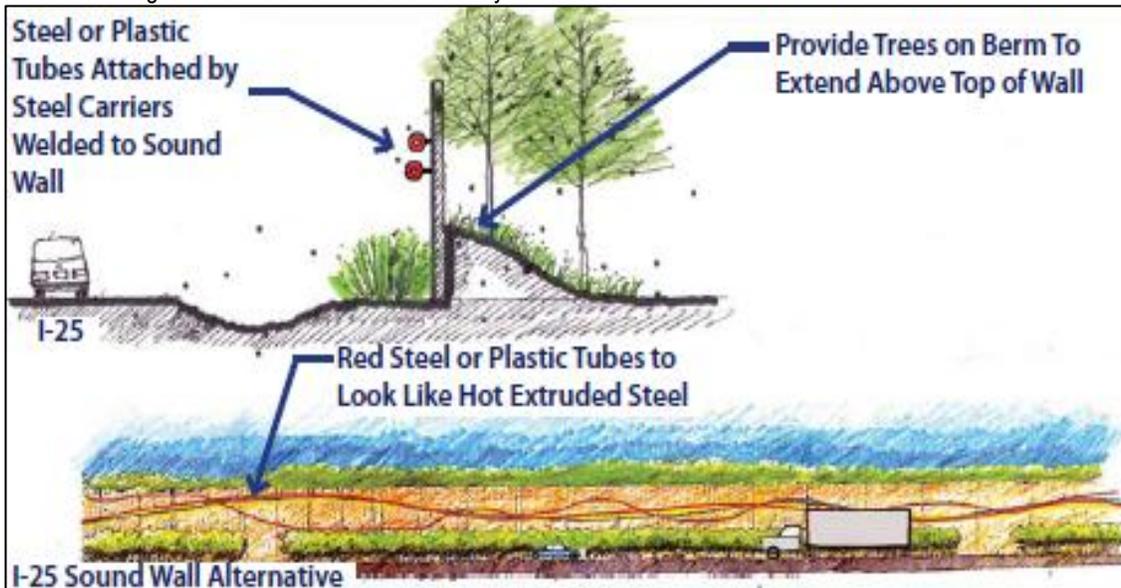


EXHIBIT 3.5-12

Summary of Noise Mitigation for Noise Impacted Areas under the Build Alternatives – North Area (Phase 1)

General Location of Noise Contour-Defined Impact	Noise Abatement Criteria Category/Type	Noise Mitigation Structure Analyzed (length [feet] x height [feet])	Mitigation to be Included in Project?	Notes
Pits Park Residences (24th Street to 29th Street and West of I-25)(R34-R38)	Category B/ Residential; Category C/Park	2,870 x 20	Yes	\$6,790 cost per receptor per dBA of noise reduction
N. Albany Avenue Residences (20th Street to 21st Street and West of I-25), Mineral Palace Park, Mineral Palace Park Towers (R26-R30)	Category B/ Residential; Category C/Park	2,998 x 18	Yes	\$6,671 cost per receptor per dBA of noise reduction
Kelly Avenue Residences (Beech Street to 1st Street and East of I-25); Bradford Street Residences (Beech Street to 1st Street and East of I-25) (R22-R23)	Category B/ Residential	1,791 x 15	Yes	\$4,149 cost per receptor per dBA of noise reduction
Fountain Creek Parkland (East of I-25)(R28-R29)	Category C/Park	None	No	The parkland is owned and maintained by the City as an undeveloped open space without any established outdoor recreation uses that could be impaired due to noise. There are trails and picnic areas east of Fountain Creek, but the area east of the creek is not impacted by noise (R25, R33).

Source: Hankard Environmental, Inc., 2012.

I-25 = Interstate 25

EXHIBIT 3.5-13

Summary of Noise Mitigation for Noise Impacted Areas under the Build Alternatives – South Area (Phase 2)

General Location of Noise Contour-Defined Impact	Noise Abatement Criteria Category/Type	Noise Mitigation Structure Analyzed (length [feet] x height [feet])	Mitigation to be Included in Project?	Notes
Evans Avenue Residences (Indiana Avenue to Illinois Avenue and West of I-25) (R3-R4); JJ Raigoza Park (R2)	Category B/ Residential; Category C/Park	4,838 x 18	Yes	\$4,614 cost per receptor per dBA of noise reduction

Source: Hankard Environmental, Inc., 2012.

I-25 = Interstate 25

Grove Area Residences from B Street to C Street would not be impacted because the alignment would shift to the east and away from these residences. The Modified I-25 Alternative (Preferred Alternative) would not create noise impacts for the existing Benedict Park because the entire park would be acquired and relocated; thus, there would be no park at that location to impact. The relocated Benedict Park would not be impacted by noise.

Exhibit 3.5-14 lists the properties that were evaluated for noise wall feasibility and reasonableness for the Existing I-25 Alternative and the Modified I-25 Alternative (Preferred Alternative), respectively.

Exhibit 3.5-8 and Exhibit 3.5-9 show the locations of the noise impacted areas and the noise mitigation structures that will be constructed for the Existing I-25 Alternative and the Modified I-25 Alternative (Preferred Alternative), respectively.

- ❖ Under the Existing I-25 Alternative, CDOT will construct approximately 3,480 linear feet of noise mitigation structures in the Central Area (Phase 2) to reduce noise impacts.
- ❖ Under the Modified I-25 Alternative (Preferred Alternative), approximately 4,840 linear feet of noise mitigation structures will be constructed by CDOT to reduce the noise impact at JJ Raigoza Park and the residences located along Evans Avenue between Maryland and Indiana in the Central Area (Phase 2) of the corridor. This barrier overlaps between the South (Phase 2) and Central (Phase 2) Areas of the corridor and is included in **Exhibit 3.5-13**.

EXHIBIT 3.5-14

Summary of Noise Mitigation for Noise Impacted Areas under the Existing I-25 Alternative – Central Area (Phase 2)

General Location of Noise Contour-Defined Impact	Noise Abatement Criteria Category/Type	Noise Mitigation Structure Analyzed (length [feet] x height [feet])	Mitigation to be Included in Project?	Notes
Moffat Street Residences (Locust Street to Juniper Street and East of I-25)(R19)	Category B/ Residential	970 x 21	No	The cost per benefited receptor is \$23,058, which is considered unreasonable. The wall is not recommended.
Grove Area Residences (on Palm Street from B Street to C Street)(R18)	Category B/ Residential	516 x 20	No	Noise walls along I-25 could not achieve 5 dBA of noise reduction, which is considered infeasible.
Evans Avenue Residences (Indiana Avenue to Jones Avenue)(R5-R6)	Category B/ Residential	1,995 x 18	Yes	\$4,377 cost per receptor per dBA of reduction combined with proposed barrier from JJ Raigoza to Indiana Street

Source: Hankard Environmental, Inc., 2012.

dBA = A-weighted decibel

I-25 = Interstate 25