

Appendix C.
Noise Impact Assessment (HDR, 2015)



120TH AVENUE TO SH 7



Noise Impact Assessment



RECORD OF DECISION 2

FINAL September 28, 2015

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INTRODUCTION AND STUDY AREA

The proposed project is located north of Denver, Colorado, on Interstate 25 (I-25) between 120th Avenue and SH 7. The project includes the addition of an Express Lane in each direction between the project limits and minor ramp modifications at 120th Avenue, 136th Avenue, and 144th Avenue to accommodate the Express Lane.

This document updates the noise impact analyses that were prepared as part of the *North I-25 Final Environmental Impact Statement* (2011 FEIS) (CDOT, 2011) for a second Record of Decision (ROD2) in this segment of the I-25 corridor. This report updates existing land uses, traffic volumes, and noise abatement measures that were considered in the 2011 FEIS. This report also updates noise abatement evaluations considered in the 2011 FEIS using the most current version of the Colorado Department of Transportation's (CDOT) *Noise Analysis and Abatement Guidelines* (CDOT, 2013).

The format of this report follows Appendix B (Noise Technical Report Requirements) of the 2013 CDOT guidelines.

NOISE BASICS AND APPLICABLE GUIDELINES

According to CDOT's guidelines, a review of acoustic fundamentals and noise is required for noise technical reports. This information was provided previously in the 2011 FEIS and, for brevity, is not repeated in this report.

The impact thresholds of concern for this analysis are the CDOT noise abatement criteria (NAC), which are shown in Table 1. Under CDOT guidelines, a noise level equaling or exceeding the NAC is considered a noise impact and triggers the requirement for consideration and evaluation of noise abatement measures. In addition, a "substantial" noise increase is defined by CDOT as an increase of 10 dBA or more over existing noise levels. Traffic volumes used in this evaluation have been updated since the 2011 FEIS (CDM-Smith, 2013). The baseline year in the updated traffic assessment was 2015 and that baseline year is used in this report to represent the "existing condition" even though it is in the future.

Table 1. CDOT Noise Abatement Criteria

Activity Category	L _{eq} Noise Levels (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	66 (exterior)	Residential.
C	66 (exterior)	Active sports areas, amphitheaters, 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, recreation 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 room, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.

Table 1. CDOT Noise Abatement Criteria

Activity Category	L _{eq} Noise Levels (dBA)	Description of Activity Category
E	71 (exterior)	Hotels, motels, offices, restaurants/bars, and other undeveloped lands, properties, or activities not included in categories A–D or F.
F	—	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	—	Undeveloped lands that are not permitted.

Source: CDOT Noise Analysis and Abatement Guidelines, February 8, 2013

MEASUREMENT PROCEDURES AND MODEL VALIDATION

A Larson-Davis 820 Sound Level Meter was used to measure existing noise levels. Noise monitoring was conducted at two locations on April 10, 2014, to field-verify the traffic noise model. Traffic volumes were videotaped during each 10-minute measurement period, counted, classified (as cars, medium trucks, or heavy trucks), normalized to a 1-hour period, and used as input to the noise model. Model validation results are shown in Table 2.

Table 2. Traffic Noise Model Validation Results

Location	Measured L _{eq} (dBA)	Modeled L _{eq} (dBA)	Difference (dBA)
Tanglewood Multifamily Development	72.0	73.4	1.4
Thorncreek Village Development	68.2	68.0	0.2

As discussed in CDOT’s guidelines, if the difference between the measured and modeled noise levels is less than 3 dBA (which is the case as noted in Table 2), then the traffic noise model is acceptable and demonstrates the validity of the model results.

MODEL INPUT DATA

Table 3 shows the hourly traffic volumes used in the noise modeling for 2015 and 2035. This technical memorandum uses 2035 volumes. A comparison was conducted to 2040 volumes and only minor differences were noted. The final design noise analysis will use 2040 volumes. For each roadway in the model, the highest hourly volume (AM or PM peak-hour) was used to represent a worst-case (that is, more conservative) modeling scenario.

Where the traffic volumes provided by CDM-Smith were greater than the 5,100 vehicles per hour (1,700 vehicles per hour per lane in the 3 general purpose lanes), the recommended traffic volumes from Exhibit 4 of the CDOT noise guidelines were used to reflect free-flowing traffic volumes at posted speed limits when traffic noise levels would be loudest. The Express Lane was modeled as a separate road and the 2035 volumes ranged from 918 vph to 1359 vph as shown in Table 3.

Interchange ramps and the major arterials at 120th Avenue, 136th Avenue, and 144th Avenue were also included in the model. Model coordinates (including receptor elevations and barrier

coordinates) were those included in the 2011 FEIS modeling provided or were derived from other sources such as GIS or Google Earth terrain imagery.

Table 3. Noise Model Traffic Volumes (vehicles per hour)¹

	2015	2035 (Express Lane)		2015	2035 (Express Lane)
120th Avenue			120th Avenue		
SB Mainline I-25	5100 ²	5100 (1359)	NB Mainline I-25	5100 ²	5100 ² (918)
SB Off-Ramp to 120th Avenue	1153	1253	NB On-Ramp to I-25	820	1012
EB 120th Avenue (west of I-25)	2493	2515	WB 120th Avenue (west of I-25)	2296	2203
EB 120th Avenue (east of I-25)	2564	2571	WB 120th Avenue (east of I-25)	2333	2392
136th Avenue			136th Avenue		
SB Mainline I-25	4743	5100 ² (1359)	NB Mainline I-25	5100 ³	5100 ² (918)
SB Off-Ramp to 136th Avenue	723	765	NB Off-Ramp to 136th Avenue	782	743
SB On-Ramp to I-25	1090	1221	NB On-Ramp to I-25	1023	1197
EB 136th Avenue (west of I-25)	1385	1433	WB 136th Avenue (west of I-25)	1076	1050
EB 136th Avenue (east of I-25)	1775	1868	WB 136th Avenue (east of I-25)	1672	1706
144th Avenue			144th Avenue		
SB Mainline I-25	4467	4995 (1359)	NB Mainline I-25	4689	5100 ² (918)
SB Off-Ramp to 144th Avenue	583	721	NB Off-Ramp to 144th Avenue	562	729
SB On-Ramp to I-25	859	1148	NB On-Ramp to I-25	1027	1092
EB 144th Avenue (west of I-25)	2120	2084	WB 144th Avenue (west of I-25)	1864	1618
EB 144th Avenue (east of I-25)	1645	1598	WB 144th Avenue (east of I-25)	1542	1705

¹Traffic volumes from CDM-Smith 2013 except where noted

²Volume from CDOT Noise Analysis and Abatement Guidelines, Exhibit 4 (Freeway volume 1,700 vphpl at 70 mph)

Directional volumes and the vehicle mix used in the model were derived from videotaped traffic volumes recorded during the noise monitoring conducted on April 10, 2014. Table 4 shows the directional splits used and the percentage of each vehicle type used in the model. The Express Lane volumes were assumed to be 99 percent cars and 1 percent buses.

Additional receptors were added to the model (where warranted) based on new residential development since the release of the 2011 FEIS and to provide additional resolution in evaluating potential noise impacts at residential receptor locations. The only permitted developments in the study area that are close to I-25 are the existing Thorncreek Village development and the Tanglewood Multifamily Development just north of 120th Avenue.

Table 4. I-25 Vehicle Mix and Directional Split

Vehicle Type	Northbound (%)	Southbound (%)
120th Avenue to 136th Avenue		
▪ Cars	89	91
▪ Medium Trucks	5	3
▪ Heavy Trucks	6	6
136th Avenue to 144th Avenue		
▪ Cars	85	89
▪ Medium Trucks	6	4
▪ Heavy Trucks	9	7

At the Thorncreek Village development, 31 receptors (each representing a triplex unit in the development), as well as building rows to account for shielding, were added to the noise model. At the Tanglewood Multifamily Development, 71 receptors and additional building rows were added to the model to provide greater modeling detail. In addition, receptors at the Tanglewood Multifamily Development were located at 2nd and 3rd level locations where balconies would potentially be exposed to traffic noise from mainline I-25 and at other locations representing areas of frequent outdoor use. Modeled receptor locations are shown in Figure 1 through Figure 6.

Pedestrian Trails

In addition, noise analysis of trail locations in the area between 120th Avenue and SH 7 was included. There are several segments of trails that parallel or intercept the highway (see Figure 7), including the **I-25 Trail** (a.k.a. **I-25/Tanglewood Creek Trail**), the **Big Dry Creek Regional Trail**, and the **Willowbrook Park and Trail**. According to Adams County, City of Westminster, and City of Thornton, these trails are pedestrian- and bicycle-oriented and encourage outdoor activity. Amenities, such as multi-family neighborhoods, major retail, primary and secondary schools, parks, open space, and other trail systems, particularly in Westminster, surround these three trails. The jurisdictions along I-25 expect people to use these and all other trails along the corridor for recreational and commuting activities.

Photos of these trails are shown in Figure 8.

Chronological Order of Trail Development. I-25 was the first amenity that influenced the chronological order of the trail development in the corridor. Oftentimes, new development has influenced the location of the trails as well, which have been planned to fit within the context of development as it progresses.

I-25 Trail. The I-25 Trail system, in particular, has been strategically planned and placed along the highway for its recreational and commuter value. The City of Westminster’s Trails Master Plan has guided the trail’s development to include grade-separated regional trail crossings whenever possible to keep the trail cohesive and safe. Grade-separated crossings allow the trail to generally follow drainage topography, which allows segments of the trail to rest below the interstate at a more natural grade. The drainage topography along the creeks in the region—which is often preserved as open space—also provides views to the mountains in the west.

Figure 1. Noise Model Receptors



Figure 2. Noise Model Receptors

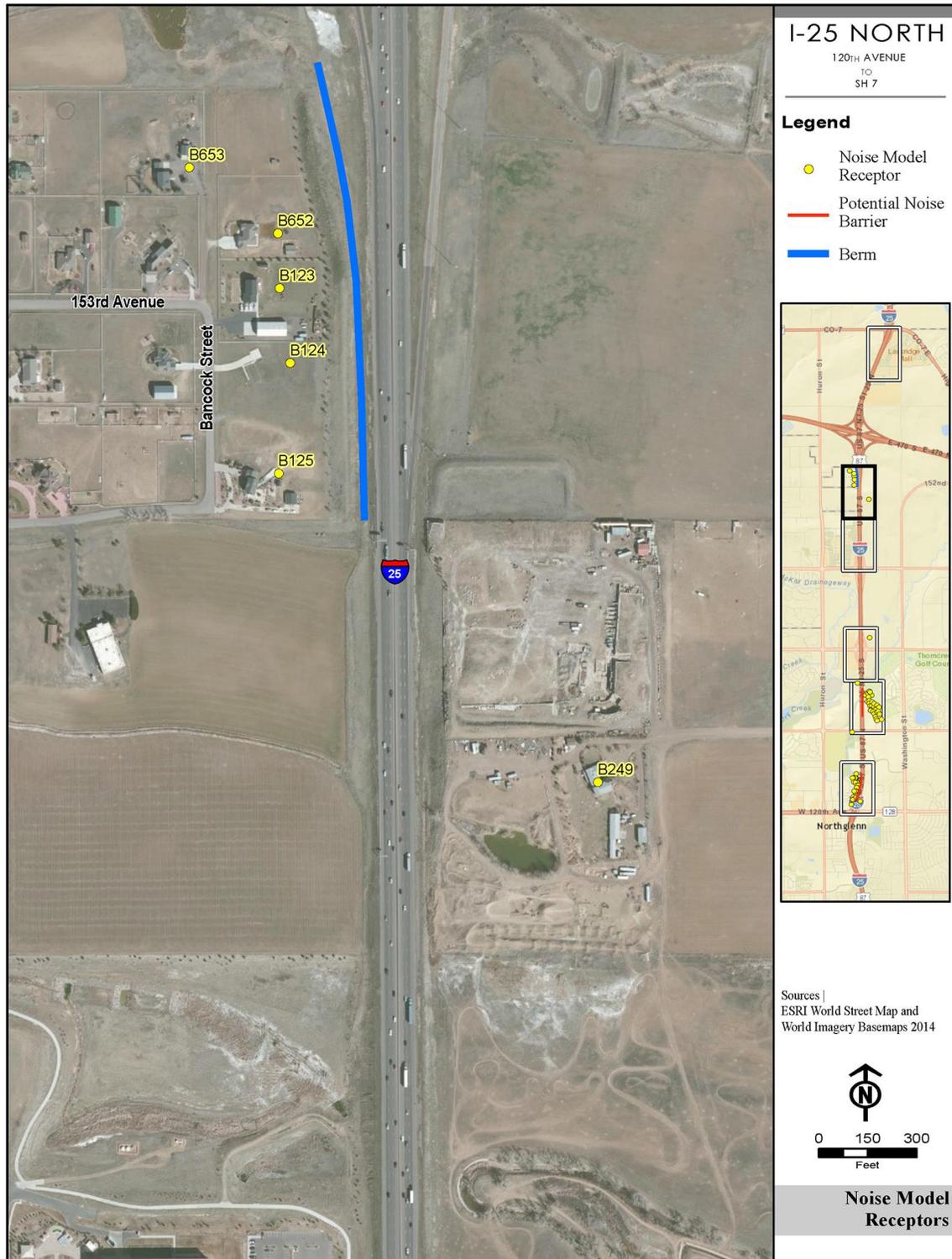


Figure 3. Noise Model Receptors



Figure 4. Noise Model Receptors



Figure 5. Noise Model Receptors

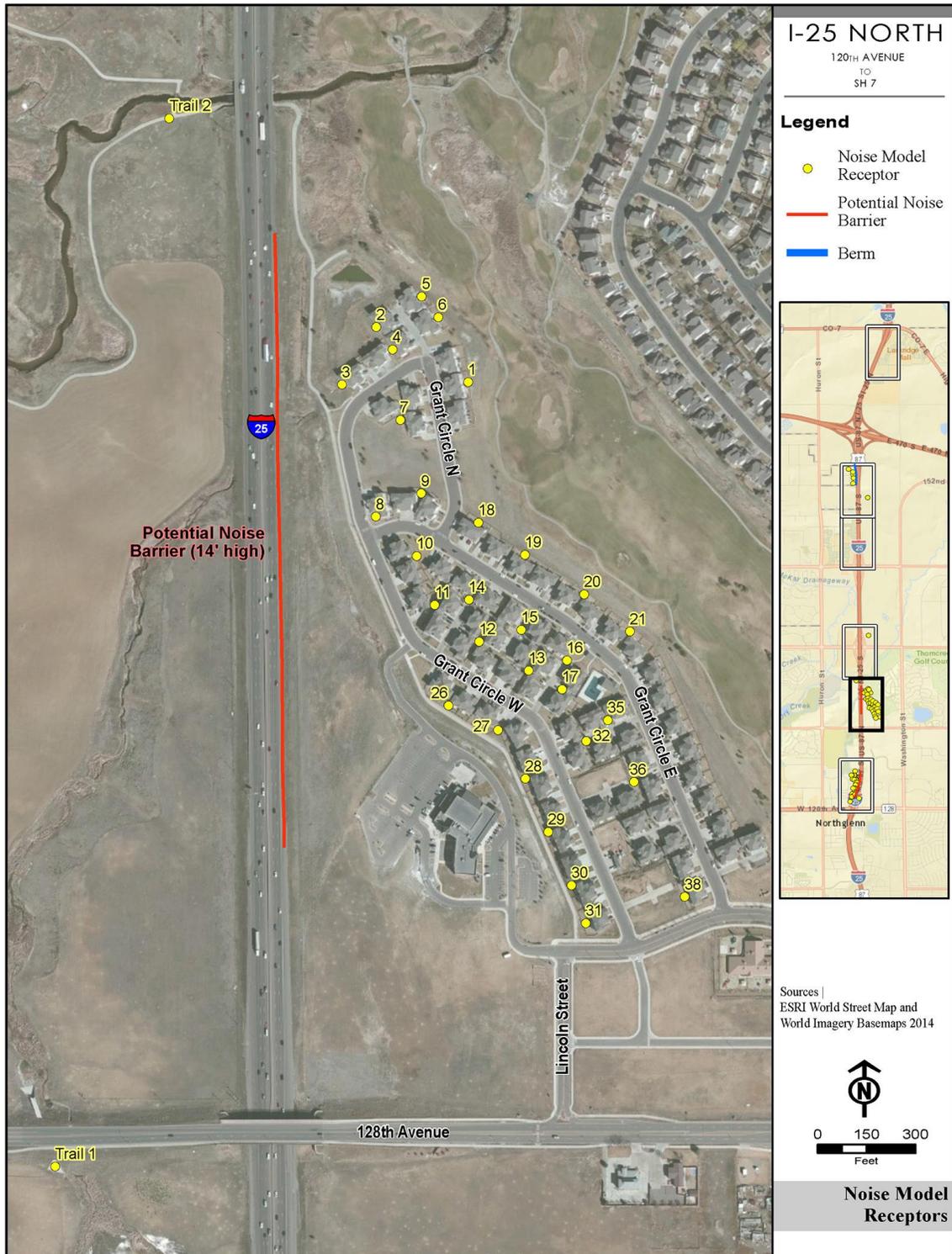


Figure 6. Noise Model Receptors

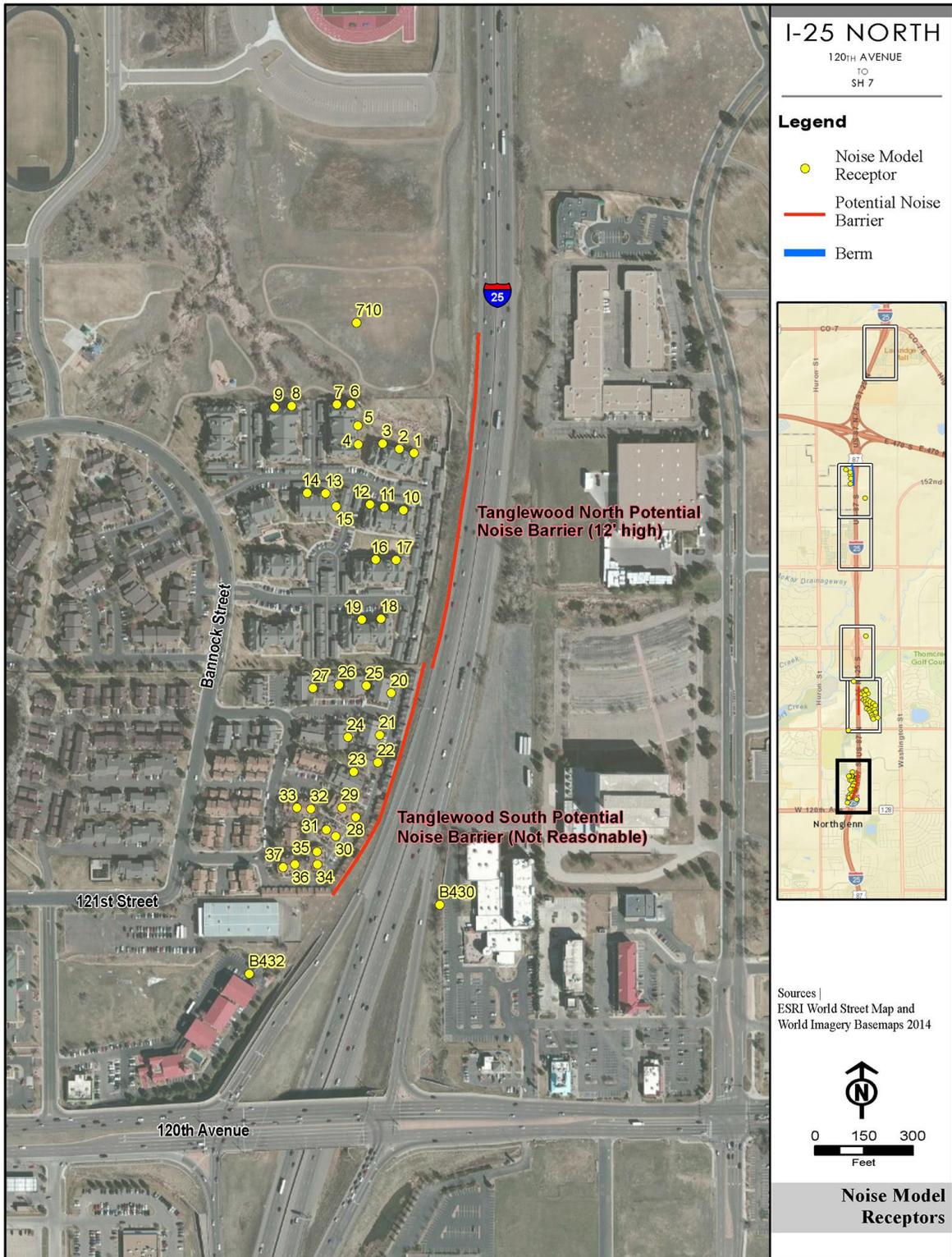


Figure 7. Trails in the North I-25 ROD2 Study Area

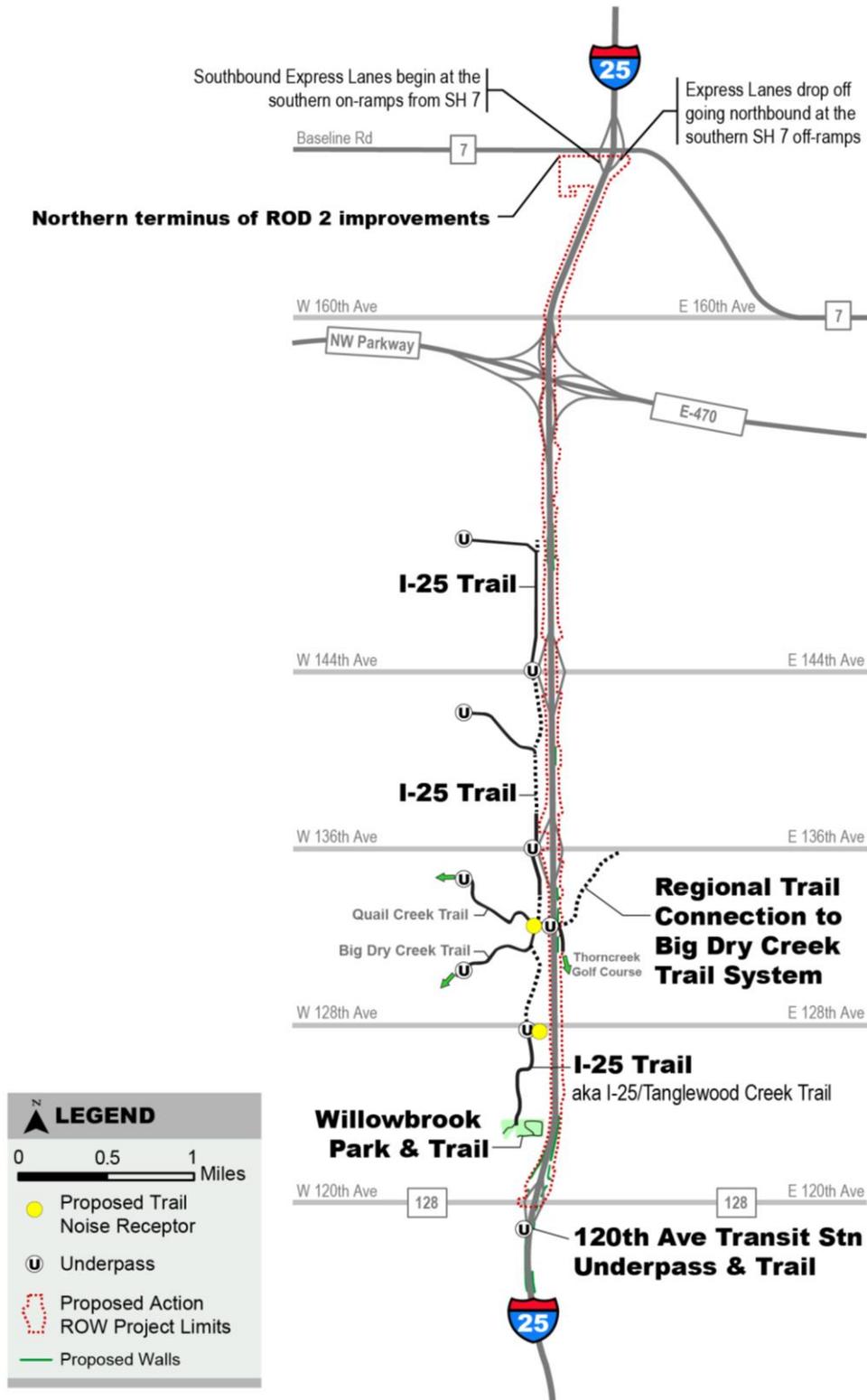
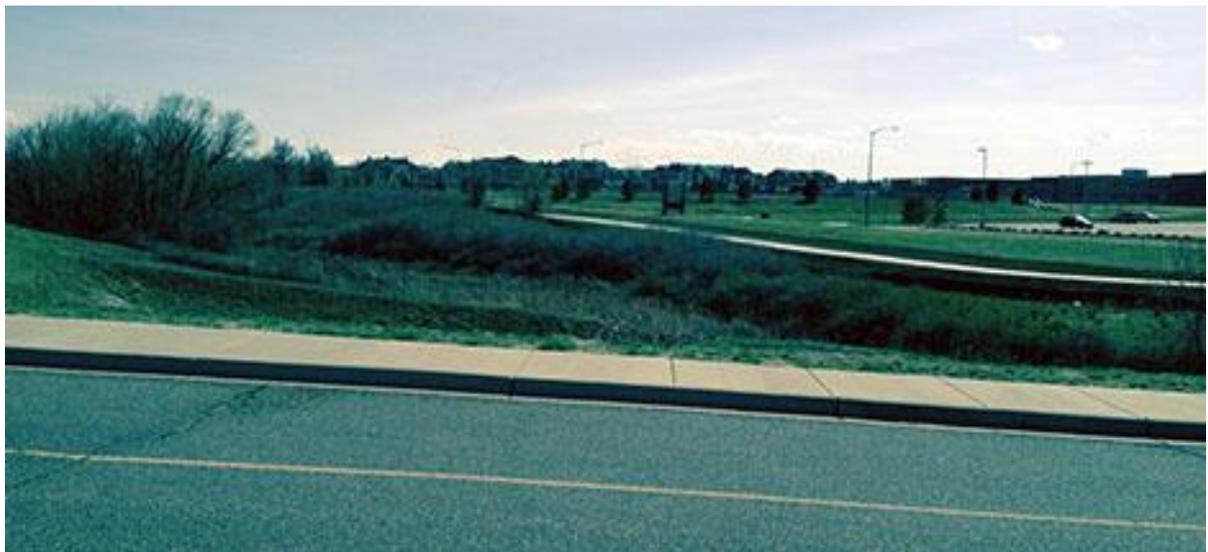


Figure 8. I-25/Tanglewood Creek Trail (constructed 2013–2014)



Newly constructed trail looking north toward W 128th Avenue overpass at I-25 (to the right)



Trail looking south toward Willowbrook Park with view of Mountain Range High School parking lot

The City of Westminster has already connected the I-25 Trail to Huron Street at several locations. Future plans will connect it to the Quail Creek Trail and Big Dry Creek Trail system west and east of I-25. A grade separation currently exists for these trails under I-25, south of 136th Avenue, to provide future connections to the Regional Big Dry Creek Trail System east of I-25. The Regional Big Dry Creek Trail System will traverse the City of Thornton and Adams County, in addition to the City of Westminster.

The volume of use on Westminster's I-25 Trail is anticipated to be high. Data was collected in September 2012 by a trail usage counter along Westminster's existing segment of the Big Dry Creek Regional Trail, and the City of Westminster expects daily use of the I-25 Trail to exceed 500 trips/day.

Big Dry Creek Trail System. The City of Thornton reports that some of the Big Dry Creek Trail facilities (e.g. pedestrian and bicycle underpasses) were installed near I-25 ahead of the trail connections themselves, on both sides of I-25, when the 136th Avenue and 144th Avenue interchanges were constructed. These grade separations were installed for non-recreational and recreational uses. The City of Thornton reports that the volume of use on trails in general is difficult to obtain and is seldom recorded. Most trail and sidewalk use (in general) is seasonal with very little use in the winter. As days get warmer, more activity takes place. The trail uses are more recreational than destination-driven.

Two locations for the noise analysis were chosen along the trail system. These locations which are illustrated in Figure 7 as yellow dots, were selected because of the following factors:

- Volume of recreational and/or commuting users.
- Connection to activities along the trail.
- Scenic view or other geographic feature provided to the trail user in that section of trail.

The northernmost noise receptor is at the confluence of Westminster's existing Quail Creek, Big Dry Creek and the future connection of the I-25 Trail. This location meets all of the criteria above and connects to many activities on each side of the interstate. The southernmost noise receptor is at West 128th Avenue. This location is close to Mountain Range High School (with its many activities) and offers scenic views along the I-25/Tanglewood Creek Trail.

IMPACT ANALYSIS

Table 5 and Table 6 show the noise model results and noise impacts at receptors between 120th Avenue and SH 7 with the updated existing 2015 conditions, and in 2035 following completion of the project (but without consideration of noise abatement measures).

Table 5 includes receptors at the Thorncreek Village residential development and others that are north of 128th Avenue (see Figure 1 through Figure 5). Table 6 includes receptors from the southern project limit at 120th Avenue to 128th Avenue including the Tanglewood Multifamily Development (see Figure 6).

As shown in Table 5, modeled noise levels in 2035 range from about 58 dBA to 80 dBA depending on the proximity of the receptor to I-25 (and other roads), as well as terrain effects.

In general, modeled noise at receptors increase by about 2 dBA to 4 dBA at most receptors because of increased traffic volumes in 2035 and the addition of the Express Lane, which

moves the general purpose lanes closer to residential receptors. Table 5 also shows those receptors exceeding the residential or commercial NAC (66 dBA for NAC B and 71 dBA for NAC E, as appropriate based on the activity category).

Table 6 shows modeled noise levels at receptors in the vicinity of the Tanglewood Multifamily Development north of 120th Avenue. As shown in Table 6, model noise levels in the vicinity of 120th Avenue range from about 61 dBA to 79 dBA and increase by about 1 dBA to 4 dBA depending on the receptor location relative to I-25.

There are no substantial noise increases (that is, a 10 dBA or greater increase over existing baseline noise levels) due to the project.

MITIGATION ANALYSIS AND EVALUATION

All impacted receptors identified in the impact analysis between 120th Avenue to E 470/ Northwest Parkway were considered for noise abatement. All abatement measures recommended for final design were analyzed for feasibility and reasonableness by addressing constructability, acoustic feasibility, CDOT design goals and cost-effectiveness, respectively. All abatement measures meeting these criteria will be re-evaluated at final design (prior to construction).

CDOT defines the noise-reduction goal as the insertion loss that is predicted to result from a barrier that results in a 7 dBA noise reduction for at least one benefited receptor. A benefited receptor (whether it exceeds the residential NAC or not) is one that receives at least 5 dBA of noise reduction.

This section focuses on consideration of noise barriers in those residential locations where the residential density is such that noise barriers could meet both the technical criteria and cost requirements as specified in the CDOT guidelines. Other noise abatement options, such as traffic management measures and horizontal or vertical alignment adjustments, were described in the 2011 FEIS and were determined to be impractical. Those measures are not repeated in this report.

Each barrier was evaluated to determine the barrier height (if any) that met CDOT's design goal of a 7 dBA insertion loss for at least one receptor. After the appropriate barrier height was determined, the acoustic benefit from the barrier was calculated and compared to the overall cost of the wall to determine the cost-benefit index (that is, whether the cost per receptor was less than CDOT's threshold of \$6,800 per benefitting receptor).

The overall feasibility and reasonableness of each barrier determined whether the barrier was recommended for the project. When these conditions are met, an abatement action can be recommended. As noted above, final decisions on barrier size, placement, feasibility, reasonableness, and materials will be made during final design.

As noted above, two residential locations were evaluated for consideration of noise barriers: the Thorncreek Village development (see Figure 5) and the Tanglewood Multifamily Development (see Figure 6).

Table 5. Noise Model Results—128th Avenue to SH 7

Receptor	Dwelling Units	2015 Noise Levels (Leq)	Noise Abatement Criteria	Impact?	2035 Build: No Barriers (Leq)	Change from 2015	Impact?
705—Trail (NAC C)	1	70	66	Yes	72	2	Yes
B123—Residential (behind berm)	1	66	66	Yes	67	1	Yes
B124—Residential (behind berm)	1	66	66	Yes	67	1	Yes
B125—Residential (behind berm)	1	68	66	Yes	68	0	Yes
B249—Residential (isolated)	1	67	66	Yes	69	2	Yes
B652—Residential (behind berm)	1	67	66	Yes	67	0	Yes
B653—Residential (behind berm)	1	63	66	----	64	1	----
B657—Residential (isolated)	1	64	66	----	65	1	----
1—Thorncreek Development	9	60	66	----	63	3	----
2—Thorncreek Development	3	69	66	Yes	71	2	Yes
3—Thorncreek Development	3	73	66	Yes	74	1	Yes
4—Thorncreek Development	3	68	66	Yes	70	2	Yes
5—Thorncreek Development	3	64	66	----	67	3	Yes
6—Thorncreek Development	3	62	66	----	65	3	----
7—Thorncreek Development	8	67	66	Yes	69	2	Yes
8—Thorncreek Development	3	69	66	Yes	71	2	Yes
9—Thorncreek Development	6	66	66	----	68	2	Yes
10—Thorncreek Development	6	66	66	Yes	69	3	Yes
11—Thorncreek Development	6	65	66	----	68	3	Yes
12—Thorncreek Development	12	59	66	----	63	4	----
13—Thorncreek Development	12	58	66	----	62	4	----
14—Thorncreek Development	6	62	66	----	66	4	----
15—Thorncreek Development	6	61	66	----	64	3	----
16—Thorncreek Development	3	57	66	----	60	3	----
17—Thorncreek Development	6	57	66	----	60	3	----
18—Thorncreek Development	3	62	66	----	66	4	----
19—Thorncreek Development	6	60	66	----	63	3	----
20—Thorncreek Development	6	57	66	----	61	4	----
21—Thorncreek Development	6	55	66	----	58	3	----
26—Thorncreek Development	6	64	66	----	67	3	Yes

Table 5. Noise Model Results—128th Avenue to SH 7

Receptor	Dwelling Units	2015 Noise Levels (Leq)	Noise Abatement Criteria	Impact?	2035 Build: No Barriers (Leq)	Change from 2015	Impact?
27—Thorncreek Development	6	61	66	----	65	4	----
28—Thorncreek Development	6	60	66	----	64	4	----
29—Thorncreek Development	6	60	66	----	62	2	----
30—Thorncreek Development	6	59	66	----	61	2	----
31—Thorncreek Development	3	58	66	----	60	2	----
32—Thorncreek Development	6	58	66	----	59	1	----
35—Thorncreek Development	6	58	66	----	60	2	----
36—Thorncreek Development	6	58	66	----	58	0	----
38—Thorncreek Development	3	57	66	----	58	1	----
Trail Receptor 1	1	62	66	----	63	1	----
Trail Receptor 2	1	70	66	Yes	72	2	Yes

Table 6. Noise Model Results—120th Avenue to 128th Avenue

Receptor	Dwelling Units	2015 Noise Levels (Leq)	Noise Abatement Criteria	Impact?	2035 Build: No Barriers (Leq)	Change from 2015	Impact?
TW-1 (Ground Floor)	4	66	66	Yes	67	1	Yes
TW-1-2 (2nd Floor)	4	78	66	Yes	79	1	Yes
TW-2 (Ground Floor)	1	66	66	Yes	66	0	Yes
TW-2-2 (2nd Floor)	4	75	66	Yes	77	2	Yes
TW-2-3 (3rd Floor)	3	77	66	Yes	78	1	Yes
TW-3(Ground Floor)	2	65	66	----	67	2	Yes
TW-3-2 (2nd Floor)	3	73	66	Yes	74	1	Yes
TW-3-3 (3rd Floor)	3	75	66	Yes	77	2	Yes
TW-4 (Ground Floor)	3	66	66	Yes	68	2	Yes
TW-4-2 (2nd Floor)	3	72	66	Yes	73	1	Yes
TW-4-3 (3rd Floor)	3	74	66	Yes	75	1	Yes
TW-5 (Ground Floor)	3	67	66	Yes	69	2	Yes
TW-5-2 (2nd Floor)	3	72	66	Yes	74	2	Yes
TW-5-3 (3rd Floor)	3	74	66	Yes	75	1	Yes
TW-6 (Ground Floor)	3	65	66	----	66	1	Yes
TW-6-2 (2nd Floor)	3	71	66	Yes	73	2	Yes
TW-6-3 (3rd Floor)	3	73	66	Yes	74	1	Yes
TW-7 (Ground Floor)	3	65	66	----	66	1	Yes
TW-7-2 (2nd Floor)	3	71	66	Yes	72	1	Yes
TW-7-3 (3rd Floor)	3	72	66	Yes	74	2	Yes
TW-8 (Ground Floor)	3	62	66	----	63	1	----
TW-8-2 (2nd Floor)	3	68	66	Yes	70	2	Yes
TW-8-3 (3rd Floor)	3	70	66	Yes	71	1	Yes
TW-9 (Ground Floor)	3	62	66	----	62	0	----
TW-9-2 (2nd Floor)	3	68	66	Yes	69	1	Yes

Table 6. Noise Model Results—120th Avenue to 128th Avenue

Receptor	Dwelling Units	2015 Noise Levels (Leq)	Noise Abatement Criteria	Impact?	2035 Build: No Barriers (Leq)	Change from 2015	Impact?
TW-9-3 (3rd Floor)	3	69	66	Yes	70	1	Yes
TW-10 (Ground Floor)	3	64	66	Yes	66	2	Yes
TW-10-2 (2nd Floor)	4	75	66	Yes	76	1	Yes
TW-11 (Ground Floor)	4	63	66	----	65	2	----
TW-11-2 (2nd Floor)	3	71	66	Yes	73	2	Yes
TW-11-3 (3rd Floor)	3	76	66	Yes	78	2	Yes
TW-12 (Ground Floor)	3	63	66	----	64	1	----
TW-12-2 (2nd Floor)	3	69	66	Yes	71	2	Yes
TW-12-3 (3rd Floor)	3	75	66	Yes	76	1	Yes
TW-13(Ground Floor)	3	61	66	----	62	1	----
TW-13-2 (2nd Floor)	3	66	66	Yes	67	1	Yes
TW-13-3 (3rd Floor)	3	71	66	Yes	72	1	Yes
TW-14 (Ground Floor)	3	60	66	----	61	1	----
TW-14-2 (2nd Floor)	3	65	66	----	66	1	Yes
TW-14-3 (3rd Floor)	3	69	66	Yes	71	2	Yes
TW-15(Ground Floor)	3	61	66	----	62	1	----
TW-15-2 (2nd Floor)	3	66	66	Yes	67	1	Yes
TW-15-3 (3rd Floor)	3	72	66	Yes	73	1	Yes
TW-16 (Ground Floor)	3	62	66	----	63	1	----
TW-16-2 (2nd Floor)	3	69	66	Yes	71	2	Yes
TW-16-3 (3rd Floor)	3	76	66	Yes	78	2	Yes
TW-17 (Ground Floor)	3	63	66	----	65	2	----
TW-17-2 (2nd Floor)	4	73	66	Yes	75	2	Yes
TW-18 (Ground Floor)	4	65	66	----	67	2	Yes
TW-18-2 (2nd Floor)	4	77	66	Yes	78	1	Yes
TW-19 (Ground Floor)	4	64	66	----	65	1	----

Table 6. Noise Model Results—120th Avenue to 128th Avenue

Receptor	Dwelling Units	2015 Noise Levels (Leq)	Noise Abatement Criteria	Impact?	2035 Build: No Barriers (Leq)	Change from 2015	Impact?
TW-19-2 (2nd Floor)	3	73	66	Yes	74	1	Yes
TW-19-3 (3rd Floor)	3	76	66	Yes	77	1	Yes
TW-20	1	71	66	Yes	73	2	Yes
TW-21	1	68	66	Yes	70	2	Yes
TW-22	1	67	66	Yes	69	2	Yes
TW-23	1	68	66	Yes	70	2	Yes
TW-24	1	67	66	Yes	69	2	Yes
TW-25	1	72	66	Yes	73	1	Yes
TW-26	1	68	66	Yes	70	2	Yes
TW-27	1	65	66	----	67	2	Yes
TW-28	1	68	66	Yes	70	2	Yes
TW-29	1	67	66	Yes	69	2	Yes
TW-30	1	67	66	Yes	69	2	Yes
TW-31	1	67	66	Yes	68	1	Yes
TW-32	1	65	66	----	67	2	Yes
TW-33	1	64	66	----	65	1	----
TW-34	1	68	66	Yes	69	1	Yes
TW-35	1	68	66	Yes	69	1	Yes
TW-36	1	67	66	Yes	68	1	Yes
TW-37	1	66	66	Yes	67	1	Yes
B430—Commercial (NAC E)	1	72	71	Yes	74	2	Yes
B432-1—Commercial (NAC E)	1	64	71	----	66	2	----
B432-3—Commercial (NAC E)	1	73	71	Yes	77	4	Yes

Table 7 shows a summary of the barrier evaluations for the project and Table 8 and Table 9 show barrier evaluation details for the Thorncreek Village and Tanglewood Multifamily Development, respectively.

Thorncreek Village Noise Barrier

A noise barrier at Thorncreek Village was recommended in the 2011 FEIS but was not included as part of the 2011 Record of Decision.

This analysis confirms the preliminary barrier configuration from the 2011 FEIS after evaluating the barrier with additional receptors not included in the 2011 FEIS, incorporating building rows in the model, and using updated traffic volumes. This updated analysis also evaluates that barrier using the most recent 2013 CDOT guidelines.

As shown in Table 8, a noise barrier about 1,850 feet long and 14 feet high would meet CDOT's design goal and would provide about 292 dBA of acoustic benefit at residences in the development at a cost of \$3,991 per benefitting residence. The cost per benefitting residence would be less than CDOT's allowance cost of \$6,800; therefore, the barrier is reasonable and feasible.

Tanglewood Multifamily Development Noise Barriers

Two noise barriers were considered in the vicinity of the Tanglewood Multifamily Development. For the 2011 FEIS, no noise barrier was recommended at either location.

The Tanglewood North barrier would be located from a point about 300 feet south of the Tanglewood Multifamily Development extending north about 1,440 feet as shown in Figure 6. A noise barrier at this location was modeled between heights of 8 feet and 16 feet.

As shown in Table 9, several barrier heights meet CDOT guidelines for feasibility and reasonableness. A 10-foot-high barrier would meet CDOT's 7-dBA design goal and would provide about 146 decibels of acoustic benefit at a cost of \$4,428 per residence. However, increasing the barrier height to 12 feet would more than double the acoustic benefit provided by the barrier to about 303 decibels of benefit while reducing the cost per benefitted residence to \$2,568 (a 36 percent decrease compared to the 10-foot barrier height). Table 10 provides additional details concerning the barrier evaluation at the Tanglewood North location.

Because of the substantially greater acoustic benefit provided by the 12-foot-high barrier, the 12-foot barrier is recommended. However, as noted above, final decisions about barrier size, placement, feasibility, reasonableness, and materials will be made during final design of the project.

The Tanglewood South barrier begins where the Tanglewood North barrier ends and would be located adjacent to an existing row of garages that extend south and wrap around the remainder of the complex as shown in Figure 6. At this location, the barrier would be at-grade with residences behind the garage. The garage complex provides some noise abatement because it blocks some traffic noise from I-25. The Tanglewood South barrier was modeled directly adjacent to the garage complex at barrier heights of 10 feet to 20 feet to determine if, in combination with the existing row of garages, CDOT's design goal could be met.

Table 7. Barrier Evaluation Summary

Noise Impacted Area	Barrier Height (feet)	Barrier Length (feet)	Cost Analysis (\$/receptor/dBA)	Reduction (dBA)	Feasible?	Reasonable?	Recommended?	Comments
Tanglewood Multifamily Development	12	1,440	2,566	5-9	Yes	Yes	Yes	Recommended for ROD2; new barrier
Thorncreek Village Development	14	1,850	3,490	5-7	Yes	Yes	Yes	Recommended for ROD2; new barrier
Tanglewood South Barrier	10-20	925	--	1-2	Yes	No	No	Design goal not met at any height; not recommended for ROD2
Bannock Berm Barrier	10-20	1,342	41,648 -120,780	5-8	Yes	No	No	Design goal met at 14-foot barrier height; Cost at all barrier heights exceeds CDOT allowed cost of \$6,800 per residence; not recommended for ROD2

Table 8. Barrier Evaluation for Thorncreek Village Development

Receptor	# of Dwelling Units	2035 Build: No Barrier (Leq)	Sound Level (Leq) 10 ft	Insertion Loss (dBA)	Sound Level (Leq) 11 ft	Insertion Loss (dBA)	Sound Level (Leq) 12 ft	Insertion Loss (dBA)	Sound Level (Leq) 13 ft	Insertion Loss (dBA)	Sound Level (Leq) 14 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)
1—Thorncreek Development	9	63	63	0	62	1	62	1	62	1	62	1	
2—Thorncreek Development	3	71	69	2	69	2	69	2	68	3	68	3	
3—Thorncreek Development	3	77	74	3	74	3	73	4	72	5	72	5	15
4—Thorncreek Development	3	70	67	3	67	3	67	3	67	3	66	4	
5—Thorncreek Development	3	72	71	1	71	1	71	1	71	1	70	2	
6—Thorncreek Development	3	65	64	1	64	1	64	1	64	1	64	1	
7—Thorncreek Development	8	69	65	4	65	4	65	4	64	5	64	5	40
8—Thorncreek Development	3	71	67	4	66	5	66	5	65	6	65	6	18
9—Thorncreek Development	6	68	65	3	64	4	64	4	64	4	63	5	30
10—Thorncreek Development	6	69	65	4	64	5	64	5	63	6	63	6	36
11—Thorncreek Development	6	68	64	4	64	4	63	5	63	5	62	6	36
12—Thorncreek Development	12	63	60	3	59	4	59	4	59	4	59	4	
13—Thorncreek Development	12	62	59	3	59	3	59	3	59	3	58	4	
14—Thorncreek Development	6	66	61	5	61	5	61	5	60	6	59	7	42

Table 8. Barrier Evaluation for Thorncreek Village Development

Receptor	# of Dwelling Units	2035 Build: No Barrier (Leq)	Sound Level (Leq) 10 ft	Insertion Loss (dBA)	Sound Level (Leq) 11 ft	Insertion Loss (dBA)	Sound Level (Leq) 12 ft	Insertion Loss (dBA)	Sound Level (Leq) 13 ft	Insertion Loss (dBA)	Sound Level (Leq) 14 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)
15—Thorncreek Development	6	64	61	3	60	4	60	4	60	4	59	5	30
16—Thorncreek Development	3	60	58	2	57	3	57	3	57	3	57	3	
17—Thorncreek Development	6	60	57	3	57	3	57	3	57	3	57	3	
18—Thorncreek Development	3	66	62	4	62	4	62	4	61	5	61	5	15
19—Thorncreek Development	6	63	61	2	60	3	60	3	60	3	60	3	
20—Thorncreek Development	6	61	58	3	58	3	58	3	58	3	57	4	
21—Thorncreek Development	6	58	57	1	57	1	57	1	57	1	56	2	
26—Thorncreek Development	6	67	64	3	64	3	63	4	63	4	62	5	30
27—Thorncreek Development	6	65	62	3	62	3	62	3	61	4	61	4	

Table 8. Barrier Evaluation for Thorncreek Village Development

Receptor	# of Dwelling Units	2035 Build: No Barrier (Leq)	Sound Level (Leq) 10 ft	Insertion Loss (dBA)	Sound Level (Leq) 11 ft	Insertion Loss (dBA)	Sound Level (Leq) 12 ft	Insertion Loss (dBA)	Sound Level (Leq) 13 ft	Insertion Loss (dBA)	Sound Level (Leq) 14 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)
28—Thorncreek Development	6	64	61	3	61	3	61	3	61	3	60	4	
29—Thorncreek Development	6	62	60	2	60	2	60	2	60	2	60	2	
30—Thorncreek Development	6	61	59	2	59	2	59	2	59	2	59	2	
31—Thorncreek Development	3	60	59	1	59	1	59	1	59	1	59	1	
32—Thorncreek Development	6	59	57	2	57	2	57	2	57	2	57	2	
35—Thorncreek Development	6	60	59	1	58	2	58	2	58	2	58	2	
36—Thorncreek Development	6	58	58	0	57	1	57	1	57	1	57	1	
38—Thorncreek Development	3	59	58	1	57	2	57	2	57	2	57	2	
												Total	292

Sound Levels Rounded To Nearest Decibel per CDOT Noise Analysis and Abatement Guidelines (CDOT, 2013)

Design Goal Met at Barrier Height = 14 feet

Acoustic Benefit Calculated per CDOT Noise Analysis and Abatement Guidelines (CDOT, 2013)

Barrier Length (feet): 1,850
 Barrier Cost (\$): \$1,165,500
 Benefit (total dBA): 292
 Cost-Reasonableness: \$3,991
 Conclusion: Cost per benefited receptor is less than \$6,800 allowance cost. The barrier is reasonable.

Table 9. Tanglewood North Noise Barrier Cost Evaluation Summary¹

Barrier Height (feet)	Barrier Cost (\$)	Acoustic Benefit (dBA)	Cost Per Residence (\$)
10	648,000	146	4,438
11	712,800	216	3,300
12	776,600	303	2,566

¹Barrier costs calculated per CDOT Noise Analysis and Abatement Guidelines (CDOT, 2013)

Table 10. Barrier Evaluation for Tanglewood Multifamily Development

Receptor	Number of Dwelling Units	2035 Build— No Barrier (Leq)	Sound Level (Leq) 10 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)	Sound Level (Leq) 11 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)	Sound Level (Leq) 12 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)
TW-1 (Ground Floor)	4	67	62	5	20	62	5	20	62	5	20
TW-1-2 (2nd Floor)	4	79	73	6	24	72	7	28	71	8	32
TW-2 (Ground Floor)	3	66	63	3		63	3		63	3	
TW-2-2 (2nd Floor)	3	77	70	7	21	70	7	21	68	9	27
TW-2-3 (3rd Floor)	3	78	77	1		76	2		76	2	
TW-3(Ground Floor)	3	67	63	4		63	4		63	4	
TW-3-2 (2nd Floor)	3	74	69	5	15	68	6	18	67	7	21
TW-3-3 (3rd Floor)	3	77	74	3		74	3		74	3	
TW-4 (Ground Floor)	3	68	64	4		63	5	15	63	5	15
TW-4-2 (2nd Floor)	3	73	68	5	15	68	5	15	68	5	15
TW-4-3 (3rd Floor)	3	75	73	2		73	2		73	2	
TW-5 (Ground Floor)	3	69	65	4		64	5	15	63	6	18
TW-5-2 (2nd Floor)	3	74	69	5	15	68	6	18	68	6	18
TW-5-3 (3rd Floor)	3	75	73	2		73	2		73	2	
TW-6 (Ground Floor)	3	66	63	3		62	4		62	4	
TW-6-2 (2nd Floor)	3	73	67	6	18	67	6	18	66	7	21
TW-6-3 (3rd Floor)	3	74	71	3		70	4		70	4	
TW-7 (Ground Floor)	3	66	63	3		62	4		62	4	
TW-7-2 (2nd Floor)	3	72	67	6	18	67	6	18	66	7	21
TW-7-3 (3rd Floor)	3	74	70	4		69	5	15	69	5	15

Table 10. Barrier Evaluation for Tanglewood Multifamily Development

Receptor	Number of Dwelling Units	2035 Build— No Barrier (Leq)	Sound Level (Leq) 10 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)	Sound Level (Leq) 11 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)	Sound Level (Leq) 12 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)
TW-8 (Ground Floor)	3	63	60	4		59	4		59	4	
TW-8-2 (2nd Floor)	3	70	66	4		66	4		65	5	15
TW-8-3 (3rd Floor)	3	71	67	4		67	5	15	67	5	15
TW-9 (Ground Floor)	4	62	60	2		59	3		59	3	
TW-9-2 (2nd Floor)	3	69	66	3		65	4		65	4	
TW-9-3 (3rd Floor)	3	70	67	3		67	3		66	4	
TW-10(Ground Floor)	3	66	62	4		62	4		61	5	15
TW-10-2 (2nd Floor)	4	76	74	2		74	2		72	4	
TW-11 (Ground Floor)	3	65	61	4		61	4		60	5	15
TW-11-2 (2nd Floor)	3	73	69	4		69	4		69	4	
TW-11-3 (3rd Floor)	3	78	76	2		75	3		75	3	
TW-12 (Ground Floor)	3	64	61	3		60	4		60	4	
TW-12-2 (2nd Floor)	3	71	67	4		67	4		67	4	
TW-12-3 (3rd Floor)	3	76	74	2		74	2		74	2	
TW-13(Ground Floor)	3	62	60	2		59	3		58	3	
TW-13-2 (2nd Floor)	3	67	64	3		64	3		64	3	
TW-13-3 (3rd Floor)	3	72	71	1		69	3		69	3	
TW-14 (Ground Floor)	3	61	60	1		60	1		59	2	
TW-14-2 (2nd Floor)	3	66	63	3		63	0		63	0	
TW-14-3 (3rd Floor)	3	71	68	3		68	3		68	3	
TW-15(Ground Floor)	3	62	60	2		59	3		58	4	
TW-15-2 (2nd Floor)	3	67	64	3		64	3		64	3	
TW-15-3 (3rd Floor)	3	73	72	1		71	2		70	3	
TW-16 (Ground Floor)	4	63	60	3		59	4		59	4	
TW-16-2 (2nd Floor)	3	71	68	3		68	3		68	3	
TW-16-3 (3rd Floor)	3	78	75	3		75	3		75	3	
TW-17 (Ground Floor)	4	65	62	3		61	4		61	4	
TW-17-2 (2nd Floor)	4	75	72	3		72	3		72	3	
TW-18 (Ground Floor)	3	67	63	4		63	4		63	4	

Table 10. Barrier Evaluation for Tanglewood Multifamily Development

Receptor	Number of Dwelling Units	2035 Build— No Barrier (Leq)	Sound Level (Leq) 10 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)	Sound Level (Leq) 11 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)	Sound Level (Leq) 12 ft	Insertion Loss (dBA)	Acoustic Benefit (dBA)
TW-18-2 (2nd Floor)	4	78	74	4		74	4		73	5	20
TW-19 (Ground Floor)	1	65	61	4		61	4		61	4	
TW-19-2 (2nd Floor)	3	74	69	4		69	4		69	4	
TW-19-3 (3rd Floor)	3	77	75	2		75	2		75	2	

Barrier Cost:	Acoustic Benefit	Cost per Benefitting Residence (\$)
▪ 10 feet (\$648,000)	146	4,438
▪ 11 feet (\$712,800)	216	3,300
▪ 12 feet (\$776,600)	303	2,566

Table 11 shows the barrier analysis for a barrier located adjacent to the existing garage complex. As shown in Table 11, a barrier at this location would not meet CDOT's design goal of 7 dBA; therefore, a barrier at this location is not recommended.

Table 12 and Table 13 show the barrier evaluation and cost evaluation summary, respectively, for the Bannock barrier where there is an existing berm (see Figure 2). There are five residences behind the berm. A barrier was modeled at this location at heights of 10 feet to 20 feet (1,342 feet long). As shown in Table 12, CDOT's design goal of a 7 dBA insertion loss would be met at a height of 14 feet. At a barrier height of 20 feet, three receptors would receive an 8 dBA insertion loss and one receptor would receive a 5 dBA insertion loss.

As shown in Table 13, however, the allowed cost at all barrier heights would exceed CDOT's allowed cost of \$6,800 per benefitted receptor. A barrier at this location is not recommended.

Commercial Noise Barriers (NAC E)

There is one commercial receptor that is considered an area of frequent outdoor use. Just north of the I-25 on-ramp from 120th Avenue there is an outdoor patio dining area associated with the Double Tree Inn (receptor B430 in Figure 6). The modeled noise level at this receptor was 73 dBA and exceeded the NAC E threshold of 71 dBA.

A noise barrier about 950 feet long was modeled adjacent to the I-25 on ramp to determine if the CDOT design goal could be met with a barrier at this location. A barrier 14 feet high would meet the design goal of providing a 7 dBA insertion loss at the outdoor dining patio at a cost of about \$598,500.

The cost of the barrier would exceed the CDOT's allowance cost of \$6,800 and is not reasonable.

Appendix A of this document contains noise abatement determination worksheets for the noise-impacted areas evaluated in the ROD2.

MITIGATION RECOMMENDATION AND STATEMENT OF LIKELIHOOD

The items needed for the Statement of Likelihood have been described throughout this report. The locations where noise impacts are predicted to occur are shown in Table 5. The locations with feasible and reasonable noise abatement measures are discussed under Mitigation Analysis and Evaluation, and the locations of feasible and reasonable noise abatement measures are shown in Figure 5 and Figure 6.

- An optimized noise barrier of 1,850 feet by 14 feet was evaluated at the Thorncreek Village development and found to meet feasibility and reasonableness criteria. The barrier at Thorncreek Village is recommended for construction pending final design.
- An optimized noise barrier of 1,440 feet by 12 feet was evaluated at the Tanglewood Multifamily Development and found to meet feasibility and reasonableness criteria. The barrier at the Tanglewood Multifamily Development is recommended for construction pending final design.

Table 11. Barrier Evaluation for Tanglewood South Development

Receptor	Number of Dwelling Units	2035 Build-No Barrier (Leq)	Sound Level (Leq)-10 ft	Insertion Loss (dBA)	Sound Level (Leq)-11ft	Insertion Loss (dBA)	Sound Level (Leq)-12 ft	Insertion Loss (dBA)	Sound Level (Leq)-13 ft	Insertion Loss (dBA)	Sound Level (Leq)-14 ft	Insertion Loss (dBA)	Sound Level (Leq)-15 ft	Insertion Loss (dBA)	Sound Level (Leq)-16 ft	Insertion Loss (dBA)	Sound Level (Leq)-17 ft	Insertion Loss (dBA)	Sound Level (Leq)-18 ft	Insertion Loss (dBA)	Sound Level (Leq)-19 ft	Insertion Loss (dBA)	Sound Level (Leq)-20 ft	Insertion Loss (dBA)
TW-20	1	68	68	0	68	0	68	0	68	0	68	0	68	0	68	0	68	0	68	0	67	1	67	1
TW-21	1	68	68	0	68	0	68	0	68	0	68	0	68	0	68	0	68	0	67	1	66	1	66	2
TW-22	1	67	67	0	67	0	67	0	67	0	67	0	67	0	67	0	66	0	66	0	66	1	65	1
TW-23	1	67	67	0	67	0	67	0	67	0	67	0	67	0	67	0	67	0	67	0	67	0	67	1
TW-24	1	66	66	0	66	0	66	0	66	0	66	0	66	0	66	0	66	0	66	0	65	1	65	1
TW-25	1	66	66	0	66	0	66	0	66	0	66	0	66	0	66	0	66	0	66	0	66	1	66	1
TW-26	1	63	63	0	63	0	63	0	63	0	63	0	63	0	63	0	63	0	63	0	63	1	63	1
TW-27	1	60	60	0	60	0	60	0	60	0	60	0	60	0	60	0	60	0	60	0	60	0	60	1
TW-28	1	67	67	0	67	0	67	0	67	0	67	0	67	0	67	0	67	0	66	0	66	1	65	2
TW-29	1	67	67	0	67	0	67	0	67	0	67	0	67	0	67	0	67	0	66	0	66	0	66	0
TW-30	1	67	67	0	67	0	67	0	67	0	67	0	67	0	67	0	67	0	66	0	66	1	65	2
TW-31	1	66	66	0	66	0	66	0	66	0	66	0	66	0	66	0	66	0	67	-1	66	0	66	0
TW-32	1	65	65	0	65	0	65	0	65	0	65	0	65	0	65	0	65	0	65	1	64	1	64	1
TW-33	1	64	64	0	64	0	64	0	64	0	64	0	64	0	63	0	64	0	63	0	63	1	63	1
TW-34	1	67	67	0	67	0	67	0	67	0	67	0	67	0	67	0	67	0	66	0	66	0	66	1
TW-35	1	69	69	0	69	0	69	0	69	0	69	0	69	0	69	0	68	0	68	1	67	1	67	2
TW-36	1	68	68	0	68	0	68	0	68	0	68	0	68	0	67	1	67	0	67	1	66	1	66	2
TW-37	1	67	67	0	67	0	67	0	67	0	67	0	67	0	65	1	66	1	66	1	65	2	65	2

Table 12. Barrier Evaluation for Bannock Barrier

Receptor	# of Dwelling Units	2035 Build: No Barrier (Leq)	Sound Level (Leq)-13 ft	Insertion Loss (dBA)	Sound Level (Leq)-14 ft	Insertion Loss (dBA)	Sound Level (Leq)-15 ft	Insertion Loss (dBA)	Sound Level (Leq)-16 ft	Insertion Loss (dBA)	Sound Level (Leq)-17 ft	Insertion Loss (dBA)	Sound Level (Leq)-18 ft	Insertion Loss (dBA)	Sound Level (Leq)-19 ft	Insertion Loss (dBA)	Sound Level (Leq)-20 ft	Insertion Loss (dBA)
B125	1	75	72	3	72	4	71	4	71	4	71	5	70	5	70	5	70	5
B124	1	73	66	6	66	7	66	7	65	7	65	8	65	8	65	8	64	8
B123	1	75	72	3	71	4	70	5	69	6	69	7	68	7	67	8	67	8
B652	1	75	72	3	72	4	71	5	70	5	69	6	68	7	68	8	67	8
B653	1	67	64	3	64	3	64	3	64	4	63	4	63	4	63	4	63	4

Table 13. Bannock Barrier Cost Evaluation Summary¹

Barrier Height (feet)	Barrier Cost (\$)	Acoustic Benefit (dBA)	Cost Per Residence (\$)	Reasonable per CDOT Guidelines?
14	845,560	7	120,780	No
15	905,850	17	53,285	No
16	966,240	18	53,680	No
17	1,026,630	19	54,033	No
18	1,087,020	27	40,260	No
19	1,147,410	29	39,566	No
20	1,207,800	29	41,348	No

¹Barrier costs calculated per CDOT Noise Analysis and Abatement Guidelines (CDOT, 2013)

A benefited receptor preference survey was conducted in December 2014 and January 2015. The results of this survey showed that a majority of those responding desired a noise wall (see Appendix B of this document for details). All noise mitigation will be reanalyzed during the final design process.

Construction Noise

Adjoining properties in the project area would be exposed to noise from construction activities when the project is built. Construction noise differs from traffic noise in several ways:

- Construction noise lasts only for the duration of the construction event, with most construction activities in noise-sensitive areas being conducted during (daytime) hours that are less disturbing to adjacent and nearby residents.
- Construction activities generally are short term and, depending on the nature of the construction operations, could last from seconds (for example, a truck passing by) to months (for example, constructing a bridge).
- Construction noise also is intermittent and depends on the type of operation, the location and function of the equipment, and the equipment usage cycle. Traffic noise, on the other hand, is present in a more continuous fashion after construction activities are completed.

To address the temporary elevated noise levels that might be experienced during construction, standard abatement measures should be incorporated into construction contracts. These would include:

- Exhaust systems on equipment will be in good working order. Equipment will be maintained on a regular basis, and equipment may be subject to inspection by the project manager to ensure maintenance.
- Properly designed engine enclosures and intake silencers will be used where appropriate.
- New equipment will be subject to new product noise emission standards.
- Stationary equipment will be located as far from sensitive receptors as feasible.
- Most construction activities in noise-sensitive areas will be conducted during (daytime) hours that are less disturbing to adjacent and nearby residents.

Construction noise from future project activities must comply with any applicable local noise regulations. Construction noise that complies with such noise regulations is viewed as not having an impact on neighboring properties. When construction is imminent, potential conflicts because of construction noise can be better determined. Individualized construction noise abatement strategies, where needed, will be developed to address specific construction noise issues.

REFERENCES

CDM-Smith. 2013. *I-25 Traffic and Revenue Assessment*. November.

Colorado Department of Transportation. 2011. *North I-25 Final Environmental Impact Statement*. August.

—. **2013.** *CDOT Noise Analysis and Abatement Guidelines*. February.

**Appendix A.
Noise Abatement Determination Worksheets
(CDOT Form 1209)**



COLORADO DEPARTMENT OF TRANSPORTATION
NOISE ABATEMENT DETERMINATION WORKSHEET

Instructions: To complete this form refer to CDOT Noise Analysis Guidelines

STIP # _____ Date of Analysis: May 21, 2014

Project Name & Location: I-25 120th Avenue to E-470/NW Parkway - Bannock Road Barrier

A. FEASIBILITY:

- 1. Can a 5dBA noise reduction be achieved by constructing a noise barrier or berm? [X] YES [] NO
2. Are there any fatal flaw drainage, terrain, safety, or maintenance issues involving the proposed noise barrier or berm? [] YES [X] NO
3. Can a noise barrier or berm less than 20 feet tall be constructed? [X] YES [] NO

B. REASONABLENESS:

- 1. Has the Design goal of 7 dBA noise reduction for abatement measure been met for at least one impacted receptor? [X] YES [] NO
2. Is the Cost Benefit Index below \$6800 per receptor per dBA? [] YES [X] NO
3. Are more than 50% of responding benefited resident/owners in favor of the recommended noise abatement measure? [] YES [] NO - Not applicable.

C. INSULATION CONSIDERATION:

- 1. Are normal noise abatement measures physically infeasible or economically unreasonable? [] YES [X] NO
If the answer to 1 is YES, then:
2. a. Does this project have noise impacts to NAC Activity Category D? [] YES [X] NO
b. If yes, is it reasonable and feasible to provide insulation for these buildings? [] YES [] NO

D. ADDITIONAL CONSIDERATIONS:

Barrier cannot meet \$6,800 cost index required by CDOT policy.

E. STATEMENT OF LIKELIHOOD:

- 1. Are noise mitigation measures feasible? [X] YES [] NO
2. Are noise mitigation measures reasonable? [] YES [X] NO
3. Is insulation of buildings both feasible and reasonable? [] YES [X] NO
4. Shall noise abatement measures be provided? [] YES [X] NO

F. ABATEMENT DECISION DESCRIPTION AND JUSTIFICATION:

Design goal met at 14-foot barrier height, but barrier cost at all barrier heights exceeds CDOT cost index of \$6,800. The barrier is not recommended.

Completed by: Curt Overcast, Environmental Scientist Date: May 11, 2015



COLORADO DEPARTMENT OF TRANSPORTATION
NOISE ABATEMENT DETERMINATION WORKSHEET
Instructions: To complete this form refer to CDOT Noise Analysis Guidelines

STIP # _____ Date of Analysis: May 21, 2014

Project Name & Location: I-25 120th Avenue to E-470/NW Parkway - Tanglewood Multifamily Development Barrier

A. FEASIBILITY:

- 1. Can a 5dBA noise reduction be achieved by constructing a noise barrier or berm? [X] YES [] NO
2. Are there any fatal flaw drainage, terrain, safety, or maintenance issues involving the proposed noise barrier or berm? [] YES [X] NO
3. Can a noise barrier or berm less than 20 feet tall be constructed? [X] YES [] NO

B. REASONABLENESS:

- 1. Has the Design goal of 7 dBA noise reduction for abatement measure been met for at least one impacted receptor? [X] YES [] NO
2. Is the Cost Benefit Index below \$6800 per receptor per dBA? [X] YES [] NO
3. Are more than 50% of responding benefited resident/owners in favor of the recommended noise abatement measure? [X] YES [] NO

C. INSULATION CONSIDERATION:

- 1. Are normal noise abatement measures physically infeasible or economically unreasonable? [] YES [X] NO
If the answer to 1 is YES, then:
2. a. Does this project have noise impacts to NAC Activity Category D? [] YES [X] NO
b. If yes, is it reasonable and feasible to provide insulation for these buildings? [] YES [] NO

D. ADDITIONAL CONSIDERATIONS:

E. STATEMENT OF LIKELIHOOD:

- 1. Are noise mitigation measures feasible? [X] YES [] NO
2. Are noise mitigation measures reasonable? [X] YES [] NO
3. Is insulation of buildings both feasible and reasonable? [] YES [X] NO
4. Shall noise abatement measures be provided? [X] YES [] NO

F. ABATEMENT DECISION DESCRIPTION AND JUSTIFICATION:

A barrier 12 feet tall and about 1,440 feet long would provide a 7-dBA reduction to at least one noise-impacted residence at a cost index of \$2,566. The barrier is recommended.

Completed by: Curt Overcast, Environmental Scientist Date: May 11, 2015



COLORADO DEPARTMENT OF TRANSPORTATION
NOISE ABATEMENT DETERMINATION WORKSHEET

Instructions: To complete this form refer to CDOT Noise Analysis Guidelines

STIP # _____ Date of Analysis: May 21, 2014
I-25 120th Avenue to E-470/NW Parkway - Tanglewood South Multifamily
Project Name & Location: Development Barrier

A. FEASIBILITY:

- 1. Can a 5dBA noise reduction be achieved by constructing a noise barrier or berm?
2. Are there any fatal flaw drainage, terrain, safety, or maintenance issues involving the proposed noise barrier or berm?
3. Can a noise barrier or berm less than 20 feet tall be constructed?

B. REASONABLENESS:

- 1. Has the Design goal of 7 dBA noise reduction for abatement measure been met for at least one impacted receptor?
2. Is the Cost Benefit Index below \$6800 per receptor per dBA?
3. Are more than 50% of responding benefited resident/owners in favor of the recommended noise abatement measure?

C. INSULATION CONSIDERATION:

- 1. Are normal noise abatement measures physically infeasible or economically unreasonable?
2. a. Does this project have noise impacts to NAC Activity Category D?
b. If yes, is it reasonable and feasible to provide insulation for these buildings?

D. ADDITIONAL CONSIDERATIONS:

Barrier cannot provide a 7-dBA design goal.

E. STATEMENT OF LIKELIHOOD:

- 1. Are noise mitigation measures feasible?
2. Are noise mitigation measures reasonable?
3. Is insulation of buildings both feasible and reasonable?
4. Shall noise abatement measures be provided?

F. ABATEMENT DECISION DESCRIPTION AND JUSTIFICATION:

A barrier 10 to 20 feet tall would not meet the design goal of providing a 7-dBA reduction to at least one noise-impacted residential receiver. The barrier is not recommended.

Completed by: Curt Overcast, Environmental Scientist Date: May 11, 2015



COLORADO DEPARTMENT OF TRANSPORTATION
NOISE ABATEMENT DETERMINATION WORKSHEET
Instructions: To complete this form refer to CDOT Noise Analysis Guidelines

STIP # _____ Date of Analysis: May 21, 2014

Project Name & Location: I-25 120th Avenue to E-470/NW Parkway - Thorncreek Village Barrier

A. FEASIBILITY:

- 1. Can a 5dBA noise reduction be achieved by constructing a noise barrier or berm? [X] YES [] NO
2. Are there any fatal flaw drainage, terrain, safety, or maintenance issues involving the proposed noise barrier or berm? [] YES [X] NO
3. Can a noise barrier or berm less than 20 feet tall be constructed? [X] YES [] NO

B. REASONABLENESS:

- 1. Has the Design goal of 7 dBA noise reduction for abatement measure been met for at least one impacted receptor? [X] YES [] NO
2. Is the Cost Benefit Index below \$6800 per receptor per dBA? [X] YES [] NO
3. Are more than 50% of responding benefited resident/owners in favor of the recommended noise abatement measure? [X] YES [] NO

C. INSULATION CONSIDERATION:

- 1. Are normal noise abatement measures physically infeasible or economically unreasonable? [] YES [X] NO
If the answer to 1 is YES, then:
2. a. Does this project have noise impacts to NAC Activity Category D? [] YES [X] NO
b. If yes, is it reasonable and feasible to provide insulation for these buildings? [] YES [] NO

D. ADDITIONAL CONSIDERATIONS:

E. STATEMENT OF LIKELIHOOD:

- 1. Are noise mitigation measures feasible? [X] YES [] NO
2. Are noise mitigation measures reasonable? [X] YES [] NO
3. Is insulation of buildings both feasible and reasonable? [] YES [X] NO
4. Shall noise abatement measures be provided? [X] YES [] NO

F. ABATEMENT DECISION DESCRIPTION AND JUSTIFICATION:

A barrier 14 feet tall and about 1,850 feet long would provide a 7-dBA reduction to at least one noise-impacted residence at a cost index of \$3,490. The barrier is recommended.

Completed by: Curt Overcast, Environmental Scientist Date: May 11, 2015

**Appendix B.
Results of Benefited Receptor Surveys**

North I-25 Benefited Receptor Survey Results

Thorncreek Village

Mailings sent out: 48

Owner mailings received: 20

Tenant mailings received: 5

Homeowner/Tenant	Yes	No
Homeowner	19	1*
Tenant	5	0

*The homeowner who voted “No” commented that he would prefer a natural barrier, such as trees, rather than a wall.

Noise barrier voting packets were created that included a letter, a survey, and a return envelope addressed to HDR. The letter detailed the North I-25 project and how select Thorncreek homes met the eligibility requirements to receive a noise barrier. The survey asked the tenant or owner to vote “yes” or “no” on whether a noise barrier built along I-25 was desired. The original 48 Thorncreek mailings were sent out via USPS on December 3, 2014. Tenants and owners were asked to return the surveys no later than January 12, 2015. Thirteen mailings were returned by the post office as “undeliverable as addressed.” These were re-addressed as “Occupant” and sent again. The second round of mailings was delivered successfully and tenants and owners were given until January 30, 2015 to return their surveys.

Tanglewood Multifamily Development

Mailings sent out: 38

Owner mailings received: N/A

Tenant mailings received: 3

Homeowner/Tenant	Yes	No
Tenant	2	1

Noise barrier voting packets were created that included a letter, a survey, and a return envelope addressed to HDR. The letter detailed the North I-25 project and how select Tanglewood Multifamily Development met the eligibility requirements to receive a noise barrier. The surveys asked the tenant to vote “yes” or “no” on whether a noise barrier built along I-25 was desired. The packets were hand delivered on January 8, 2015. Packets were taped to the front door of all impacted units. Tenants were asked to return their surveys no later than January 30, 2015.

Thorncreek Benefited Survey Results																				
Parcel #	Tenant First Name	Tenant Last Name	Property Address	City	State	Zip Code	CDOT Received	Tenant Vote			Owner First Name	Owner Last Name	Owner Address	City	State	Zip Code	Owner Vote			Comments
								(yes/no)	Yes	No							Abstain	Yes	No	
13171	Angie	Mansfield	13171 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241	X	X			JOHN	KLIMOWICZ								
13171	BETHANY	HUSTON	13171 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241														
13171	TOBY	TRUJILLO	13171 GRANT CIRCLE WEST UNIT C	THORNTON	CO	80241														
13180	PETER	ROGERS	13180 GRANT CIRCLE WEST UNITC	THORNTON	CO	80241														
13180	KATHLEEN	WALKER	13180 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241														
13180	PAUL AND EMILY	DEAKIN	13180 GRANT CIRCLE WEST UNITA	THORNTON	CO	80241					Paul	Deakin	13180 Grant Circle West Unit A	Thornton	CO	80241	X			
13121	THERESE	TEASDALE	13121 GRANT CIRCLE NORTH UNIT B	THORNTON	CO	80241														
13121	CHRISTOPHER	HESSEK	13121 GRANT CIRCLE NORTH UNIT A	THORNTON	CO	80241														
13121		KAKA LLC	13121 GRANT CIRCLE NORTH UNITC	THORNTON	CO	80241														
13101	JAMES	WILLIAMS	13101 GRANT CIRCLE NORTH UNIT B	THORNTON	CO	80241					JAMES	WILLIAMS	13101 GRANT CIRCLE NORTH UNIT B	THORNTON	CO	80241		X		Plant pine trees; natural drift fence; ambient noise barrier; sell more electric cars (tax credit)
13101	MAGDALENA	PRUS	13101 GRANT CIRCLE NORTH UNIT A	THORNTON	CO	80241														
13101	NAHTANIEL	HILL	13101 GRANT CIRCLE NORTH UNIT C	DENVER	CO	80241														
13092	DAVID	DAYTON	13092 GRANT CIRCLE WEST UNIT C	DENVER	CO	80241														
13092	ERIC	BOUCHER	13092 GRANT CIRCLE EAST UNIT B	DENVER	CO	80241														
13092	GLENDA	SHIELDS	13092 GRANT CIRCLE EAST UNIT A	THORNTON	CO	80241					Glenda	Shields	13092 Grant Circle East Unit A	Thornton	CO	80241	X			
13082	DANIEL	COFFMAN	13082 GRANT CIRCLE EAST UNIT B	THORNTON	CO	80241														
13082	THOMAS	CLARK	13082 GRANT CIRCLE EAST UNIT A	THORNTON	CO	80241					Thomas	Clark	13082 Grant Cr, East Unit A	Thornton	CO	80241	X			
13082	TRAVIS	HARTMAN	13082 GRANT CIRCLE EAST UNIT C	THORNTON	CO	80241														
13072	LANDON	WEST	13072 GRANT CIRCLE EAST UNIT B	THORNTON	CO	80241					Landon	West	13072 Grant Cr. East Unit B	Thornton	CO	80241	X			
13072	JIM	GOMEZ	13072 GRANT CIRCLE EAST UNIT A	THORNTON	CO	80241														
13072	GREGORY	SUTTON	13072 GRANT CIRCLE EAST UNIT C	THORNTON	CO	80241														
13093	Donna	Woodson	13093 GRANT CIRCLE EAST UNIT B	THORNTON	CO	80241	X	X			Xiaoqin	Cheng	4497 Castle Ln.	Broomfield	CO	80023	X			
13093	GINA	NARDI	13093 GRANT CIRCLE EAST UNIT A	THORNTON	CO	80241					Gina	Rogers	13093 Grant Circle East Unit A	Thornton	CO	80241	X			
13050	KRISTI	SHEPHERD	13050 GRANT CIRCLE WEST UNIT C	THORNTON	CO	80241					Kristi	Shepherd	13050 Grant Circle West Unit C	Thornton	CO	80241	X			
13050	CELESTE	VARRA	13050 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241														
13050	ERIC	LINDGREN	13050 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241														
13040	DAN	COLBERT	13040 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241	X	X			PATRICK	NUGENT	13040 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241				
13040	CHERYL	MCMATH	13040 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241														
13040	ANDREW	WAZNY	13040 GRANT CIRCLE WEST UNIT C	THORNTON	CO	80241														

Thorncreek Benefited Survey Results																				
Parcel #	Tenant First Name	Tenant Last Name	Property Address	City	State	Zip Code	CDOT Received (yes/no)	Tenant Vote			Owner First Name	Owner Last Name	Owner Address	City	State	Zip Code	Owner Vote			Comments
								Yes	No	Abstain							Yes	No	Abstain	
13030			13030 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241				ERIK	WELLS	13030 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241	X				
13030	JENNIFER	BECK	13030 GRANT CIRCLE WEST UNIT C	THORNTON	CO	80241				Fidenzio	Zertache	13030 Grant Circle West Unit C	Thornton	CO	80241	X				
13030		Johnson	13030 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241	X	X		THOMAS	TURECHEK									
13020	LINDA	ERLINGER	13020 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241				Linda	Erlinger	13020 Grant Circle W	Thornton	CO	80241	X				
13020	DUSTIN	WICHAEL	13020 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241														
13020	HERMAN	GUTIERREZ	13020 GRANT CIRCLE WEST UNIT C	THORNTON	CO	80241				Herman and Gay	Gutierrez	13020 Grant Circle West Unit C	Thornton	CO	80241	X				
13001	Alexander	LE	13001 GRANT CIRCLE WEST UNIT C	DENVER	CO	80241				Alexander	Le	13001 Grant Circle West Unit C	Denver	CO	80241	X				
13001	PHILLIP	MEDINA	13001 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241														
13001	MAKAILA	CHAHAN	13001 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241				MAKAILA	CHAHAN	13001 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241	X				
12991	DANIEL	RANDALL	12991 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241														
12991	PENNY	LALONDE	12991 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241														
12991	LINDA	EDDLEMAN	12991 GRANT CIRCLE WEST UNIT C	THORNTON	CO	80241				Linda	Eddleman	12991 GRANT CIRCLE WEST UNIT C	Thornton	CO	80241	X				
12981	EDWIN	TAYLOR	12981 GRANT CIRCLE WEST UNIT B	THORNTON	CO	80241				Ed & Carol	Taylor	12981 Grant Circle West Unit B	Thornton	CO	80241	X			Mom's Condo LLC	
12981		REAL ESTATE RETURNS LLC	12981 GRANT CIRCLE WEST UNIT A	THORNTON	CO	80241				Paul	Deakin	13180 Grant Circle West Unit A	Thornton	CO	80241	X				
12981		MOMS CONDO LLC	12981 GRANT CIRCLE WEST UNIT C	THORNTON	CO	80241	X	X		Angela	Ray	3321 W 147th Court	Broomfield	CO	80023	X				
12971	MARTA	BLACKHURST	12971 GRANT CIRCLE WEST UNIT C	THORNTON	CO	80241				Marta	Blackhurst	12971 Grant Circle West Unit C	Thornton	CO	80241	X				
12971	ANN	DAIGLE	12971 GRANT CIRCLE WEST UNIT A	DENVER	CO	80241				Ann	Daigle	12971 Grant Circle West	Denver	CO	80241	X				
12971	CAROLYN	FOWLER	12971 GRANT CIRCLE WEST UNIT B	DENVER	CO	80241														

Tanglewood Benefited Survey Results										
Parcel #	Tenant First Name	Tenant Last Name	Property Address	City	State	Zip Code	CDOT Received	Tenant Vote		
							(yes/no)	Yes	No	Abstain
15108	Lesley & Cary	Myers	12322 North Bannock	Westminster	CO	80234	X	X		
15301	Emily	Mangan	12322 North Bannock	Westminster	CO	80232	X		X	
19108	Deby	Sanchez	12304 Bannock St.	Westminster	CO	80234	X	X		
16104				Westminster	CO					
16105				Westminster	CO					
16205				Westminster	CO					
16204				Westminster	CO					
16107				Westminster	CO					
16108				Westminster	CO					
16208				Westminster	CO					
16207				Westminster	CO					
16307				Westminster	CO					
15101				Westminster	CO					
15108				Westminster	CO					
15107				Westminster	CO					
15301				Westminster	CO					
15307				Westminster	CO					
15201				Westminster	CO					
15208				Westminster	CO					
15207				Westminster	CO					
15308				Westminster	CO					
15106				Westminster	CO					
15206				Westminster	CO					
15306				Westminster	CO					
19101				Westminster	CO					
19108				Westminster	CO					
19208				Westminster	CO					
19201				Westminster	CO					
21105				Westminster	CO					
21104				Westminster	CO					
21204				Westminster	CO					
21205				Westminster	CO					
23101				Westminster	CO					
23109				Westminster	CO					
23209				Westminster	CO					
23201				Westminster	CO					
23210				Westminster	CO					



COLORADO

Department of Transportation

Region 4

1420 2nd Street
Greeley, CO 80631
(970) 350-2146 (Fax) 350-2198

December 3, 2014

Your Vote Counts!

Noise Barrier Preference Decision
North I-25 120th Avenue to State Highway 7 Managed Lanes
Proposed Tanglewood Noise Wall

Dear Property Owner or Resident

What's going on?

The Colorado Department of Transportation (CDOT) is currently conducting a study called the North I-25 Record of Decision (ROD) No.2 for the 120th Avenue to State Highway (SH) 7 Managed Lanes Project. The purpose of the project is to re-evaluate the benefits and impacts of adding a managed lane to the I-25 corridor between the 120th Avenue interchange and SH 7.

As a part of the North I-25 Corridor Final Environmental Impact Statement published in 2011, traffic noise was evaluated for the proposed roadway improvements. However, as of December 2011 available funding for work commitments outlined in the first ROD was insufficient to include the highway improvements for this segment of the project.

The second ROD, due to be published in late 2014, aims to augment the original ROD with new funding for construction of the managed lane between 120th and SH 7. Project construction is anticipated to begin during the summer of 2015 and last until late 2016.

As a part of this second ROD, the traffic noise study was re-evaluated to incorporate new homes and development that has occurred in the affected area since the issuance of the first ROD. The results of this new noise study show an increased traffic noise impact to the Tanglewood neighborhood, resulting in a recommendation for a noise wall 10 feet tall and 1,440 feet long for the northern half of your neighborhood. The wall is recommended for only those residential buildings that can achieve sufficient noise reduction from the wall to meet federal and state warrants for noise abatement. These warrants include acoustic and engineering feasibility, noise reductions sufficient to meet a 7 decibel design goal for at least one receptor, and cost-effectiveness.

What does CDOT need from you?

CDOT would like to know your preference for the noise barrier proposed near your location. This letter has been provided to all "benefitted" property owners and tenants in your neighborhood, i.e. those residents for whom a noise barrier would result in a noise reduction of 5 decibels or more.

Please return the enclosed survey ballot using the included self-addressed-stamped envelope by **January 12, 2015**. Please include your full name and address, whether you are the property owner or a tenant, and check off whether or not your wish to have a noise barrier constructed in your area. CDOT will consider one tenant vote and also one owner vote per address if the property is not owner occupied. If the property is owner occupied, that ballot will count as 2 votes. A simple majority of received yes or no votes for the "benefitted" residents in your neighborhood will decide the



recommendation. All votes must be received by the close of business on **January 12, 2015**. CDOT will notify you the results of the survey later in 2015.

If you have additional questions please call the North I-25 Project Manager, Jennifer Gorek, at (970)350-2264. For additional information regarding traffic noise, regulations and policy, noise analyses, or noise abatement, we encourage you to access CDOT's Noise Analysis and Abatement Guidelines at <http://www.coloradodot.info/programs/environmental/noise>. For additional North I-25 120th Avenue to SH 7 Managed Lanes Project information you can access the project website at <http://www.coloradodot.info/projects/north-i-25-eis>.

We appreciate your opinion and look forward to hearing from you.

Sincerely,



Jennifer Gorek
North I-25 NEPA Project Manager





Tell us what you think!

A 10 feet tall by 1,440 feet long noise barrier is recommended along I-25 at the Tanglewood Apartment Complex. This barrier is designed to reduce traffic noise caused by roadway improvements made to I-25.

Name: _____

Address: _____

Apt #: _____

Are you the home owner or tenant? _____

Yes, I would like a noise barrier

No, I do not want a noise barrier



Tell us what you think!

A 10 feet tall by 1,440 feet long noise barrier is recommended along I-25 at the Tanglewood Apartment Complex. This barrier is designed to reduce traffic noise caused by roadway improvements made to I-25.

Name: _____

Address: _____

Apt #: _____

Are you the home owner or tenant? _____

Yes, I would like a noise barrier

No, I do not want a noise barrier

December 3, 2014

Your Vote Counts!

Noise Barrier Preference Decision
North I-25 120th Avenue to State Highway 7 Managed Lanes
Proposed Thorncreek Village Noise Wall

Dear Property Owner or Resident:

What's going on?

The Colorado Department of Transportation (CDOT) is currently conducting a study called the North I-25 Record of Decision (ROD) No.2 for the 120th Avenue to State Highway (SH) 7 Managed Lanes Project. The purpose of the project is to re-evaluate the benefits and impacts of adding a managed lane to the I-25 corridor between the 120th Avenue interchange and SH 7.

As a part of the North I-25 Corridor Final Environmental Impact Statement published in 2011, traffic noise was evaluated for the proposed roadway improvements. However, as of December 2011 available funding for work commitments outlined in the first ROD was insufficient to include the highway improvements for this segment of the project.

The second ROD, due to be published in late 2014, aims to augment the original ROD with new funding for construction of the managed lane between 120th Avenue and SH 7. Project construction is anticipated to begin during the summer of 2015 and last until late 2016.

As a part of this second ROD, the traffic noise study was re-evaluated to incorporate new homes and development that has occurred in the affected area since the issuance of the first ROD. The results of this new noise study show an increased traffic noise impact in the Thorncreek Village neighborhood, resulting in a recommendation for a noise wall 14 feet tall and 1,850 feet long to be located along the highway right-of-way. The wall is recommended for only those residential buildings that can achieve sufficient noise reduction from the wall to meet federal and state warrants for noise abatement. These warrants include acoustic and engineering feasibility, noise reductions sufficient to meet a 7 decibel design goal for at least one receptor, and cost-effectiveness.

What does CDOT need from you?

CDOT would like to know your preference for the noise barrier proposed near your location. This letter has been provided to all "benefitted" property owners and tenants in your neighborhood, i.e. those residents for whom a noise barrier would result in a noise reduction of 5 decibels or more.

Please return the enclosed survey ballot using the included self-addressed-stamped envelope by **January 30, 2015**. Please include your full name and address, whether you are the property owner or a tenant, and check off whether or not you wish to have a noise barrier constructed in your area. CDOT will consider one tenant vote and also one owner vote per address if the property is not owner occupied. If the property is owner occupied, that ballot will count as 2 votes. A simple majority of received yea or nay votes for the “benefited” residents in your neighborhood will decide the recommendation. All votes must be received by the close of business on **January 30, 2015**. CDOT will notify you the results of the survey later in 2015.

If you have additional questions please call the North I-25 Project Manager, Jennifer Gorek, at (970)350-2264. For additional information regarding traffic noise, regulations and policy, noise analyses, or noise abatement, we encourage you to access CDOT’s Noise Analysis and Abatement Guidelines at <http://www.coloradodot.info/programs/environmental/noise>. For additional North I-25 120th Avenue to SH 7 Managed Lanes Project information you can access the project website at <http://www.coloradodot.info/projects/north-i-25-eis>.

We appreciate your opinion and look forward to hearing from you.

Sincerely,



Jennifer Gorek

North I-25 NEPA Project Manager



Tell us what you think!

A 14 feet tall by 1,850 feet long noise barrier is recommended along I-25 at Thorncreek Village. This barrier is designed to reduce traffic noise caused by roadway improvements made to I-25.

Name: _____

Address: _____

Apt #: _____

Are you the home owner or tenant? _____

Yes, I would like a noise barrier

No, I do not want a noise barrier



Tell us what you think!

A 14 feet tall by 1,850 feet long noise barrier is recommended along I-25 at Thorncreek Village. This barrier is designed to reduce traffic noise caused by roadway improvements made to I-25.

Name: _____

Address: _____

Apt #: _____

Are you the home owner or tenant? _____

Yes, I would like a noise barrier

No, I do not want a noise barrier

