

Appendix C3.

Traffic Noise





C3. Traffic Noise Technical Memorandum

June 2023

Project Number: NHPP 006A-06

Subaccount Number: 22922

The following project information can be found in **Attachment A** Project Information:

- Introduction and Background
- Project Study Area
- Purpose and Need
- Proposed Action Description

Legislation and Guidance

The following regulation, guidelines, and tools were used to complete this noise evaluation:

- 23 CFR 772 (Procedures for Abatement of Highway Traffic Noise and Construction Noise) (23 CFR §772, 2010): Federal highway noise standard that must be followed in analyzing and abating highway traffic noise. This regulation required states to adopt state-specific guidelines, which included adopting specific parameters such as the noise reduction design goal.
- CDOT NAAG (CDOT, 2020): Fulfilled Federal requirement to adopt state-specific guidelines. Provides Colorado's procedural and technical requirements for analyzing highway project traffic noise and evaluating noise abatement.
- FHWA Guidance (FHWA, 2011): Provides FHWA guidance for applying 23 CFR Part 772 in the analysis and abatement of highway traffic noise.

Project Classification

All Colorado Department of Transportation (CDOT) highway projects are classified as either Type I or Type III. CDOT's Type II program was discontinued in 1999. Type I projects require noise analyses. A project is Type I if it meets any of the following criteria:

- Construction of a highway on a new location.
- Substantial horizontal or vertical alteration of an existing highway.



- The addition of a through-traffic lane(s).
- The addition of an auxiliary lane, except when the lane is a turn lane.
- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange.
- Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane.
- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

Type III projects are those that do not meet Type I or Type II criteria and are not required to undergo noise analysis, except in rare cases.

This project meets the criteria for a Type III project established in 23 CFR 772. Therefore, the project requires no analysis for highway traffic noise impacts. Type III projects do not involve construction of a highway on a new location; added capacity; construction of new through lanes or auxiliary lanes, other than those associated with a turn motion; substantial changes in the horizontal or vertical alignment of the highway; exposure of noise sensitive land uses to a new or existing highway noise source; or any other activity classified as a Type I or Type II project. This project does not include horizontal shifts that would halve the distance between the nearest travel lane and the closest noise sensitive receptor.

Although the proposed project includes new roads, they will be local roads and are expected to have low traffic volumes. CDOT acknowledges that a noise analysis is required if changes to the proposed project result in reclassification as a Type I project. The construction of the new roadway connections would only trigger a Type I classification if the new roads could be classified as highways. While the term is used broadly to encompass a variety of road types, these connectors would be classified as local roads, which do not fall under the highway classification. Additionally, the modifications to northbound Vasquez Boulevard, 62nd Avenue, and 60th Avenue would not involve substantial horizontal or vertical alterations of existing highway and would not involve the addition of an auxiliary or through lane reaching a length of 2,500 feet or greater. The project is therefore considered to be a Type III project, and no noise analysis is required.

Construction Noise

This section describes construction noise implications and construction noise mitigation strategies and discusses whether the Project is in an area with local noise ordinances.



Construction Noise Impacts

Properties adjoining project construction may be exposed to noise caused by construction activities of the Project. Examples of construction equipment noise are shown in [Table 1](#). Construction noise differs from traffic noise in several ways:

- Construction noise lasts only for the duration of construction, with most construction activities in noise-sensitive areas being conducted during hours that are least disturbing to most nearby residents, when feasible.
- Construction activities generally are short term and, depending on the nature of the construction operations, last from seconds (e.g., a truck passing a receptor) to months (e.g., bridge construction).
- Construction equipment noise is intermittent and depends on the type of operation, location and function of the equipment, as well as the equipment usage cycle.
- As opposed to operational traffic noise, construction noise is not analyzed; there are no FHWA or CDOT construction noise abatement criterion (NACs). However, construction noise is subject to relevant local regulations and ordinances.

Table 1: Typical Construction Equipment Noise Levels

Equipment	Maximum Noise Level (dBA at 50 feet) ¹
Scraper	89
Dozer (Bulldozer)	85
Truck (Heavy Truck)	88 ²
Pickup Truck	55
Concrete Dump Truck	82
Backhoe	80
Pneumatic Tools	85

¹ Noise levels are from Table 9.1 of FHWA’s 2006 Construction Noise Handbook (FHWA, 2006), unless otherwise noted.

Source: This noise level is from Table 9.9 of FHWA’s 2006 Construction Noise Handbook (FHWA, 2006), which is taken from Chapter 12 of the FTA Transit Noise and Vibration Guidance Handbook.



Construction Noise Mitigation Strategies

The contractor shall prepare a draft Construction Noise Mitigation Plan and submit the plan to the CDOT Region 1 Noise Specialist and the CDOT Engineer for review prior to the pre-construction meeting for the project. The final plan must be approved by CDOT's Noise Specialist and Engineer prior to beginning construction. The Construction Noise Mitigation Plan will provide a detailed description of the measures the contractor will take to avoid, minimize and mitigate temporary noise impacts from construction activities, in order to comply with the applicable city or county noise ordinance, or the State Noise Statute (C.R.S. 25-12-102) in the absence of a local ordinance.

Some examples of measures that can be taken to mitigate construction noise include the following:

- Use alternative construction methods or equipment that produce less noise, including electrically powered equipment.
- Reschedule construction operations to occur during daytime hours.
- Notify neighbors in advance when construction noise may occur.
- Provide hotel vouchers to area residents that will be impacted by construction noise.
- Keep noisy activities and stationary equipment as far from sensitive receptors as possible.
- Prohibit unnecessary idling of construction equipment and vehicles.
- Maintain exhaust systems on equipment in good working order. All construction equipment is subject to inspection by the construction project manager to ensure maintenance is being conducted. Equipment and vehicles without muffled exhaust systems will not be allowed on the work site.
- Use properly designed engine enclosures and employ temporary acoustic barriers around stationary construction noise sources.

Colorado Noise Statute

Colorado Noise Statute 25-12-103 addresses maximum permissible noise levels from construction projects. Construction projects shall be subject to the maximum permissible noise levels specified for industrial zones for the period within which construction is to be completed pursuant to any applicable construction permit issued by proper authority or, if no time limitation is imposed, for a reasonable period of time for the completion of the project. Between the hours of 7 a.m. and 7 p.m., the maximum permissible noise level from construction projects is 80 dBA at a distance of twenty-five feet or more radiating from a property line. Between the hours of 7 p.m. and 7 a.m., the maximum permissible noise level from construction projects is 75 dBA at a distance of twenty-five feet or more radiating from a property line.



Local Noise Ordinances

The Project is located within the limits of the City of Commerce City and Adams County. Adams County does not have a local noise ordinance. In the City of Commerce City, Unreasonable noise is addressed in Section 6-2011 of the city's Municipal Code. Noise emanating from construction-related activities and equipment is permitted between the hours of 7 a.m. and 8 p.m. This limit does not supersede the state statute presented above. Construction noise occurring between 8 p.m. and 7 a.m. is considered unreasonable. This requirement would supersede the state statute presented above, therefore, construction between 8 p.m. and 7 a.m. shall be prohibited.

References

- CDOT. 2020. Noise Analysis and Abatement Guidelines, September.
- FHWA. 2010. Procedures for Abatement of Highway Traffic Noise and Construction Noise, 23 C.F.R. § 772.
- FHWA. 2011. *Highway Traffic Noise: Analysis and Abatement Guidance*, December.

Attachment A.

Project Information



Attachment A:

Project Information

June 2023

Project Number: NHPP 006A-06

Subaccount number: 22922

Introduction and Background

The Vasquez Boulevard (United States Route 6 [US 6]) I-270 to 64th Avenue project (Project) is located within the limits of the City of Commerce City (Commerce City) in Adams County. The Colorado Department of Transportation (CDOT), in cooperation with the Federal Highway Administration (FHWA) and local agencies including Adams County, the City of Commerce City, City and County of Denver, Denver Regional Council of Governments (DRCOG) and the Regional Transportation District (RTD), conducted a Planning and Environmental Linkages (PEL) study in 2018. The Vasquez Boulevard PEL study provided a framework for the implementation of transportation improvements along the corridor between 52nd Avenue and 64th Avenue and along I-270 for a ½-mile north and south of the I-270/Vasquez Boulevard interchange. The Project falls within the limits of the PEL study and is now following the NEPA process to prepare an Environmental Assessment to identify a preferred alternative based on the needs identified in the PEL.

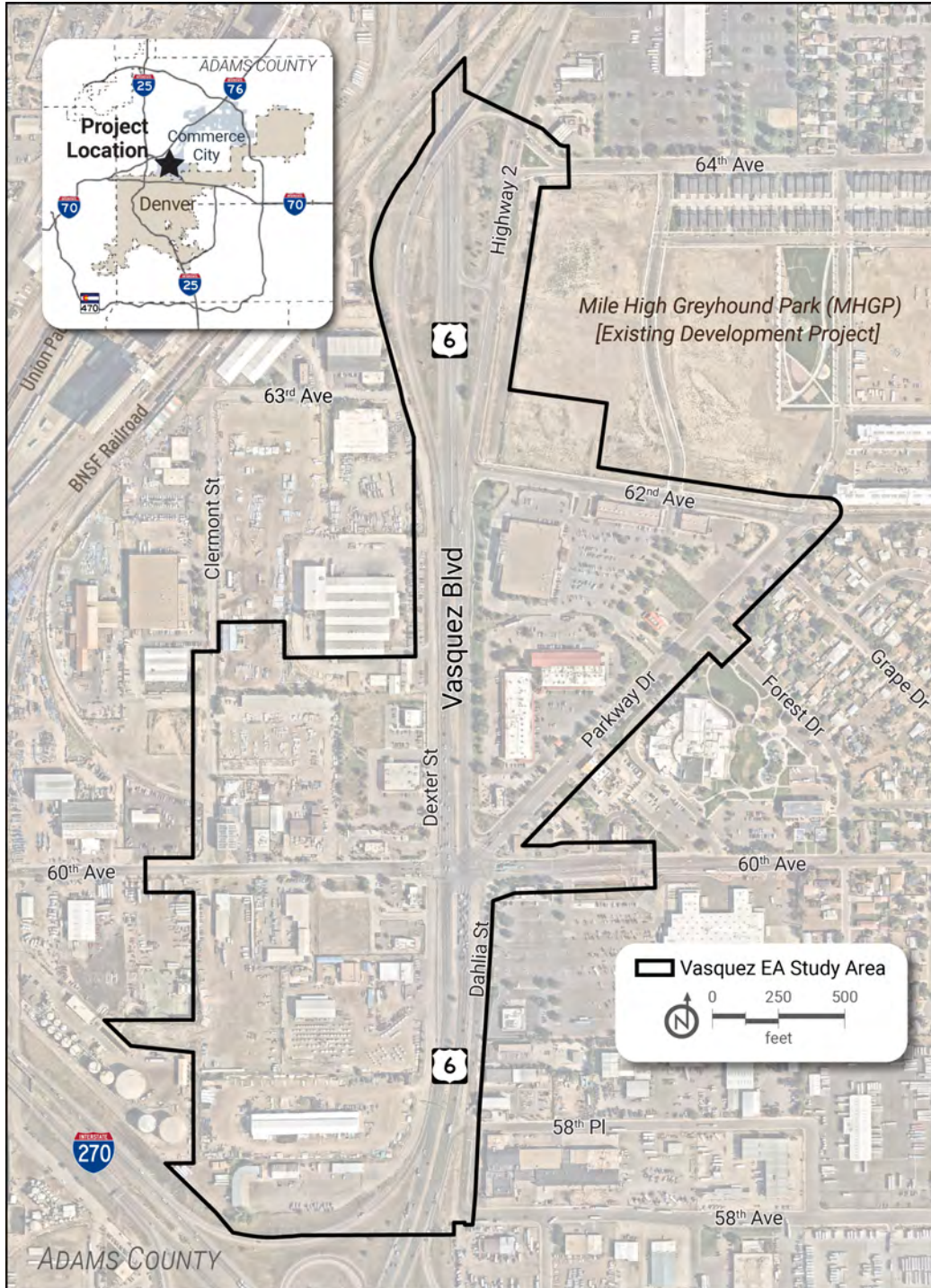
The PEL study identified long-term transportation improvements and evaluated potential projects that could be implemented with available funding as near-term improvements. Potential near-term improvements were identified to improve operations, safety, and connectivity along Vasquez Boulevard, focusing on the Vasquez Boulevard/60th Avenue and Vasquez Boulevard/62nd Avenue intersections. Transportation Improvement Program (TIP) funding, state funding and other sources were obtained for this current Project to construct these near-term improvements along Vasquez Boulevard.

Study Area

The study area extends along Vasquez Boulevard from 58th Avenue (just north of the I-270 interchange) north to the BNSF Railroad bridge. West of Vasquez Boulevard, the study area extends to Clermont Street, between the on-ramp to I-270 and just north of 60th Avenue. East of Vasquez Boulevard, the study area includes Parkway Drive, 60th Avenue and 62nd Avenue. The study area also includes proposed drainage work to an existing water quality pond within the Mile High Greyhound Park (MHGP) property at the corner of 62nd Avenue and Highway 2. Some environmental resources evaluated for the NEPA process may have a slightly different study area depending on specific resource requirements.



Figure 1: Project Study Area





Purpose and Need

The purpose of the Vasquez Boulevard I-270 to 64th Avenue Project is to address the following needs:

- improve operations for vehicles and freight;
- improve safety;
- improve multimodal connections.

Proposed Action

The Proposed Action includes improvements at the Vasquez Boulevard/60th and Vasquez Boulevard/62nd intersections, as well as the local street network and multimodal facilities, as shown in [Figure 2](#).

Vasquez Boulevard/60th Avenue

The Proposed Action includes the elements listed below for the Vasquez Boulevard/60th Avenue intersection:

- Only right turn movements to northbound Vasquez Boulevard from Parkway Drive. No access to other roads.
 - All inbound movements to Parkway Drive remain open as they exist now.
- All inbound movements from Vasquez Boulevard/60th to frontage roads remain as they exist now, but outbound movements are restricted.
 - Right turn only from southeast frontage road and all in movements allowed (all movements remain as they exist)
 - Right turn only from northwest frontage road and all in movements allowed (in movements remain as they exist)
 - No movement out from southwest frontage road and all in movements allowed (in movements remain as they exist)
- Two new local road connections to Clermont Street west of Vasquez Boulevard provide full access between frontage roads and 60th Avenue.
- Driveways on 60th Avenue, Parkway Drive and frontage roads remain as currently structures or have minor changes
- Restriping of existing crosswalks and new pedestrian refuges improve safety and accessibility of pedestrian infrastructure
- Corner curb bulb-outs would be added at the Parkway/Forest intersection as a deterrent to drivers who may think Forest Drive is an alternate route to 60th Avenue. The bulb-outs and crosswalk will provide visual indication of Forest Drive as a neighborhood street.



Vasquez Boulevard/62nd Avenue

The Proposed Action includes the elements listed below for the Vasquez Boulevard/62nd intersection:

- New traffic signal required at 62nd Avenue with the Vasquez Boulevard/60th Avenue intersection improvements to provide movements restricted from Parkway Drive to Vasquez Boulevard.
- Traffic signal provides full access to/from 62nd Avenue and Vasquez Boulevard/Highway 2.
- Southbound Highway 2 off ramp remains in existing configuration.
- Southbound traffic on Vasquez Boulevard and the Highway 2 off ramp have continuous green time without stopping at the signal for 62nd Avenue traffic.

Vasquez Boulevard Improvements

In addition to the improvements at the Vasquez Boulevard/60th Avenue and 62nd Avenue intersections, a portion of Vasquez Boulevard will be reconstructed. The southbound lanes of Vasquez Boulevard will remain as they currently exist (12-foot travel lanes; roadway width varies from 24-feet to 60-feet). Northbound Vasquez Boulevard will be widened a maximum of two feet between 60th Avenue and 62nd Avenue and a maximum of 20 feet north of 62nd Avenue, and the existing median will be modified to add left turn lanes into and out of the new 62nd Avenue intersection. A 10-foot detached multi-use path will be constructed along the eastern side of Vasquez Boulevard, between 60th Avenue and 62nd Avenue.

Local Road Connections

New local roadway connections west of Vasquez Boulevard are part of the Project to enhance the local circulation and pedestrian and bicyclist connectivity of the local street network. The new roadways are two-lane, two-way local roads with the potential for direct property driveway access as approved by Commerce City.



Figure 2: Proposed Action

