

Memo

To	FR2X Project File
From	Utah Transit Authority and Utah Department of Transportation
Date	April 14, 2026
Re	FrontRunner 2X Construction Noise and Vibration Assessment

The purpose of this memorandum is to summarize the construction noise and vibration assessment for the FrontRunner2X Project and present the mitigation measures that the project will implement during construction. This memorandum was prepared in coordination with the Federal Transit Administration (FTA) and Lance Meister at Cross-Spectrum Acoustics, Inc. Construction noise and vibration is assessed using the methods and information contained in the FTA noise and vibration guidance manual¹. While construction on the FrontRunner 2X project would span several years, the duration of construction at any specific location would be much shorter. With the incorporation of best practices for limiting construction noise and vibration, and the appropriate outreach and notification efforts, the effects on the local community would be minimized during the construction period.

Construction Noise

Elevated noise levels from construction activities are, to a degree, unavoidable for this type of project. For most construction equipment, diesel engines are typically the dominant noise source. For other activities, such as impact pile driving and jackhammering, noise generated by the actual process dominates.

Short-term noise during construction of the project can be intrusive to residents near the construction sites. Most of the construction activities will consist of utility relocation, site preparation, and laying new tracks. The majority of the work will be within the current commuter rail corridor. Work will be intermittent at any specific location and will occur primarily during daytime hours. Equipment could include loaders, graders, pavers, and specialized track installation equipment. At a few select locations, more extensive work will occur, such as pile driving for bridges and retaining walls.

Under Utah Code § 72-6-112.5 (and related Transportation Code provisions), certain transportation infrastructure projects — including commuter rail — are explicitly exempt from local noise ordinances, regulations, or standards. The statute states that:

- A commuter rail project is among the categories of transportation infrastructure that is exempt from any noise ordinance, regulation, or standard adopted by a local jurisdictional authority.
- Definition context: “Commuter rail” is defined in the statute consistent with state transportation definitions.

This exemption is intended to preempt local noise control rules so that state-level transportation projects (like commuter rail) are not subject to varying local noise ordinance requirements. However, in the interest of community awareness, UDOT will coordinate with local entities and obtain required temporary noise permits and, if necessary, request a variance for night work.

During construction, train operations, including both FrontRunner and Union Pacific, will comply with all safety requirements, including the use of train horns in construction zones, when applicable. Because this

¹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123, September 2018.

is a safety requirement per Federal Railroad Administration (FRA) regulations, it is not included in the assessment of construction noise.

Construction Vibration

Most limits on construction vibration are based on the potential for damage to nearby structures. Typical construction activities, outside of pile driving, demolition and drilling, do not generate vibration levels that would have the potential for impact to structures, even at very close distances. Construction vibration is usually only assessed for areas where there is potential for impact to structures in very close proximity to construction activities.

For the majority of the construction areas, no high vibration activities would occur. Equipment in these locations could include loaders, graders, pavers, and specialized track installation equipment, none of which generate high levels of vibration. At certain locations, there would be higher vibration levels associated with pile driving for bridge construction or soil compaction for subgrade preparation. The contractor will determine if there are any sensitive structures located near these sites, and if there are, vibration monitoring should be considered.

Construction Noise and Vibration Best Practices

There are a number of ways to limit noise and vibration from construction activities and reduce exposure to nearby sensitive receptors. The following options will be considered:

- Locate equipment on the construction lot as far away from noise-sensitive sites as possible.
- Combine noisy operations to occur in the same time period. The total noise level produced will not be substantially greater than the level produced if the operations were performed separately.
- Limit high noise and vibration activities at nighttime. Sensitivity to noise and vibration increases during the nighttime hours in residential neighborhoods.

In addition, in locations where high-vibration activities, such as pile driving, are expected to be conducted, the following activities will be implemented:

- Pre-Construction Survey: The contractor will perform pre-construction surveys to document the existing conditions of structures in the vicinity of sites where high-vibration construction activities will be performed. This can include pictures and videos of structures in case there is a claim of damage from construction activities².
- Vibration Monitoring: If a construction activity has the potential to generate high vibration levels at nearby structures in close proximity to the construction, the contractor should conduct vibration monitoring per the UDOT vibration monitoring specification³.

Finally, it is important to keep the public informed about upcoming construction activities and have in place a procedure to respond to complaints about construction noise and vibration. To maintain positive community relations, the FrontRunner 2X project will utilize a Public Involvement Team and keep the public regularly informed about the construction plans, equipment to be used and estimated duration of construction, along with what efforts will be undertaken to minimize noise and vibration during construction. They will also be available to respond to the public's concerns.

² Utah Department of Transportation Standard Specification 01727. Adjacent Property Preconstruction Survey, September 2022.

³ Utah Department of Transportation Standard Specification 02498. Vibration Monitoring During Construction, December 2024.