

SECTION 5 PROJECT EFFECTS

Will the project affect noise levels in the study area?

Build Alternative

Modeling for the Build Alternative indicates that noise levels will approach, meet, or exceed the NAC at 40 locations representing an equivalent of 190 residences, 2 hotels, 1 library, 6 parks, and 3 trails. Noise levels at 28 locations representing 98 residences, 2 hotels, 6 parks, and 3 trails approach, meet, or exceed the NAC criteria under baseline conditions.

Noise level results are the same for both the Main Street and Mill Avenue design options. Therefore, regardless of the design option selected, overall noise levels for the Build Alternative will not change.

Two new noise barriers are planned for construction as a part of the Tukwila to Renton Project. Noise Barrier 8 is planned for construction along the WSDOT right-of-way line east of Benson Road S and southeast of I-405, near the Berkshire Apartments. Noise Barriers 10A and 10B work together as a system and will be constructed atop a retaining wall from Renton Avenue S to the edge of Mill Avenue S. A discussion of Noise Barriers 8 and 10 is located in Section 6 of this report.

No Build Alternative

Modeling for the No Build Alternative indicates that noise levels will not approach, meet, or exceed the NAC at any additional locations. This means that noise levels for the No Build Alternative and baseline conditions are the same; they approach, meet, or exceed FHWA criteria at 28 locations representing an equivalent of 98 residences, 2 hotels, 6 parks, and 3 trails.

How do the Baseline Conditions, No Build, and Build Alternatives differ?

Baseline conditions indicate that noise levels at 28 locations including 98 residences, 2 hotels, 6 parks, and 3 trails approach, meet, or exceed the NAC. Noise levels for the No Build Alternative are predicted to be the same as noise levels under baseline conditions.

Noise levels for the Build Alternative were predicted to increase by 0 to 12 dBA over baseline conditions at residences in the study area. Noise levels at 40 locations, including 190 residences, 2 hotels, 1 library, 6 parks, and 3 trails, will approach, meet, or exceed the NAC. These levels remain constant despite the effects of relocating Noise Barrier East 5. The number of residences that experience noise levels that approach, meet, or exceed the NAC would be reduced from 190 to 121 with construction of Noise Barrier 8 and Noise Barrier 10, which are included in the Build Alternative.

Six locations that represent 25 potentially noise-sensitive residences and 1 park (located primarily in the Talbot Hill neighborhood and at the Berkshire Apartments) were included in baseline conditions and No Build Alternative analyses. These locations were not included in the Build Alternative analysis because these properties will be acquired to construct the project and will be converted to transportation use.

Will project construction temporarily affect noise levels?

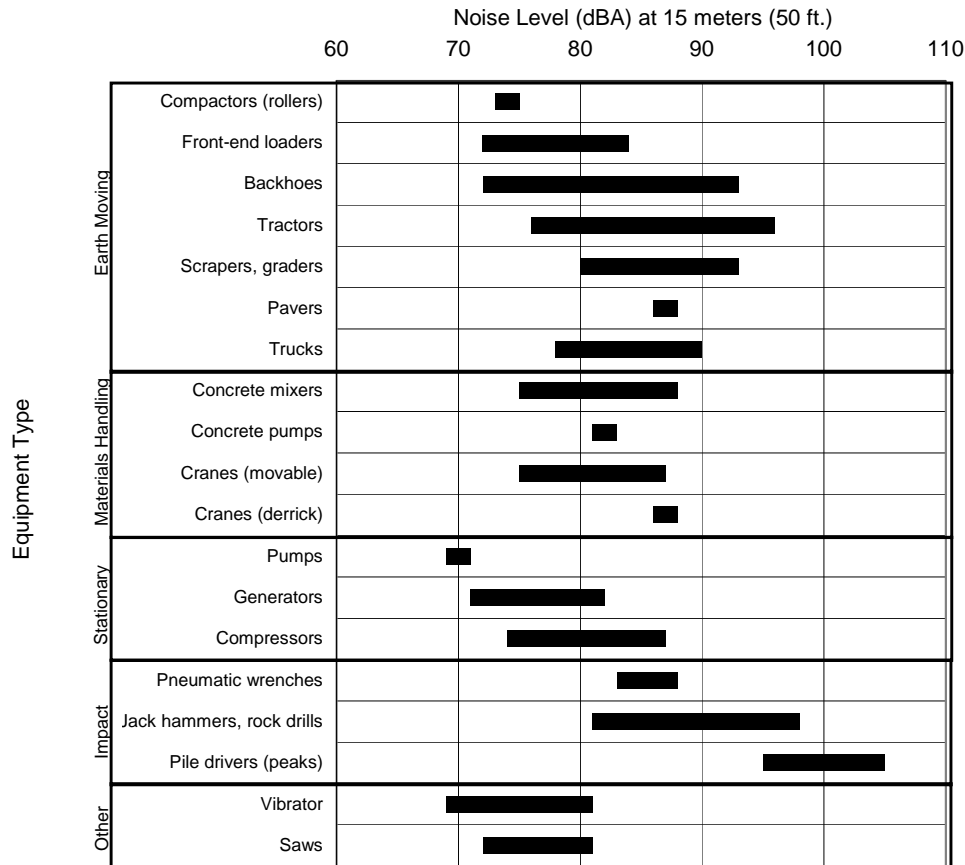
Construction activities will generate noise during the construction period. Construction will usually be carried out in stages, each with its own mix of equipment and its own noise characteristics. Roadway construction will involve clearing, cut-and-fill (grading) activities, removing old roadways, importing and compacting fill, paving, and pile driving.

Noise Sources during Construction

The most prevalent noise source at construction sites will be the internal combustion engine. Engine-powered equipment includes earth-moving and compaction, material-handling, and stationary equipment. Mobile equipment operates intermittently, with periods of high and low noise. Stationary equipment, such as generators and compressors, operates at fairly constant sound levels over time. Because trucks will be present during most construction phases and will not be confined to the active construction area, truck noise could affect more area residents. Other construction noise sources will include impact equipment and tools such as pile drivers. Impact tools could be pneumatically powered, hydraulic, or electric.

Construction noise will be intermittent. These noise levels will depend on the type, amount, and location of construction activities. The type of construction methods followed will establish maximum noise levels for the equipment used. The amount of construction activity will define how often noise will occur. The proximity of construction equipment to adjacent properties will affect the noise levels of the receptors. Maximum noise levels for construction equipment for the Build Alternative will be similar to the typical maximum levels presented in Exhibit 5-1.

Exhibit 5-1: Typical Construction Noise Levels



Source: EPA, 1971 and WSDOT, 1991.

Did noise specialists consider this project's cumulative noise effects?

The team did not evaluate cumulative effects for this discipline report. A report of cumulative effects is not needed for every discipline studied for NEPA and SEPA documentation. The disciplines that were studied for cumulative effects are Air Quality, Surface Water and Water Quality, Aquatic Resources, and Wetlands. The cumulative effects for these disciplines are presented in the *Cumulative Effects Analysis Technical Memorandum*. (WSDOT, 2007)

Range of Noise from Construction Equipment

As shown in Exhibit 5-1, maximum noise levels from construction equipment will range from 69 to 106 dBA at 50 feet. Construction noise at residences farther away will decrease at a rate of 6 dBA per doubling of distance from the source. The number of maximum noise level occurrences will increase during construction, particularly during pile-driving activities. Because some equipment will be turned off, idling, or operating at less than full power at any time and because construction machinery is typically used to complete short-term tasks at any given location, average L_{eq} noise levels during the day will be less than the maximum noise levels presented in Exhibit 5-1. The construction practices identified in the *Measures to Avoid or Minimize Effects* section of this report will help reduce construction noise levels.

Does the project have other effects that may be delayed or distant from the study area?

An effect is considered to be indirect when it occurs later in time or farther removed from an original project action. Indirect effects may include those related to changes in land use patterns, population density or growth rate, and related effects on other natural systems.

The noise analysis for this project is based on the transportation demand forecasting model and includes the effects of capacity constraints on the transportation system. By including the vehicles that are not moving efficiently through the transportation system, the indirect effects of increased transportation capacity are included in the analysis.

The results of the noise analysis already reflect the potential delayed and distant effects of the Tukwila to Renton Project. The data presented in the even-numbered exhibits from Exhibit 4-2 to Exhibit 4-14 reflect modeled noise levels for the Build Alternative through 2030.