Who is CORE? We are concerned neighbors who live in LFP, who are sharing information of ST3 and its impacts on our community.

Contact: CoreForLFP@outlook.com

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Hello Phil, Mayor Jeff, City Staff and Councilmembers,

Recently I received a copy of the SR 522 BRT Noise and Vibration Study, Appendix E of the SEPA. I learned that the Noise and Vibration Studies in this Report almost entirely **omit the residential areas along both sides of Bothell Way.** Also, the 30% and 60% alignments do not appear to have been considered when this study was completed. (It appears this study completed when the parking garages were still proposed, around 2019.) Also, while Lake Forest Park does not have a noise ordinance, LFP should be covered by the WSDOT regulations. See 2B, 3 and 6, highlighted below.

Noise Analysis
The Federal Transit Administration (FTA), through their September 2018 publication *Transit Noise and Vibration Impact Assessment*, recommends using the Federal Highway Administration (FHWA) regulations for traffic noise analysis on projects where the highway noise sources dominate at all times. In Washington state, this would be the WSDOT regulations. Specifically, WSDOT is responsible for implementing the FHWA noise analysis regulations in Washington state for projects meeting one or more of the following criteria:

1. The construction of a highway on a new location
2. The physical alteration of an existing highway where there is either:
    a. Substantial Horizontal Alteration: A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition or
    b. Substantial Vertical Alteration: A project that removes shielding, therefore exposing the line-of-sight between the receptor and the traffic noise source; this is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor
3. The addition of a through-traffic lane(s); this includes the addition of a through-traffic lane that functions as a high-occupancy vehicle lane, high-occupancy toll lane, bus lane or truck climbing lane
4. The addition of an auxiliary lane, except when the auxiliary lane is a turn lane
5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange
6. Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane
7. The addition of a new or substantial alteration of a weigh station, rest stop, rideshare lot, or toll plaza.

Noise is a major concern for our community, on both sides of Bothell Way. We ask the City to challenge this study as it is inadequate and demand a new study based on the 60% alignment, with measurements taken in the areas that are most impacted including residential, commercial and multifamily units or apartments that align both sides of Bothell Way.

I have selected and annotated pages specifically pertaining to LFP from this document. Most interesting is the map indicating where noise samples were taken.
Please make your own review and consider next steps to correct this major oversight.

I plan to attend the special City Council Meeting tonight, as walls are a topic of discussion. If the project is built as proposed (with significant roadway expansion) both attractive retaining walls, vegetation and sound walls should be discussed and considered for the Ordinance.

I hope this information is helpful.
Vicki Scuri, 15004 37th Ave NE, LFP

4.1.5. FHWA traffic noise criteria

FTA recommends using the FHWA criteria for noise from general-purpose traffic on public roadways that are modified or constructed as part of a transit project. Therefore, criteria for traffic noise impacts are from the FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise, Code of Federal Regulations Title 23, Subchapter H, Section 772 (2011). A traffic noise impact occurs if predicted traffic noise levels approach the criteria levels for specific land use categories or substantially exceed existing noise levels (e.g., a 10-dbA increase). The FHWA has land use categories that are similar to those used by FTA, although the FHWA categories use letters instead of numbers, and the land uses can be slightly different depending on the category.

The land uses of greatest concern in the project corridor are FHWA Type B and Type C, which include residences, motels, hotels, playgrounds, active sports areas, parks, schools, places of worship, libraries and hospitals. The noise abatement criterion used to determine impacts on these land uses is “approach or exceed 67 dBA.” Under WSDOT policy (WSDOT 2012), a traffic noise impact occurs if predicted noise levels approach within 1 decibel of the noise abatement criterion. Therefore, an impact on Type B land uses would occur at 66 dBA. Traffic noise impacts can also occur if the future noise levels exceed the existing levels by 10 dB or more. WSDOT defines its impact levels (shown in **Table 4-3** (Noise abatement criteria by land use category)) as noise abatement criteria. The WSDOT impact levels are based on hourly Leq levels for the peak hour of traffic noise.

WSDOT is responsible for implementing the FHWA regulations in Washington state. Under FHWA and WSDOT regulations, traffic noise studies are performed only for projects meeting one or more of the following criteria:

1. The construction of a highway on a new location
2. The physical alteration of an existing highway where there is either:
    a. Substantial Horizontal Alteration: A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition or
    b. Substantial Vertical Alteration: A project that removes shielding, therefore exposing the line-of-sight between the receptor and the traffic noise source; this is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor
3. The addition of a through-traffic lane(s); this includes the addition of a through-traffic lane that functions as a high-occupancy vehicle lane, high-occupancy toll lane, bus lane or truck climbing lane
4. The addition of an auxiliary lane, except when the auxiliary lane is a turn lane
5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange

6. Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane

7. The addition of a new or substantial alteration of a weigh station, rest stop, rideshare lot, or toll plaza

The project was reviewed to determine whether it met the criteria for modifications to the horizontal or vertical roadway alignments. Because the proposed project would include modification of the alignment of an existing roadway or highway and the removal of structural shielding, a review of these modifications was performed. In the areas where the modifications would meet the Type 1 requirements, a traffic noise analysis using the FHWA and WSDOT methods was performed. Section 7.2 provides the results of that analysis.

Only Two Locations, M-8 and M-11 were studied for 24 hours: See 6.3. Project Area Noise Level
The residential neighborhoods along 39th Ave NE (abutting Bothell Way) and residences along Bothell Way are not adequately considered in this study. This is a gross omission, as noise impacts most affect the residential neighborhoods along both sides of Bothell Way.

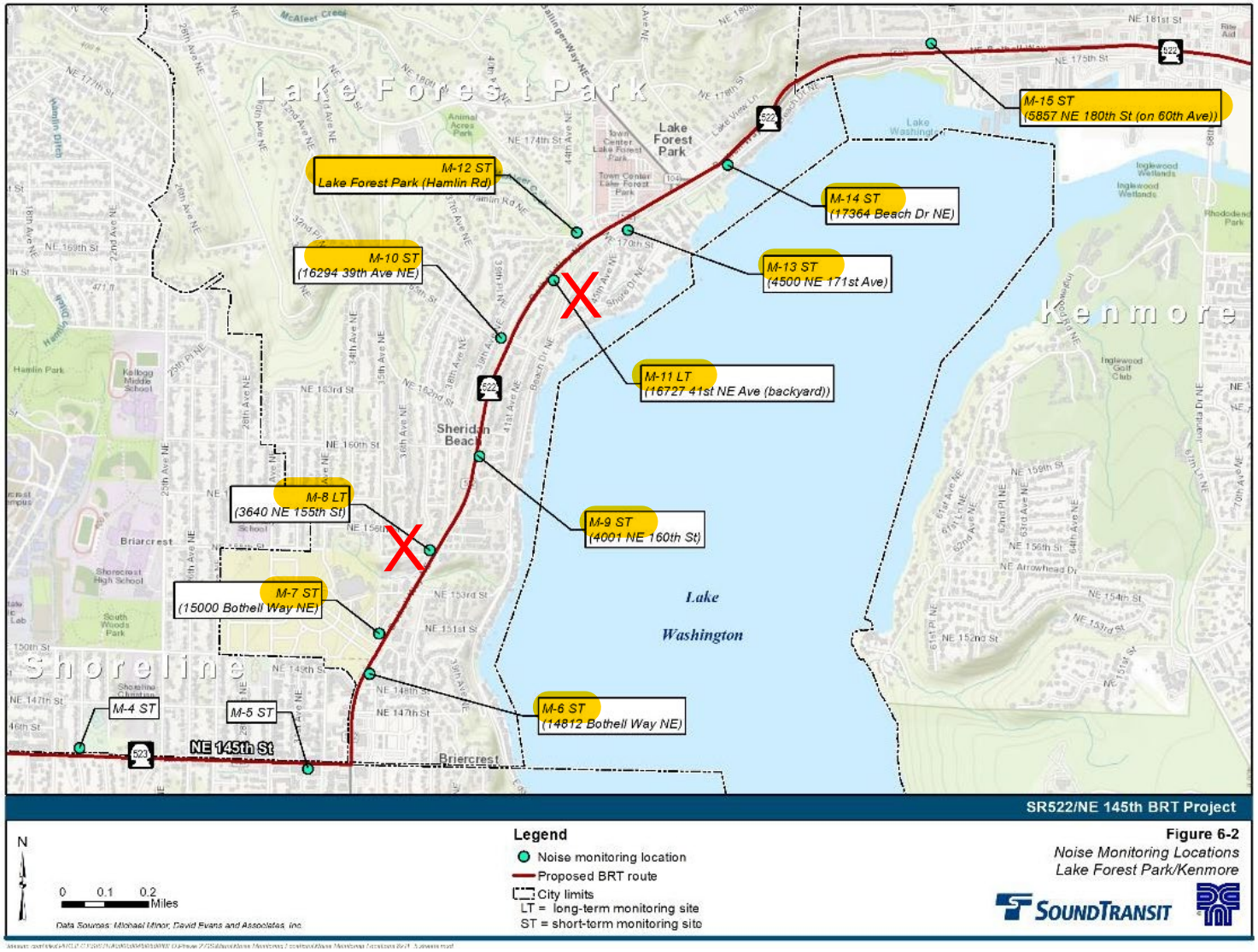


Figure 6-2 Noise monitoring locations: Segments 2/3 - Lake Forest Park/Kenmore

CHECK OUT THESE LOCATIONS: THEY OMIT THE RESIDENTIAL AREAS THAT ARE MOST IMPACTED BY THE BRT.

Table 6-1 Summary of on-site noise measurements

Site[1]	Segment	Location	Leq (dBA)[2]	Ldn (dBA)[2]	Notes[3]
M-1	1	522 NE 145th St.	69	71	Short-term: peak-hour Leq, predicted Ldn
M-2	1	1020 NE 145th St.	71	72	Long-term: peak-hour Leq, predicted Ldn
M-3	1	NE 145th St. at 17th Ave. NE (south side)	71	72	Short-term: peak-hour Leq, predicted Ldn
M-4	1	14511 22nd Ave. NE	67	69	Short-term: peak-hour Leq, predicted Ldn
M-5	1	14349 32nd Ave. NE	68	70	Short-term: peak-hour Leq, predicted Ldn
M-6	2	14812 Bothell Way NE	74	76	Short-term: peak-hour Leq, predicted Ldn
M-7	2	15000 Bothell Way NE (rear)	67	68	Short-term: peak-hour Leq, predicted Ldn
M-8	2	3640 NE 155th St.	74	78	Long-term: peak-hour Leq, predicted Ldn
M-9	2	4001 NE 160th St. (front)	57	58	Short-term: peak-hour Leq, predicted Ldn
M-10	2	On NE 165th St. at 16294 39th Ave. NE	67	69	Short-term: peak-hour Leq, predicted Ldn
M-11	2	16727 41st Ave. NE (backyard)	66	69	Long-term: peak-hour Leq, predicted Ldn
M-12	2	Blue Heron Park (Hamlin Rd. NE)	67	69	Short-term: peak-hour Leq, predicted Ldn
M-13	2	4500 NE 171st St.	66	68	Short-term: peak-hour Leq, predicted Ldn
M-14	2/3	17364 Beach Dr. NE	64	66	Short-term: peak-hour Leq, predicted Ldn
M-15	3	On 60th Ave. NE at 5857 NE 180th St.	67	69	Short-term: peak-hour Leq, predicted Ldn
M-16	4	17432 Bothell Way NE (north building)	64	66	Long-term: peak-hour Leq, predicted Ldn
M-17	4	SR 522 at Hall Rd.	70	71	Short-term: peak-hour Leq, predicted Ldn
M-18	4	18215 98th Ave. NE (library)	62	64	Short-term: peak-hour Leq, predicted Ldn
M-19	4	10106 NE 185th St.	65	67	Short-term: peak-hour Leq, predicted Ldn
M-20	4	18516 104th Ave. NE	67	67	Long-term: peak-hour Leq, predicted Ldn
M-21	4	10736 Beardslee Blvd.	66	69	Long-term: peak-hour Leq, predicted Ldn
M-22	4	Campus Way NE (on UW Bothell Campus)	58	60	Short-term: peak-hour Leq, predicted Ldn
M-23	4	18829 Beardslee Blvd.	72	74	Short-term: peak-hour Leq, predicted Ldn

[1] Sites are shown in **Figures 6-1** through **6-3**.

[2] The peak hour Leq is used for FTA Category 1 and Category 3 land uses, while the 24-hour Ldn is used for FTA Category 2 residential land uses.

[3] Short-term measurements were twice for 15 minutes each time over the monitoring period; the long-term measurements were continuous for approximately 25 continuous hours.

Avenue NE. From 17th Avenue NE to SR 522, land use is primarily FTA Category 2 residential, including single-family and multifamily structures.

In this segment, churches/places of worship, which are an FTA Category 3 land use, include the Prince of Peace Lutheran Church, the Carmelite Monastery and the Shoreline United Methodist Church. All three churches are on the north side of NE 145th Street between 20th Avenue NE and 25th Avenue NE. East of 32nd Avenue NE to SR 522, land use is commercial, and is not considered noise-sensitive under FTA criteria.

6.2.2. Segment 2: Lake Forest Park

Segment 2 begins at the intersection of NE 145th Street and SR 522. The project corridor continues along SR 522 to the Lake Forest Park/Kenmore city limits, just north of 43rd Avenue NE. The west side of the project corridor between NE 145th Street and NE 149th Street is located in Shoreline, with the remainder of the project corridor located in Lake Forest Park.

This segment is developed with residential uses (including public housing), commercial and service uses, a 60-acre funeral home with cemetery and memorial park, professional services, and parks and recreation facilities.

Land use at the connection to Segment 1, at NE 145th Street and SR 522, is all commercial, continuing along SR 522 to around NE 147th Street, where there are FTA Category 2 multifamily apartments on the west side of SR 522, and FTA Category 2 single-family and multifamily residences on the west side behind an existing commercial structure.

The Acacia Memorial Park & Funeral Home (FTA Category 3) is located at 14951 Bothell Way NE, on the west side of SR 522, north of NE 149th Street, and there are some FTA Category 2 multifamily buildings located along SR 522 north of the funeral home. On the east side of SR 522, from NE 148th Street north to NE 153rd Street, land use is primarily multifamily residential (FTA Category 2). North of NE 155th Street, continuing to Brookside Boulevard NE/NE 170th Place, land use is almost entirely FTA Category 2 residential. Multifamily units are located along the east side of SR 522 from NE 155th Street to NE 157th Place, and single-family residences are located along SR 522 from NE 157th Street to NE 170th Place. On the west side in this same area, land use is almost entirely single-family residential. Blue Heron Park is located at SR 522 and Hamlin Road NE and was included in this analysis as an FTA Category 3 land use due the quiet areas of the park near McAleer Creek.
The selected noise study locations omit the residential areas along Bothell Way & 39th Ave NE.
From Brookside Boulevard NE/NE 170th Place to Ballinger Way NE, land use is commercial on the north side of SR 522 and FTA Category 2 residential on the south side of SR 522. The Burke-Gilman Trail parallels SR 522 starting just south of Brookside Boulevard NE and continues along SR 522 into Segment 3. Because the Burke-Gilman Trail is primarily a transportation corridor, it is not considered a noise-sensitive use. The proposed park-and-ride garage would be located on the north side of SR 522, just west of Ballinger Way NE. Land use from Ballinger Way NE to the beginning of Segment 3 is entirely single-family residential.

This study appears to have been completed before the 30% designs were issued, as the proposed parking garages at LFP were part of the study.

The project corridor continues north along 98th Avenue NE and then transitions onto NE 185th Street. The corridor continues along NE 185th Street until it intersects Beardslee Boulevard. The corridor continues along Beardslee Boulevard to the Beardslee Boulevard Station, and then continues to the Transit Hub.

This segment is developed with a variety of land uses including residential uses, commercial and service uses, a library, municipal government buildings, schools, churches and a fire station. There are three FTA Category 2 single-family residences on 98th Avenue NE north of Dawson Street, directly across from the Bothell Library (FTA Category 3). There are also several large FTA Category 2 multifamily buildings and the Birch Tree Academy preschool as the project corridor transitions over to NE 185th Street. The Bothell Park-and-Ride garage would also be located in this area, near the intersection of 98th Avenue NE and NE 185th Street.

Land use along NE 185th Street is primally FTA Category 2 single-family and multifamily residential on the north side, and FTA Category 2 multifamily residential on the south side, with several office buildings intermixed that are not noise-sensitive uses under the FTA criteria. The Bothell Fire Department, which is an FTA Category 2 land use due to the sleeping quarters it contains, is located at the intersection of NE 185th Street and Beardslee Boulevard. North of NE 185th Street along Beardslee Boulevard, land use includes FTA Category 2 single-family and multifamily residential (including university student housing) and the UW Beardslee Dental facility and the Village at Beardslee mixed-use buildings, which have retail uses on the lower floors and FTA Category 2 uses on the upper floors.

6.3. Project area noise levels

Noise levels along the project corridor are currently dominated by traffic along both NE 145th Street and SR 522, and along major and minor arterial crossings; these conditions are anticipated to continue in the foreseeable future. To provide detailed information on the existing noise environment, noise levels were measured at 23 locations along the project corridor. Section 5.3 discusses the methods used for noise monitoring.
These areas do not include the residential areas along Bothell Way, that are most impacted by the BRT.
Long-term noise measurements covering approximately 24 continuous hours or more were taken at six sites (M-2, M-8, M-11, M-16, M-20 and M-21 (see **Figure 6-1** (Noise monitoring locations: Segment 1 - Seattle/Shoreline) through **Figure 6-3** (Noise monitoring locations: Segment 4 - Bothell)). The remaining 17 sites were monitored twice for 15 minutes each time, at different times of the day. All monitoring was performed between October 6 and October 8, 2019. The 23 monitoring locations are shown on **Figure 6-1** (Noise monitoring locations: Segment 1 - Seattle/Shoreline) through **Figure 6-3** (Noise monitoring locations: Segment 4 - Bothell). **Appendix C** (Noise Monitoring Locations) includes detailed site photographs and aerial photographs.

Based on monitoring, noise levels along the project corridor ranged from 58 to 78 dBA Ldn and 57 to 74 dBA Leq during daytime hours. Noise levels in this range are typical along major arterial roadways and in urban areas. **Table 6-1** (Summary of on-site noise measurements) summarizes the measured noise levels at each monitoring site, and the following sections discuss the identified noise sources.

- Local noise codes and ordinances were also considered and are only applicable to park-and-ride garages and project construction.

Long-term impacts are impacts associated with the normal revenue service of the proposed BRT system. To briefly restate the noise analysis assumption, the new buses proposed for use in the project corridor would consist of 12 new branded buses, 10 of which would be BEBs and 2 of which would be diesel hybrid buses. The proposed project is predicted to add 220 bus trips per day, or 110 trips in each direction, with 20 trips in each direction during nighttime hours, when the 10 dB penalty is applicable. Overall, new bus trips would be a very small percentage of the total daily traffic volumes, and therefore BRT operations would not be expected to result in a measurable change in the total noise from all traffic. As stated previously, it typically takes a doubling of traffic volumes to cause an increase of 3 dB.

The noise analysis was performed for 156 receiver locations, representing 786 individual receivers. The selected monitoring locations included all types of land uses: single-family and multifamily residential uses, schools, churches, medical facilities and noise-sensitive parks. These locations are representative of receivers throughout the project corridor and range in distance from 10 feet to more than 300 feet from the project corridor, with existing Ldn levels of 61 to 78 dBA.

The noise analysis predicted that noise levels with the project would increase by no more than 1 dB along the corridor due in part to the lower emissions from the BEBs and to the low number of nighttime BRT trips (20 in each direction). Some locations may see a slight decrease in total noise due to slight realignments of the SR 522 roadway; however, overall, the project is not predicted to have any notable effect on the noise levels along any of the project segments due to the high existing traffic volumes on most project roadways.

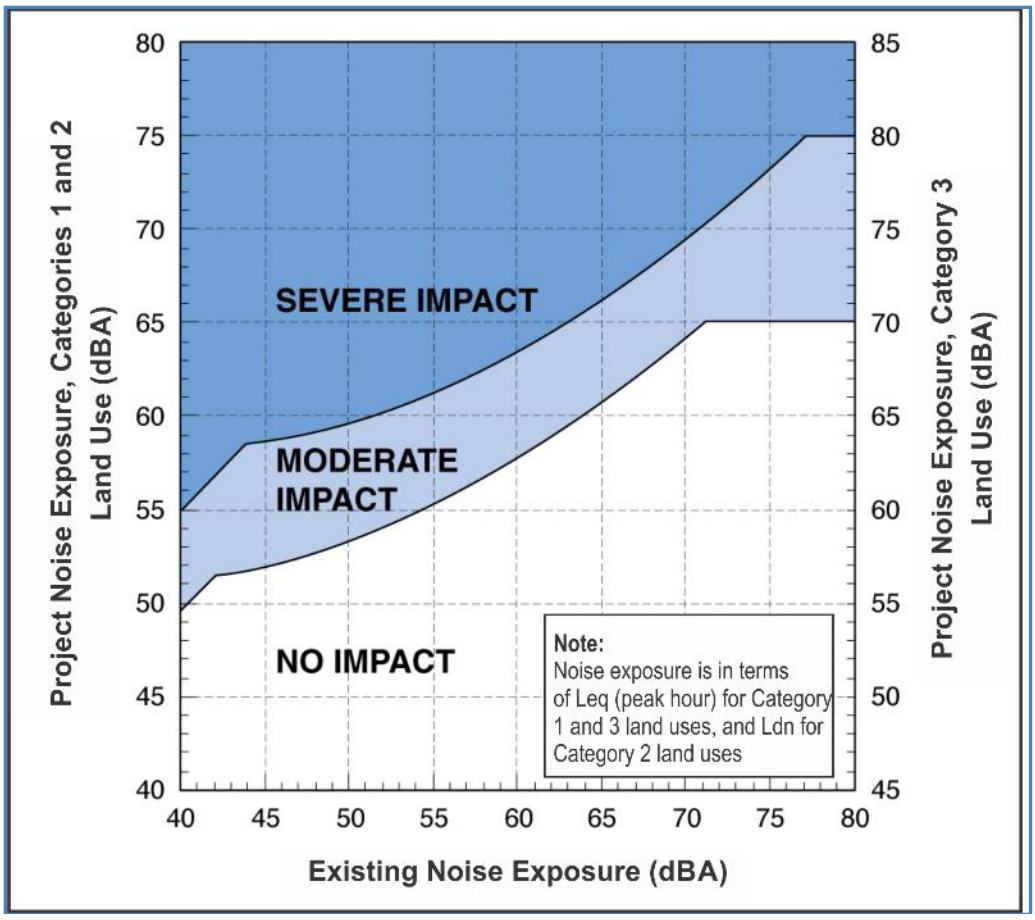
Table 7-1 (Summary of existing and future noise levels and potential impacts) summarizes the results according to the four project segments, and **Appendix E** (Noise Modeling Results) provides complete details on the noise analysis for the representative receivers.

Table 7-1 Summary of existing and future noise levels and potential impacts

Project Segment	Existing (Ldn/Leq)	BRT Noise Levels (Ldn/Leq)	Future Noise with BRT Project (Ldn/Leq)	Change in Total Noise	No. of Individual Properties with Noise Impacts
Segment 1	67 to 78 dBA	51 to 63 dBA	68 to 78 dBA	0 to 1 dB	0
Segment 2	61 to 77 dBA	49 to 63 dBA	61 to 78 dBA	-1 to 1 dB	0
Segment 3	62 to 73 dBA	52 to 60 dBA	62 to 73 dBA	0 dB	0
Segment 4	64 to 76 dBA	56 to 63 dBA	65 to 76 dBA	-1 to 1 dB	0
Totals	**61 to 78 dBA**	**49 to 63 dBA**	**61 to 78 dBA**	**-1 to 1 dB**	**0**

See **Appendix E** for detailed results.

NOTE: In LFP, only 1 location was taken in Sheridan Heights: 16294 39th Ave. NE (see map); 1 location was taken along Bothell Way: 15000 Bothell Way NE (see map) It appears measurements do not consider the alignment shift to the West Side of Bothell Way. Noise impacts to either side of Bothell Way were never adequately measured.)



Source: FTA 2018

Figure 4-1 FTA noise impact criteria