

Existing Conditions

Existing noise sources in the project area include roadway traffic, aircraft overflights, railroad operations, and local neighborhood activities, including industrial noise, train whistles, and gravel operations.

The project team measured existing noise levels at two representative sites in the study area (see Figure 3.40). The existing noise levels are shown in Table 3.9.

Refer to the West Dowling Road Connection Project Highway Traffic Noise Assessment in Appendix H for a complete discussion of the noise analysis

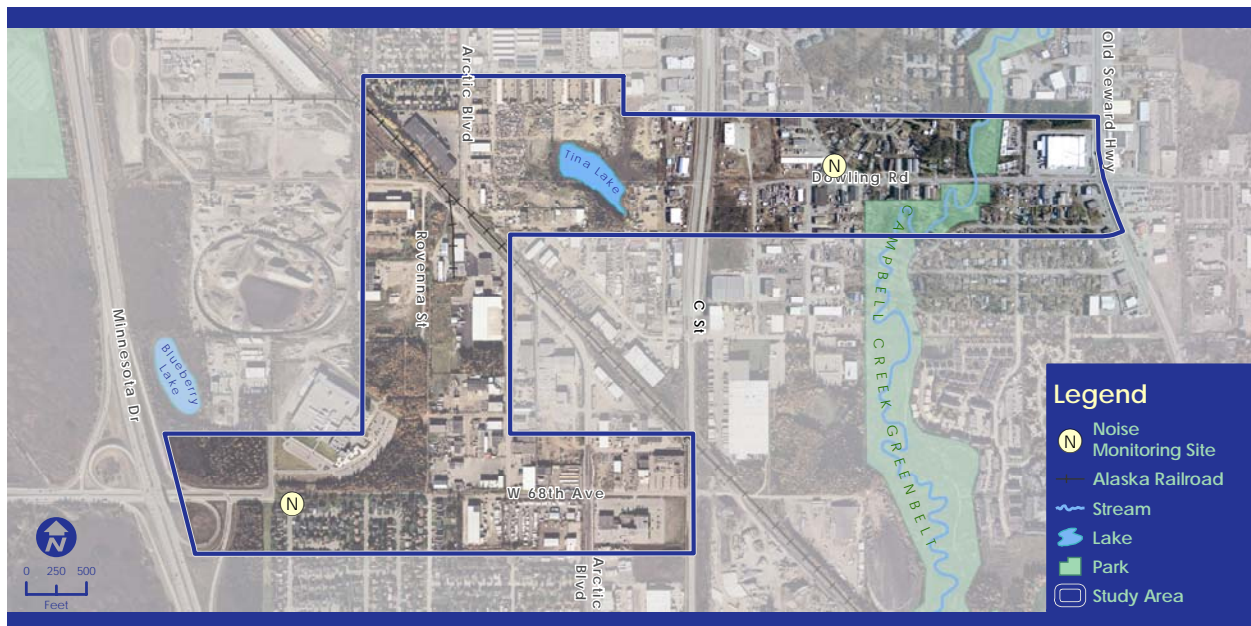


Figure 3.40 Noise Monitoring Sites

Table 3.9. Summary of Existing Ambient Noise Measurement Results

Site Description	Peak Morning $L_{eq}(h)$ (dB[A])
242-248 Potter Drive	69
Dead end at Chad St. and Graham Circle	60

Source: HDR 2006c

Environmental Consequences

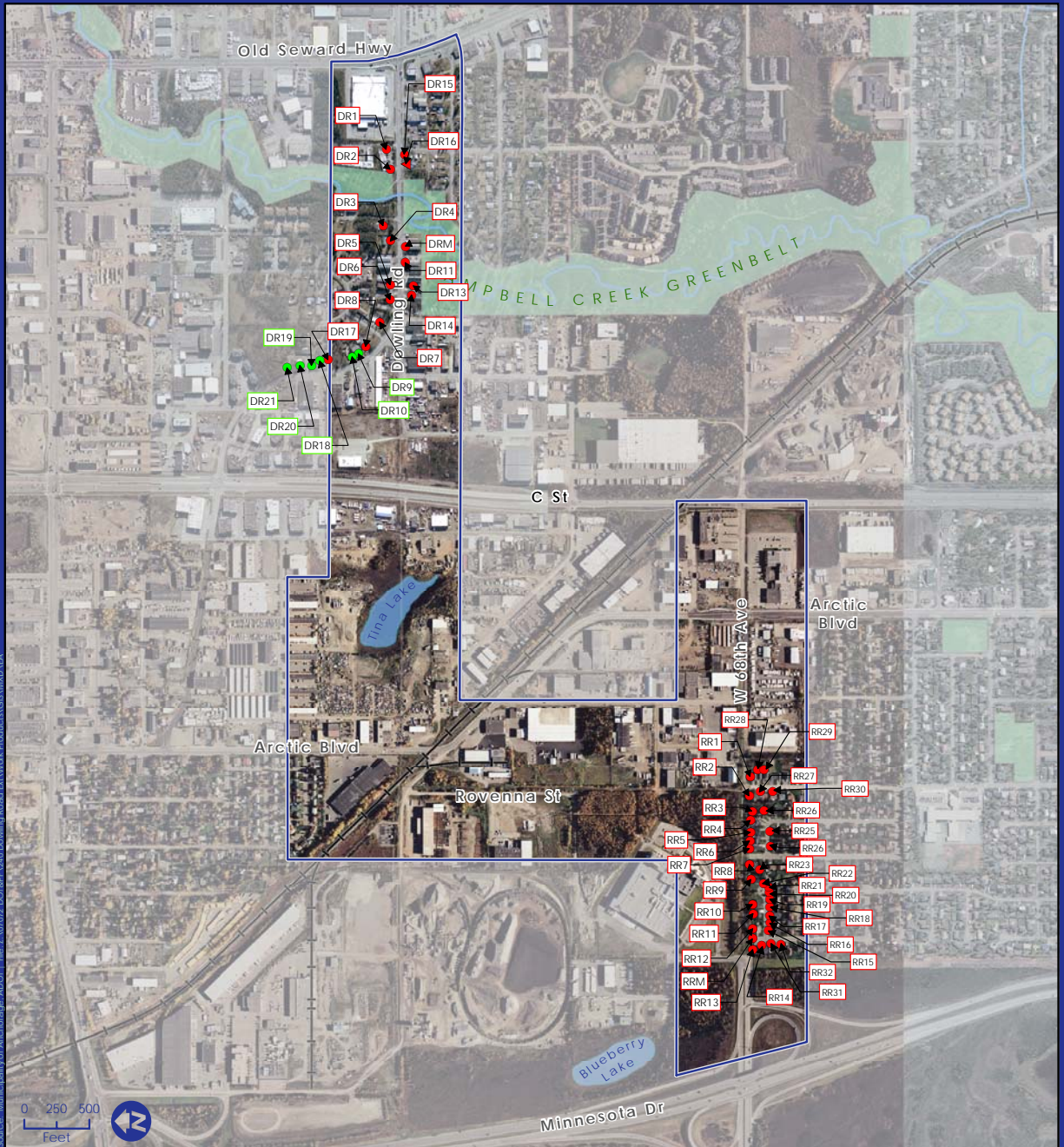
The project team used the FHWA Traffic Noise Model (TNM) to estimate traffic noise levels. To evaluate levels in the project area, the project team obtained field measurements of current traffic noise levels and current traffic volumes. TNM was used to evaluate future noise levels.

The FHWA established Noise Abatement Criteria (NAC) to help determine the noise impacts associated with highway development projects. The NAC are noise levels assigned to various land uses (such as picnic areas, churches, commercial land, and undeveloped land) grouped by their sensitivity to traffic noise levels. The NAC represent the maximum traffic noise levels that allow uninterrupted use within each activity category.

Table 3.10 lists the five land activity categories included in the FHWA-established NAC and the average sound level (occurring over a 1-hour period, or $L_{eq}[h]$) associated with each activity category. Sound levels are reported in decibels using the A-weighted scale¹ (dB[A]). Figure 3.41 shows the location of the modeled noise-sensitive receivers within the study area.

¹ Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight". The A-weighted scale corresponds to the sensitivity range for human hearing.

West Dowling Road Connection Project



Legend

- | | | | |
|-------------------------|------------------------|-------------------|--------|
| ● Residential Impact | ▲ Commercial Impact | □ Study Area | 🌊 Lake |
| ● Residential No Impact | ▲ Commercial No Impact | 🚂 Alaska Railroad | 🌳 Park |
| | | ~ Stream | |

Figure 3.41
Noise Sensitive Receivers

Table 3.10. Noise Abatement Criteria

Activity Category	L _{eq} (h) (dB[A])	Description of Activity Category
A	57 (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	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	No limit	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: FHWA, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, Federal-Aid Highway Program Manual 7-7-3, August 1982.

In their noise policy, DOT&PF states that "the commitment to minimize noise impacts and enhance the noise environment must be fulfilled through prudent application of FHWA's noise regulations - 23 CFR Part 772, which is the primary regulatory authority regarding noise abatement criteria" (DOT&PF 1996) According to FHWA regulation and DOT&PF policy (DOT&PF 1996), traffic noise impact occurs when the predicted noise levels on new roadway corridors meet one of the following:

- Approach (are within 2 dB[A] of) or exceed the NAC
- Substantially exceed (by 10 dB[A] or more) the existing noise level

If a noise impact (approaching or exceeding the NAC) is identified, FHWA regulations and DOT&PF policy indicate that abatement should be considered.

Noise mitigation design would be incorporated into the proposed project if it were determined that noise impacts would be created by the project and that abatement measures are considered reasonable and feasible according to DOT&PF Noise Policy.

Table 3.11 shows the results of the noise analysis. TNM showed that 43 of the 55 modeled noise receivers would have a noise level approaching or above the NAC for the applicable category. However, most of the modeled receivers are expected to exceed their acceptable NAC under the No Action Alternative.

What are sensitive receivers?

Sensitive noise receivers represent all land use activity categories for which FHWA noise abatement criteria specify exterior and interior noise levels. Land use activity categories include residences, recreation areas, hotels, schools, churches, libraries, and hospitals.

Table 3.11 Morning Peak-Hour Noise Analysis Results

Receiver ID	Residential/Commercial	2005 Existing Noise Level (dB[A])	2031 No-Action Noise Level (dB[A])	2031 Proposed Action Noise Level (dB[A])	Noise Abatement Criteria (dB[A])	Difference Between 2031 No-Action and 2031 Proposed Action	Relocation	Predicted Impact of 2031 Proposed Action? (Yes/No)
DR1	Residential	66	67	74	65	+7	Yes	No
DR2	Residential	69	70	78	65	+8	Yes	No
DR3	Residential	65	65	73	65	+7	Yes	No
DR4	Residential	68	69	80	65	+11	Yes	No
DR5	Residential	68	69	80	65	+11	Yes	No
DR6	Residential	68	69	79	65	+10	Yes	No
DR7	Residential	62	66	71	65	+5	No	Yes
DR8	Residential	64	69	66	65	-3	No	Yes
DR9	Residential	66	71	65	65	-6	No	Yes
DR10	Residential	67	70	65	65	-5	No	Yes
DR11	Residential	70	70	68	65	-2	No	Yes

Receiver ID	Residential/ Commercial	2005 Existing Noise Level (dB[A])	2031 No-Action Noise Level (dB[A])	2031 Proposed Action Noise Level (dB[A])	Noise Abatement Criteria (dB[A])	Difference Between 2031 No-Action and 2031 Proposed Action	Relocation	Predicted Impact of 2031 Proposed Action? (Yes/No)
DRM	Residential	69	70	68	65	-2	No	Yes
DR13	Residential	65	66	67	65	1	No	Yes
DR14	Residential	65	66	66	65	0	No	Yes
DR15	Residential	72	73	71	65	-2	No	Yes
DR16	Commercial	71	72	74	70	+2	Yes	No
DR17	Residential	72	74	66	65	-8	No	Yes
DR18	Residential	66	67	61	65	-6	No	No
DR19	Residential	67	68	61	65	-7	No	No
DR20	Residential	70	71	64	65	-7	No	No
DR21	Residential	68	69	62	65	-7	No	No
DR22	Residential	68	69	62	65	-7	No	No
RR1	Residential	62	75	71	65	-4	No	Yes
RR2	Residential	63	76	69	65	-7	No	Yes
RR3	Residential	60	73	66	65	-3	No	Yes
RR4	Residential	61	74	65	65	-9	No	Yes
RR5	Residential	60	74	66	65	-8	No	Yes
RR6	Residential	61	74	67	65	-7	No	Yes
RR7	Residential	62	76	69	65	-7	No	Yes
RR8	Residential	63	76	72	65	-4	No	Yes
RR9	Residential	60	73	73	65	0	No	Yes
RR10	Residential	59	72	73	65	+1	No	Yes
RR11	Residential	59	72	73	65	+1	No	Yes
RR12	Residential	59	72	74	65	+2	No	Yes
RR13	Residential	60	73	74	65	+1	No	Yes
RR14	Residential	60	66	69	65	+3	No	Yes
RR15	Residential	53	64	66	65	+2	No	Yes
RR16	Residential	51	63	66	65	+3	No	Yes
RR17	Residential	51	63	66	65	+3	No	Yes
RR18	Residential	51	63	66	65	+3	No	Yes
RR19	Residential	51	63	65	65	+2	No	Yes
RR20	Residential	51	63	65	65	+2	No	Yes
RR21	Residential	51	64	65	65	+1	No	Yes

Receiver ID	Residential/ Commercial	2005 Existing Noise Level (dB[A])	2031 No-Action Noise Level (dB[A])	2031 Proposed Action Noise Level (dB[A])	Noise Abatement Criteria (dB[A])	Difference Between 2031 No-Action and 2031 Proposed Action	Relocation	Predicted Impact of 2031 Proposed Action? (Yes/No)
RR22	Residential	52	65	67	65	+2	No	Yes
RR23	Residential	54	66	67	65	+1	No	Yes
RR24	Residential	51	63	62	65	-1	No	Yes
RR25	Residential	51	63	62	65	-1	No	Yes
RR26	Residential	52	65	63	65	-2	No	Yes
RR27	Residential	54	66	65	65	-1	No	Yes
RR28	Residential	55	67	68	65	+1	No	Yes
RR29	Residential	52	65	63	65	-2	No	Yes
RR30	Residential	50	63	60	65	-3	No	Yes
RR31	Residential	50	63	64	65	+1	No	Yes
RR32	Residential	48	60	61	65	+1	No	Yes
RR33	Residential	49	62	61	65	-1	No	Yes

Source: HDR 2006c.

Bold text indicates a noise level above the appropriate abatement criteria.

Construction

Noise and vibration impacts would result from heavy equipment movement and construction activities such as pile driving and vibratory compaction of the embankments. Construction noise would be minor and temporary in duration.

Mitigation and Authorizations

For all locations that exceeded the FHWA and DOT&PF criteria, the effectiveness of noise barriers was evaluated. To include a noise barrier in a project, the barrier must be feasible and reasonable. To be considered feasible, a noise barrier must be achieve a reduction of at least 5 dB(A) at most of the first row of sensitive receivers. To be reasonable, the barrier must be wanted by the owners of the sensitive receivers, and must be cost-effective. The allowable cost per square foot, as established in the DOT&PF Noise Policy, is \$31.

A noise barrier may interfere with the passage of air, interrupt scenic views, create objectionable shadows, contribute to increased road icing, and reduce or eliminate visibility of a business from the roadway. Noise barriers could also increase snow removal costs, cause maintenance access problems, make it difficult to maintain landscaping, create drainage problems, and provide pockets in which trash and garbage might accumulate. Depending on location, noise barriers could also compromise traffic safety by reducing stopping or merging sight distance, or by reducing errant vehicle recovery room.

Noise barriers **would not be effective** ~~are not possible~~ along the existing Dowling Road because of the need to maintain driveway access. The driveways would create breaks in the noise barrier and reduce its effectiveness. A noise barrier is recommended along 68th Avenue, provided that adjacent residents agree and that barrier construction is feasible from an engineering perspective. The location of the noise barrier is shown in Figure 3.42.

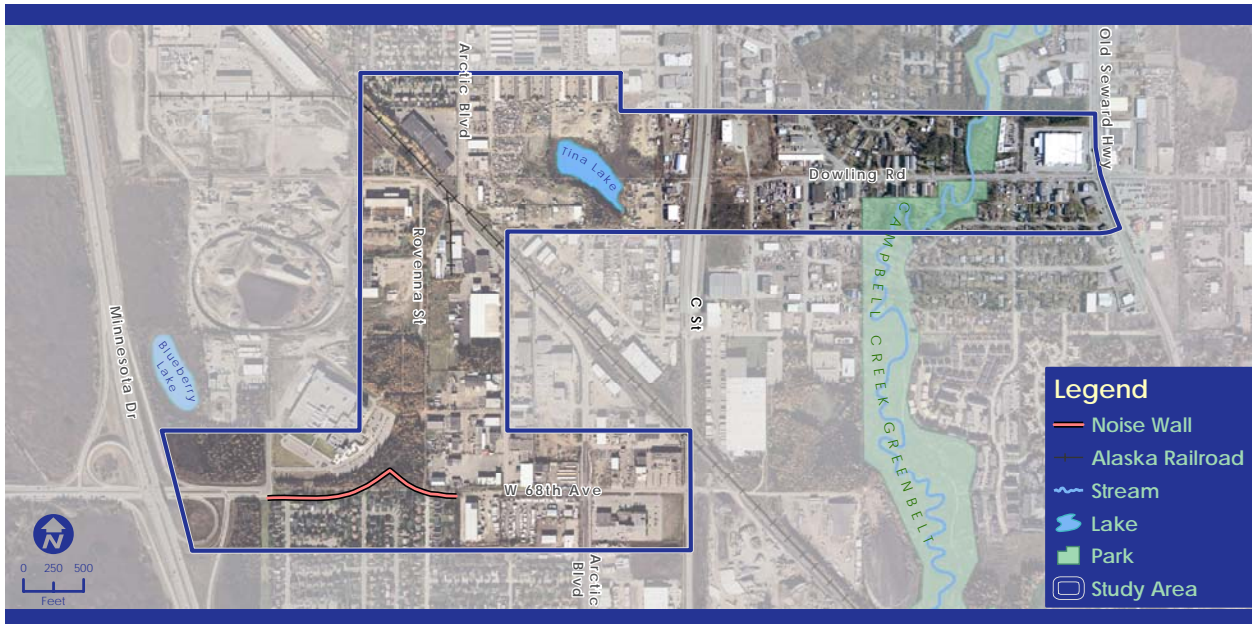


Figure 3.42 Proposed Noise Barrier Location

The noise analysis shows that 31 of the 33 receivers along 68th Avenue are anticipated to

experience a noise reduction of 5dB(A) or more. The remaining two receivers would receive a noise level reduction of less than 5dB(A). Figure 3.43 shows the benefits of the noise barrier at the dead end at Chad Street and Graham Circle.

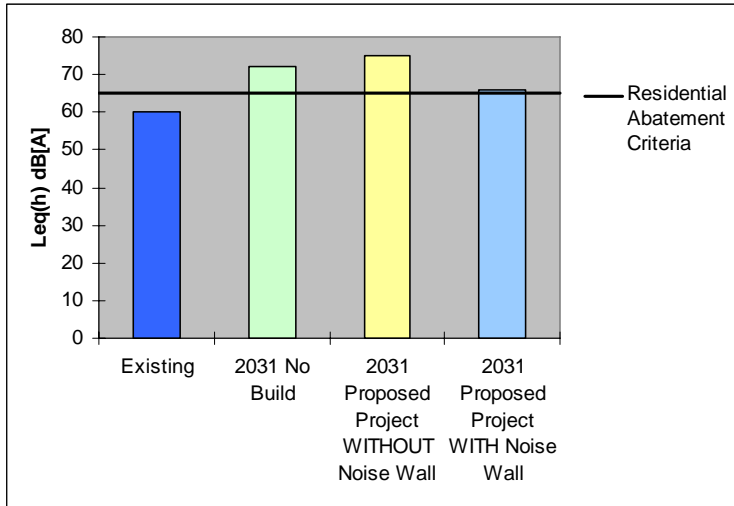


Figure 3.43 Existing and Future Noise Levels at Chad Street

These noise mitigation recommendations are based on conceptual engineering, traffic data, and current noise models, regulations and policies. Final noise abatement recommendations will be made after a thorough reevaluation of the noise study conducted during the design phase of this project.

To minimize construction noise, DOT&PF would require the contractor to maintain all equipment. **All construction vehicles and equipment would be required to have mufflers equivalent to or better than manufacturers specifications.**

DOT&PF would require the contractor to locate stationary equipment away from residential areas when feasible.

In addition, the contractor would be required to comply with the MOA noise ordinance. An MOA Noise Permit would be required if the contractor wanted to work at night (between 10PM and 6AM), on Sundays, or on holidays.