

CHAPTER 4. Mitigation and Conservation Measures

Chapter 4 identifies potential mitigation and conservation measures that could be implemented to avoid, minimize, or compensate for negative effects that would occur as a result of the Highway 199 Expressway Upgrade project. Mitigation for the project has been divided into two types: 1) measures to be included on construction plans and specifications, and 2) other general measures that could also be applied.

The Working Group Alternative uses the same Measures for Construction Plans and Specification as well as the same General Measures as Alternatives A and C. Please refer to the Highway 199 Expressway Upgrade Project EA (December 2006) for the following sections:

- Air Quality
- Archaeology
- Biology
- Hazardous Materials
- Historical and Cultural
- Land Use
- Right of Way Acquisition and Relocation
- Section 4(f) and 6(f)
- Socioeconomics and Environmental Justice
- Traffic and Transportation

- Visual
- Water
- Wetlands

4.1 Noise

4.1.1 Measures for Construction Plans and Specifications

The Working Group Alternative uses the same Measures for Construction Plans and Specification. Please refer to the Highway 199 Expressway Upgrade Project EA (December 2006).

4.1.2 General Measures

Several long-term traffic noise abatement measures were evaluated where noise impacts are predicted. For example, noise generated from long-term operation of the project can be reduced by implementing traffic management measures, acquiring land as buffer zones or for constructing noise barriers or berms, realigning the roadway, noise insulating public use or nonprofit institutional structures, and constructing noise barriers or berms. These measures were evaluated for their potential to reduce noise impacts from the project. Any specific mitigation measure recommended as part of the project must be feasible and reasonable. Only noise walls were found to be generally feasible in mitigating traffic noise impacts.

Fifteen noise walls were considered for the Working Group Alternative. Areas where sites were predicted to approach or exceed the noise abatement criteria and where mitigation was considered are identified on Exhibit 4-2 to Exhibit 4-4.

Based on the studies completed to date, and applying the ODOT Noise Manuals Noise Abatement Evaluation Criteria, the Project Management Team has recommended that noise walls would not be incorporated into the project design.

Specific criteria that the Project Management Team found would not support noise wall mitigation included:

Change in Noise Level (Existing noise levels compared to Future Build Noise Level) – West of Dowell Road, when comparing the existing noise levels with the Working Group Alternative future noise levels, an increase is predicted of zero to two decibels by the

Year 2025. A one to two decibel increase is not perceptible to the average human ear. This applied to all sites approaching or exceeding the noise abatement criteria west of Dowell Road.

Existing noise levels east of Dowell Road are predicted to increase between one to two decibels by the Year 2025 for most noise impact locations under the Working Group Alternative. A one to two decibel increase or decrease is not perceptible to the average human ear.

Date of Development – Noise mitigation is not normally recommended for residences constructed after 1996 unless the project causes the noise levels to increase by 5 dBA or more.¹

Zoning – Noise mitigation in the form of noise barriers is typically not recommended for commercial or industrial areas. Commercial enterprises often rely on visual exposure to the roadway to attract customers and to provide convenient access to their facility. Providing noise mitigation for such areas would provide minimal benefits, could become unwanted now or in the future, and is not considered to be a prudent expenditure of public funds. Therefore, noise mitigation is not recommended for these areas. Areas that are zoned commercial or industrial but have an existing residence need to be evaluated for expected future use/activities.

Total Cost – For a noise barrier to be cost effective, it typically requires a minimum of three or more residences grouped closely together. The Working Group Alternative has four sites that have two or fewer residences in areas considered for noise wall mitigation. The length of noise barrier necessary to prevent flanking noise from coming around the end of the barrier takes a noise barrier out of cost effectiveness and prevents a barrier from being recommended to mitigate noise for these sites.

Cost per Residence – ODOT applies a reasonable maximum dollar amount per benefited residence toward the construction of a noise

¹ FHWA's Highway Traffic Noise Analysis and Abatement Policy and Guidance, issued in June of 1995, recommends that local governments implement land use controls to eliminate or reduce new noise impacts. It is not considered reasonable for ODOT to provide noise mitigation when local governments have allowed new development to occur in areas where the new development will be subject to noise impacts. Therefore, noise mitigation will typically not be recommended for new developments occurring after June 1996, unless the project causes noise levels to increase by 5 dBA or more (ODOT Noise Manual, June 1996).

wall. A benefited residence is any residence that gets a 5 dBA or more noise reduction as a result of the noise mitigation applied. If the dollar amount is exceeded then the noise wall would be considered not reasonable to construct based on the cost and number of residences benefited.

Exhibit 4-1 identifies one or more of the noise abatement evaluation criteria that were considered important factors that would not support recommending mitigation for those sites identified as approaching or exceeding the noise abatement criteria.

Exhibit 4-1. Summary of Evaluation Criteria

● = Does not support mitigation	Sites that Approach or Exceed the Noise Abatement Criteria																		
	Midway Avenue to Dowell Road							Dowell Road to Fairgrounds Road						Fairgrounds Road to Tussey Lane					
Evaluation Criteria	49	52	53	22	28	59	26	12	11	60 and 15	9 ¹	109 ²	110 ²	17	6	95	3	101	5 ³
Change in noise levels, Existing to Future	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	
Date of Development (Post 1996)	●		●		● ⁴		●	●		●	●								
Zoning (Commercial)		● ⁵		●					●		●	●		●	●	●	●	●	●
Cost per Residence				●															
Total Cost		●				●		●				●	●	●					

1. Site 9 is only an impact under Alternative C
2. Site 109 and 110 are an impact under Alternative A
3. Site 5 is only an impact under the Working Group Alternative
4. Site 28 has a mix of development from Post and Pre 1996
5. Site 52 represents two residences. One residence is located on a parcel zoned commercial.

Additional considerations that would not support noise wall mitigation are summarized below.

- The Working Group Alternative would not significantly change the horizontal or vertical alignment or increase the number of through traffic lanes on Highway 199 between Midway Avenue and Allen Creek Road. This applied to all sites approaching or exceeding the noise abatement criteria west of Allen Creek Road.

- Locations where the Working Group Alternative noise levels approach or exceed the noise abatement criteria would have similar results as the No Build Alternative in Year 2025. In many of these locations, there would be no increase in noise levels when comparing the Working Group Alternative to the No Build Alternative.
- Noise reverberation or reecho could potentially occur at sites 9, 12, 15, 28, 49 and 60 (sites that would approach or exceed the noise abatement criteria) due to the close proximity, 10 feet or less, of several residences or apartments to the evaluated noise wall located on the right of way line. The reverberation, or reecho, can occur when noise that deflects off the residences gets caught between the residence and noise wall and bounces back and forth making a reverberation effect. Reverberation would potentially reduce the effectiveness of the noise level reduction such that the noise wall would be of minimal or no benefit to the residence.

Exhibit 4-2. Locations where Predicted Noise Levels Approach or Exceed the Noise Abatement Criteria – Midway Avenue to Dowell Road

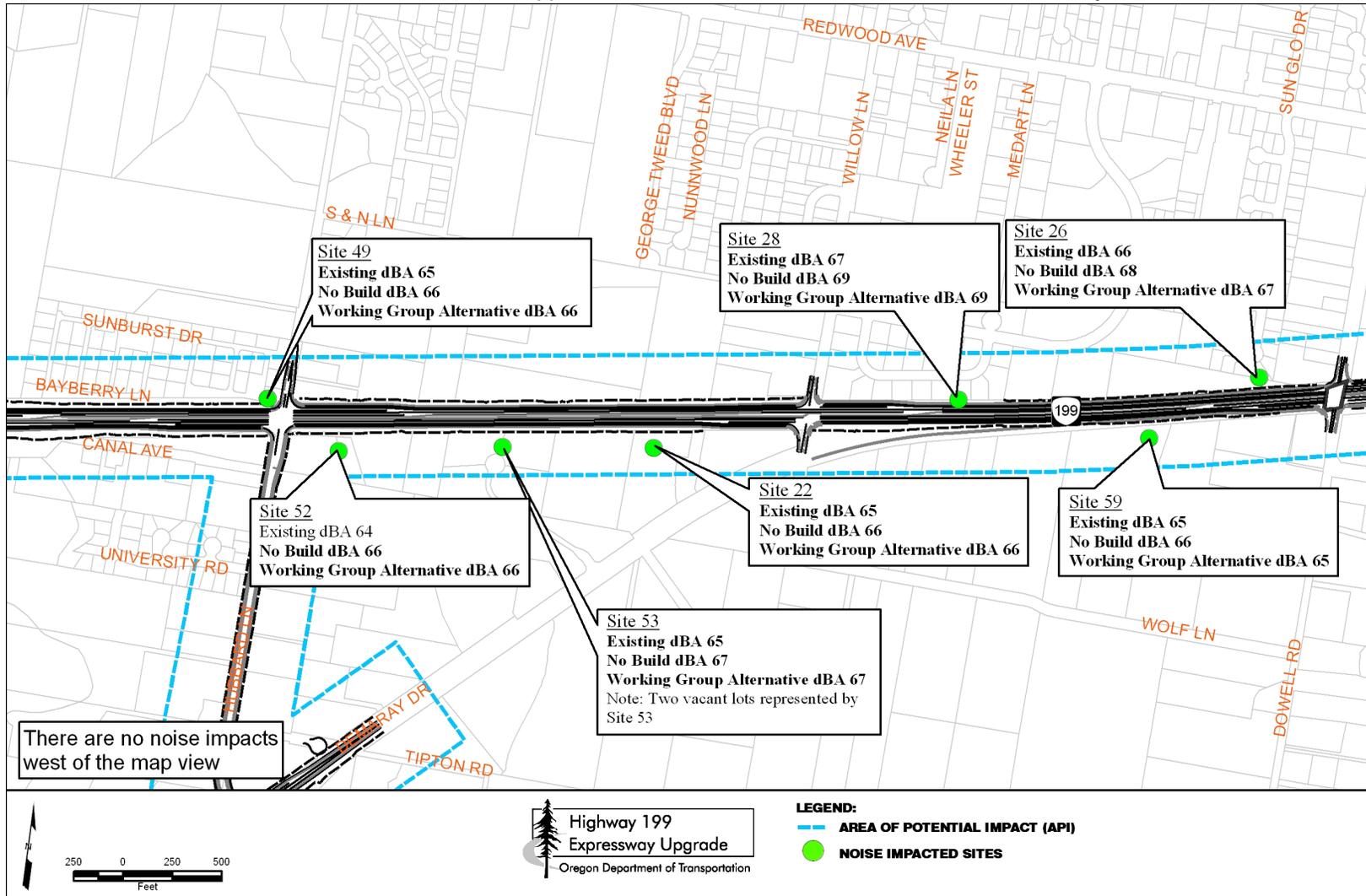


Exhibit 4-3. Locations where Predicted Noise Levels Approach or Exceed the Noise Abatement Criteria – Dowell Road to Fairgrounds Road

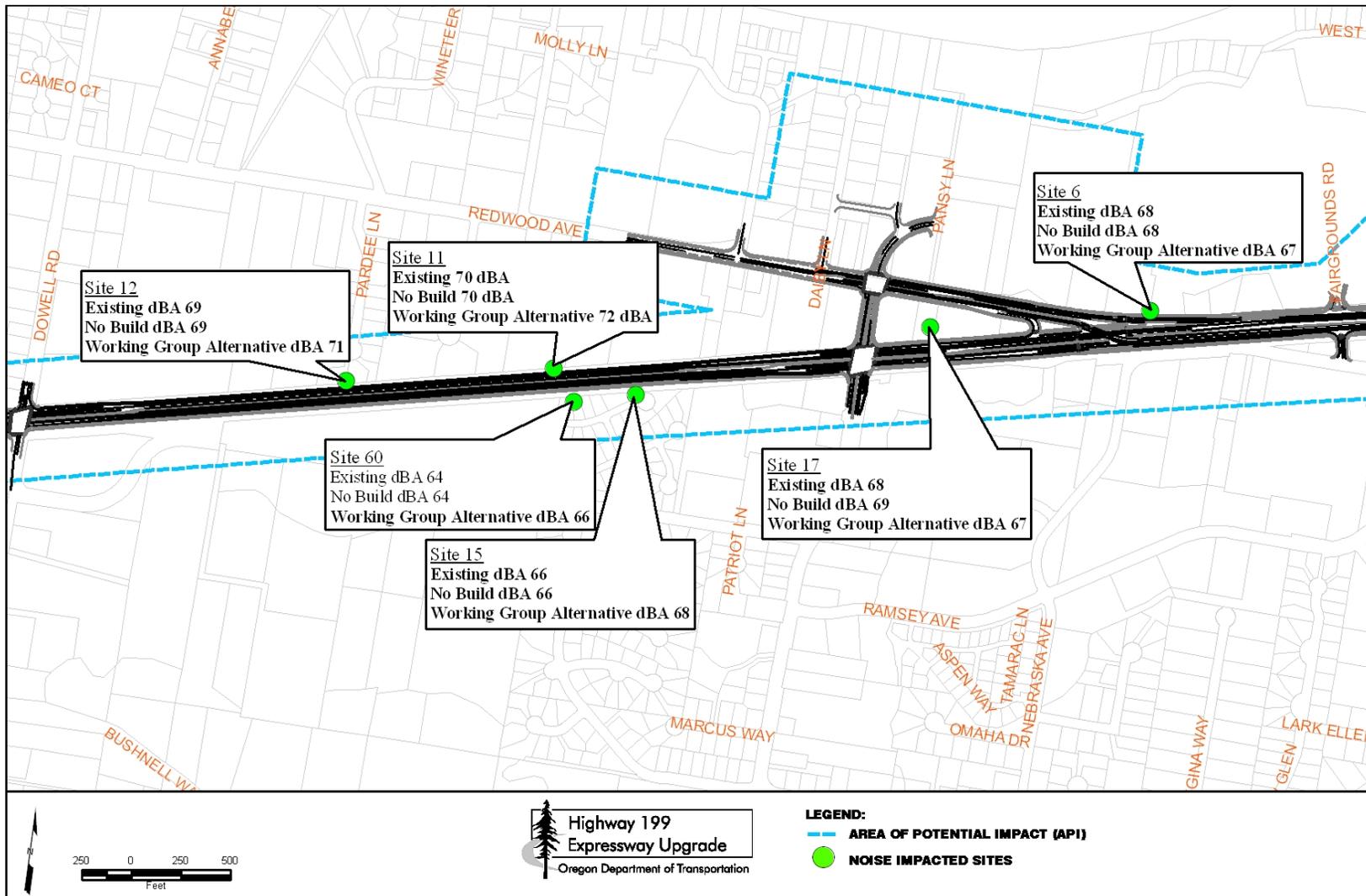


Exhibit 4-4. Locations where Predicted Noise Levels Approach or Exceed the Noise Abatement Criteria – Fairgrounds Road to Tussey Lane

