

3. The Environment: Existing Conditions, Project Effects, and Mitigation

The following elements were not reviewed in this EA because there are no resources related to these elements present in the study area or the proposal:

- Wetlands
- Floodplains
- Farmlands
- Wild and Scenic Rivers
- Coastal Barriers/Coastal Zone
- Joint Development

This chapter describes the existing conditions and effects of the Build Alternative and No Action Alternative for 13 elements of the environment. The 13 subsections are:

- 3.1 Air Quality
- 3.2 Noise
- 3.3 Cultural Resources
- 3.4 Hazardous Materials
- 3.5 Surface Water Quality
- 3.6 Land Use
- 3.7 Social
- 3.8 Relocation
- 3.9 Economics
- 3.10 Visual Quality
- 3.11 Geology and Soils
- 3.12 Fish, Wildlife, and Vegetation
- 3.13 Transportation

All but three of the subsections (Surface Water Quality, Geology and Soils, and Fish, Wildlife, and Vegetation) have been analyzed in separate discipline reports prepared for this EA. For further details on these elements of the environment, see the 10 discipline reports prepared for this EA. These reports are available from SDOT.

3.1 Air Quality

What were the methods used to evaluate the project's effect on air quality?

The air quality analysis team evaluated the potential effects of the proposed project on air quality during project construction and operation.

The effects of the Build Alternative on air quality were analyzed by estimating the effects during both construction and operation of the project. SDOT qualitatively evaluated the effects on air quality during construction of the Build Alternative based on the types of sources and typical pollutants expected from construction activities proposed for the project. Particulate matter is the primary pollutant of concern arising from earth-moving activities. Exhaust emissions from diesel-fueled trucks and construction equipment also are of concern.

Although many pollutants are present in vehicle exhaust, carbon monoxide (CO) is the major pollutant of concern for transportation projects. The analysis of operational effects involved estimating the CO concentrations from tailpipe exhaust in the vicinity of the most congested intersections in the study area.

What are the air quality regulations in the study area?

The U. S. Environmental Protection Agency (USEPA), Washington Department of Ecology (WDOE), and the Puget Sound Clean Air Agency (PSCAA) have established regulations for the protection of air quality. Through these regulations, agencies set allowable concentrations for specific air pollutants. These allowable levels are ambient air quality standards, and are established to be protective of human health and welfare.

How is air quality monitored and managed in the study area?

Air quality is monitored around the state and in the vicinity of the project by the Washington State Department of Ecology and the Puget Sound Clean Air Agency through a network of ambient pollutant monitors. Ambient air concentrations of the monitored pollutants in the vicinity of the project have been well below the standards for the last several years.

What are the current air quality conditions in the study area?

The Mercer Corridor Improvements Project is located in an area that currently meets all ambient air quality standards. There are times during the year when air quality is diminished. These lapses are typically a result of unfavorable weather conditions, such as clear winter days with low wind speed, that are conducive to air stagnation. During most of the year

there is sufficient wind to prevent the occurrence of unhealthy levels of air pollutants.

How will construction affect air quality?

Construction activities may cause temporary and sporadic effects on air quality that are highly dependent on the activity being conducted. During construction, there would be a potential for generation of fugitive dust during excavation, demolition, and any activity that involves the movement or disturbance of soils.

Air pollutants would be emitted from the exhaust of both motor vehicles traveling to and from the site and motor vehicles and construction equipment operating on the site. Emissions may also increase in the vicinity of a transportation project as a result of detours and delays to local traffic in the vicinity of construction areas.

Paving of roadways results in emissions from the paving material and the equipment applying the new pavement. Where asphalt is used, these emissions may result in detectable odors in the vicinity of the project.

How will air quality change once the project is built?

One of the primary objectives of the project is to increase mobility in the Mercer corridor, which translates to fewer delays for motor vehicles and lower vehicle exhaust emissions. Region-wide, fewer delays and lower emissions are a positive effect of the project. However, shifts in traffic patterns could result in localized increases in concentrations of pollutants from motor vehicles.

Localized concentrations of carbon monoxide were evaluated in the vicinity of several signalized intersections in the project corridor. All of the scenarios analyzed indicated concentrations would meet air quality standards (refer to the *Mercer Corridor Air Quality Discipline Report* for detailed modeling results).

What effects on air quality would occur if nothing were built?

If the project is not built, its associated construction and operation effects on air quality would not occur. The project is intended, in part, to allow for more efficient use of the street network to improve traffic flow. If it is not built, motor vehicles would experience increased delays and lower travel speeds, both of which would mean higher emissions from vehicle exhaust. While these increases may not be enough to cause the area to violate air quality standards, the No Action Alternative still represents an increased potential for adverse effects on air quality.

What measures are proposed to avoid or minimize effects on air quality during construction?

For temporary effects during construction, state law requires construction site owners and/or operators to take reasonable precautions to prevent

fugitive dust from becoming airborne. Fugitive dust may become airborne during demolition, material transport, grading, driving of motor vehicles and machinery on and off the site, and through wind events. SDOT and its contractors will comply with standard best management practices (BMPs) for controlling fugitive dust at construction sites. Controlling fugitive dust emissions will require some of the following actions:

- Spray exposed soil with water or other suppressant to reduce emissions of PM10 and deposition of particulate matter.
- Use phased development to keep disturbed areas to a minimum.
- Use wind fencing to reduce disturbance to soils.
- Minimize dust emissions during transport of fill material or soil by wetting down or by ensuring adequate freeboard (space from the top of the material to the top of the truck bed) on trucks.
- Promptly clean up spills of transported material on public roads.
- Schedule work tasks to minimize disruption of the existing vehicle traffic on streets.
- Restrict traffic onsite to reduce soil upheaval and the transport of material to roadways.
- Locate construction equipment and truck staging areas away from sensitive receptors as practical and in consideration of potential effects on other resources.
- Provide wheel washers to remove particulate matter that would otherwise be carried offsite by construction vehicles to decrease deposition of particulate matter on area roadways.
- Cover dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.
- Minimize odors onsite by covering loads of hot asphalt.

Emissions from construction equipment and machinery engines would be minimized by the use of equipment kept in good mechanical condition. Also, contractors will be encouraged by SDOT to reduce idling time of equipment and motor vehicles and to use newer construction equipment or equipment with add-on emission controls.

Does the project meet conformity requirements?

Because the project is not anticipated to create any new violations, nor increase the frequency of an existing violation of the CO standard, it is determined to conform with the purpose of the current State Implementation Plan and the requirements of the Clean Air Act and the Washington Clean Air Act. The project must also be included in a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program. The proposed project is included in the currently approved RTP, Destination 2030, and in the 2005-2007 Transportation

Improvement Program, as amended July 12, 2006 (PSRC 2006). The RTP and the TIP meet the regional conformity requirements identified by federal and state regulations for CO.

For more information on the air quality analysis and potential effects, see the *Mercer Corridor Improvements Project Air Quality Discipline Report*.

3.2 Noise

How were the noise effects of the project analyzed?

The noise analysis team evaluated the potential effects of noise during both construction and operation of the project. Noise levels during construction were evaluated qualitatively based on the type of construction activities and equipment that may be used. Because FHWA funds are being used on this project, WSDOT noise criteria are applicable even though the project proponent is the City of Seattle.

Noise levels from traffic during operation of the project were evaluated using the FHWA's Traffic Noise Model (TNM) computer program. A set of pre-calculated TNM results for simple highway geometries was used to predict noise levels adjacent to the study area streets. These data were used for the road grid bounded to the west by Ninth Avenue, to the east by Minor Avenue, to the north by Valley Street, and to the south by Republican Street, as shown in Exhibit 3-1. Noise level data are provided at set distances of 33, 50, 75, 100, and 200 feet from the roadway centerline to determine how far the noise would travel. A more complex, full version of TNM was used for the Mercer Street interchange area (links 13 and 14 on Exhibit 3-1) to account for topography and the multiple lanes of the ramps.

To help validate the noise modeling efforts and to evaluate noise levels in the study area, the noise analysis team obtained actual field measurements of current noise levels and current traffic volumes at three locations (M1, M2, and M3 on Exhibit 3-1). This information was compared to levels predicted by TNM to ensure that the TNM accurately calculates traffic noise exposure for existing and projected future conditions.

How was noise measured?

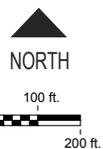
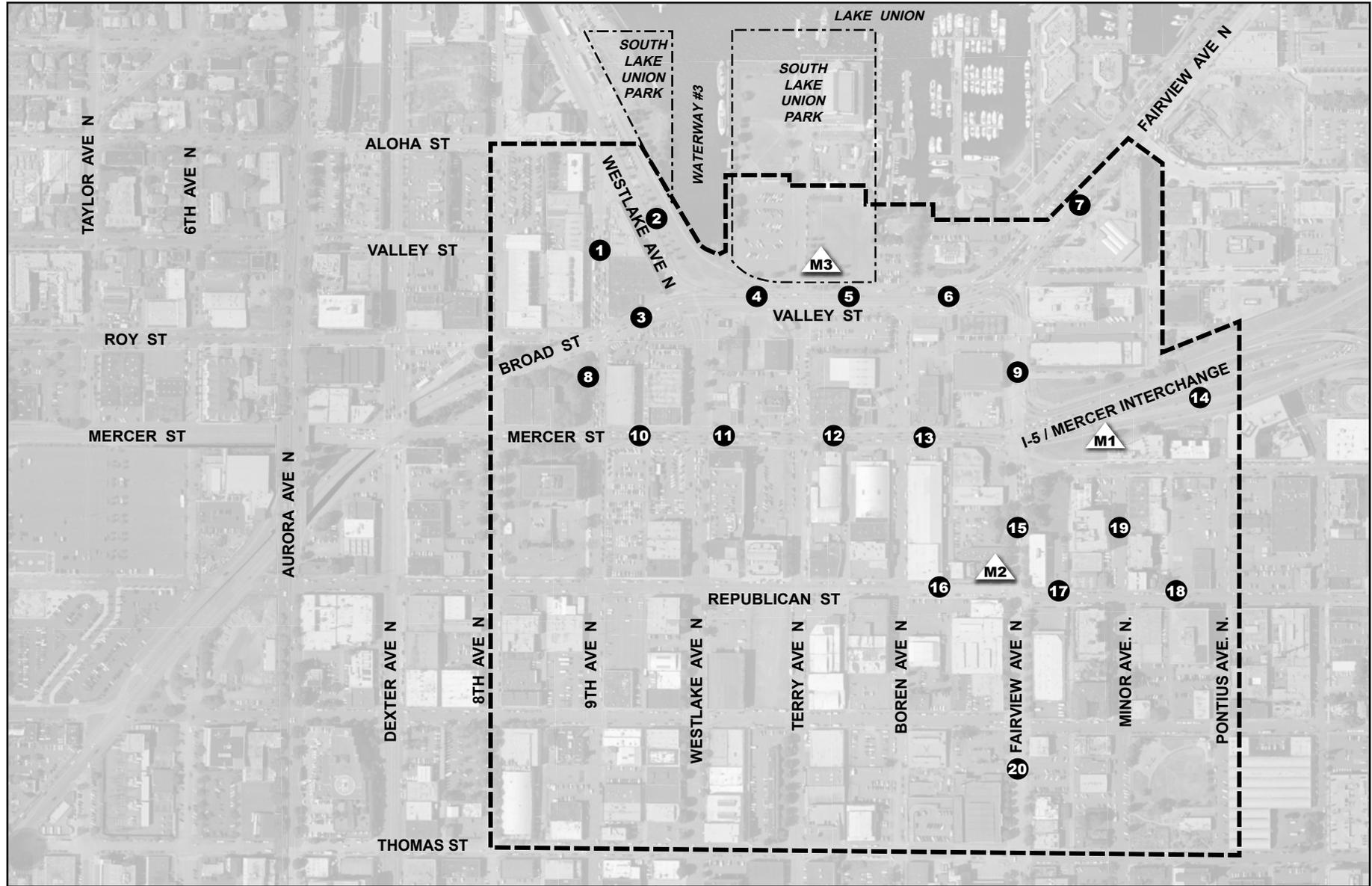
Noise is defined as unwanted sound. Noise can be measured in several different ways, depending on the source of the noise, who is hearing the sound (a receiver), and the reason for the noise measurement. In this subsection, some noise levels are stated in terms of decibels on the A-weighted scale (dBA), which emphasizes the frequencies near the normal range of speech communication. The A-weighted scale is used by most governments, including King County and the City of Seattle, to establish standards for maximum allowable noise levels.

What are noise-sensitive receivers?

Noise sensitive receivers represent all land use activity where the FHWA guidance specifies exterior and interior noise levels. Sensitive land use activity categories include residences, recreation areas, hotels, schools, churches, libraries, and hospitals.

What are the noise regulations for the study area?

Traffic noise levels are evaluated against the traffic noise impact criteria established by the WSDOT noise policy and FHWA noise criteria.



LEGEND

-  Link Locations
-  Monitoring Locations
-  Study Area Boundary
-  Park Boundary

Exhibit 3-1

Noise Study Area

MERCER CORRIDOR
IMPROVEMENTS PROJECT

Washington State Department of Transportation established noise abatement criteria (NAC) for transportation noise in accordance with Federal Highway Administration requirements.

These NAC, which are based on peak traffic hour noise levels, determine at what dBA noise level action must be taken to attempt to mitigate the impacts of noise caused by a project.

Exhibit 3-2 shows the FHWA Design Level/Activity Relationship used for determining NAC for specific land uses (for example, residential or commercial).

What is FHWA's noise abatement criterion?

If future noise levels with a project are predicted to approach or exceed the FHWA noise criterion at a noise-sensitive receiver, then mitigation is evaluated at the receiver.

EXHIBIT 3-2 FHWA Design Noise Level/Activity Relationships		
Activity Category	Design Noise Levels (dB A)^a L_{eq} Hourly	Description of Land Use Activity Category
A ^b	57 (Exterior)	Tracts of land where serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if they are to continue to serve their intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, open spaces, or historic districts that are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B ^b	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, and parks that are not included in category A, and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A and B above.
D	--	Undeveloped lands
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

^a Either L_{eq} or L₁₀ (the A-weighted sound level that is exceeded 10 percent of the time) design levels may be used.

^b Parks of Categories A and B include all such lands (public or private) that are used as parks, as well as those public lands officially set aside or designated by a governmental agency as parks on the date of public knowledge of the proposed highway project.

Source: CFR. Title 23 CFR Part 772—*Procedures for Abatement of Highway Traffic Noise and Construction Noise*. FHWA, April 1992.

FHWA considers a traffic noise effect to occur if predicted peak-hour traffic noise levels “approach” or exceed the NAC or “substantially exceed” existing levels. WSDOT defines “approach” as within 1 dBA of the NAC and “substantial” as an increase greater than 10 dBA resulting in at least 50 dBA L_{eq}.

What are the current noise levels in the study area?

Exhibit 3-3 displays the modeled results for the locations where the NAC were approached or exceeded under existing conditions. The distance given is the distance to which the NAC are approached or exceeded;

What is L_{eq}?

The equivalent sound pressure level (L_{eq}) is defined as the average noise level for a stated period of time (for example, hourly). A sound level meter was used to measure dBA and L_{eq} noise levels for this project. L₁₀ is the A-weighted sound level that is exceeded 10 percent of the time. Further detail of sound measurement techniques is provided in the *Mercer Corridor Improvements Project Noise Discipline Report*.

beyond this distance noise levels are 2 dBA or more below the NAC. Modeling results for all segments are available in the *Mercer Corridor Improvements Project Noise Discipline Report*. The NAC for Activity Category B (residential uses) is exceeded at four locations, while the NAC for Activity Category C (commercial uses) is not exceeded at any locations.

EXHIBIT 3-3						
Comparison of Noise Impacts						
Link/Monitor Site	Location	Land Use/FHWA Classification	NAC	Distance within which NAC Approached or Exceeded (feet)		
				Existing	No Action	Build
M1 ^a	Apartment on Mercer St	Residential/ Category B	67	0	0	0
2	Westlake Ave N between Ninth Ave N & Westlake Ave N	Park/ Category B	67	N/A	33	33
4	Valley St between Westlake Ave N and Terry Ave N	Park/ Category B	67	50	75	N/A
5	Valley St between Terry Ave N and Boren Ave N	Park/ Category B	67	75	75	N/A
15	Fairview Ave N between Republican and on ramp	Residential/ Category B	67	33	75	75
		Total Category B		4	5	3
11	Mercer St between Westlake Ave N and Terry Ave N	Commercial/ Category C	72	N/A	N/A	33
12	Mercer St between Terry Ave N and Boren Ave N	Commercial/ Category C	72	N/A	N/A	33
		Total Category C		0	0	2
N/A = NAC not approached or exceeded within 75 feet WSDOT defines "approach" as within 1 dBA of the NAC. ^a Noise levels for M1 site were modeled using standard version of FHWA Traffic Noise Model (TNM).						

How would project construction affect noise levels?

Noise effects would range from low-level (such as noise from trucks, cranes, and other construction vehicles) to high-level (such as vibratory compaction equipment). Unusually loud activities would be limited to daytime hours. Noise would also be generated during the construction phase by increased truck traffic on area roadways associated with the transport of heavy materials and equipment.

How would the completed project affect noise levels?

As shown in Exhibit 3-3, WSDOT NAC for Activity Category B (residential uses) would be approached or exceeded at three locations to distances of 75 feet or less under the Build Alternative. The NAC for Activity Category C (commercial uses) would be approached or exceeded at two locations to a distance of 33 feet under the Build Alternative.

What effects on noise would occur if nothing were built?

As shown in Exhibit 3-3, WSDOT NAC for Activity Category B (residential uses) would be approached or exceeded at five locations to distances of 75 feet or less under the No Action Alternative. The NAC for Activity Category C (commercial uses) would not be approached or exceeded at any locations. Modeling results for all segments are available in the *Mercer Corridor Improvements Project Noise Discipline Report*.

What measures are proposed to avoid or minimize noise effects during construction?

The following standard measures will be used to minimize noise effects during construction:

- Whenever possible, operation of heavy equipment and other noisy procedures will be limited to non-sleeping hours.
- Seattle Department of Planning and Development will require hospital grade mufflers and silencers for diesel-powered heavy equipment.
- DPD will require ambient backup alarms for all vehicles required to use backup alarms.
- Equipment and vehicle staging areas will be located as far from residential areas as possible.
- Idling of power equipment will be minimized
- The contractor will comply with City of Seattle noise regulations.

What measures are proposed to avoid or minimize noise effects during operation?

Based on WSDOT's NAC, noise abatement measures would be considered when the predicted noise levels approach or exceed those

values presented in Exhibit 3-2. This means noise mitigation should be considered for any residential location where peak-hour noise levels equal or exceed 66 dBA (1 dBA below the 67 dBA NAC).

Potential traffic noise mitigation measures that may be considered for the project for residential and outdoor use areas include the following:

- Acquisition of property rights for construction of noise barriers
- Construction of noise barriers between the roadway(s) and park or residential locations where future peak-hour noise levels approach or exceed the NAC
- Realignment of the roadway(s)
- Implementation of traffic management measures (reduced speed limits, limitations, or restrictions on truck traffic)
- Acquisition of “buffer zones” between the highway and affected properties
- Noise insulation of public use or nonprofit institutional structures

When traffic noise mitigation is necessary, the noise barrier option is usually the most practical and effective choice. Given the current density of commercial and residential developments throughout the study area, substantial realigning of the street grid would not be feasible without numerous property acquisitions. For the same reason, creation of buffer zones is not a viable option for noise mitigation. Additionally, traffic management measures, such as lowering the speed limit or limiting truck traffic, would contradict the project purpose and need.

As required by WSDOT policy, a noise barrier analysis was completed for residential locations that approach or exceed the NAC; this analysis evaluates the feasibility and reasonableness of this type of mitigation. WSDOT’s policy states that a feasible barrier will achieve a minimum 7-dBA reduction on at least one receiver and a 5-dBA reduction at the majority of first row receivers. When the construction of a noise barrier has been determined to be feasible, it must be determined reasonable by thoroughly considering a wide range of criteria, including cost per residence.

Exhibit 3-4 summarizes the feasibility and reasonableness determination for the five residential and outdoor use areas identified in Exhibit 3-3 as approaching or exceeding the NAC.

Given the urban nature of the area, a noise barrier analysis found noise barriers were not reasonable and feasible at any of the locations where noise levels would approach or exceed the NAC.

EXHIBIT 3-4

Summary of Feasible/Reasonable Noise Barrier Determination

Link	Location Notes	Feasible	Reasonable	Comments
M1	Apartment on Mercer	Yes	No	The apartment complex does not have any outdoor use area on the ground floor. Building a noise wall between the freeway and the property would result in a barrier that is very tall and would likely not meet the reasonable and feasible criteria (i.e., costs, visual effects, etc.).
2	Park (Westlake Ave N between Ninth Ave N & Westlake Ave N)	No	No	Walling of the park would be inconsistent with the City's aesthetic goal for the area and would likely represent a visual effect.
15	Residence (Fairview Ave N between Republican St and onramp)	No	No	These homes are immediately adjacent to the roadways with only the sidewalk separating them. A wall along the curb would potentially create safety factors (i.e., adequate sight distance and clear zone) and pose a visual concern to ground floor residents. A wall at the back of the sidewalk would likely hinder property access and create an imprisoned environment.

3.3 Cultural and Archaeological Resources

What were the methods used to evaluate the project's effect on cultural and archaeological resources?

The cultural resources analysts contacted City staff and FHWA (with assistance from WSDOT and SDOT) and consulted with the State Historic Preservation Officer (SHPO) and affected Native American tribes to obtain information about existing archaeological resources and traditional cultural places. Analysts used this information to characterize and assess the potential effects of the proposed Build Alternative. Analysts also consulted or reviewed the following for information about identified historical resources in the project vicinity:

- Washington State Department of Archaeology and Historic Preservation (DAHP)
- National Register of Historic Places (NRHP)
- Washington Heritage Register (WHR)
- Determinations of NRHP Eligibility at DAHP
- Historic Resources Inventory files at DAHP
- Archaeological Site Inventory files at DAHP
- Traditional cultural property files at DAHP
- Washington State History Museum - Tacoma
- City of Seattle Department of Neighborhoods, Historic Preservation Program
- King County Assessor's Office
- HistoryLink, an online encyclopedia of Washington State history

The analysts also conducted a surface reconnaissance survey to inventory potential historic buildings and to check for the presence of any open (undeveloped) land where archaeological resources could be detected. For the historic property survey, analysts surveyed all structures that predate 1961. The year 1961 was conservatively selected to cover all resources that would be 45 or more years old at the time of issuance of the Finding of No Significant Impact (FONSI) for the Mercer Corridor Improvements Project (and may be 50 or more years old by the time some parts of the project are built).

Analysts delineated an Area of Potential Effects (APE) using a geographic information system (GIS) map layer and following the generally accepted practice of including the first building/property/tax lot facing the project corridor (see Exhibit 3-5).

After reviewing preliminary design drawings, the analysts determined the vertical APE to be 18 feet below the existing ground surface, which is the estimated maximum depth of excavation for project construction and installation of stormwater drains and utilities. Subsurface testing for archaeological resources was conducted where project excavation would extend below the depth of known previous disturbance.

WSDOT, on behalf of FHWA, engaged in government-to-government consultation with the Muckleshoot Tribe and the Tulalip Tribe. Tribal representatives were provided opportunities for input into the cultural resources considerations and other aspects of the project. The opportunities were provided through invitations to participate in meetings and reviews with the project team, such as attending scoping meetings at the beginning of the project, public open houses, and reviewing and commenting on the Area of Potential Effects (APE) for cultural resources. See Appendix B for correspondence with tribal governments.

What are the relevant regulations for the study area?

The most important federal law applicable to historical resources for this project is the National Historic Preservation Act (NHPA) (16 USC 470f) and its implementing regulation, Protection of Historic Properties (36 CFR 800). Section 106 of the NHPA requires federal agencies (such as FHWA) and other non-federal project proponents (such as SDOT) to consider the effects of proposed projects on historic properties and to provide the SHPO with a reasonable opportunity to comment on any undertaking that would adversely affect properties listed in or eligible for the NRHP. Regulations provide a process to satisfy Section 106, namely, resource identification (inventory), significance evaluation, and determination of adverse effects on significant historic properties.

The WHR is the Washington State version of the NRHP and follows similar criteria. It emphasizes local and statewide significance and has a lower threshold for eligibility. Any building or site listed in the NRHP is automatically listed in the WHR.

Historic properties within the Seattle city limits may be designated as Seattle landmarks by the Seattle Landmarks Preservation Board. Once a property is nominated, designated, or protected by a Controls & Incentives agreement or by a City Council designating ordinance, a Certificate of Approval is required for alterations, including demolition, of the features described at any stage of the above landmark designation process. Certificates of Approval are then necessary to permit specific changes to

What are the criteria for listing in the National Register of Historic Places (NRHP)?

To qualify for listing in the NRHP, a property must have historic significance and integrity and be at least 50 years old. Certain properties are exempt from the 50-year rule if they possess exceptional significance. Historic significance in American history, architecture, archaeology, engineering, and culture may be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, material, workmanship, feeling, and association. A property must demonstrate significance in at least one of the following areas:

- A Association with events that have made a significant contribution to the broad patterns of our history; or
- B Association with the lives of persons significant in our past; or
- C Embodiment of the distinctive characteristics of a type, period, or method of construction or representative of the work of a master, or possessing high artistic value, or representative of a significant and distinguishable entity whose components may lack individual distinction; or
- D Yielding, or likely to yield, information important in prehistory or history.

Historic significance is the importance of a property to a community, state, or the nation. In addition to the above criteria, significance is defined by the area of history in which the property made important contributions and by the period of time when these contributions were made (National Register Bulletin 16, National Park Service, 1991).

the landmark building or within the district. The steps necessary to permit demolition of a designated landmark are detailed in Seattle Municipal Code 25.12.750 and 25.12.835.

What historic structures, traditional cultural properties, and recorded archeological sites are in the study area?

The affected environment for cultural resources is that area within the project limits that has the potential to be affected by the construction and/or operation of the project. Cultural resources of the affected environment include historic buildings, structures, objects, districts, archaeological sites, Native American cultural resources, and other valued cultural resources. Historic properties are defined as places eligible for inclusion in the NRHP, the WHR, or designated Seattle landmarks. Archaeological sites are places where past peoples left physical evidence of their occupation. Other cultural resources include cultural institutions, lifeways, culturally valued viewsheds, places of cultural association, and other valued places and social institutions.

The project limits lie largely within what were once the waters of Lake Union (see 1894 shoreline on Exhibit 3-5). Filling between 1894 and 1908 reduced the shoreline considerably. Much of the study area is covered by this historic fill to a depth of approximately 25 feet. In the late 1800s, a chute was constructed between Lake Washington and Lake Union and the existing stream flowing to Salmon Bay was excavated to allow movement of harvested timber from Lake Washington to Puget Sound. In 1917, the 8.6-mile-long Lake Washington Ship Canal was completed, which provided navigable passage between Lake Washington and Puget Sound. These changes reduced the pool elevation of Lake Union below the 1908 shoreline.

Potential archaeological resources of sufficient importance to meet State or NRHP standards include a possible Duwamish village site along the shoreline of Lake Union near Westlake. The location of this village has not been verified and records on file at the DAHP revealed no known/recorded archaeological sites mapped in the corresponding area of this village. Because of extensive past development along the shoreline, the village site, if present, is not likely to be intact. Subsurface archaeological testing in May 2007 did not detect the presence of this village site.

Historic era artifacts and debris associated with a historic coal portage railroad, a wharf, lumber mill operations, early transportation or utility systems, and former residential areas could be present within the historic fill. These could exist as isolated artifacts or as intact features.

There are no known/recorded prehistoric archaeological sites in the project limits. None of the recent construction monitoring projects in the study area resulted in the discovery of prehistoric archaeological materials (Dellert and Larson 2004; Roedel et al. 2003; and Shong and Miss 2004).

There are no known/recorded historic archaeological sites in the project limits, but recent construction monitoring has revealed the presence of

historic era artifacts. None of these monitoring finds reached the threshold of importance to warrant registration of these finds as historic archaeological sites at DAHP.

There are five historic resources in the study area that are eligible for the NRHP (Exhibit 3-6). Three of these are designated Seattle landmarks: the Ford Assembly Plant/Craftsman Press/Shurgard Building at 1155 Valley Street/715 Fairview Avenue North, the McKay Pacific Building at 601 Westlake Avenue North, and the McKay Ford-Lincoln Building at 609 Westlake Avenue North.

The only historic resources anticipated to be adversely affected by this project are the two historic McKay buildings (Photos 3-1 and 3-2). These buildings were constructed in the 1920s as automobile dealership sales and service buildings. The buildings are considered significant for their ornate terra cotta (distinctive visible characteristics of an architectural style, period, or method of construction) and as extant examples of an early automobile dealership that are representative of the early automotive history of Seattle and the South Lake Union neighborhood (their association with a significant aspect of the cultural and economic heritage of the community).

How will project construction affect cultural resources?

Construction of the Build Alternative is expected to last approximately 2.5 years. The expected construction activities would cause increases in noise and dust levels, detract from views and visual quality due to removal of earth and staging of construction equipment, and create glare from lighting if construction takes place at night. SDOT would comply with local policies and regulations regarding construction activities.

Subsurface construction for the proposed Mercer Street corridor improvements would primarily occur within the footprint of the proposed alignment. Excavation would be required for removing existing pavement, replacing water lines, installing electrical transmission vaults and traffic signal poles, shifting of gas lines underneath the roadways, as well as installing electrical distribution lines and stormwater vaults and catch-basins beneath the sidewalks. The deepest excavation could reach 18 feet, but most would be shallower.

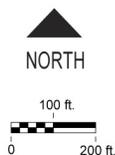
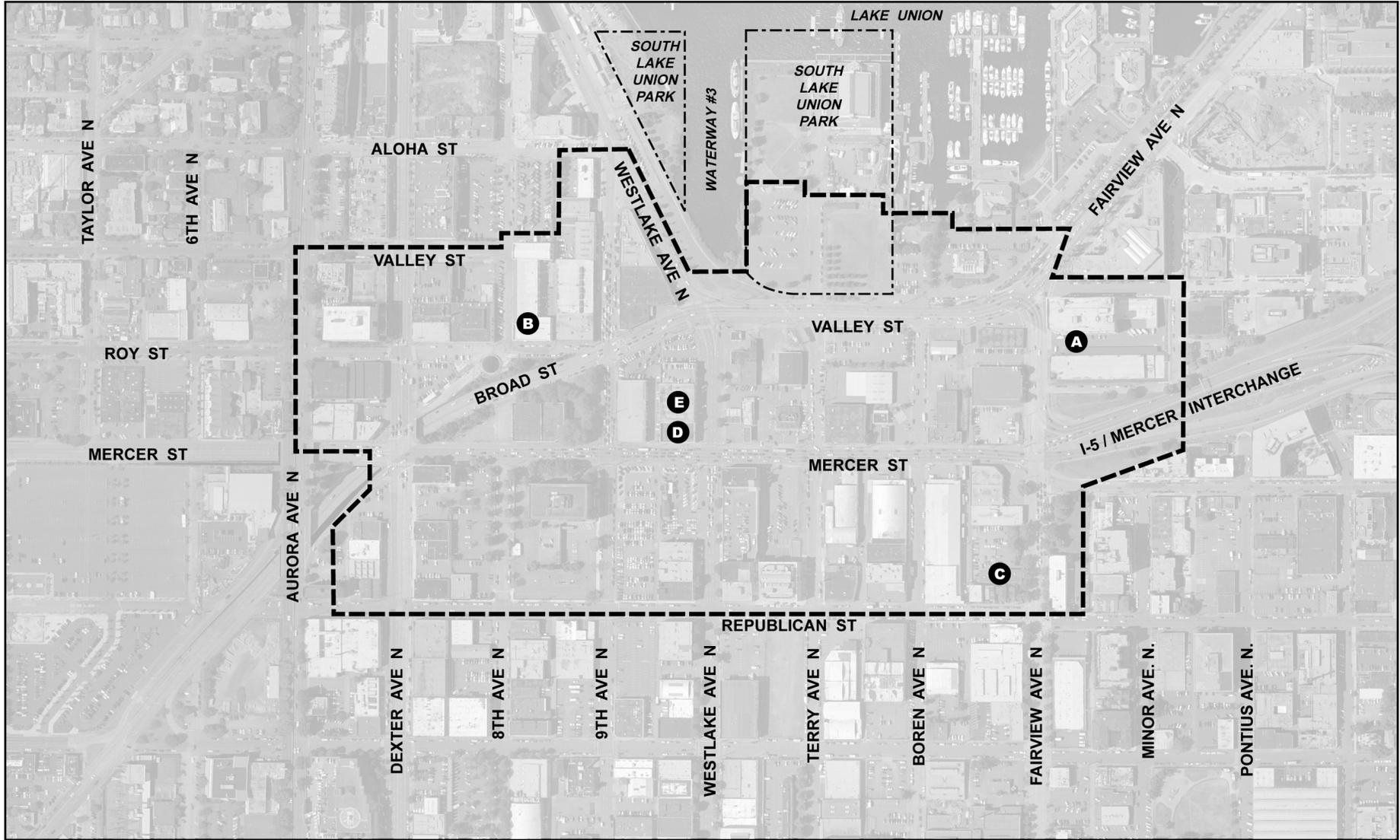
In addition, construction activities would occur outside the footprint of the proposed alignment for demolition and removal of existing structures.



Photo 3-1. McKay Pacific Building at 601 Westlake Avenue North



Photo 3-2. McKay Ford-Lincoln Building at 609 Westlake Avenue North



LEGEND
 - - - - - APE Boundary
 - - - - - Park Boundary

- A** Ford Assembly Plant Buildings/
Craftsman Press/Shurgard,
1155 Valley Street/700 Fairview Avenue North
- B** Seattle Department of Parks and
Recreation Maintenance Shops,
800 Aloha/802-04 Roy Street
- C** Washington State Department of Game,
509 Fairview Avenue North
- D** McKay Pacific Building,
601 Westlake Avenue North
- E** McKay Ford-Lincoln Dealership,
609 Westlake Avenue North

Exhibit 3-6
Locations of NRHP-Eligible Buildings
 MERCER CORRIDOR
 IMPROVEMENTS PROJECT

This work, however, would be confined to areas previously disturbed during construction of the buildings and associated utilities, and would not extend beneath the depths of the existing foundations.

If site contamination is present on properties acquired for right-of-way, site remediation could entail excavation; however the depth of excavation, if needed, is currently unknown.

The proposed project would primarily be constructed within an area that was formerly submerged by Lake Union and has been disturbed by previous fill and construction activities. Most of the project construction would be located over historical fill that is approximately 25 feet thick, which exceeds the expected depths of project excavation and construction. Prehistoric archaeological resources, if present in the area, would not be encountered. Historic archaeological resources could be present within this fill layer, either as isolated artifacts or as intact deposits that might be associated with former residences and businesses.

The eastern and western ends of the project limits extend beyond the known limits of the historical fill. However, these urbanized areas have been previously disturbed by past construction activities. At the eastern end of the project, construction activities are not expected to extend below a depth of 6 feet, which is the depth of previous disturbance. At the western end of the project limits, excavation for utility and stormwater vaults may extend to depths up to 18 feet. Some of this construction would occur in areas where the depth of previous disturbance is unknown. A “large Indian camp” of Duwamish people was noted by historians at the shoreline of Lake Union near Westlake. The location of this village has not been verified and records on file at the DAHP revealed no known/recorded archaeological sites mapped in the corresponding area of this village. However, because of previous disturbance in this highly urbanized area, this possible village, if present within the project limits, would likely not be intact. Subsurface archaeological testing conducted in May 2007 did not detect the presence of this village site. The probability of recovering archaeological resources during construction in these areas is considered to be low.

Construction effects on most historic structures would be temporary and would include noise associated with construction activities, fugitive dust, possible vibrations from construction activities, and possible limited access during certain periods of construction that may require detours. None of the historic properties would have its access removed. No temporary occupancy of the historic properties is anticipated.

The proposed project would have a direct adverse effect on the McKay Pacific Building at 601 Westlake Avenue North. Removal of the building would be necessary to accommodate the additional traffic lanes and subsequently wider footprint of the roadway. The building is 17 feet from the existing roadway and directly adjacent to the sidewalk, so any additional lane added to the north of the existing Mercer Street would require removal of the building.

The 609 Westlake building is likely to experience more vibration and dust than other resources due to the demolition of buildings (601 Westlake and 600 Ninth) immediately adjacent to it. It may also experience greater disruption in access due to its location, surrounded on all four sides by construction. The southern wall of the McKay Ford-Lincoln Building at 609 Westlake Avenue North would be exposed when the 601 Westlake building is removed. All openings for passage between the two buildings would need to be sealed, and the masonry exterior wall may need cosmetic repairs or weatherproofing. Due to the extensive changes to its setting caused by the project, it has been determined that the 609 Westlake building will experience an adverse effect due to project construction.

The proposed widening along Fairview Avenue North would reduce the sidewalk width in front of the Washington State Department of Game building at 509 Fairview Avenue North, which is also eligible for listing on the NRHP, by about 2.5 feet. There would be no direct effect on the building or its site. No other historic standing structures would be affected under the Build Alternative.

How will the completed project affect cultural resources?

As previously noted, the McKay buildings at 601 and 609 Westlake Avenue North together represent the last recognizable remnants of the McKay automobile dealership, which is one of the few automotive-related sites remaining in the South Lake Union neighborhood. The removal of 601 Westlake would leave the building at 609 Westlake alone on the square as the sole structure remaining of the once thriving McKay complex. Without the buffer of 601 Westlake and 600 Ninth, noise and visual intrusion from Mercer Street are likely to increase at 609 Westlake. While the building might remain eligible, the impairment of the setting would be considered an adverse effect. However, the return of Mercer Street to a two-way street will enable traffic to approach the remaining McKay Ford-Lincoln Building at 609 Westlake Avenue North from the east, allowing the detailed front facade of the building to be viewed by oncoming traffic, just as when the building was constructed. In addition, the proposed project includes substantial landscaping along Mercer Street, which would serve to soften the visual impact of the street. The increase in noise is not expected to be substantial, and would not impact the use or enjoyment of the building. Effects on other historic structures by operation of the project would be similar to existing conditions, including pollution, vibration, and noise from high traffic volume. The Shurgard building at 1155 Valley Street and Fairview Avenue North would receive a positive effect from the improvements to Valley Street. Valley Street would be designed as an extension of South Lake Union Park, with landscaping buffers and decreased automobile traffic. This would improve the setting of the historic Shurgard Building and also lessen the existing effects from traffic.

What effects on cultural resources would occur if nothing were built?

The No Action Alternative would not result in property acquisition or other effects on any historical, archaeological, or cultural resources.

What measures are proposed to avoid or minimize effects on cultural resources during construction?

The archaeologically sensitive areas are defined as existing historical fill zones. Currently anticipated potentially significant resources include Native American habitation sites (that might survive beneath the historical fill layer); remnants of several historical lumber mills; transportation and utilities networks; and possible domestic habitation zones (which might survive beneath or be embedded within the historical fill layer). The following measures are proposed to avoid or minimize potential effects:

- An archaeologist would carefully review the 60 percent design drawings to confirm proposed construction would not likely penetrate through the fill layer(s) and encounter native ground surfaces.
- An archaeologist would prepare an inadvertent discovery plan for the project that construction contractors will follow.
- During construction, an archaeologist would conduct archaeological monitoring for work taking place beyond the limits of the historic fill.

What is an inadvertent discovery plan?

An inadvertent discovery plan is a step-by-step process for following state and federal laws and guidance should archaeological resources be encountered during construction.

What measures are proposed to avoid or minimize effects on cultural resources once the project is completed?

Mitigation proposed for the adverse effects on the historic McKay buildings at 601 and 609 Westlake Avenue North is detailed in the Memorandum of Agreement (MOA) between the FHWA and the SHPO, with WSDOT and the City of Seattle as invited signatories, dated October 31 2008, and included in Appendix H. Specific details to carry out this mitigation are included as stipulations in the MOA. The mitigation measures include the following:

- Recordation consistent with Level II Historic American Buildings Survey (HABS) documentation
- An interpretive display to convey information regarding the architectural and historical significance of the McKay buildings and their context within the history of Seattle's South Lake Union neighborhood
- The dedication of funds by SDOT to the City of Seattle Department of Neighborhoods for survey and inventory work in South Seattle as part of the City of Seattle's Historic Resources Survey and Inventory

In addition, the owner of the McKay buildings and the City of Seattle Historic Preservation Officer have entered into a Controls & Incentives

agreement to assure the preservation of specified features and characteristics of the McKay buildings.

Should any prehistoric or historic cultural remains be discovered during disassembly, relocation, or reconstruction, all work in the area of the discovery shall cease and SDOT shall follow the procedures of the approved Unanticipated Discovery Plan.