

# Mercer Corridor Improvements Project



## NEPA Environmental Assessment

December 2008





# Mercer Corridor Improvements Project

Seattle, Washington

## NEPA Environmental Assessment

Submitted Pursuant to the National Environmental Policy Act 42 U.S.C. 4332(2)(c) by the City of Seattle Department of Transportation, the U.S. Department of Transportation Federal Highway Administration, and the Washington State Department of Transportation

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The City of Seattle proposes to replace the existing Mercer/Valley couplet with a widened two-way Mercer Street and a narrowed two-way Valley Street. The widened Mercer Street would have three lanes in each direction, with widened sidewalks, on-street parking, and a landscaped median. Mercer Street would become the primary east-west route through the South Lake Union area. Valley Street would be narrowed to a two-lane street with sidewalks, bicycle lanes, and on-street parking. Valley Street would be a slower-traffic street used for local access to businesses and South Lake Union Park. The project would also include improvements to the north-south streets within the project area, including Fairview, Boren, Terry, Westlake and Ninth Avenues. Crossings throughout the project area would be improved.

The Environmental Assessment evaluates the proposal for its potential effects on the natural and built environments. It also evaluates a No Build alternative for comparison purposes.

Comments on the Environmental Assessment are due by February 13, 2009, and should be mailed to Angela Brady, Seattle Department of Transportation, P.O. Box 34996, Seattle, WA 98124, or e-mailed to [MercerEA@seattle.gov](mailto:MercerEA@seattle.gov).



Persons with disabilities may request this information be prepared and supplied in alternative formats by calling Angela Brady, the Project Manager, at (206) 684-3115. Persons who are deaf or hard of hearing may call the City's TTY Line, (206) 615-0467.

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Si necesita informacion acerca del proyecto de mejoras del Corredor de la calle Mercer en espanol, marque el (206) 684-7623 y oprima el cero para dejar un mensaje.

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# Summary

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## Where is the Mercer Corridor Improvements Project located?

The Mercer Corridor Improvements Project is located in the South Lake Union area of Seattle, Washington, just north of downtown. The Mercer Corridor is a principal east-west travel route to areas west and north of South Lake Union from Interstate 5. The South Lake Union neighborhood has been designated by the City of Seattle as an urban center, an area of concentrated employment and housing, and supporting facilities.

## What is the Mercer Corridor Improvements Project?

The proposed project (the Build Alternative) would replace the existing Mercer/Valley couplet with a widened two-way Mercer Street and a narrowed two-way Valley Street. The widened Mercer Street would have three lanes in each direction, with widened sidewalks, on-street parking, and a landscaped median. The street would be widened primarily to the north. Mercer Street would become the main east-west route through the South Lake Union area. Valley Street would be narrowed to a two-lane street with sidewalks, bicycle lanes, and on-street parking. The project would also include improvements to the north-south streets within the project area, including Fairview, Boren, Terry, Westlake, and Ninth avenues. Street crossings throughout the project area would be improved.

## Why do we need this project?

The following key points, from the project's purpose and need statement, specify why the project is needed:

- Improve local access
- Improve regional movements through the corridor
- Improve pedestrian and bicycle safety and mobility
- Accommodate transit service within the corridor
- Accommodate economic growth and neighborhood livability
- Ensure compatibility with the City of Seattle South Lake Union Park Plan

Each of the points is explained in detail beginning on page 1-3.

To meet the City's goals for the South Lake Union Urban Center, improvements are needed to support the creation of a desirable place to live and work and to attract people to the community and its businesses. Improvements to the Mercer Corridor are needed to accommodate transit- and pedestrian-supportive land uses, design, and density while providing adequate capacity for automobile and freight demand.

Currently, westbound traffic exiting I-5 at Mercer Street must travel in a circuitous route from Fairview Avenue to Valley Street to reach businesses and attractions on Mercer Street. This traffic pattern can be confusing for drivers and is difficult for freight trucks to maneuver. Mercer Street is often congested with eastbound traffic accessing I-5 on-ramps, particularly in the afternoon peak period and after events at the Seattle Center. South Lake Union Park, on the north side of Valley Street, and properties along the south side of Valley Street are difficult to access for pedestrians and bicyclists, and a lack of crosswalks or signals on Mercer and Valley streets makes general pedestrian use of this area difficult. Improved safety is needed for non-motorized users of this corridor, and improved access to area businesses and South Lake Union Park is needed.

## When would construction begin and how long would it take?

Construction would begin in the third quarter 2009, pending funding availability, and is anticipated to take approximately 2.5 years.

## How would the project affect the built environment?

The following discussion highlights findings of this environmental assessment with regard to the built environment. These effects are summarized in Exhibit S-1, located at the end of this section, along with effects that would occur if the project was not built. Based on the analyses conducted, the only adverse effects of the project would be to the McKay Pacific Building and the McKay Ford-Lincoln Building, and those effects are resolved under a Memorandum of Agreement in accordance with Section 106 (see Appendix H).

**Noise** - The noise abatement criterion (NAC) for residential uses is exceeded at two of the five residential locations modeled under existing conditions and under the No Build and Build Alternatives. At these two locations the increase from existing conditions is 1 to 4 decibels with the project and 4 to 5 decibels without the project in 2030. Noise levels currently exceed the NAC for park uses at the southern edge of South Lake Union Park. With the narrowed Valley Street included in the proposed project, noise levels would decrease to below the NAC. Under the No Action Alternative, noise levels at the park boundary would increase. We evaluated the effectiveness of noise walls but found that given the urban nature of the area, noise barriers were not reasonable and feasible at any of the locations where noise levels would exceed the NAC.

**Cultural Resources** – The Build Alternative would require displacement of the historic McKay Pacific Building at 601 Westlake Avenue North and would also have an adverse effect on the adjacent historic McKay Ford-Lincoln Building at 609 Westlake Avenue North. Mitigation for these adverse effects has been addressed through a memorandum of agreement (MOA) and includes recordation measures consistent with

Level II Historic American Buildings Survey (HABS) documentation. In addition, 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 will be developed, and Seattle Department of Transportation (SDOT) will dedicate funds 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.

Surface reconnaissance and subsurface testing did not detect any archaeological sites within the area of potential effects. Project excavation is expected to extend up to 18 feet below the ground surface. Most project construction would occur in areas covered by approximately 25 feet of historic fill. Prehistoric archaeological resources beneath the historic fill, if present, would not be encountered. However, historic archaeological resources could be present within this fill layer. Construction at the eastern and western ends of the project would occur in areas outside the limits of the historic fill. Due to the extent of previous disturbance associated with building, roadway, and utility construction in this highly developed urban area, the probability of recovering archaeological resources outside of historic fill areas during construction is considered to be low. An Unanticipated Discovery Plan has been prepared to address potential archaeological discoveries made during construction.

**Hazardous Materials** – An analysis of the site conditions in the study area indicates that hazardous materials are present on 34 properties adjacent to or within proposed right-of-way of the Build Alternative. Eight of these properties could potentially be acquired to construct the project. Building demolition debris, including asbestos and lead-based paint (LBP) wastes, may be generated at these properties. Other properties have the potential to expose construction workers to petroleum-contaminated soils and groundwater during excavation and soil removal activities for construction of the utility and stormwater features. Underground storage tanks (USTs) also may be encountered within the right-of-way acquisition area. Preconstruction investigation and testing would be needed to determine the locations and quantities of these hazardous materials so that they can be appropriately abated prior to demolition.

Excavation in the western portion of the project limits could encounter wood waste fill and possible releases of methane gas. In areas where sawdust and methane gas are encountered, a health and safety plan would be developed that would include procedures to monitor for vapor releases and prevent fires from potential methane ignition.

**Land Use** - Some land use within the project corridor would be permanently converted from the existing mix of industrial, terminal/warehouses, retail/service businesses, office, parking lots, vacant buildings, utilities, and open space. The Build Alternative would require acquisition of 107,100 square feet from 13 properties, with 5 permanent business relocations. Affected parcels that are not completely utilized would either continue to be used for their current use or be redeveloped

into a land use compatible with existing zoning and land use plans for the South Lake Union neighborhood. The proposed project is consistent with all state, county, and local land use and plans and regulations.

Compensation and relocation mitigation will be provided as needed to affected property owners in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970; no other mitigation is proposed.

**Social** - The project would improve the quality of life for the residents in the study area by making it easier and safer to circulate within the neighborhood and to access South Lake Union Park. The project would not isolate any parts of the surrounding community. Proposed improvements to Valley Street would better integrate the neighborhood with South Lake Union Park and provide an enhanced pedestrian environment. The proposed bike lanes on Valley Street would improve bicycle safety for residents and bicycle commuters. The study area has a lower percentage of minorities than the city of Seattle as a whole, and the majority of the residents in the study area speak at least some English. The Mercer Corridor Improvements Project would not have a disproportionately high and adverse effect on minority or low-income populations, or resources that are especially important to them. The proposed project would support planned commercial and residential growth in South Lake Union by providing roadway, bicycle, and pedestrian improvements that would be attractive to new businesses and residents. The project is anticipated to increase mobility and may reduce travel times for emergency and other service vehicles. The project would not change the delivery of services within the study area and would not displace any services or create any impediments to reaching any of the services.

**Relocation** - The Build Alternative would require permanent relocation of 5 businesses due to full acquisitions for right-of-way. A summary of the types of businesses displaced is provided in Exhibit S-2.

SDOT would inform businesses disrupted or displaced by new right-of-way acquisition or other construction activities that they are entitled to relocation assistance in accordance with Section 8.26 Revised Code of Washington and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the “Uniform Act”).

Mitigation would be provided as needed to affected businesses in accordance with the Uniform Act. The Uniform Act ensures uniform and equitable treatment of people whose real property is acquired or who are displaced as result of federal or federally assisted projects.

**Economics** - Upon completion of construction, the movement of goods and persons along the Mercer Corridor and from I-5 to businesses and neighborhoods to the west and north would be improved. Improved circulation and access would open up businesses to a larger customer base and shorten the commute time for potential employees of businesses within the South Lake Union neighborhood. Several new development projects are already planned in the South Lake Union neighborhood, and improvements included in the proposed project will make this area more

appealing for redevelopment following construction of this project. Long-term property tax effects would likely be beneficial.

EXHIBIT S-2 Types of Businesses that Would be Displaced by the Build Alternative	
Business Type	Permanent
Retail businesses	2
Service businesses	1
Professional offices	2
Educational/research facilities	0
<b>Total</b>	<b>5</b>

**Visual Quality** - The proposed project would be consistent with the City of Seattle’s policies on protecting visual and waterfront resources and the implementation of South Lake Union Design Guidelines. Overall visual quality in the project area would improve with the proposed project design, plantings, changes in pavement material, and tree-lined streets.

**Transportation** - In general, the project would place a higher travel demand on the Mercer Street corridor due to the improved westbound route. Operations for eastbound traffic would be slightly negatively affected; however, westbound travel would follow a less circuitous path, reducing driver confusion and circuitous travel in neighborhoods, thereby improving access, removing barriers (turn restrictions), and improving pedestrian/bike access and safety. It is expected that the westbound operations would be improved by modifying the current lower-capacity right and left movement with a more direct through movement at the I-5 off-ramp.

Along Valley Street, even with only one travel lane in each direction the response times for emergency vehicles may decrease slightly as intersection level of service improves at key intersections due to significantly reduced traffic on this street. By providing a bike lane and parking in each direction, adequate space would be provided for a vehicle to pull over, allowing emergency vehicles to pass. All of the new traffic signals would be equipped with emergency vehicle pre-emption to minimize impacts to response times.

## How would the project affect the natural environment?

Based on the analyses conducted, there will be no substantial adverse effects on the natural environment as a result of the project. The following discussion highlights findings of this environmental assessment with regard to the natural environment. These effects are summarized in

Exhibit S-1, located at the end of this section, along with effects that would occur if the project was not built.

**Air Quality** - The results of the air analysis indicate that the roadway improvements proposed by this project would not result in adverse effects on air quality from air pollutants. The project has an overall effect of improving traffic flow and reducing idling time, when motor vehicle emissions are highest. Because the project is not anticipated to create any new air quality violations, nor increase the frequency of an existing violation, it is determined to meet both local and regional conformity requirements.

**Surface Water Quality** – The proposed project would decrease the total impervious surface in the study area by 0.7 acres. This reduction is attributed to the proposed vegetated medians and sidewalk planting strips in areas that are currently paved, and narrowing Valley Street. This reduction of impervious surface, in combination with proposed stormwater detention, would reduce the amount of runoff draining to the City’s combined sewer system, thus improving its capacity. Although the project increases impervious surfaces in areas draining to Lake Union, the proposed stormwater treatment, would reduce the amount of pollutants draining to the lake, which will have a beneficial effect on water quality.

**Geology and Soils** - The proposed project would require removing existing pavement, soil excavation for utility installation and to bring the land surface to desired grades, and filling to widen the I-5 ramps. Approximately 40,100 cubic yards of soil would be excavated and approximately 3,500 cubic yards of fill would be needed for construction. The northern portion of the project limits is located in an area underlain by lake deposits, which are subject to liquefaction during earthquake events. This potential problem can be managed through project design that meets local seismic standards.

**Vegetation, Wildlife, and Fisheries** – The dense and highly urban project area does not provide any notable vegetation or natural habitat for wildlife. Plantings in street medians and along sidewalks will increase the amount of vegetation in the study area and provide limited habitat for urban-adapted species. Lake Union is more than 100 feet north of the project limits. Bull trout, Puget Sound Chinook salmon, coho salmon, sockeye salmon, and steelhead trout are found in Lake Union on a seasonal basis as migrants to other locations. Compared to existing conditions, the project would result in reduced pollutant loading to the lake, which would benefit fish and the aquatic habitat.

EXHIBIT S-1 Summary of Effects		
Element of the Environment	Alternative	
	Build Alternative	No Action Alternative
Noise	Noise levels would approach or exceed the FHWA Noise Abatement Criteria (NAC) at 5 locations out of 23 modeled sites. There are two residential areas (an apartment building adjacent to the I-5 on-ramp and residential buildings at the intersection of Fairview Avenue North and Republican Street) that currently approach or exceed the NAC in the study area.	Noise levels would approach or exceed the FHWA NAC at the same 5 locations as the Build Alternative, with levels somewhat higher than with the Build Alternative.
Cultural, Historic, and Archaeological Resources	Two historic buildings in the study area would experience adverse effects and of these, one would be displaced .  Low potential for below-ground archaeological resources. During construction, an archaeologist will monitor excavation in areas beyond the limits of the historic fill and below the depth of previous disturbance.	No property would be acquired for transportation improvements, and there would be no effects to any historical, archaeological, or cultural resources.
Hazardous Materials	Contaminated soil and groundwater and underground storage tanks may be encountered during excavation but would be remediated. Excavation at western end of project limits could encounter wood-waste fill and methane gas. A health and safety plan will be developed and will include vapor monitoring. Potential for lead-based paint and asbestos in buildings to be demolished.	Existing hazardous material properties would remain in place and undisturbed due to no construction activities. Cleanup of hazardous materials in the construction right-of-way would not occur and the potential uncontrolled migration of existing contaminants would continue.
Land Use	Some land use within the project corridor would be permanently converted from the existing mix of retail, office, and warehouses to transportation uses. The project would acquire 107,100 square feet from 13 properties, with 5 permanent business relocations. Affected parcels that are not completely utilized would likely be redeveloped into a land use compatible with existing plans land use plans. The proposed project is consistent with all state, county, and local land use and transportation plans.	Conversion of existing land uses to transportation uses resulting from the project would not occur. Without the project, development of the South Lake Union neighborhood would occur as planned; however, some businesses may be less likely to relocate into this area due to traffic congestion and limited pedestrian mobility. Access to South Lake Union Park would not improve. The No Action Alternative is not consistent with the <i>South Lake Union Neighborhood Plan</i> , the <i>South Lake Union Transportation Study</i> , <i>Vision 2020</i> , or other City and regional plans.
Social	Would result in positive effects on social elements by improving the safety and circulation within the South Lake Union neighborhood for vehicles, bicycles, and pedestrians.  No residential displacements. Community cohesion would improve as a result of better integration of South Lake Union Park with the neighborhood, and improved pedestrian and bicycle facilities.  The project would better integrate the neighborhood with South Lake Union Park. No parks or other recreational facilities would be adversely affected.	Without the project, the South Lake Union neighborhood population is still anticipated to grow at the projected rate, and the South Lake Union Park improvements would be constructed. Access to the park would continue to be impeded due to existing circuitous traffic patterns and lack of safe access. Pedestrian crossings and pedestrian and bicycle travel would continue to be difficult within and through the neighborhood.
Displacements/ Environmental Justice	Five businesses would be relocated. No residents would be relocated. None of the relocated businesses have unique community value and their employees are not predominantly comprised of minority populations. The project would not result in adverse effects predominantly borne by a minority population and/or a low-income population.	No displacements or adverse effects on minority or low income populations would occur.
Services and Utilities	The project would not adversely affect utility providers within the study area and would not displace any services or create any impediments to reaching any of the services. There may be a slight increase in response times in the eastbound and westbound directions on Mercer Street for emergency and other service vehicles.	No change to existing utilities. Traffic congestion in the Mercer Corridor would likely increase, which would increase the travel and response times of fire, emergency medical, and police service providers.
Economics	Displaces 5 businesses; however the project would have a positive net effect on the local and regional economy. The movement of goods and persons along the Mercer Corridor and from I-5 to businesses and neighborhoods to the west and north would be improved. Improved circulation and access would benefit businesses within the corridor and proposed improvements would make the South Lake Union neighborhood area more appealing for redevelopment. Long-term property tax effects would likely be beneficial.	No businesses would be displaced and there would be no resulting decrease in property or sales tax revenues or jobs lost. Continued problems related to access and circulation may cause business growth to slow down in the area. Traffic congestion within the Mercer Corridor would likely increase, causing delays in the movement of persons and goods through the area.

EXHIBIT S-1 Summary of Effects		
Element of the Environment	Alternative	
	Build Alternative	No Action Alternative
Visual Quality	The project would be consistent with the City of Seattle's policies on protecting visual and waterfront resources and the implementation of South Lake Union Design Guidelines. It would not result in negative lighting, glare, and shadow effects. Overall, visual quality in the project area would improve with the proposed project design and sidewalk and median plantings.	Visual quality along the corridor would remain low over a longer period of time until redevelopment could gradually make changes in the architectural and landscape elements of the study area. Pedestrian views in particular would continue to be of low visual quality. Because the new development would be piecemeal, unifying elements would remain low.
Traffic and Transportation	<p>Conversion of Mercer Street to two-way operation would result in increased delay at some intersections, while delay would be reduced at the critical intersection of Mercer Street and Fairview Avenue North. Eastbound travel times would increase slightly or remain the same. The reconfiguration of the Mercer Street and Fairview Avenue North intersection would reduce the potential for traffic to back up from the I-5 off-ramp onto the I-5 mainline. Removal of the circuitous route for westbound traffic, along with new/wider sidewalks, additional signalized crosswalks, and bicycle lanes, would improve pedestrian and bicyclist travel and connectivity throughout the study area.</p> <p>Construction would occur over approximately 2.5 years in three phases. Improvements to Mercer Street (Phases 1 and 2) would be completed prior to improvements along Valley Street (Phase 3). During most of the Mercer construction, three eastbound lanes would be maintained. Construction along Ninth and Westlake avenues would occur independent of each other to maintain north/south mobility. Current Major Truck street route would be maintained during Phase 1 and 2. During Phase 3, truck traffic would be shifted to Mercer (both directions), Ninth, and Westlake. Driveway and cross-street access would be maintained during construction. A Traffic Management Plan would detail any detours and closures. Public outreach communications would inform motorists of construction activities.</p>	<p>If the project is not built, Mercer and Valley Streets would continue to operate as a couplet. Eastbound and westbound traffic circulation and routing through the area would continue to be confusing and circuitous with business access limited. By year 2030, operations at several intersections in the vicinity of the Aurora Avenue North access points at Roy and Republican streets would deteriorate. PM peak operations on Mercer Street would deteriorate to LOS F conditions at the Ninth, Westlake, Terry, and Fairview avenue intersections. Operations on Valley and Roy streets would also deteriorate to LOS F conditions at Dexter, Ninth, Westlake, and Boren avenue intersections.</p> <p>Pedestrian and bicycle improvements would not be constructed, and would continue to limit the system's ability to support any mode shift to transit or nonmotorized travel.</p>
Air Quality	The project conforms with current State Implementation Plan (SIP) and the requirements of the federal Clean Air Act and the Washington Clean Air Act. The proposed project meets the project-level transportation conformity requirements and is included in the currently approved Regional Transportation Plan (RTP) and the 2005-2007 Transportation Improvement Plan (TIP), which meet the regional conformity requirements for CO.	Dust and vehicle emissions associated with project construction would not occur. Without the project, use of the street network would not be as efficient. Motor vehicles will experience increased delays and lower travel speeds, resulting in higher emissions from vehicle exhaust. These increases would not cause the area to violate air quality standards.
Surface Water Quality	The project would decrease impervious surface in the study area by 0.7 acres. No construction would occur within surface waters. The majority of stormwater runoff would flow to the existing combined sewer system. A minor amount would be discharged to Lake Union; however, prior to discharge the stormwater would receive enhanced treatment. Although, there would be an increase in impervious surface the proposed treatment, would reduce pollutants draining to the lake.	Roadway runoff from two small areas at the eastern and western ends of the project limits will continue to drain to Lake Union without treatment. Runoff from other areas within the project limits will continue to drain to the existing combined sewer system.
Geology, Soils, and Topography	Approximately 40,100 cubic yards of soil would be excavated and 3,500 cubic yards of fill would be needed. Construction below the groundwater table for utility vaults, stormwater vaults, and traffic signal poles may require dewatering at some locations. Ground improvement measures may be required for construction in areas of high liquefaction potential located in the northern portion of the project limits (from the Lake Union shoreline southward approximately halfway between Valley and Mercer streets.)	No effects on geology and soils.
Vegetation, Fish, and Wildlife	Plantings in street medians and along sidewalks would increase the vegetation in the study area. Little if any vegetation would be removed by the project. There would be no effects on fish or wildlife, and no loss of wildlife habitat. Pollutant loading to Lake Union would decrease.	No plantings along Mercer and Valley Streets would occur. No effects on existing vegetation and wildlife would occur. Pollutant loading to Lake Union would continue at existing levels.
<p>Note. The following elements of the environment were not evaluated because there are no resources related to these elements present in the study area: wetlands, floodplains, farmlands, wild and scenic rivers, coastal barriers/coastal zone, joint development.</p>		

# Acronyms and Abbreviations

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ACM	asbestos-containing material
ADA	Americans with Disabilities Act
ANSI	American National Standards Institute
APE	Area of Potential Effects
AST	aboveground storage tank
AWV	Alaskan Way Viaduct
AWV&SRP	Alaskan Way Viaduct and Seawall Replacement Project
BMPs	best management practices
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, 42 USC Section 9601
CFR	Code of Federal Regulations
CO	carbon monoxide
COS	City of Seattle
DAHP	Department of Archaeology and Historic Preservation (Washington State)
dB	decibel
dba	A-weighted decibels
EA	environmental assessment
EB	eastbound
ESA	Endangered Species Act
FGTS	Freight and Goods Transportation System
FHWA	Federal Highway Administration
FINDS	Facility Index System
FONSI	Finding of No Significant Impact
GIS	geographic information system
HABS	Historic American Buildings Survey
HAL	high accident location
HCM	Highway Capacity Manual (Transportation Research Board, 2000)
HPO	City of Seattle Historic Preservation Officer
I-5	Interstate 5
ITS	intelligent transportation systems

LBP	lead-based paint
Leq	equivalent average sound level
LOS	level of service
MOA	memorandum of agreement
MOEs	measures of effectiveness
MSDS	material safety data sheet
MTCA	Model Toxics Control Act
NAC	noise abatement criteria
NB	northbound
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NHS	National Highway System
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PM10	particulate matter smaller than 10 microns in diameter
PSCAA	Puget Sound Clean Air Agency
PSE	Puget Sound Energy
PSI	Preliminary Site Investigation
PSRC	Puget Sound Regional Council
RCRA	Resource Conservation and Recovery Act, 42 USC Section 6901-9651
RCRIS	RCRA Information System
RCW	Revised Code of Washington
RTP	Regional Transportation Plan
SABRA	Small Business Liability Relief and Brownfields Revitalization Act
SB	southbound
SCL	Seattle City Light
SDOT	Seattle Department of Transportation
SEPA	State Environmental Policy Act
sf	square feet
SHPO	State Historic Preservation Office/Officer
SLU	South Lake Union

SMC	Seattle Municipal Code
SPCC	spill prevention, control, and countermeasures (plan)
SPU	Seattle Public Utilities
SR 99	State Route 99
SWPPP	stormwater pollution prevention plan
TCE	trichloroethylene
TNM	Traffic Noise Model
TPH	total petroleum hydrocarbons
US	Urban Stable (Seattle Shoreline Designation)
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	underground storage tank
UW	University of Washington
WAC	Washington Administrative Code
WB	westbound
WDOE	Washington State Department of Ecology
WHR	Washington Heritage Register
WSDOT	Washington State Department of Transportation



# Glossary

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**Archaeological sites** – Places where past peoples left physical evidence of their occupation. Sites may include ruins and foundations of historic (non-Indian) era buildings and structures (historic archaeological sites) or surface ruins and/or underground deposits of Native American occupation debris such as artifacts, food remains (shells and bones), and former dwelling structures (prehistoric archaeological sites). Important archaeological sites can qualify as “historic properties.”

**Area of Potential Effects (APE)** – For archaeological resources, the surface or horizontal APE is defined by the project construction limits (i.e., the area of potential ground disturbance). The vertical APE is defined by the depth of potential excavation during project construction.

**A-weighted decibel** (abbreviated dBA) – Frequency-weighted sound pressure level approximating the frequency response of the human ear. It is defined as the sound level, in decibels, measured with a sound level meter having the metering characteristics and a frequency weighting specified in the American National Standards Institute Specification for Sound Level Meters, ANSI S 1.4 - 1983. The A-weighting de-emphasizes lower frequency sounds below 1 kilohertz (kHz) and higher frequency sounds above 4 kHz. It emphasizes sounds between 1kHz and 4 kHz. A-weighting is the most used measure for traffic and environmental noise throughout the world.

**Best management practices** – The structural devices, maintenance procedures, managerial practices, prohibitions of practices, and schedules of activities that are used singly or in combination to prevent or reduce the detrimental impacts of stormwater, such as pollution of water, degradation of channels, damage to structures, and flooding.

**Block** – A subdivision of a census tract, a block is the smallest geographic unit for which the Census Bureau tabulates data for 100 percent of the population.

**Block Group** – A subdivision of a census tract, a block group is the smallest geographic unit for which the Census Bureau tabulates sample data.

**Clean Air Act** – The original Clean Air Act was passed in 1963, but our national air pollution control program is actually based on the 1970 version of the law. The 1990 Clean Air Act Amendments are the most far-reaching revisions of the 1970 law. In this report, we refer to the 1990 amendments as the 1990 Clean Air Act.

**Combined sewer overflow (CSO)** – During some peak storm events, combined sewage/stormwater sewers in Seattle discharge some dilute sewage and stormwater to surface water bodies such as Lake Union.

**Community cohesion** – Community/neighborhood cohesion refers to the ability of people to communicate and interact with each other in ways that lead to a sense of community as reflected in the neighborhood’s ability to function and be recognized as a singular unit.

**Continuity** – A pattern of uninterrupted similar or complimentary natural or man-made elements together in a landscape or urban environment.

**Cultural resources** – Historic properties, archaeological sites, Native American cultural resources, and other valued cultural resources.

**Decibel** (abbreviated dB) – A measure on a logarithmic scale that indicates the squared ratio of sound pressure to a reference sound pressure (unit for sound pressure level), or the ratio of sound power to a reference sound power (unit for sound power level).

**Design year** – The design year is a 20-year or more assessment of the traffic operations within the study area. The operational results from this condition are generally used for design purposes as it provides a sustainable period of traffic operations.

**Diversity** – Variation in textures, colors, or building details in a landscape that add interest without contrasting or conflicting with its environment.

**Dominance** – The position of the viewer to see over a landscape, typically from above. Also a dominant theme or feature that requires an uninterrupted view, space, or importance in the landscape.

**Equivalent noise level** (abbreviated Leq) – The equivalent steady-state sound level which in a specific period of time would contain the same acoustical energy as the time-varying sound level during the same period.

**Existing noise levels** – The noise resulting from the natural and mechanical sources and human activity considered to be usually present in a particular area.

**Feasible** – In accordance with WSDOT guidance, a noise barrier is considered feasible if it reduces noise levels by 7 dBA at a minimum of one first-row location, and reduces noise levels by 5 dBA or more at 60 percent or more of first-row properties. Other receivers beyond the first row and within 500 feet of the highway are counted as benefited if the noise barrier reduces noise levels at those locations by 3 dBA or more.

**Heart locations** – Within the Urban Village of South Lake Union, “heart” locations serve as the center of commercial and social activity within the neighborhood (South Lake Union Design Guidelines, City of Seattle 2005a).

**High accident intersection** – An intersection having 10 or more accidents per year if the intersection is signalized, and 5 or more if unsignalized.

**High accident location (HAL)** – A section of roadway or highway, less than a mile long, that has experienced a higher than average rate of severe accidents during the previous 2-year period.

**Historic properties** – Places eligible for inclusion in the National Register of Historic Places (NRHP), the Washington Heritage Register (WHR), or local landmarks. These properties can include districts, sites, buildings, structures, objects, and landscapes significant in American history, prehistory, architecture, archaeology, engineering, and culture. Historic properties can also include traditional cultural properties.

**Impervious surfaces** – Land surfaces that do not allow stormwater infiltration, such as paved roads, parking lots, sidewalks, and buildings. These surfaces generate stormwater flows.

**Intactness** – A measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as in natural settings. High intactness means that the landscape is free of eyesores and is not broken up by features that are out of place. Terms used to describe intactness include: degree of encroachments, visual order, and consistency in character.

**Landscape units** – An identifiable segment or span that contains the view. These units are framed by natural or man-made features to make “outdoor rooms.”

**Level of service (LOS)** – Describes typical traffic conditions in terms of speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. There are six LOS classifications, each given a letter designation from A to F. LOS A represents the best operating conditions, and LOS F represents the worst. For intersections, LOS is measured in terms of delay (seconds per vehicle)

**Native American cultural resources** – Human skeletal remains, funerary items, sacred items, and objects of cultural patrimony. Native American traditional resource procurement areas and culturally important regional landscapes are Native American cultural resources, and may be traditional cultural properties if they define tribal identity and meet NRHP eligibility criteria.

**Other cultural resources** – Cultural institutions, lifeways, culturally valued viewsheds, places of cultural association, and other valued places and social institutions.

**Partial acquisition** – Acquisition of only a portion of a property. Full acquisition is acquisition of an entire property.

**Peak hour** – The highest hour of traffic volumes throughout a day. The typical morning and evening urban commuter hours on weekdays are considered the peak hour of traffic. The evening peak generally has more vehicle activity than the morning peak.

**Pollutants (pollution)** – Unwanted chemicals or other materials found in the air. Pollutants can harm health, the environment, and property. Many air pollutants occur as gases or vapors, but some are very tiny solid particles, such as dust, smoke, and soot.

**Reasonable** – A noise abatement option is considered to be reasonable if its cost meets the cost requirements per receiver in accordance with WSDOT guidance.

**Reasonably predictable property** – Properties where the nature of the potential contamination is known based on existing investigation data or where it can be reasonably predicted based on best professional judgment.

**Scale** – Proportionate size of elements in their landscape as compared with components in their surroundings.

**Screenline analysis** – A screenline is an imaginary boundary through which all of the entering/exiting vehicles are collectively viewed. Screenlines are generally along a specific geographic feature or roadway corridor.

**Simulations** – Digitally enhanced images based on photographs taken of selected views; they illustrate the probable changes due to the project and relative scales of the existing and proposed features.

**State implementation plan** – A detailed description of the programs a state will use to carry out its responsibilities under the Clean Air Act. State implementation plans are collections of the regulations used by a state to reduce air pollution. The Clean Air Act requires that USEPA approve each state implementation plan. Members of the public are given opportunities to participate in review and approval of state implementation plans.

**Substantially contaminated property** – A property that possess a potential for substantial contamination of environmental media, contains contaminants that are persistent or expensive to manage, and lacks information to predict remedial costs.

**Traditional cultural properties (TCPs)** – Properties associated with cultural practices or beliefs (traditions, beliefs, practices, lifeways, arts, crafts, and social institutions) of a living community that are rooted in that community’s history and are important in maintaining the continuing cultural identity of the community.

**Travel time** – Travel time is the time it takes to traverse a section of roadway, calculated as roadway length divided by travel speed plus movement delay at intersection (or freeway ramp).

**Uniform Act** – Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the “Uniform Act”), as amended in 1987.

**Unity** – The degree of visual coherence and compositional harmony of the landscape considered as a whole. Terms used to describe unity include: coherence or compatibility of composition, presence of patterns, disparateness, blending of man-made and natural elements.

**Viewer sensitivity** – The response of viewers looking at and from the project, before and after the project. Low viewer sensitivity results when there are few viewers who experience a defined view or they are not

particularly concerned about the view. High viewer sensitivity results when there are many viewers who have a view frequently or for long duration, and who are very aware of and concerned about the view.

**Viewshed** – What can be seen from the project and conversely, what parts of the project area can be seen from the surrounding area.

**Visual character** – An impartial description of what the landscape consists of and is defined by the relationships between the existing visible natural and built landscape features. These relationships are considered in terms of dominance, scale, diversity, and continuity.

**Visual quality** – An assessment of the composition of the character-defining features for selected views.

**Vividness** – The degree of drama, memorability, or distinctiveness of the landscape components. Terms used to describe vividness include: memorable, striking, distinctive, defined, variety, and contrast.



# 1. Introduction to the Project and Its Purpose

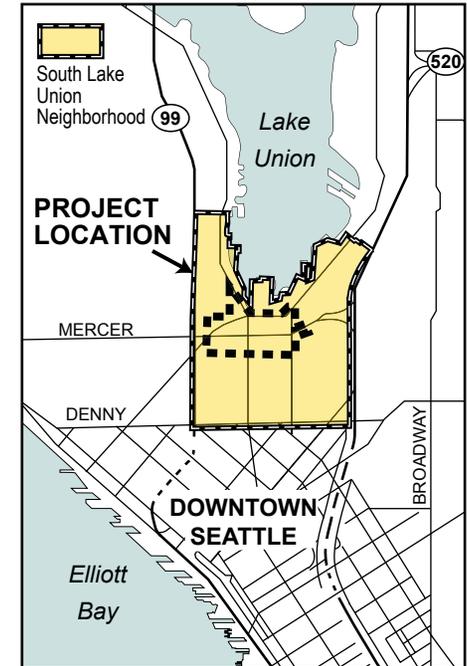
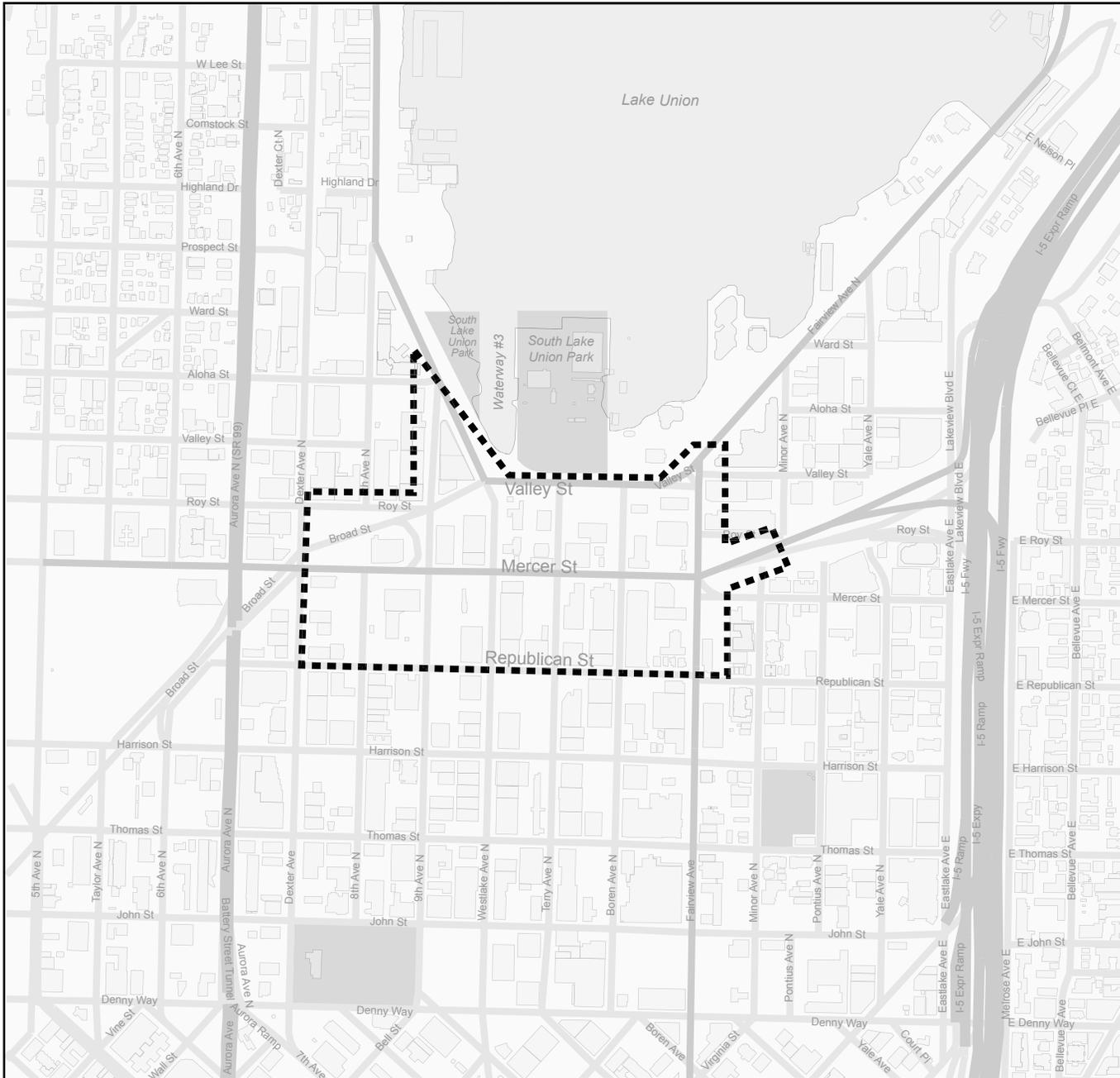
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## 1.1 What and where is the project?

The Mercer Corridor Improvements Project is located in the South Lake Union area of Seattle, Washington, just north of downtown (Exhibit 1-1). The Mercer Corridor is a principal east-west travel route to areas west and north of South Lake Union from Interstate 5. The proposed project would provide vehicular and pedestrian improvements in the Mercer Street corridor between the Interstate 5 on- and off-ramps and Dexter Avenue North.

The South Lake Union neighborhood has been designated as an Urban Center in the 2004 City of Seattle Comprehensive Plan – 10-Year Update. Urban centers are a key element of the City of Seattle's and the region's growth management plans. They are areas of concentrated employment and housing, with supporting land uses, services, and facilities within a relatively small, walkable area. It is the City's policy to design transportation infrastructure in urban centers to support land use goals for compact, accessible, walkable neighborhoods, with an emphasis on transit, walking, and biking as the primary modes to serve increased travel demand.

Currently, Mercer Street is a one-way principal arterial street in the eastbound direction. In the South Lake Union neighborhood, Mercer Street operates as a couplet with Valley Street, which carries the westbound traffic in addition to eastbound traffic destined for the east side of Lake Union (see Exhibit 1-1). North- and south-bound travel is divided along a number of routes including Fairview Avenue North, Dexter Avenue North, Fifth Avenue North, Westlake Avenue North, and Ninth Avenue North. This corridor is also a major freight route within the city, serving commercial traffic to and from I-5 and major destinations such as downtown Seattle, South Lake Union, Fremont, Ballard, and Interbay. Signalized intersections are located on Mercer Street at Fairview, Ninth, Terry, and Westlake avenues and on Valley Street at Fairview, Terry, and Westlake avenues. On-street parking is limited to one block on the north side of Mercer Street (between Terry Avenue North and Boren Avenue North) and one block on the north side of Valley Street (between Boren Avenue North and Fairview Avenue North). The proposed project would replace the existing Mercer/Valley streets couplet with a widened two-way Mercer Street. The widened Mercer Street would have three lanes in each direction, with widened sidewalks, on-street parking, and a landscaped median with left turn pockets.



LEGEND

 Project Limits



NORTH

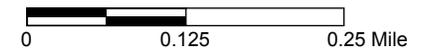


Exhibit 1-1

**Mercer Corridor Project Location**

MERCER CORRIDOR  
IMPROVEMENTS PROJECT

Valley Street would be narrowed to a two-lane street with sidewalks, bicycle lanes, and on-street parking. This project would also complete the two-way conversion of Ninth Avenue, north of Mercer Street. Ninth Avenue would generally provide two lanes in each direction, bike lanes, on-street parking, and sidewalks.

## 1.2 What is the “study area” for this environmental assessment?

This environmental assessment (EA) evaluates effects of the Mercer Corridor Improvements Project on the area within the project limits of Dexter Avenue North on the west, Interstate 5 (I-5) on the east, Aloha Street on the north, and Republican Street on the south. Some environmental disciplines, such as Social, Environmental Justice, Air Quality, and Transportation, evaluated a larger area (the entire South Lake Union neighborhood).

## 1.3 Who owns the project, and how is it funded?

The City of Seattle owns the surface streets affected by this project. The Washington State Department of Transportation (WSDOT) owns the I-5 ramps that would be modified as part of the proposed project. Approval for ramp modifications must be obtained from WSDOT and the Federal Highway Administration (FHWA). Funds for this project will come from the Seattle Department of Transportation (SDOT) and possibly from the FHWA, WSDOT, and/or private development.

## 1.4 Why do we need this project?

Currently, westbound traffic exiting I-5 at Mercer Street must travel in a circuitous route from Fairview Avenue to Valley Street, hindering travel within and through the South Lake Union neighborhood. This traffic pattern can be confusing for drivers and is difficult for freight trucks to maneuver. This configuration is also difficult for safe pedestrian and bicycle travel.

Mercer Street is often congested with eastbound traffic accessing I-5 on-ramps, particularly in the afternoon peak period and after events at the Seattle Center. The intersections of Valley Street with Fairview Avenue North and Terry Avenue North operate poorly during both morning and afternoon peak hours, and the Mercer Street/I-5 interchange operates poorly during the afternoon peak hours. Within the project limits, six intersections were identified as high accident locations and six corridors were identified as high accident corridors.

Planned growth in the area is projected to add up to 200,000 person trips per day by 2030. There is a strong need to improve existing and future corridor conditions and to support recommendations from the South Lake

Union Neighborhood Plan, the South Lake Union Transportation Study, the City of Seattle Comprehensive Plan, and Seattle City Council resolutions.

The project is needed for the following reasons:

- **Improve Local Access.** The indirect routing created by the Mercer/Valley couplet, along with limited east/west through streets and the northern geographic barrier of Lake Union, impedes local access to businesses and residences in the area. Driver confusion resulting from this configuration contributes to accidents, increased travel times and distances for local access trips and traffic congestion. Westbound trucks turning left at the Fairview/Valley intersection typically use two lanes because of the sharpness of the turn.
- **Improve Regional Movements through the Corridor.** The South Lake Union Transportation Study (1994) identified the lack of a direct westbound connection from I-5 to Seattle Center as one of the key problems and deficiencies in the South Lake Union roadway network. The corridor is an important link in the route between the interstate highway system and Seattle Center, as well as the city's Queen Anne, Magnolia, Fremont, Interbay, and Ballard neighborhoods.

Current problems include congestion near the I-5 interchange at Mercer Street and Fairview Avenue North and the lack of a direct westbound connection from I-5. Traffic volumes near Fairview Avenue are 50 percent higher than at SR 99 at the western limits of the project. Existing intersection levels of service are E or F during peak periods, compared to D or better at most other intersections on Mercer Street beyond the project limits and other streets toward the west. Westbound queues back up onto the I-5 off-ramp. Eastbound queues back up on Mercer Street from Fairview Avenue and are primarily due to delays at the intersection of Mercer and Fairview and capacity limits on I-5. The proposed project would improve traffic flow through South Lake Union, thereby improving regional movements between the interstate and connections to the north and west.

- **Improve Pedestrian and Bicycle Safety and Mobility.** Mercer, Fairview, and Valley streets are barriers to pedestrians. The existing configuration results in pedestrians having to cross two major roadways just one block apart when walking between the main part of the South Lake Union neighborhood and the waterfront uses north of Valley Street. Pedestrians often must go out of their way to cross Mercer and Valley streets, due to the combination of high traffic volumes, the limited number of signalized intersections, and conflicts between turning traffic and pedestrians. Sidewalks along Mercer Street and Valley Street are in disrepair, and the overall streetscape is neither inviting nor comfortable.

Bicycle lanes on Dexter Avenue North are the only bicycle lanes in South Lake Union. They are located at the west side of the project

area and serve as a major regional bicycle route linking downtown Seattle with north-end communities. There are no designated bicycle facilities for east-west travel in South Lake Union. There is a critical need to provide a bicycle connection from the east side of Lake Union (at Fairview) to the bike lanes on Dexter to implement the Seattle Bicycle Master Plan and encourage bicycle use as a safe, convenient mode of travel.

Cyclists also use Eastlake, Fairview, Ninth, and Westlake as north/south routes. Commuters from Eastlake and areas in northeast Seattle typically use Eastlake Avenue to commute to downtown. Some of these commuters also use Fairview and Valley streets to connect Ninth or Dexter avenues to travel downtown. Traffic conditions in the Mercer/Valley Corridor make access to Fairview, Westlake, and Ninth avenues difficult for bicyclists, especially on Fairview Avenue at the I-5 ramps.

- **Accommodate Transit Service within the Project Corridor.** East-west transit service in the Mercer Corridor is non-existent, with the nearest east-west route along Denny Way, five long blocks south. This is due in part to the indirect westbound route, lack of alternative east-west through streets, and congestion in the corridor. North-south transit service is provided on Dexter Avenue North, Westlake Avenue North, and Fairview Avenue North. Transit reliability on Fairview Avenue is impacted by high traffic volumes at the I-5 ramps and the existing configuration of Fairview between Mercer and Valley streets. Project improvements will facilitate developing transit service in this area.
- **Accommodate Economic Growth and Neighborhood Livability.** The South Lake Union Neighborhood has been designated as an urban center in the 2004 City of Seattle Comprehensive Plan – 10-Year Update. The South Lake Union Urban Center is projected to experience substantial growth in the next 20 years, including 16,000 to 20,000 jobs, 8,000 to 10,000 households, and an enhanced South Lake Union Park. The City of Seattle’s vision is to develop a mixed-use neighborhood with a strong emphasis on growth in biotechnology. To meet the City’s goals for the South Lake Union Urban Center, there is a need to provide improvements that support the creation of a desirable place to live and work and that attract people to the community and its businesses. Improvements to the Mercer Corridor are needed to accommodate transit- and pedestrian-supportive land uses, design, and density while providing adequate capacity for automobile and freight demand.
- **Ensure Compatibility with South Lake Union Park Plan.** The south end of Lake Union is currently home to an underutilized park and marine facility. The existing park will be redeveloped to a 12-acre regional park, located north of Valley Street between Westlake Avenue North and Boren Avenue North. With planned improvements to the park, the majority of parking for the park will be relocated to the south side of Valley Street. Mercer and Valley streets both have

high traffic volumes and limited traffic-controlled crossings, making it difficult for pedestrians get to the park and the waterfront from the rest of the neighborhood. There is also a need to provide sidewalk and other improvements along Valley Street to better integrate the park with the neighborhood.

## 1.5 What is this project intended to accomplish?

The Mercer Corridor Improvements Project would improve local circulation to businesses and residences in the area for motor vehicles, bicycles, and pedestrians, and would provide more direct traffic movement through the corridor. The improvements would also provide more direct access from I-5 to South Lake Union and neighborhoods to the north and west for regional traffic, and would reduce the potential for backups onto I-5 from the I-5 off-ramps at Mercer.

The proposed project would accommodate planned development in the area, and contribute to making South Lake Union a livable, walkable community. The project would improve circulation and safety of pedestrians and bicyclists by:

- Adding and widening sidewalks on Mercer and Valley streets
- Adding bike lanes on Valley Street
- Improving crossings at the intersections of Fairview, Boren, Terry and Westlake avenues with Valley Street
- Redirecting through traffic from Valley Street to Mercer Street, allowing speeds and overall traffic to be reduced on Valley Street, and reducing conflicts with high volumes of turning traffic

Access to South Lake Union Park and businesses within the project area would be improved with parking lanes on both Mercer and Valley streets and wider sidewalks with landscaping and benches to encourage pedestrian use. Proposed improvements would better accommodate large freight trucks and provide a more direct route for freight trucks through this corridor to the Ballard/Interbay area.

## 1.6 What is the environmental review process for this project?

This environmental assessment evaluates the proposed Mercer Corridor Improvements Project and provides an opportunity for agencies and the public to comment on the project. Comments on the EA will be reviewed and responded to prior to preparation of the Finding of No Significant Impact (FONSI), assuming that no effects of the project are found to be significant.

This environmental assessment was prepared under the procedures and requirements of the National Environmental Policy Act (NEPA, codified at 23 USC 109(h) and 23 USC 138 [section 4(f) of the DOT Act] and the reporting requirements of 23 USC 128); the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 CFR 1500-1508); FHWA's Environmental Impact and Related Procedures (23 CFR 771); and the State of Washington Environmental Policy Act (SEPA, codified at Washington Administration Code 43.21C.110 and CH 197-11-010). The City will adopt the NEPA EA to meet the requirements of SEPA.

The steps of the environmental review process include:

- 1. Conducting public scoping process** - Agencies and the public are invited to review the project, to provide comments on the scope of the project, and to identify concerns and issues for consideration.
- 2. Evaluating options and impacts** - The environmental effects of different alternatives are assessed to assist in the decisionmaking process. The environmental evaluation includes social, ecological, and economic considerations.
- 3. Preparing an environmental assessment document** - The EA describes the purpose and need of the project and reviews the anticipated environmental effects and how the potential effects on the community and natural environment can be minimized or avoided.
- 4. Soliciting public and agency review and comment** - The EA is made available to the government agencies responsible for environmental reviews and to the public. A public meeting is held to present the findings in the document and collect verbal and written comments.
- 5. Preparing a decision document** - Following the public comment period, each comment is individually addressed. Next a decision document explains what changes were made to the EA in light of agency and public comments and what course of action has been selected.
- 6. Meeting SEPA requirements** - The City will review the NEPA EA to ensure it meets all SEPA requirements. The EA will then be adopted for SEPA purposes, as allowed by WAC 197-11-610, Use of NEPA Documents.



## 2. The Project Alternatives

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### 2.1 What alternatives were considered for this project?

Traffic flow through the Mercer Corridor area of Seattle has been considered a problem for decades, and several studies have been prepared to evaluate alternatives for improving traffic flow through this area. For this project, two alternatives were developed prior to initiation of the 2004 scoping process. A third was developed later in the scoping phase in response to Seattle City Council staff concerns about the ability of either alternative to reduce vehicle delays.

Alternative A would have realigned the I-5 off-ramp and the intersection of Fairview and Valley to reduce turning angles for the major westbound flow of traffic. It would also include a new crossing under Aurora Avenue at Roy Street for westbound traffic and bicycles and pedestrians. This alternative was developed through the South Lake Union Neighborhood Plan in 1998. Alternative B would widen Mercer Street from a four-lane, one-way street to a six- to seven-lane, two-way street between the I-5 off-ramps at Fairview Avenue and Ninth Avenue, where the two-way Mercer Street would connect to Broad Street. Valley Street would be re-built as a two-lane street along the south end of Lake Union. The concept for Alternative B was developed as part of the South Lake Union Transportation Study (PBQD, 2004). The project team developed a third alternative, Alternative C, with the primary objective of reducing travel times and delays through the corridor. It would lower the mainline Mercer Street below grade, from I-5 to Broad and Dexter streets. Grade-separated crossings would be provided at Fairview, Terry, and Westlake avenues. Local access would be provided by a one- to two-lane frontage road on either side of the lowered Mercer. Alternative C was developed in response to comments from City Council staff during project scoping and alternative screening.

### 2.2 How were the alternatives evaluated for this EA?

An alternatives screening process was developed to evaluate the three alternatives against the project objectives to determine if they met the project purpose and need and should be carried forward through further environmental review in the project NEPA environmental assessment.

The goals identified for the alternatives screening were:

1. Provide a more direct connection for travel to and through South Lake Union.

2. Improve local safety, access, and circulation within South Lake Union for motor vehicles, bicycles, and pedestrians.
3. Accommodate economic growth and neighborhood livability for the South Lake Union urban center consistent with the City of Seattle Comprehensive Plan, the South Lake Union Neighborhood Plan, and the South Lake Union Park Plan.

## 2.3 Which alternatives were eliminated from further consideration?

Alternative A was eliminated from further consideration. Although Alternative A would improve travel time through the corridor, it would not eliminate the indirect routing of the Mercer/Valley couplet. Driver confusion and safety problems associated with immediate right and left turns from I-5 to Fairview to Valley and associated couplet-related weave movements would not be improved. The new Aurora Avenue crossing would provide improved access to Queen Anne and Magnolia, but poor local access, and circulation within the neighborhood would not improve. Alternative A is not consistent with several of the City's planning goals to accommodate economic growth and improve neighborhood livability in the South Lake Union urban center. Therefore, Alternative A does not meet the project purpose and need.

Alternative C was also eliminated from further consideration. Although it would provide a more direct connection between I-5 and Seattle Center, travel times for other key routes that use the corridor and system-wide delays would be higher because this alternative creates the most circuitous routing. Local access within the neighborhood would be inhibited by increased circuitry and limited access between the lowered Mercer expressway and local properties.

This alternative does not meet the project purpose and need because it is inconsistent with the City's goals and policies for economic growth and neighborhood livability in the South Lake Union urban center. Additionally, the limited travel benefit combined with negative impacts to local access and circulation would not justify the high cost of this alternative.

## 2.4 What design options were considered for the Build Alternative?

Alternative B was carried forward from the alternatives screening as the Build Alternative because it was the only alternative that met the project purpose and need, met all of the alternative screening goals, and had the greatest public support during the community involvement process for this project as well as for the South Lake Union Transportation Study.

In an attempt to avoid the use of the historic McKay Pacific Building at 601 Westlake Avenue North, the project team identified four potential

avoidance design options. Each of the avoidance options varies only in the alignment of Mercer Street. Proposed improvements to Valley Street, the I-5 ramps, Westlake Avenue North, and Ninth Avenue North would be the same as the Build Alternative. Three of these were rejected from detailed consideration due to fatal flaws in safety or feasibility: Full-Section Widen to South, Reduced Section with Multiple Curves, and Minimum Section Widen to the South. Appendix G contains a detailed discussion about why these design options were rejected. A fourth avoidance option, Reduced Section Shifted to the South, was rejected because it does not fully meet the project purpose and need; it has unique problems or truly unusual factors; it would result in unacceptable and severe adverse social, economic, or other environmental impacts; it would cause extraordinary community disruption; it has additional construction costs of an extraordinary magnitude; and it has an accumulation of factors that collectively present unique problems or adverse impacts that reach extraordinary magnitudes. Chapter 6 contains a detailed evaluation of this design option.

## 2.5 What is the Build Alternative?

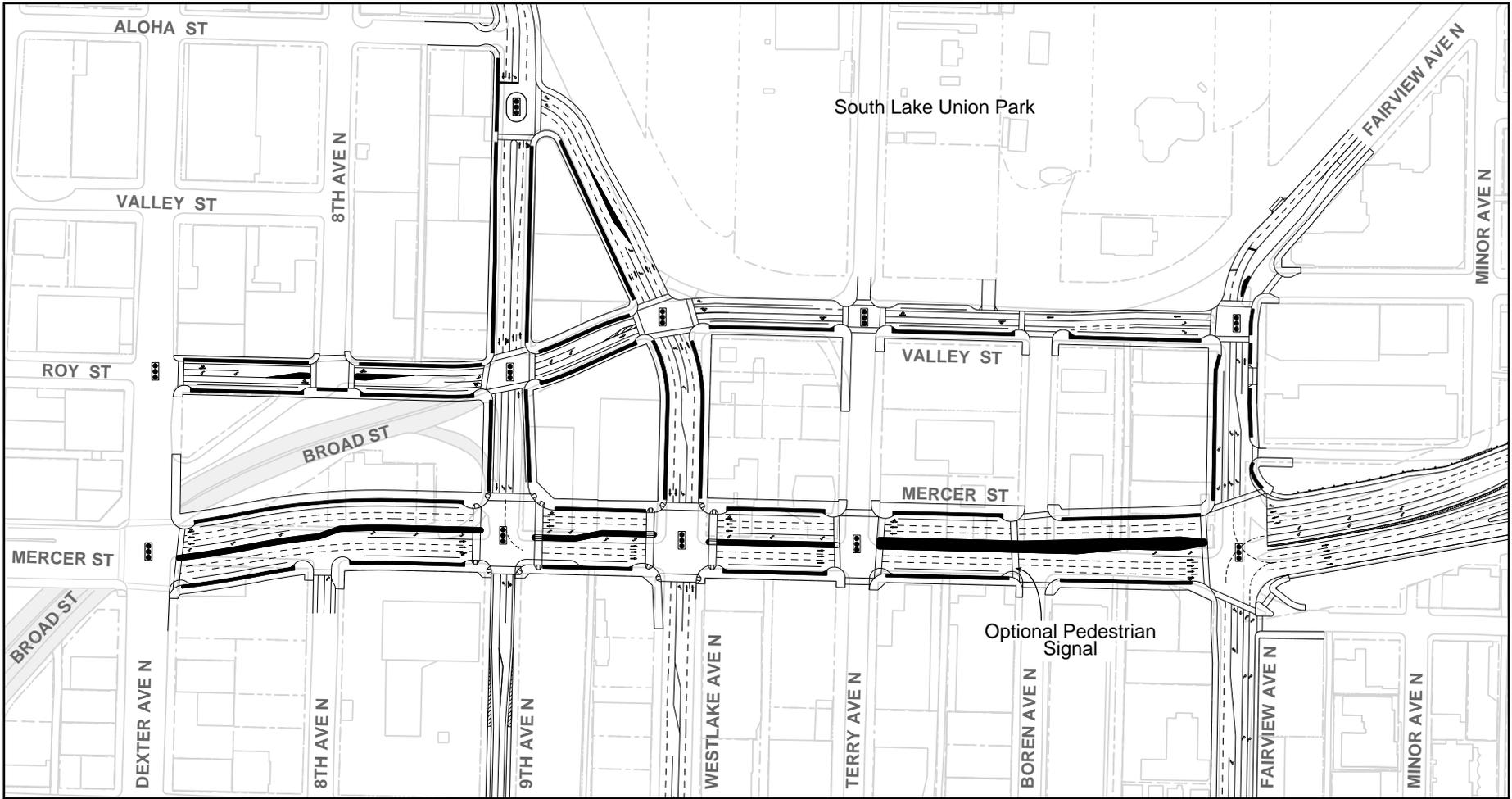
The Build Alternative would replace the existing Mercer/Valley couplet with a widened two-way Mercer Street, which would provide more direct access to and from I-5 (Exhibit 2-1). Valley Street would be narrowed to a two-lane street with bicycle lanes in each direction and parking.

Pedestrian and bicycle circulation and safety would be improved with widened sidewalks, removing barriers caused by turn prohibitions and crossing restrictions of the existing couplet, and with a new signalized crossing at the Ninth Avenue North/Westlake Avenue North intersection. Mercer Street would be widened primarily to the north.

### Mercer Street Improvements

The two-way Mercer Street would be a boulevard with a landscaped median, left-turn lanes, parking, and sidewalks (Exhibit 2-2). The street would be widened primarily to the north to accommodate the new westbound travel lanes, median, parking lanes, and wider sidewalks.

The street would have three eastbound lanes and three westbound lanes to accommodate traffic demand between Dexter and Fairview avenues and to facilitate movement of freight from I-5 to the Ballard/Interbay manufacturing and industrial center. A 21-foot landscaped median would be constructed to enhance pedestrian safety and provide aesthetic benefits. At intersections with left-turn lanes (most locations), the median would be narrowed to accommodate the turn lane and to provide a 10-foot curbed pedestrian refuge for those unable to cross the entire street in one traffic signal phase. Parking lanes would be added on each side of the street to support retail uses. On the north side of the street, the parking lane would be 8 feet wide. On the south side of the street, the parking lane would be 10 feet wide to allow potential future use as an additional eastbound lane for transit or general purpose traffic.



LEGEND

-  Broad Street Removed  
Alaskan Way Viaduct and Seawall Replacement Project
-  Planting Strips and Median
-  Existing Signalized Intersection
-  New Signalized Intersection
-  NORTH
-  0 100 200 Feet

Exhibit 2-1  
**Build Alternative**  
MERCER CORRIDOR  
IMPROVEMENTS PROJECT

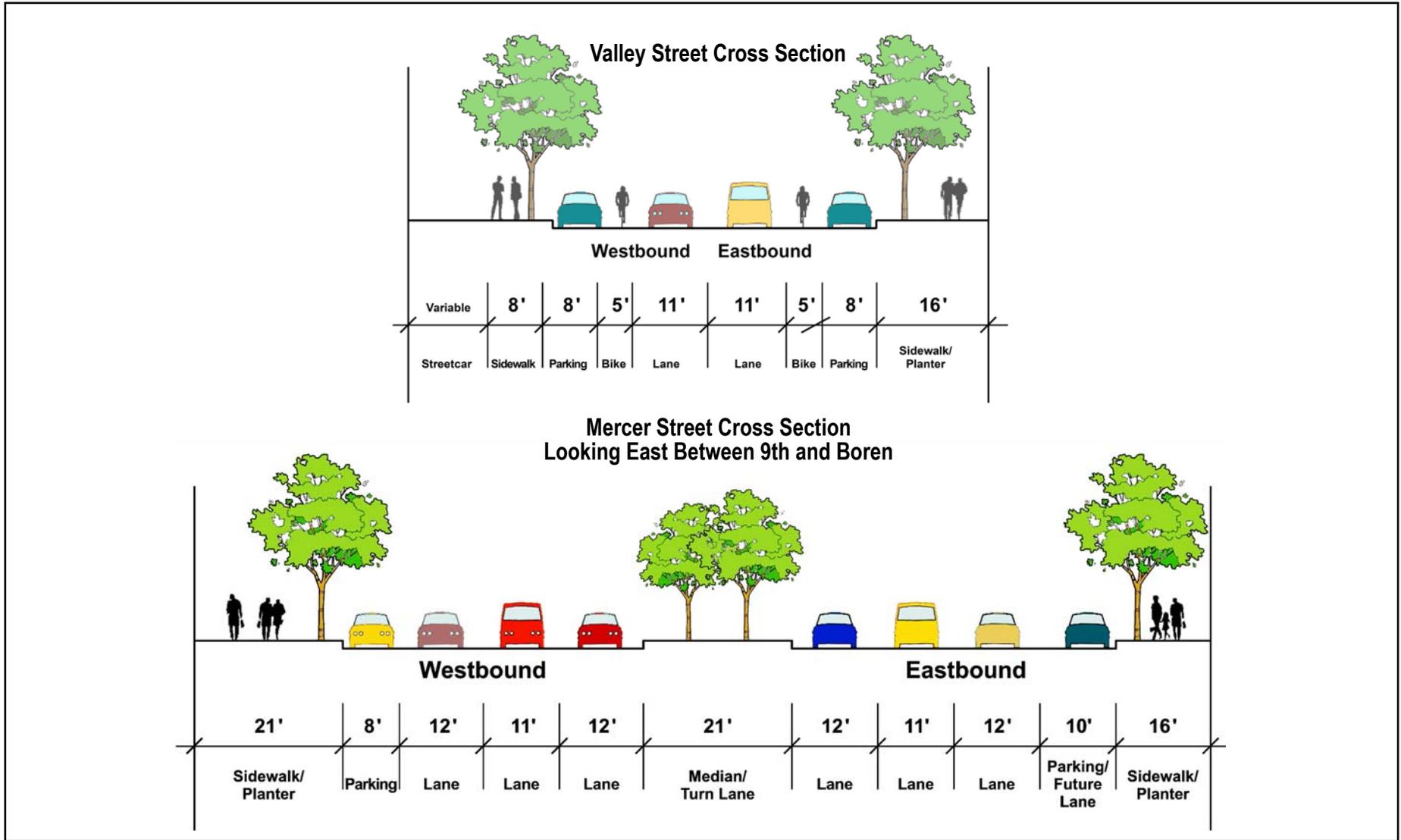


Exhibit 2-2  
**Mercer and Valley Street  
 Cross Sections**  
 MERCER CORRIDOR  
 IMPROVEMENTS PROJECT

The sidewalks along Mercer Street would be widened to accommodate anticipated pedestrian activity associated with a high-density urban neighborhood. Sidewalk widths currently range from 9.5 feet to 21 feet. With the project, sidewalks would be widened to 16 feet on the south side of the street to provide a 10-foot walkway and a 6-foot safety buffer and planting area. On the north side of the street, the sidewalk would be widened to 21 feet to allow for additional space along building frontages for window shopping and possible sidewalk cafes, as well as a 6-foot safety buffer and planting strip. The streetscape would incorporate visually unifying design features including trees and street lights. Driveway access to properties between Boren Avenue and Fairview Avenue would be removed or restricted to reduce conflicts and improve traffic flow entering and exiting I-5, with alternate access provided from side streets.

At the western end of the project, the ultimate configuration of Mercer Street would be designed to tie in to a future widening of Mercer Street west of Dexter Avenue North. Widening west of Dexter and removal of Broad Street are planned to occur as part of the proposed Alaskan Way Viaduct and Seawall Replacement Project. Depending on progress on that project, an interim connection to Broad Street and the existing Mercer Street configuration to the west could be constructed, if needed, until Mercer Street is widened west of Dexter Avenue North. Exhibit 2-3 shows the proposed interim design, with westbound traffic on Mercer Street connecting to the existing Broad Street underpass, and eastbound traffic from Broad Street connecting to Eighth Avenue North. Exhibit 2-4 shows a second, optional interim design. Similar to the proposed interim design, westbound traffic on Mercer Street would connect to the existing Broad Street underpass. However the eastbound Broad Street tie-in would occur at Ninth Avenue North, allowing traffic to either continue west on Mercer Street or turn south on Ninth Avenue North.

### **Valley Street Improvements**

Valley Street would be designed to be sensitive to its location adjacent to South Lake Union Park. Because most traffic would now be traveling on the new two-way Mercer Street, Valley Street would be used primarily for local traffic. Valley Street would be narrowed to have one travel lane in each direction, with bike lanes, parking, and sidewalks on each side of the street (Exhibit 2-2).

The bike lanes would be 5 feet wide and extend west from Fairview Avenue to connect to existing bike lanes on Dexter Avenue North. Current sidewalk widths on Valley Street range from 10.5 feet to 12 feet; some segments have no sidewalk. The project would widen the sidewalk on the south side of the street to 16 feet, and a new 8-foot sidewalk would be constructed on the north side of the street. Improved crossings of Valley Street at Fairview, Boren, Terry, and Westlake avenues would create more convenient, safe pedestrian access to South Lake Union Park. The streetscape would incorporate visually unifying design features including trees and street lights.

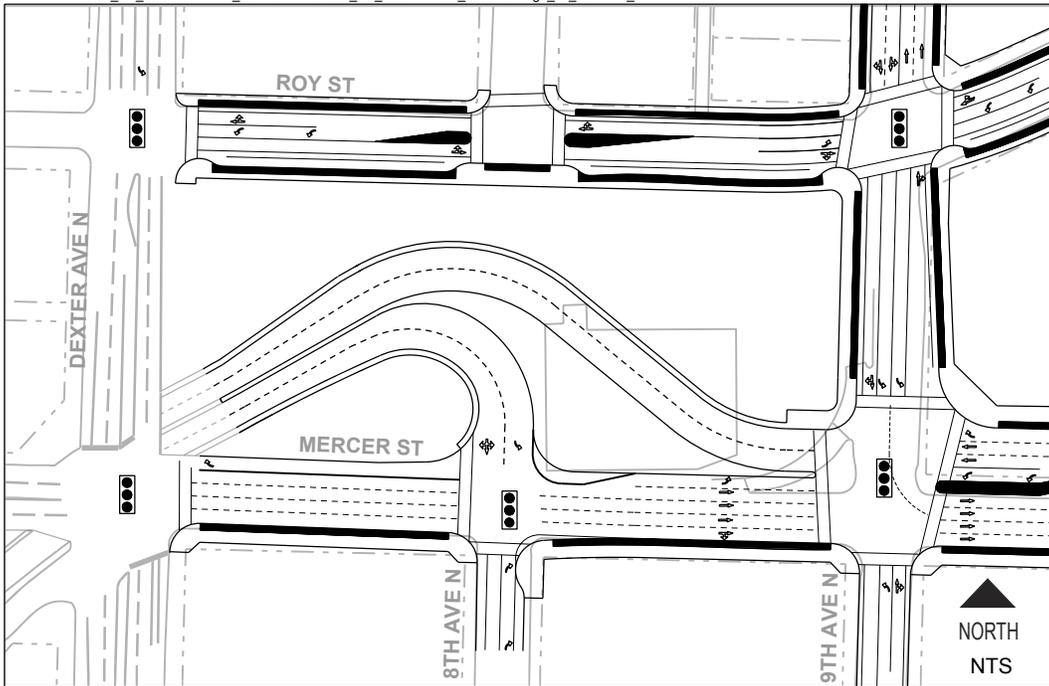


Exhibit 2-3

**Proposed Interim Design with Eastbound  
Broad Street Tie-in at Mercer and Eighth**

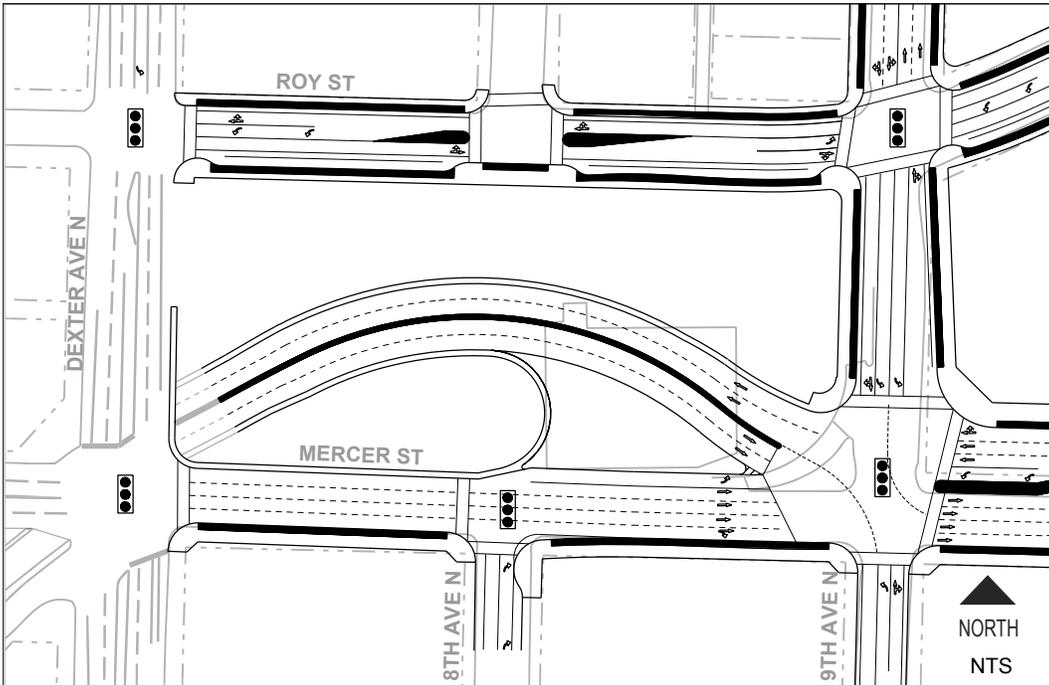


Exhibit 2-4

**Optional Interim Design with Eastbound  
Broad Street Tie-in at Mercer and Ninth**

MERCER CORRIDOR  
IMPROVEMENTS PROJECT

## Other Improvements

At the eastern end of the project, the I-5 on- and off-ramp termini at Fairview Avenue would be widened to provide three through lanes to Mercer Street and four through lanes from Mercer Street to the I-5 ramps. To prevent long traffic queues on the I-5 off-ramp, there would also be two left-turn lanes and one right-turn lane onto Fairview Avenue. The existing configuration that provides an eastbound Mercer Street connection across Fairview Avenue to Eastlake Avenue would remain.

Currently, westbound truck traffic from I-5 is routed along Valley Street. With the Build Alternative, this truck traffic would be routed on the new two-way Mercer Street. The intersection at Mercer Street and Ninth Avenue North would be designed to have sufficient space and a wider turning radius to accommodate 75-foot-long trucks traveling to and from Ballard and Interbay via Ninth Avenue North and Westlake Avenue North. Westlake Avenue North and Ninth Avenue North between Broad Street and the intersection of Westlake Avenue North and Ninth Avenue North would be converted from one-way streets to two-way streets to improve local access.

## 2.6 How would the Build Alternative be constructed?

Construction of the Build Alternative would proceed as follows:

- Construct improvements on the north side of Mercer Street in new right-of-way
- Divert traffic to new lanes, construct improvements on existing Mercer Street.
- Construct improvements on major cross streets, such as Fairview and Westlake, and to I-5 ramps as Mercer is constructed.
- Construct Broad Street connector to create west-bound connection (if needed) and complete improvements to cross-streets.
- Construct improvements to Valley Street with all through traffic diverted to Mercer Street.

During the construction of Ninth Avenue South, buses would be shifted to the parallel arterial Westlake Avenue North. Conversely, when Westlake is under construction, buses would be shifted to Ninth Avenue South. Travel speed and reliability would be affected for buses routed along Fairview Avenue North.

Construction is anticipated to take approximately 2.5 years.

## 2.7 What would happen if nothing were built?

The No Action Alternative is included in the environmental analysis as a comparative alternative. This alternative evaluates what would occur if

nothing were done to solve the project's identified problems. This alternative serves as the baseline for measuring the effects of the Build Alternative.

Under the No Action Alternative, the Mercer-Valley Street couplet would remain, and no roadway, pedestrian, or bicycle improvements to the project area would be made.

## 2.8 What other improvements are planned in the project vicinity?

Under either the Build Alternative or the No Action Alternative, the South Lake Union area would experience travel pattern and/or transportation infrastructure changes due to other projects. The planning horizon for the Mercer Corridor Improvements Project is 2030. Additional transportation projects proposed in the area within that timeframe include:

- Ninth Avenue North (two-way conversion south of Mercer Street)
- Alaskan Way Viaduct and Seawall Replacement Project

A number of non-transportation projects will affect travel patterns in the area. Some may include localized changes to the street infrastructure but would not directly affect Mercer Street. Some of the more substantial projects are:

- South Lake Union Park Master Plan
- University of Washington Medical Research Campus
- 2201 Westlake mixed use development
- Interurban Exchange mixed use development
- Amazon headquarters office and retail development

The effects of these projects, together with the proposed Mercer Corridor improvements, are evaluated as cumulative effects in this environmental assessment (Chapter 4).

