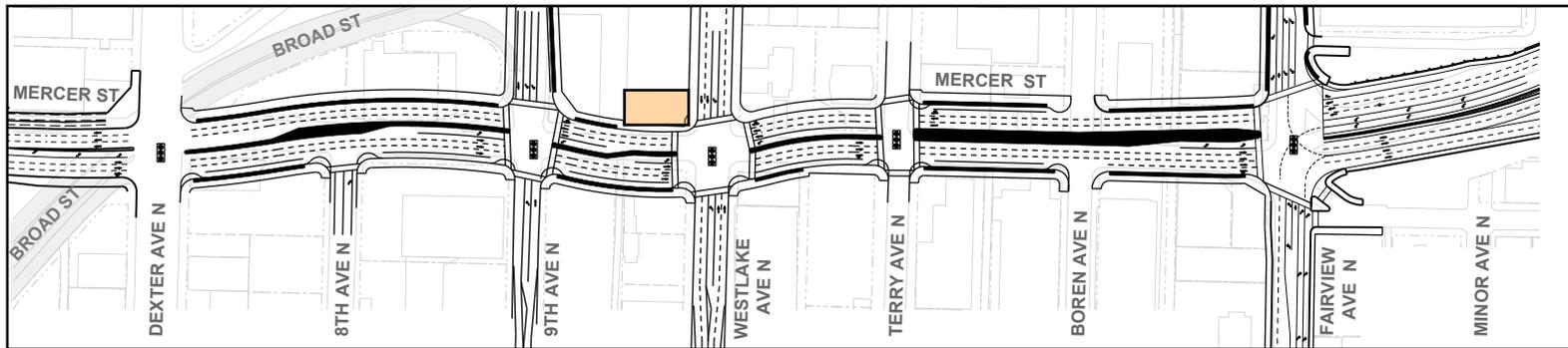
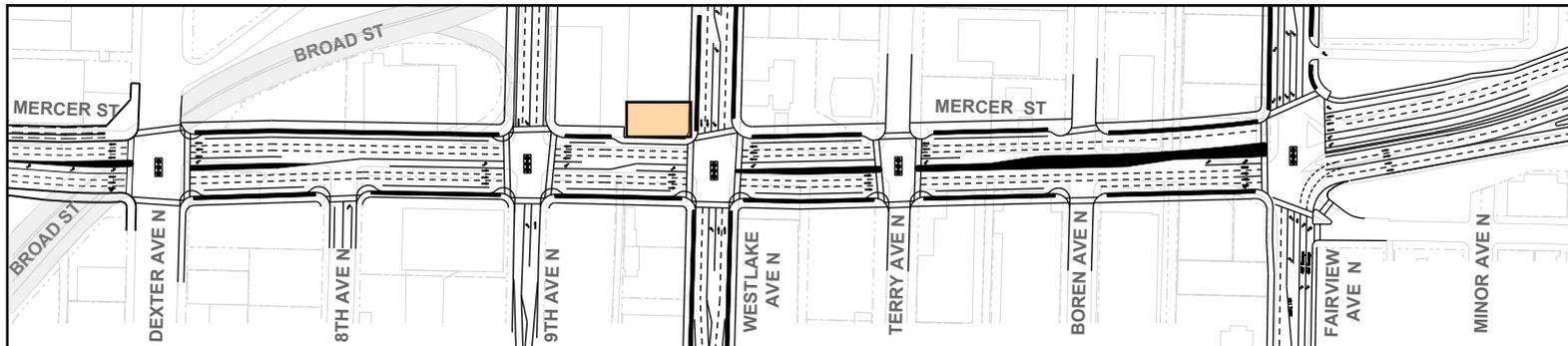


Full Section Widen to South Option



Reduced Section with Multiple Curves Option



Minimum Section Widen to South Option

LEGEND



McKay Pacific Building



Broad Street Removed
Alaskan Way Viaduct and Seawall Replacement Project

— Planting Strips and Median



Signalized Intersection



NORTH



0 100 200 Feet

Exhibit 6-5

Avoidance Options Considered but Rejected

MERCER CORRIDOR
IMPROVEMENTS PROJECT

Full Section Widen to South Option

Similar to the Proposed Action, the Full Section Widen to South Option implements the City's desired full cross-section for the proposed two-way Mercer Street, but widening would transition from the north side of existing Mercer near Fairview Avenue to the south side at Westlake Avenue North to avoid the historic McKay Pacific Building at 601 Westlake Avenue North (see Exhibit 6-5). Widening to the south would continue west of Ninth Avenue North, directly impacting the UW Research Facility, including the existing Blue Flame Building and buildings under construction. This design option has the highest right-of-way costs (\$64 million) and has significant property impacts. It would encroach on every parcel along the south side of Mercer Street and, because of the tie-in to the existing I-5 ramps, would encroach on five parcels on the north side of the street as well. (The Proposed Action would only encroach on parcels on the north side of the street.)

Of particular concern, this design option would likely require acquisition of the UW Medical Research Facility and would encroach on the proposed Exchange Building II site – a planned and permitted biomedical research facility. Given the number and type of displacements, it is considered highly unlikely that the City would proceed with such a design or be able to secure the funding needed for its implementation. Considering these factors, and the fact that a variation of the same alternative (Reduced Section Shift to South discussed in *Are there feasible and prudent avoidance alternatives?*) could avoid or minimize many of these adverse effects, this alternative was eliminated from further consideration.

Reduced Section with Multiple Curves Option

The Reduced Section with Multiple Curves Option is designed to avoid the historic McKay Pacific Building at 601 Westlake by shifting the alignment to the south at that location. Elsewhere, the alignment is shifted to the north to avoid or minimize adverse effects to other properties along the south side of Mercer Street (see Exhibit 6-5). At some locations, sidewalk and median widths were reduced from that of the Proposed Action to further reduce effects on the McKay Pacific Building, the UW Medical Center, and the proposed Exchange Building II site. Between Dexter and Terry avenues, parking was eliminated from the north side of the street. The resultant alignment includes three reverse curves along Mercer Street between Dexter and Terry avenues that pose safety and design deficiencies. Mercer Street is designated by the City of Seattle as a principal arterial and a Major Truck Street and must be able to accommodate large trucks. It also is designated as an NHS (National Highway System) Route; however, it is not a state highway. For this option, lane widths do not meet design standards for the alignment curve radii, and wider lanes and additional right-of-way would be needed. The alignment of this option is constrained at three "pinch-points" located at the UW Medical Building, the historic McKay Pacific Building, and the Interurban Exchange II Building site. Any lane widening would require encroachment into at least one of these buildings, which this option is

intended to avoid, resulting in impacts that would require costly building modifications to allow for the widening.

A simulation was performed using Auto Turn software for the design vehicle (WB 67 – a truck with a wheel base of 67 feet between the front and back axles, which is the largest truck expected to use Mercer Street) driving through this curved alignment. The simulation demonstrated that the design vehicle in the center through lane for each direction encroaches into the adjacent lane by approximately 0.3 foot. Truck drivers would have difficulty negotiating this alignment and less experienced drivers could easily encroach further into the adjacent lane. This encroachment would increase the potential of side-swipe crashes and would result in differential operating speed, which would decrease the level of service and increase potential for rear-end crashes.

Other design and safety issues resulting from the multiple curves and pinch points include inadequate stopping sight distance and entering sight distance, and decision sight distance at some locations. To avoid building encroachment for this option, sidewalks were reduced to 8.5 feet in front of the historic McKay Pacific Building and the proposed Interurban Exchange II Building. This is less than both the desired 16-foot width and the City's 12-foot minimum width for constrained locations. Substandard sidewalk widths in conjunction with other noted deficiencies with this option further increase the risk of pedestrian-related collisions and a less desirable pedestrian environment.

Considering Mercer's NHS designation, Major Truck Street classification, and high vehicle and truck volumes, this option was rejected from further consideration for design and safety considerations.

Minimum Section Widen to South Option

The Minimum Section Widen to South Option applies the minimum design standards for arterial streets to illustrate the absolute minimum width possible, if only considering auto and truck traffic (see Exhibit 6-5). Widening would transition from the north side of existing Mercer near Fairview Avenue North to the south side at Westlake Avenue North to avoid the historic McKay Pacific Building at 601 Westlake. In general, sidewalk widths would meet 6-foot minimum required by WSDOT. West of Westlake Avenue North, sidewalks in front of the McKay Pacific Building (north side) and the UW Medical Research Facilities (south side) would be 6 feet wide with no landscaping/safety buffer. Parking would not be included on the south side of Mercer Street nor on north side of the street in front of the McKay Pacific Building. There would be no median or pedestrian refuge in the middle of Mercer Street west of Westlake Avenue North.

The most significant design and safety issue of this option is not having a center median. A median provides a pedestrian refuge at crosswalks, and prevents severe vehicle conflicts by separating opposing lanes of traffic. The Minimum Section Option has no center median between Eighth and Westlake avenues and results in three crosswalks without pedestrian refuges. The proposed width of Mercer Street at these locations is

approximately 82 feet. Therefore, without a median it does not meet the Institute of Transportation Engineers guidance recommending pedestrian refuges for crosswalks longer than 60 feet. Providing more traffic signal green time for pedestrians crossing Mercer Street would be required to reduce the risk of slower pedestrians getting stranded in traffic lanes if a median is not provided. This in turn would degrade vehicle levels of service and progression for vehicles traveling on Mercer Street.

Elimination of the median considerably increases the crash risk of high-severity vehicular (head-on) and pedestrian-vehicular collisions. Eliminating the center median between Eighth and Westlake avenues also introduces a different roadway cross-section (no median) for a short two block segment of the corridor, which creates varying conditions for drivers to perceive and respond to.

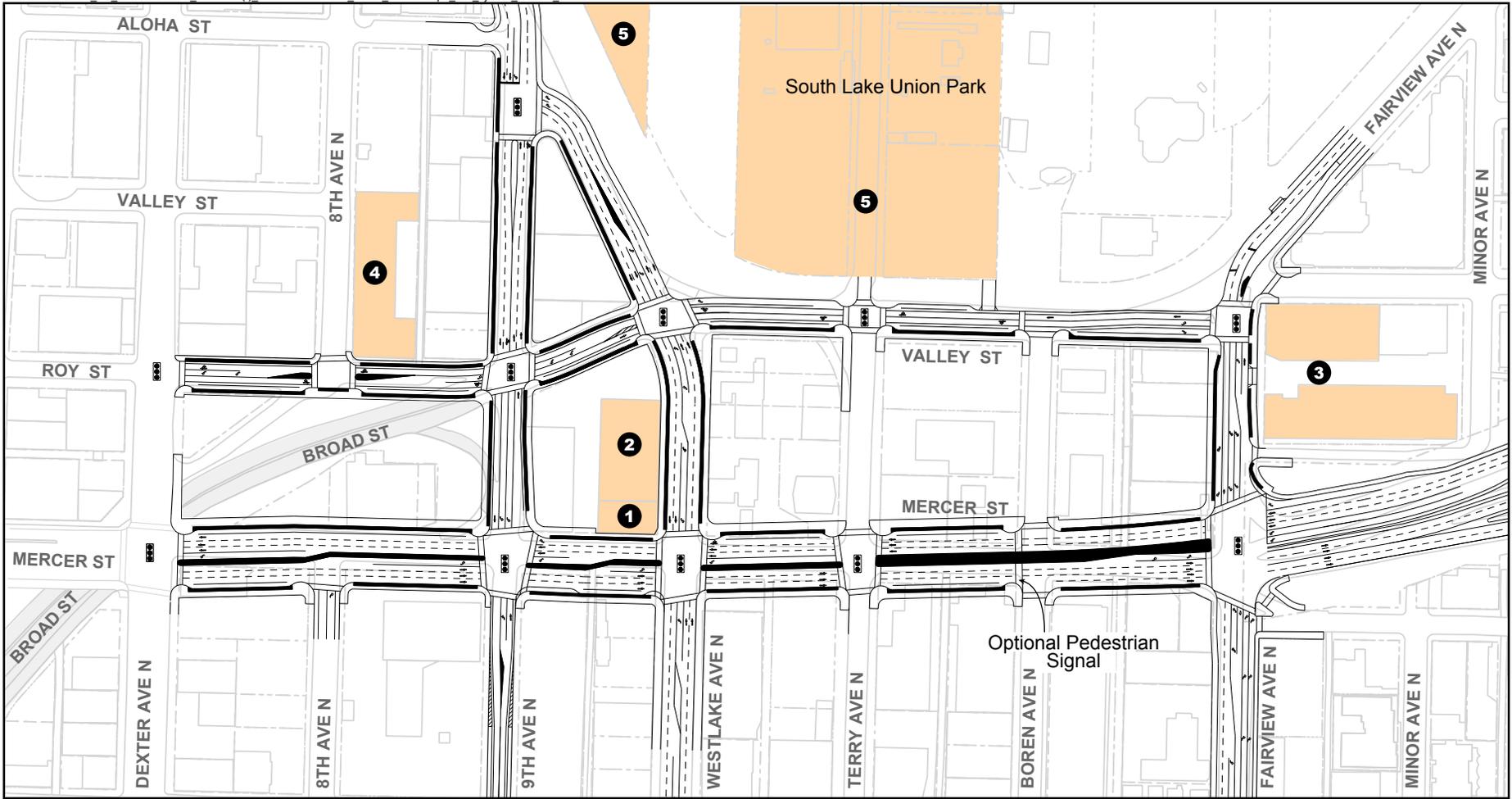
This option includes 6-foot-wide sidewalks, which is WSDOT's minimum standard for arterial streets. This width is considered insufficient for high pedestrian volume streets, such as Mercer Street. Considering the traffic characteristics, surrounding urban land use, and guidance and research, this option was rejected from further consideration for safety and design considerations.

Although addition of a median to this option would improve pedestrian safety, it would encroach 9 feet into the UW Phase 2 building and 18 feet into the planned Exchange 2 Building, and have insufficient sidewalk widths for expected pedestrian volumes. Therefore, the Minimum Section with Median was rejected from further consideration.

Are there feasible and prudent avoidance alternatives?

The Reduced Section Shift to South Option represented another option of the Proposed Action. This option generally implements the City's desired cross-section for the new two-way Mercer, but reduces sidewalk widths, median width, and parking to avoid the historic McKay Pacific Building at 601 Westlake Avenue North (Exhibit 6-6). Widening would transition from the north side of the existing Mercer Street near Fairview Avenue North to the south side at Westlake Avenue North to avoid the historic McKay Pacific Building. The sidewalk width on the north side of Mercer Street between Westlake and Ninth Avenues would be reduced from 21 feet to 12 feet, and parking would be eliminated.

On the south side of the street between Eight Avenue North and Westlake Avenue North, the median width (not including left-turn lanes) would be reduced from 10 feet to 8 feet, the sidewalk would be reduced from 16 feet to 12 feet, and parking would be eliminated. These reduced sidewalk and median widths in this section reflect the minimum width that would be acceptable in a high-density urban environment, and is less than what the City views as needed given the overall context of this developing neighborhood. The sidewalk on the south side of Mercer Street between Ninth and Eighth Avenues would also be 12 feet and there would be no parking.



LEGEND

-  Broad Street Removed
Alaskan Way Viaduct and Seawall Replacement Project
-  Planting Strips and Median
-  Signalized Intersection

SECTION 4(f) RESOURCES

- 1** McKay Pacific Building, 601 Westlake Ave. N
- 2** McKay Ford-Lincoln Building, 609 Westlake Ave. N
- 3** Shurgard Buildings, 1155 Valley St./
700 Fairview Ave. N
- 4** Seattle Parks and Recreation
Department Maintenance Shops,
800 Aloha/802-04 Roy St.
- 5** South Lake Union Park

Optional Pedestrian
Signal

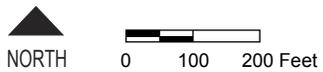


Exhibit 6-6
Reduced Section Shift to South
 MERCER CORRIDOR
 IMPROVEMENTS PROJECT

Proposed improvements to Valley Street, the I-5 ramps, Westlake Avenue North, and Ninth Avenue North would be the same as the Proposed Action.

Although this alternative avoids the Blue Flame Building (UW Medical Center), it would move the street much closer to that building and encroach upon the utility vault located in front of the Blue Flame Building as well as the Phase II building that is under construction.

Evaluation of Feasibility

The Reduced Section Shift to the South Option was evaluated for consistency with design standards and operations objectives. This design option meets roadway design standards, and vehicle traffic operations would be the same as for the Proposed Action.

However, the elimination of parking on the south side of Mercer Street at some locations for the Reduced Section Shift to South Option precludes potential use of the parking lane as an additional travel lane. Having the flexibility to eliminate parking and add a fourth travel lane preserves the option for future unforeseen needs or for near-term added traffic capacity during construction of the Alaskan Way Viaduct Replacement. Therefore, this design option is considered a feasible avoidance alternative in that it can be designed and built to operate both efficiently and safely. Because of this, an evaluation of prudence was conducted for this design option in the following section.

Evaluation of Prudence

As previously noted, determining whether a feasible avoidance alternative is also prudent is based on an evaluation of numerous factors. The following evaluation focuses on all but one of those factors; Unacceptable Safety or Operational Problems is addressed under the discussion of purpose and need. The analysis team concluded that the “Reduced Section Shift to the South” avoidance alternative is not a prudent avoidance alternative. Below is a brief summary of why this avoidance alternative is not considered prudent; a much more complete discussion of each of the evaluation factors is presented in the subsequent pages.

It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need.

Adverse effects on existing and planned biomedical research facilities would diminish the attractiveness of the area to other research operations and weaken the City’s ability to fully achieve the project purpose to accommodate planned development in the South Lake Union neighborhood. Reduced sidewalk and median widths inhibit pedestrian circulation and reduce pedestrian safety. Loss of on-street parking removes the safety and comfort buffer between pedestrians and arterial traffic. These differences will weaken the City’s vision of a livable and walkable South Lake Union neighborhood.

It has unique problems or unusual factors. The City’s vision for South Lake Union is to develop a mixed-use neighborhood with a strong

emphasis on growth in biomedical/biotechnical research facilities. The UW's South Lake Union Medical Campus is the cornerstone of this planned development. Adverse effects on the UW Research Facility and the planned Interurban Exchange Campus would compromise the current investment in these properties, their continued operation at this location, and the UW's role in attracting future development. This option would also not support the vision of creating a boulevard/ gateway along the Mercer Corridor.

It would result in severe economic or other environmental impacts.

Adverse effects on existing and planned development would be a detriment to job creation (both direct and spin-off) and other local economic benefits. It would impact four more properties than the Proposed Action, resulting in a greater environmental impact from four more demolitions.

It would cause severe disruption to established communities. This option would require acquisition of property on both sides of Mercer Street which would require complex construction staging and a longer construction period. The longer construction period would result in adverse and undesirable disruption to both the immediate project area and the larger Seattle community. The longer construction period would also increase safety risks associated with construction activities.

It results in additional construction costs of an extraordinary magnitude. The costs associated with this option would exceed the costs of the Proposed Action by \$49.1 million, or 43 percent, because of a longer construction schedule, additional right-of-way needed, and required mitigation under other regulations.

There is an accumulation of factors that, while individually minor, collectively cause unique problems or impacts of extraordinary magnitude. If some of the factors described above do not individually have adverse impacts that reach extraordinary magnitude, the accumulation of these factors does reach such levels.

Does it compromise the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need?

The purpose the project is multi-faceted and includes:

- Improving local circulation and access to businesses and residences
- Providing more direct vehicular movements through the corridor
- Improving vehicular, pedestrian, and bicycle safety within and through the project area
- Accommodating planned development in the South Lake Union neighborhood

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 recognized by King County and City of Seattle growth

management policies as the highest-density areas in the region. They are intended to create or enhance compact communities by targeting significant shares of growth, services, and facilities within relatively small areas. The South Lake Union Urban Center is projected to have substantial growth in the next 20 years, including 16,000 to 20,000 new jobs, 8,000 to 10,000 new 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. By providing infrastructural improvements such as the Mercer Corridor Project, it is envisioned that the area will become a desirable place to attract businesses, employees, and residents. As a result of this planned development, pedestrian traffic in the neighborhood will substantially increase.

Circulation, Access and Safety

The Reduced Section Shift to South Option would result in narrower sidewalks and median strips than envisioned under the Proposed Action, as well as a loss of on-street parking. This would inhibit pedestrian circulation along Mercer Street and reduce the size of the pedestrian refuge areas within the median.

The 12-foot sidewalks, which would need to include a planting and safety buffer, would not be sufficient to accommodate the uses and pedestrian volumes anticipated on Mercer Street. Sidewalk uses are anticipated to be heavy and diverse, including high pedestrian volumes; bicycle riders; seating areas; and a zone for street signs, light poles, and other utilities. High pedestrian volumes will be generated from transit stops in the immediate vicinity (bus and streetcar), local attractions such as South Lake Union Park, apartments and condominiums, and office and retail uses. In addition, surges of high pedestrian volumes will be generated by Seattle Center and South Lake Union Park during early evening, weekend, and holiday events.

The reduced section would be less safe than the Proposed Action due to the substantial decrease in the safety buffer zone. Parking provides a safety buffer between pedestrians and the high traffic volumes of three lanes of through traffic in each direction. The Reduced Section Shift to South eliminates the parking lane (8 feet on the north adjacent to the historic McKay Pacific Building and 10 feet on the south adjacent to the UW facility) and reduces the sidewalk widths (21 feet to 12 feet on the north side and 16 feet to 12 feet on the south side). This effectively reduces the safety buffer by 17 feet on the north and 14 feet on the south as compared to the Proposed Action. This reduced buffer increases the exposure of pedestrians adjacent to this high-volume corridor.

Without parking, a minimum of 4 feet would be needed in the sidewalk area to provide a safety buffer from traffic. This leaves only 8 feet for pedestrians, which is only enough for two people walking abreast or passing one another single-file. That is not adequate for the pedestrian volumes that will be generated by the existing and proposed uses in the area. It also does not promote the City's vision of a livable and walkable South Lake Union neighborhood.

Because there are no bicycle lanes proposed on Mercer Street, it is anticipated that bicyclists will also use the sidewalk. The bicyclists would further crowd out pedestrians on 12-foot sidewalks.

The Reduced Section Shift to South reduces the median from 10 feet wide to 8 feet wide, thereby reducing the pedestrian refuge area of the median by 20 percent (see the memorandum entitled “Safety Issue of 4(f) Option Reduced Section Shift to the South” in Appendix G).

Accommodating Planned Development

A critical feature of the City’s vision of the area is a strong emphasis on the growth of biotechnology/biomedical research facilities to complement existing facilities in the area, such as the Fred Hutchinson Cancer Research Center, ZymoGenetics, Battelle, and Seattle Biomedical Research Institute. The University of Washington, which is developing its research campus along the south side of Mercer Street, is considered the most critical component in this vision because of its size, prestige, and ability to attract others to the neighborhood. The UW facility has already attracted several other similar research and development organizations and companies over the last year or two, including Children’s Hospital, Rosetta/Merck, and the Seattle Cancer Care Alliance, and the further expansion of the Fred Hutchinson Cancer Research Center and ZymoGenetics; others are expected to create the synergy and collaboration that will enhance innovation, raise productivity, and speed the progress of the research of all involved. The anticipated result will be further increases in research funding, jobs, and other local economic benefits.

The Reduced Section Shift to South Option would, however, adversely affect the very development that is envisioned in the South Lake Union Neighborhood Plan and that the project is intended to accommodate. As will be described in detail under the “Unique Problems or Truly Unusual Factors” and “Severe Social, Economic, or Other Environmental Impacts” tests of prudence below, this avoidance alternative would affect the use of existing facilities, facilities nearing construction, and the potential for future facilities proposed by the UW and others. Specific effects noted below would likely diminish the attractiveness of the area to biotechnology/biomedical research organizations and companies, and would weaken the City’s ability to fully achieve its vision for the area and its ability to achieve the anticipated rewards in terms of job creation and other local economic benefits.

Are there unique problems or unusual factors present?

As noted under the Purpose and Need test of prudence, the Reduced Section Shift to the South Option would adversely affect several existing, near-construction, and proposed biotechnology/ biomedical research facilities intended to be the cornerstone of the economic vision for the South Lake Union neighborhood. Because of its size, prestige, and ability to attract others to the neighborhood, the UW School of Medicine has played a direct role in the creation of 80 spin-off companies during the past 10 years (UW School of Medicine, 2005). The UW South Lake Union Campus has begun to attract similar biotechnology/biomedical

research facilities to the area, including the Interurban Exchange Campus, composed of four biotechnical laboratory and administrative office buildings.

The UW conducted a 3-year site selection process that culminated in the \$50 million redevelopment of the 815 Mercer Street Research Building and the formulation of a master plan for the future development of two adjoining parcels to nearly double the current square footage of laboratory space (Emmert and Ramsey, 2005). Three important criteria in the site selection process were:

The requirement for a site of sufficient size to provide a campus-like presence of interrelated buildings of up to 500,000 square feet to be developed over an 8- to 10-year period.

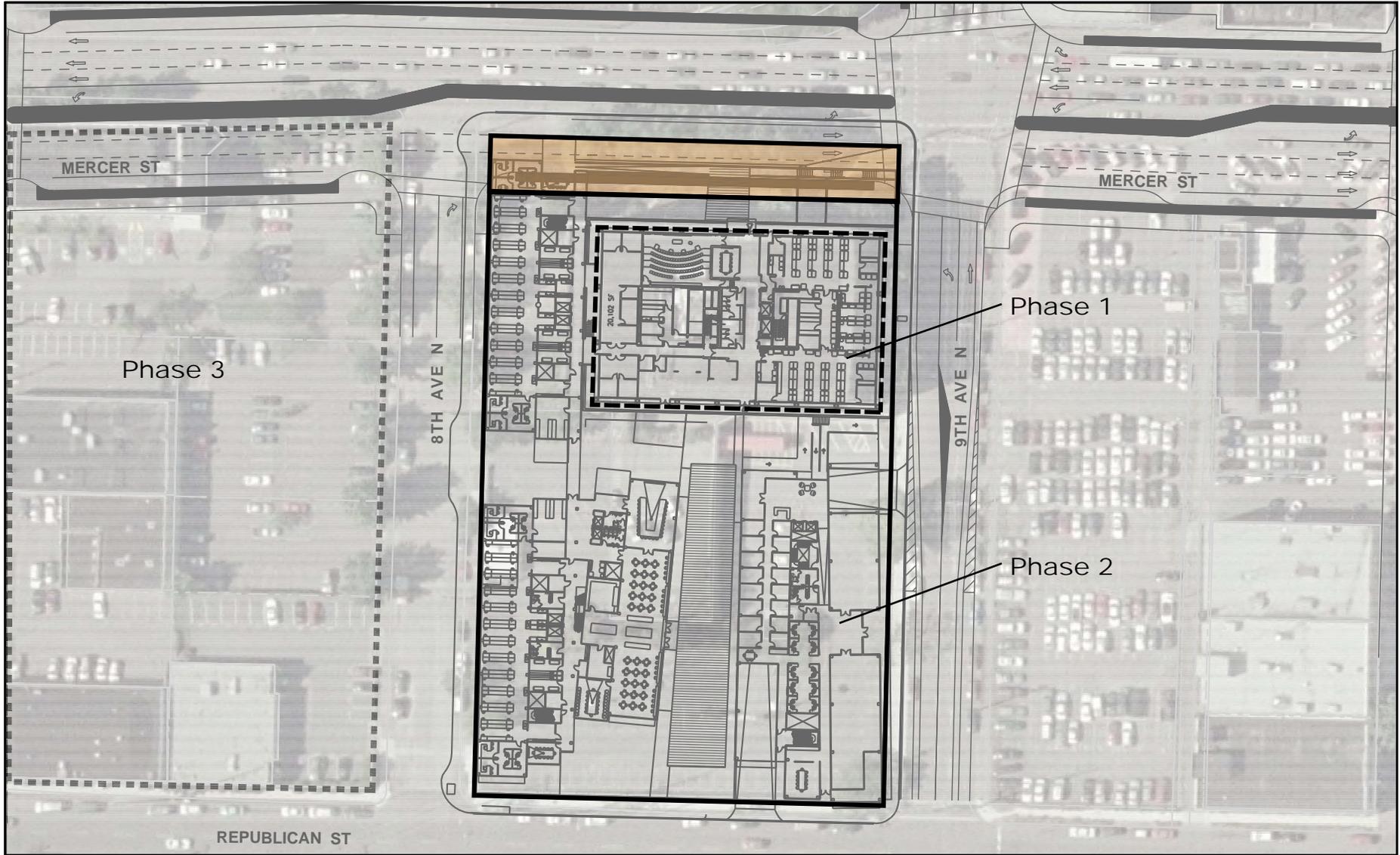
The desired proximity of the campus to other medical facilities such as the University Medical Center, Fred Hutchinson Cancer Research Center, and the Seattle Cancer Care Alliance.

The desired setback from high-volume streets to avoid vibration and noise effects on sensitive equipment and other operations.

Phase 1 of the UW development process was redevelopment of the Blue Flame Building at 815 Mercer Street, located along the south side of the street between Eighth and Ninth Avenues (Exhibit 6-7).

The building was occupied in January 2005 and contains more than 110,000 square feet of new laboratory space (City of Seattle, 2005). The north building face is currently situated approximately 70 feet from the southern curb of Mercer Street, a separation which was crucial in the decision to locate the UW facility at this location (Emmert and Ramsey, 2005). The avoidance alternative would shift the southern curb of the street to within 33 feet of the building façade (and 28 feet from the basement wall). This would require redesign of the building's front entrance to a narrow walkway accessed from the sides of the building (rather than the front), and elimination of the front driveway. The existing buffer strip, including several mature oak trees, would be lost.

As a result of the roadway shift and the loss of the buffer strip, the level of vibration would increase within the building and continued use of sensitive scientific equipment, such as an MRI, mass spectrometers, and microscopes, would be jeopardized. When the UW selected the 815 Mercer Street building, vibration readings were taken inside the building to determine what structural upgrades would be necessary for the use of this equipment. Steel posts interlinking the floors and isolated concrete slabs were included to mitigate the current vibration from Mercer Street (City of Seattle, 2005). With the increase in vibration effects as a result of the avoidance alternative, some sensitive equipment would need to be relocated to the south end of the building (or to another building) to meet the equipment manufacturer's vibration specifications. This would include the MRI which is currently located at the north end of the basement.



Phase 1

Phase 2

Phase 3

LEGEND

- Phase 1
- Phase 2
- Phase 3
- Building Area Within Proposed ROW

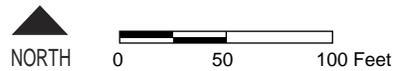


Exhibit 6-7

Effects of the Avoidance Alternative
on the UW Medical Research Campus

MERCER CORRIDOR
IMPROVEMENTS PROJECT

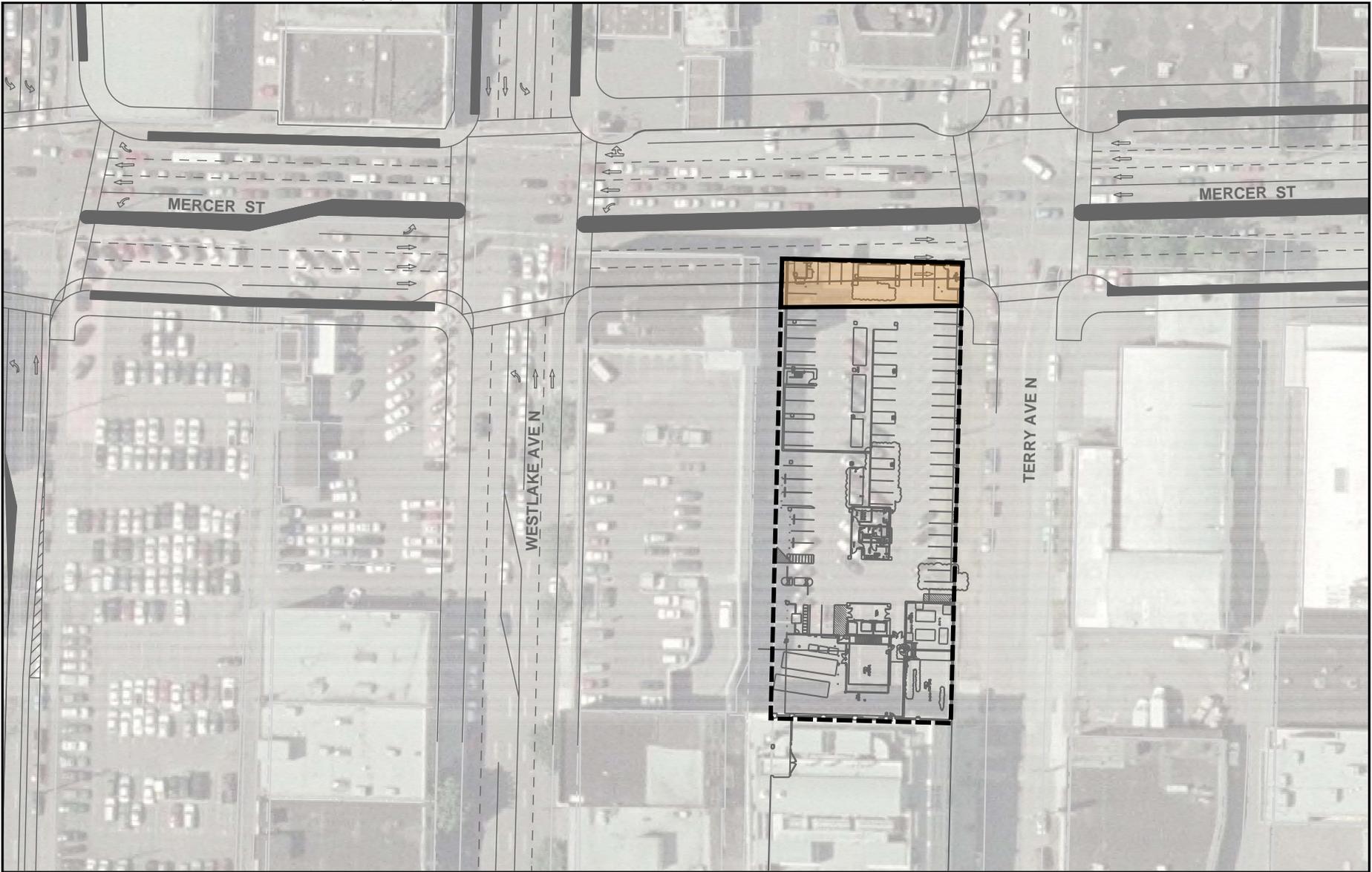
The UW estimates that the remodeling to accommodate these relocations, as well as the installation of vibration dampening tables for other table-top equipment and adding steel tube columns for each lab bay, would cost approximately \$2.5 million (in 2005 dollars) and would disrupt research currently being conducted at the facility (Coleman, 2005).

As part of the redevelopment of the building, a Seattle City Light transformer vault, an emergency generator vault, and a Puget Sound Energy natural gas meter to serve the building were placed in a new utility vault at the northeast corner of the parcel (southwest corner of Mercer and Ninth). By shifting the roadway south, the Reduced Section Shift to the South Option would require the relocation of the vault to the south side of the building and into the area now under construction for Phase 2 development.

The UW estimates that the costs of that relocation, as well as the cost to provide temporary power to keep the building operational during the relocation process, would be approximately \$1.2 million (in 2005 dollars) if space is available (Coleman, 2005).

Phase 2 of the UW South Lake Union Campus is currently under construction. The new buildings, located on the same block as the 815 Mercer building and to the west and south of that building, add an additional 300,000 square feet of laboratory space. The avoidance alternative would encroach into the Phase 2 building immediately west of the 815 Mercer building by approximately 40 feet and would displace up to 12,600 square feet of planned laboratory space on five floors. The lost space would need to be constructed elsewhere on or off the campus, and the remaining building would need to be redesigned due to the new floor configuration. During that rebuilding process, other activities in the building would be disrupted and possibly shut down. The cost to demolish the impacted northern portion of the building, renovate the remaining space, and construct the lost space elsewhere is estimated by the UW at approximately \$21.7 million, not including the likely need to lease space elsewhere for the disrupted activities during the projected 2-year rebuilding period (Coleman, 2005).

As noted earlier, the UW South Lake Union Campus has begun to attract similar biotechnology/biomedical research facilities to the area. The Interurban Exchange 2 Building, to be located at the southwest corner of Mercer Street and Terry Avenue North, is fully permitted and construction is expected to begin as soon as a tenant is secured. The avoidance alternative would shift the street south, encroaching into the planned building by as much as 31 feet, resulting in a 12 percent loss of developable space (13,200 square feet) within the planned 4-story building footprint (Exhibit 6-8). If the building is constructed prior to implementation of the Mercer Corridor Improvement Project, there would be additional redevelopment costs that are unknown at this time.



LEGEND

-  Interurban Exchange Building
-  Building Area Within Proposed ROW

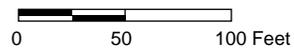


Exhibit 6-8

Effects of the Avoidance Alternative
on the Interurban Exchange Building

MERCER CORRIDOR
IMPROVEMENTS PROJECT

The effects described above represent unique problems or unusual factors to the UW and other biotechnology/biomedical research organizations and companies located along the south side of Mercer Street. These effects compromise the current investment in these properties, their continued operation at this location, and the potential for future development. As previously noted, the UW's presence is critical to attracting biotechnology/biomedical research organizations and companies to South Lake Union, and these effects could diminish the attractiveness of the area to other research operations. As discussed earlier, a feasible and prudent avoidance alternative not only avoids using Section 4(f) property, but also does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource. In this case, a single historic resource, the McKay Pacific Building at 601 Westlake Avenue, would be avoided, but established medical research facilities would suffer costly impacts.

Does it result in severe social, economic, or other environmental impacts?

The UW research activities are the centerpiece of statewide and regional efforts to attract new investment to the community. Working with the Governor's Competitiveness Council and the Puget Sound Regional Council, the Prosperity Partnership (a coalition of over 150 businesses, labor, and governmental and nonprofit organizations) has developed an economic strategy to create 100,000 new jobs in the Puget Sound Region (Emmert and Ramsey, 2006.) This work focuses on the development of strong industry clusters, including South Lake Union, with an emphasis on biomedical research.

In addition to and because of the UW's presence, companies that have located or expanded in the South Lake Union area in the past few years include Children's Hospital, Rosetta/Merck, Seattle Cancer Care Alliance, Fred Hutchinson Cancer Research Center, and ZymoGenetics. As previously noted, the Reduced Section Shift to the South Option would adversely affect the UW and other biotechnology/biomedical research organizations and companies located along the south side of Mercer Street.

These effects would, in turn, diminish the attractiveness of the area to other research operations and thus weaken the City's ability to achieve the anticipated rewards in terms of job creation (both direct and spin-off) and other local economic benefits such as increased property tax revenues.

It should be noted that the current development climate along Mercer Street will result in greater impacts under the avoidance alternative than under the Proposed Action. At present, and as noted previously, development is occurring along the south side of the street. The UW has planned a three-phase development of its biomedical research campus west of Ninth Avenue that is expected to directly create 3,103 jobs, and indirectly create 4,034 jobs for supporting services (Coleman, 2005). The Interurban Exchange Building will be built shortly, west of Terry Avenue.

These projects are under construction or are approved by the City. As these projects come on-line, there will be mounting pressure to redevelop adjacent properties consistent with the South Lake Union Neighborhood plan.

On the other hand, the north side of Mercer Street is generally owned, or being acquired by, a single developer (City Investors). This developer is waiting to redevelop its properties until after the alignment and footprint of the Mercer Corridor Project, including Mercer Street to the south and Valley Street to the north, have been finalized. The 2001 Purchase and Sale Agreement between the City of Seattle and City Investors required that City Investors submit permit applications for development of the blocks north of Mercer Street between Fairview and Westlake Avenues by 2008; City Ordinance 121892 extended the deadline to 2013 to accommodate the additional time for planning and design of the Mercer Corridor. As a result, impacts along the north side of the street will be limited to underutilized properties that will be redeveloped after, or in coordination with, the Mercer Corridor Project.

Because construction of the Reduced Section Shift to the South Option would affect both sides of Mercer Street, four more properties along the corridor would be impacted than under the Proposed Action. Exhibit 6-9 summarizes the properties affected by the avoidance alternative; the table also includes information on the Proposed Action for comparative purposes. The full acquisition of the C&R Building would result in the loss of existing jobs along the corridor. Four businesses currently occupy the building, employing a total of 35 permanent workers. A more detailed discussion of the construction of the avoidance alternative is presented in the following *Would it cause severe disruption to established communities?* test of prudence.

Would it cause severe disruption to established communities?

The Reduced Section Shift to the South Option would extend the construction time, which would increase disruption to area businesses, residents, the traveling public, and other neighborhoods served by the Mercer Corridor. It is estimated that the construction of the Reduced Section Shift to the South Option would take 9 months longer than the Proposed Action (for a total of 39 months), in large part because both sides of Mercer Street would be involved.

Exhibit 6-9. Properties Affected by the Avoidance Alternative		
Property	Avoidance Alternative	Proposed Action
Far Fetched Importers	Partial Acquisition	Partial Acquisition
Far Fetched Warehouse	Partial Acquisition	No Effect
Cloud 9 Mattresses and More	Partial Acquisition	Partial Acquisition
Parking Lot (future Interurban Exchange Building)	Partial Acquisition	No Effect
Thriftbook	Partial Acquisition	No Effect
Clements and Rice (C&R) Building	Full Acquisition	No Effect
UW Research Campus	Partial Acquisition	Partial Acquisition
U.S. Bank Building	Full Acquisition	Full Acquisition
Auto Dealership (non-historic service garage)	Full Acquisition	Full Acquisition
Union 76 Station	Partial Acquisition	Partial Acquisition
West Marine	Full Acquisition	Full Acquisition
Shell Station	Full Acquisition	Full Acquisition
Taco Del Mar	Full Acquisition	Full Acquisition
Lincoln Towing	Full Acquisition	Full Acquisition
<p>Note: A full acquisition is property acquisition that requires building demolition and displacement of businesses within the building. A partial acquisition is partial acquisition of a property that, with mitigation, would not result in business displacement. Source: CH2M HILL Site Reconnaissance, August 2006.</p>		

The new roadway construction would be complicated in that separate sections would be built to the north and south of the existing roadway, followed by redevelopment of the center section. As these various sections would be completed, traffic would be rerouted from one section to another before completion of the project. The surrounding community would experience 9 additional months of construction-related disruption, including utility relocations and resulting increased lane closures and night-time work, inconvenient and restricted property access to businesses on both sides of Mercer Street, extended periods of traffic detours (including diversions of traffic onto Valley, which would complicate access to South Lake Union Park and cause time loss for the traveling public), slowdown of business activity (including possible reductions in revenues for Seattle Center as patrons forego visits), noise (especially

sensitive receptors such as South Lake Union Park), and fugitive dust. Beyond the immediate project area, the longer construction period would result in a longer period of disruption of the substantial traffic flow between I-5 and the Queen Anne, Interbay, Magnolia, and Ballard areas of the city (see the memorandum entitled “Safety Issue of 4(f) Option Reduced Section Shift to the South” in Appendix G).

The longer construction period will increase the length of time that work zone safety issues are of concern. Studies have concluded that work-zone accident rates are approximately 20 percent higher and the severity of those accidents greater when compared to non-work zone areas. This is the result of narrower lane widths, lane restrictions and closures, pedestrian and bicycle access restrictions, reduced sight distance, additional conflict points, and increased traffic control. With the extended construction duration, the corridor will be subject to increased safety risks.

This option would reduce sidewalk and median widths from that of the Proposed Action. The resulting sidewalk widths would not support the pedestrian volumes that the City wants to encourage and that are anticipated to be generated by existing and new uses along the corridor. The sidewalk width on the north side of Mercer Street between Westlake and Ninth Avenues where the historic William O. McKay buildings are located would be reduced from 21 feet to 12 feet and parking would be eliminated. The sidewalk along the historic building is currently 18 feet wide. The sidewalk on the south side of Mercer Street between Ninth and Eighth Avenues would be 12 feet wide compared to 16 feet in the ideal cross-section. The median width (not including left-turn lanes) would be reduced from 10 feet to 8 feet.

In conclusion, the Reduced Section Shift to the South Option would extend the construction time, which would increase disruption to area businesses, residents, the traveling public, and other neighborhoods served by the Mercer Corridor. The longer construction period would result in increased safety risks and adverse and undesirable disruption to both the immediate project area and the larger Seattle community.

Does it have additional construction, maintenance, or operational costs of an extraordinary magnitude?

It is estimated that the costs associated with the Reduced Section Shift to the South Option would exceed the costs of the Proposed Action by \$49.1 million (Exhibit 6-10). Of this \$49.1 million, \$4.5 million is due to the extended time for construction. The additional cost of business disruption is unknown.

Exhibit 6-10. Components of Additional Cost of Avoidance Alternative	
Component	Cost
Right-of-Way Acquisition	+\$19.0 million ¹
Construction	+\$4.5 million
Mitigation ²	
Existing facilities (UW Phase 1)	+\$3.9 million ³
Facilities under construction (UW Phase 2)	+\$21.7 million
Planned facilities (Interurban Exchange Building)	to be determined if constructed prior to project implementation
Subtotal	+\$25.6 million
Total	+49.1 million
<p>¹ Does not include relocation assistance, which has not been quantified at this stage in project development.</p> <p>² It is assumed that the cost of retrofitting existing or planned facilities would be included in the Mercer Corridor Project mitigation package.</p> <p>³ Includes rebuilding the Blue Flame building's front entrance, relocating utility infrastructure and MRI, and vibration mitigation.</p> <p>Sources: Right-of-way costs: http://www.metrokc.gov/Assessor/eRealProperty.asp, June 2006. Construction costs: CH2M HILL, 2006. UW building mitigation costs: Coleman, 2005.</p>	

This total cost is 43 percent greater than the cost of the Proposed Action, which could reasonably be considered a cost of extraordinary magnitude. As discussed earlier, a feasible and prudent avoidance alternative not only avoids using Section 4(f) property, but also does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In this case, a 43 percent greater cost is a substantial difference, and the economic burden of this greater construction cost could be considered to substantially outweigh the importance of protecting the historic resource.

Is there an accumulation of factors that collectively cause unique problems or have impacts of extraordinary magnitude?

If the factors previously discussed are not individually considered to have impacts that reach extraordinary magnitudes, SDOT believes that the accumulation of those factors does reach such levels. The following briefly reiterates the key factors associated with the Reduced Section Shift to the South avoidance alternative:

- As noted in the discussions above under *Does it compromise the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need?* and *Are there unique problems or unusual factors present?*, it would adversely affect the UW Medical Facility and, therefore, would diminish the

attractiveness of the area to biotechnology/ biomedical research facilities and thus weaken the City's ability to fully achieve its vision for the area and the anticipated rewards in terms of job creation and local economic benefits.

- As noted in the discussions above under *Does it compromise the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need?* and *Are there unique problems or unusual factors present?*, it would have adverse safety impacts, including significantly reducing the safety buffer with the elimination of the parking lanes and sidewalk width reductions, increasing potential conflict between pedestrians and bicyclists with the narrower sidewalk widths, and reducing the median width, resulting in less area to accommodate pedestrians safely.
- As previously discussed under the heading *Are there unique problems or unusual factors present?*, it would compromise the current investment in properties along the south side of Mercer Street, their continued operation at this location, and the potential for future development. In addition to the investment by the UW in the Phase 1 and Phase 2 buildings, investment has been made in the planning, design, and permitting for the Interurban Exchange Building. It would disrupt operations of the UW in the existing Blue Flame Building and the Phase 2 building now under construction. Research would have to be relocated—temporarily and permanently—to accommodate construction.
- As noted in the *Does it result in severe social, economic, or other environmental impacts?* discussion above, because of the current development climate along Mercer Street, it would result in greater impacts than the Proposed Action.
- Also as noted in the *Does it result in severe social, economic, or other environmental impacts?* discussion above, because construction would affect both sides of Mercer Street, it would affect 4 more properties than under the Proposed Action and result in the loss of 35 more jobs.
- As noted in the discussion under *Would it cause severe disruption to established communities?*, a 9-month longer construction period would result in more extensive and undesirable disruption to both the immediate project area and the larger South Lake Union community.
- Under the heading of *Does it have additional construction, operational, or maintenance costs of an extraordinary magnitude?* it was noted that it would exceed the cost of the Proposed Action by \$49.1 million, or a 43 percent increase above the cost of the Proposed Action because of the longer construction schedule, additional right-of-way requirements, and potential mitigation required under other federal regulations.

Based on the discussion above, the analysis team concluded that the Reduced Section Shift to the South Option is not a prudent avoidance alternative. This alternative does not fully meet the project purpose and need; it has unique problems or unusual factors present; it would result in severe economic impacts; it would cause severe disruption to an established community; it has additional construction costs of an extraordinary magnitude; and it has an accumulation of factors that collectively presents unique problems or impacts that reach extraordinary magnitudes.

6.6 Measures to Minimize Harm to the Section 4(f) Properties

In accordance with 23 CFR Part 774.17, all reasonable measures to minimize harm or mitigate impacts must be included in the project. As noted in the previous section, there is no feasible and prudent alternative to the use of the McKay Pacific Building at 601 Westlake Avenue North. Removal of the building is necessary to accommodate the additional traffic lanes and the subsequently wider footprint of the improvements. Because the building would be removed, there would be no way to minimize harm to that building. Mitigation for the loss of the McKay Pacific Building at 601 Westlake is discussed in section 6.7.

6.7 Proposed Measures to Mitigate for Unavoidable Use of Section 4(f) Property

The historic McKay Pacific Building at 601 Westlake Avenue North would be removed under the Proposed Action, which would incorporate the current site of 601 Westlake. Section 4(f) mandates that all possible planning to minimize harm must occur before a protected resource can be “used.” For historic sites, these measures normally serve to preserve the historic features of the site in accordance with the consultation process under 36 CFR Part 800. It should be noted that Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act, and NEPA are separate legal authorities, but compliance with these authorities is being coordinated so that all legal obligations are met in a corresponding manner.

All reasonable measures to mitigate impacts on the McKay Pacific Building at 601 Westlake Avenue North have been considered. Specific details to carry out mitigation for the use of the historic McKay Pacific Building at 601 Westlake are included as stipulations in a Memorandum of Agreement (MOA) that was crafted through the Section 106 consultation process under 36 CFR Part 800, and is included as Appendix H. This MOA provides for mitigation for both McKay buildings (601 and 609 Westlake Avenue North), as both have been determined to experience an adverse effect under Section 106. The mitigation proposed would entail recordation consistent with Level II Historic American Buildings Survey (HABS) documentation which will be in accordance with the

Secretary of Interior's Standards and Guidelines for Architectural and Engineering Documentation. This work will include:

- a) Development of a historic context and physical description for the HABS written documentation.
- b) Adequate large-format photographic documentation to record general and distinctive attributes.
- c) Digital copies of historic photographs, building plans, and “as-built.”
- d) Utilization of LiDAR technology to scan the exterior surfaces of the McKay buildings.

In addition, an interpretive display will be designed and developed to convey written and visual information regarding the McKay buildings, their architectural and historical significance, and their context within the history of Seattle's South Lake Union neighborhood. The interpretive display will be open to the public and designed in compliance with the requirements of the Americans with Disabilities Act. Also, 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. The data will be made available in appropriate formats to both the City of Seattle and Department of Archaeology and Historic Preservation databases.

Should any prehistoric or historic cultural remains (such as, but not limited to, bone, metal, structural remnants, fire cracked rock, shell, or other artifacts) be discovered during removal of the buildings, all work in the area of the discovery shall cease and SDOT shall follow the procedures of the approved Unanticipated Discovery Plan.

7. Environmental Commitment List

This section describes design and construction practices that SDOT will include to avoid or minimize effects on the built and natural environment during construction and operation of the Mercer Corridor Project.

7.1 Air Quality

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. 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 the following actions:

- Spray exposed soil with water or other suppressant to reduce emissions of PM₁₀ and deposition of particulate matter.
- 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.
- 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.

7.2 Noise

The following 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.

- Idling of power equipment will be minimized.
- The Contractor will comply with City of Seattle noise regulations. The project will also request a temporary noise variance from DPD should nighttime construction be planned, and will abide by all conditions stated in the variance.

7.3 Cultural and Archaeological Resources

The following measures will be implemented to protect cultural and archaeological resources:

- An archaeologist will 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 will prepare an inadvertent discovery plan for the project that construction contractors will follow.
- During construction, an archaeologist will conduct archaeological monitoring for work taking place beyond the limits of the historic fill.
- The historic McKay buildings at 601 and 609 Westlake Avenue North will be recorded consistent with Level II 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 will be designed, developed, and installed.
- 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.

7.4 Hazardous Materials

To mitigate the risk of long-term liability associated with the purchase of a potentially contaminated property, the City of Seattle (City) will perform “all appropriate inquiries” (AAI) under Section 101(35)(B)(ii) and (iii) of CERCLA and as specified in 40 CFR 312 prior to property acquisition. If the AAI and subsequent site investigation identify actual soil and/or groundwater contamination, several mitigation measures will be implemented during construction and operation to avoid or reduce adverse effects:

- Building demolition debris, asbestos, and lead based paint will be properly abated prior to demolition.
- To mitigate the effects of encountering contaminated soil during construction, the City will require the construction contractor to prepare a hazardous materials contingency plan and to be familiar

with the Washington State Department of Ecology's *Guidance for Remediation of Petroleum Contaminated Soils* (WDOE 1995).

- If dewatering is needed, the contractor will be required to develop and submit a dewatering plan that addresses the potential for encountering contaminated groundwater, including treatment and disposal of any contaminated groundwater.
- Excavation at western end of project limits could encounter wood waste fill and methane gas. A health and safety plan will be developed for the project that includes procedures to monitor for vapor releases and prevent fires from potential methane ignition during project construction.
- An area-wide plan to remove any non-operational USTs that are encountered during construction excavation will be prepared.
- Contractors will prepare a Spill Prevention Control and Countermeasure Plan prior to commencing work.

7.5 Surface Water Quality

The Mercer Corridor Improvements Project must meet the erosion and sediment control requirements of the City drainage code as well as the state NPDES regulations. The following measures will be implemented:

- A stormwater pollution prevention plan (SWPPP) will be prepared following the requirements of the General Permit for Stormwater Discharges Associated with Construction Activities.
- Erosion control best management practices (BMPs) will be used to reduce the erosion potential during project construction.
- The project would incorporate stormwater flow control facilities that meet City requirements where needed to prevent increases in flow rates to downstream conveyance systems.
- Treatment BMPs will meet the requirements of the City's Stormwater, Grading and Drainage Control Code for facilities on city streets, and the HRM (WSDOT 2006) for facilities in WSDOT right of way.

7.6 Land Use

The City will work with business groups, neighborhood associations, and property owners to minimize short-term construction-related effects to businesses. They will be notified of any planned closures or service disruptions.

7.7 Social

The proposed project will include a number of measures to avoid or minimize the negative effects of construction on the South Lake Union neighborhood:

- Provide contact information (via the project website and newsletters) to allow area residents to voice concerns or receive information about the project by telephone, fax, or Internet. Informational materials will have text in Spanish as to how to obtain project information in Spanish.
- Minimize temporary road closures and ensure that detour routes are well signed. Pedestrian detours will be ADA-compliant.
- Provide residents and local businesses advance notification of the project schedule, potential detours, and changes in any of the pedestrian, bicyclist, or transit routes.
- Coordinate construction schedules with South Lake Union Park event times to avoid sensitive time periods to the extent practical.
- Provide signage for detour routes and avoid closing access to recreational facilities.
- Coordinate with fire, emergency medical, and police service providers before construction to provide construction schedules and any planned closures or detours.
- Develop a utility relocation plan during final design.

Mitigation during operation will include all new traffic signals being equipped with emergency vehicle pre-emption.

7.8 Economics and Relocation

Measures to mitigate potential adverse effects will include the following:

- SDOT will provide public information about construction activities. The public will be informed that businesses are open during construction and encouraged to continue patronage.
- SDOT will install temporary signage to inform drivers that access to businesses during construction is temporarily changed or restricted.
- SDOT will coordinate with affected business owners to develop strategies to maintain access to businesses during construction.
- SDOT will 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 as amended in 1987.

- The project will provide mitigation for businesses affected by partial right-of-way acquisitions, which may include reconstruction of buildings or modification of parking or loading areas.

7.9 Visual Quality

Measures to minimize visual effects during construction will include:

- Allowing businesses to remain open until construction begins or removing buildings as soon as they are vacated to reduce the potential of creating an abandoned, unmaintained appearance.
- Employing BMPs to reduce dust and to keep the area well maintained during construction.
- Keeping one side of Mercer and Valley streets usable for pedestrians and bicyclists to the extent possible.
- Limit the hours of evening construction when possible, to minimize the adverse effects of construction lighting.

7.10 Transportation

The following traffic control measures will be implemented:

- Necessary road or driveway closures will be outlined in the contractor's Traffic Management Plan (TMP) and approved by the City. The TMP would detail any detours, signing plans, and duration/timing of required closures.
- To minimize congestion and emergency response effects, lane closures will be scheduled outside of the peak travel demand periods.
- The contractor will maintain ADA-accessible pedestrian paths and design pedestrian detours in their TMP. Pedestrian paths along the roadway lanes would be separated from vehicular traffic with a barrier.
- Construction activities will be coordinated with other projects and services within the study area, such as Metro Transit, to minimize disruptions.

8. Comments and Coordination

The lead agency for preparation of the Mercer Corridor Improvements Project is the Seattle Department of Transportation, in cooperation with WSDOT and FHWA. Exhibit 8-1 provides a summary of public involvement. See Appendix F for more detailed summaries of these meetings.

EXHIBIT 8-1		
Public Involvement Summary		
Event	Date	Attendance
Public/Agency Scoping Meetings	March 18, 2004	12 agency representatives 100 members of public
Comment Period	March 4-25, 2004	3 agency comments received 31 public comments received
Stakeholder Interviews	May 21 and June 3, 2004	8 individual interviews (20 contacted)
Stakeholder Workshops	July 23, 2004 April 6, 2005 June 9, 2005	13 stakeholders 18 stakeholders 12 stakeholders
Public Open House	June 29, 2005	55 members of public
Community, business, and stakeholder meetings	2004 through 2007	Varied

SDOT held an agency scoping meeting and a public open house/scoping meeting on March 18, 2004, to provide information about the project and solicit comments. As part of its public involvement program, and to comply with NEPA and SEPA requirements, SDOT informed agencies and the public of the opportunity to submit comments on the alternatives under consideration and to identify issues of concern that should be addressed during the environmental review.

Stakeholder interviews were conducted to get input from a wide range of South Lake Union area interest groups and individuals on the project alternatives and how they address the area's transportation problems. Stakeholders were identified based on their proximity to the project and the potential to be affected. This outreach was conducted prior to selecting the alternatives to be evaluated in detail in the NEPA EA. Twenty-two groups and individuals were contacted requesting their participation in the interviews. Eight interviews were conducted between May 21 and June 3, 2004. Stakeholders interviewed represented the following interests:

- Center for Wooden Boats
- Fred Hutchinson Cancer Research Center
- PEMCO
- Queen Anne Community Council
- Uptown Alliance
- South Lake Union Friends and Neighbors (SLUFAN)
- Trammel Crow and Company
- Pacific Northwest Ballet
- Seattle Sonics and Storm

A series of stakeholder workshops was held to discuss and receive input on project design. Participants represented a diverse range of interests within and outside the project area. The purpose of the first workshop on July 23, 2004, was to have participants rank the importance of project goals and objectives and to evaluate the three project alternatives under consideration against the goals and objectives. Stakeholder rankings were considered in selection of the preliminary preferred alternative to be evaluated in the NEPA EA. The second workshop on April 6, 2005, focused on how the project should function for all modes of travel (freight, cars, bicycles, and pedestrians) and the way the project should look and feel so as to be sensitive to the neighborhood vision for South Lake Union. The third workshop on June 9, 2005, invited participant discussion and comment on urban design themes being considered for the project. SDOT organized community, business, and other stakeholder meetings to present information and gather input throughout the environmental process.

These small group discussions generated comments and issues on how the alternatives might be modified to reflect priority objectives. Generally, most comments supported a two-way Mercer Street alternative and the need to prioritize multi-modal access and mobility, which is consistent with the project objectives. The overarching issue most repeated, however, was to put emphasis on moving the greatest volume of traffic at the greatest speed to and from I-5. Other major issues included the need to:

- Improve the westbound "entrance" into the city, be compatible with future Aurora Avenue improvements, and maintain the Mercer Street connection across Fairview Avenue to Eastlake Avenue;
- Create a safe street crossing for pedestrians by adding a median on Mercer Street and increase bike and pedestrian facilities;
- Coordinate with King County Metro on key north-south bus routes, and incorporate the streetcar design into the project;
- Design intersection movements along freight corridors to accommodate large trucks, maintain freight movements, and designate Ninth Avenue as truck route north of Mercer Street;

- Design Valley Street to be pedestrian/bicycle friendly, integrate improvements into the South Lake Union Park, and incorporate a neighborhood urban design theme;
- Create a visible water feature that collects and treats stormwater, and include water as functional part of the project design; and
- Consider impacts to businesses during construction.

SDOT held a second public open house on June 29, 2005, to provide an update on the progress of the project and provide preliminary findings of the environmental evaluation. Specific comments received about the proposed action included:

“Good job of integration of design character consistent with SLU neighborhood plan lines – it looks like it belongs here.”

“Hooray for more bike lanes, especially connecting S. Lake Union and Seattle Center.”

“Please maintain trucking turning capacity and remember this is a main oversize load route. This is a vital freight mobility area and critical to the whole connectivity of our Seattle/King County transportation system.”

“Keep the idea of environmental issues of green ideas at the forefront. Pedestrian and bike friendly plus appropriately placed bike lock up stands/racks.”

“How can making a one-way street into a two-way street help move more traffic onto I-5? This should be the focus for Mercer.”

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.

9. References

Chapter 2

Parsons Brinckerhoff Quade and Douglas (PBQD). 2004. *South Lake Union Transportation Study*. Prepared for SDOT. June 2004.

Chapter 3

3.1 Air

Puget Sound Regional Council (PSRC). 2006. *Air Quality Conformity Analysis: 2006 Air Quality Amendment to the Regional Transportation Improvement Program*. Puget Sound Regional Council. July 12, 2006.

Washington State Department of Transportation (WSDOT). 2006. *WSDOT Environmental Procedures Manual*, Exhibit 425-1. March 2006.

3.2 Noise

Beranek, L.L. 1988. *Noise and Vibration Control*. Institute of Noise Control Engineering.

CH2M HILL. 2006. *Mercer Corridor Improvements Project Noise Discipline Report*. August 2006.

Federal Highway Administration (FHWA). 1995. *Highway Traffic Noise Analysis Abatement Policy and Guidance*.

3.3 Cultural Resources

Dellert, J., and L.L. Larson. 2004. *Valley Street Tunnel, South Lake Union Pipelines Phase 3-4, Denny Way/Lake Union Combined Sewer Overflow Project Archaeological Resources Construction Monitoring*. National Archaeological Data Base Report OAHN 1343746 on file, Department of Archaeology and Historic Preservation, Olympia.

National Park Service. 1991. *National Register Bulletin 16 - Guidelines for Completing National Register of Historic Places Forms, Part A - How to Complete the National Register Registration Form*. National Register Branch, Interagency Resources Division, National Park Service, U.S. Department of the Interior.

Roedel, K.W., D.E. Lewarch, S.E. Trudel, and L.L. Larson. 2003. *Denny Way/Lake Union CSO Control Project, Archaeological Resources Monitoring, Seattle, King County, Washington*. National Archaeological Data Base Report NADB OAHN 1342614 on file, Department of Archaeology and Historic Preservation, Olympia.

Shong, M., and Miss, C.J. 2004. Results of Cultural Resources Monitoring for the City of Seattle West Lake Union Trail Improvement

Project, King County, Washington. National Archaeological Data Base Report NADB OAHP 1341215 on file, Department of Archaeology and Historic Preservation, Olympia.

3.4 Hazardous Materials

Federal Highway Administration (FHWA). 1997. *Supplemental Hazardous Waste Guidance Memorandum*.

FHWA. 1994. *Hazardous Wastes in Highway Rights-of-Way Memorandum*.

FHWA. 1987. Technical Advisory T6640.8A

Urban Redevelopment, LLC. 2005. *Remedial Investigation Data, Prepared for Foster Pepper & Shefelman, and City of Seattle*. Urban Redevelopment, LLC. Seattle, WA. February 25, 2005.

Washington State Department of Ecology (WDOE). 1995. *Guidance for Remediation of Petroleum Contaminated Soils*.

3.5 Water

CH2M HILL. 2007. *Mercer Corridor Improvements Project 60% Basis of Design Report*. Prepared for SDOT. June 2007.

Washington State Department of Ecology. 2004. Washington State's Water Quality Assessment [303(d)], 2002/2004 303(d) List Information. <http://www.ecy.wa.gov/programs/wq/303d/>. Accessed 07/07/2006. Washington State Department of Ecology, Olympia, Washington.

Washington State Department of Transportation (WSDOT). 2006a. *Environmental Procedures Manual*. Publication Number M31-11, March 2006.

WSDOT. 2006b Interim Stormwater Consultation Approach. April 6, 2006.

WSDOT. 2006c. *Highway Runoff Manual*. Publication M31-16. March 2006.

3.6 Land Use

none

3.7 Social

City of Seattle. 2005a. Seattle Parks and Recreation. <http://www.seattle.gov/parks/parkspaces/index.htm>, last updated June 28, 2005, accessed September 23, 2005.

City of Seattle. 2005b. Seattle Fire Department. <http://www.seattle.gov/fire/>, last updated September 20, 2005, accessed September 26, 2005.

City of Seattle. 2005c. Seattle Police Department. <http://www.seattle.gov/police/>, accessed September 26, 2005.

City of Seattle. 2004. City of Seattle Comprehensive Plan – 2004 Update. Seattle, Washington.

City of Seattle. 1998. *South Lake Union Neighborhood Plan*. Seattle, Washington.

SvR Design. March 3, 2005. Technical Memorandum: *Documentation of Design Guidelines – Utility*.

U.S. Census Bureau. 2000. American Fact Finder.
http://factfinder.census.gov/servlet/SAFFacts?_event=ChangeGeoContext&geo_id=16000US5363000&geoContext=&street=&county=seattle&cityTown=seattle&state=04000US53&zip=&lang=en&sse=on&ActiveGeoDiv=geoSelect&useEV=&pctxt=fph&pgsl=010. Accessed September 26, 2005.

3.8 Relocation

Colliers International. 2005. *Market Reports: Seattle Industrial, Seattle Office, and Puget Sound Retail*. Colliers International, Seattle, Washington.

GVA Kidder Mathews. 2005. *Seattle Real Estate Market Reviews, Mid-Year 2005: Office, Retail, and Industrial Markets*. GVA Kidder Mathews, Seattle, Washington.

3.9 Economics

King County Department of Assessments. 2005. 2005 Annual Report.

Seattle Department of Planning and Development. 2007 GIS website. Available at <http://web1.seattle.gov/dpd/dpdgisv2/mapviewer.aspx>. Accessed October 2007.

3.10 Visual Quality

none

3.11 Geology

American Association of State Highway and Transportation Officials (AASHTO). 2004. *Standard Specifications for Highway Bridges*. 17th Edition, American Association of State Highway and Transportation Officials, Washington, D.C.

International Building Code. 2003. Published by International Code Council.

3.12 Fish, Wildlife, and Vegetation

King County and City of Seattle. 1998. *Denny Way/Lake Union CSO Control Project Phases 2 and 3/4 SEPA Supplemental EIS and NEPA EA*. July 1998.

WSDOT. 2006. *Highway Runoff Manual*. Publication M31-16. March 2006.

3.13 Transportation

Nelson/Nygaard Consulting Associates. 2005. South Lake Union On-Street Parking Plan. November 2005.

Transportation Research Board. 2000. *Highway Capacity Manual*.

Chapter 6

Bernson, H. Blair, Washington Advisory Group, LLC. 2005. Letter to Sharon Coleman, Vulcan Inc. May 6, 2005.

BOLA Architecture and Planning. 2008. *The Ford McKay and Pacific McKay Buildings Current State and Reconstruction Analysis*. May 5, 2008.

CH2M HILL. 2006. *Mercer Corridor Project Design Report*. Prepared for City of Seattle.

City of Seattle, Department of Planning and Development. 2005. Draft Environmental Impact Statement for the South Lake Union Research and Administrative Office Space: Phase 2 and 3 Development. Seattle Washington. May 2005.

Coleman, Sharon, Real Estate Development Manager, Vulcan Inc. 2005. Letter to Eric Tweit, SDOT. May 6, 2005.

Emmert, Mark, and Paul Ramsey, University of Washington. 2005. Letter to Daniel Mathis, FHWA, Douglas McDonald, WSDOT, and Grace Crunican, SDOT, regarding Mercer Street project in Seattle, WA. September 9, 2005.

Federal Highway Administration (FHWA). March 1, 2005. *Section 4(f) Policy Paper*. Office of Planning, Environment, and Realty Project Development and Environmental Review.

FHWA. October 30, 1987. Technical Advisory, Guidance for Preparing and Processing Environmental and Section 4(f) Documents. Document T6640.8A.

Holter, Russell. 2004. Letter to Craig Holstine, SDOT. September 13, 2004.

Kreisman, L. 1999. *Made to Last: Historic Preservation in Seattle and King County*. University of Washington Press, Seattle. 1999.

Landmarks Preservation Board, City of Seattle. 1998. Report on Designation: Ford Assembly Plant Building, 1155 Valley Street. March 30, 1998.

Landmarks Preservation Board, City of Seattle. 2006. Report on Designation: Pacific McKay and Ford McKay Buildings, 601-615 Westlake Ave. N. April 19, 2006.

NBBJ. 1995. Seattle Commons/South Lake Union Plan Final Environmental Impact Statement, Technical Appendix 15: Historic and Cultural Resources. Prepared for Office of Management and Planning, City of Seattle, Washington. May 1995.

Parsons Brinckerhoff Quade & Douglas, Inc. (PBQD). 2004. SR 99 Alaskan Way Viaduct & Seawall Replacement Project - Preliminary Draft 2 - Appendix L: Historic Resources Technical Memorandum. February 2004.

Perbix Bykonen. 2006. Draft Memorandum re: Overview of Structures and Prospects for Relocation. Memorandum prepared for Scott Lien, Vulcan, by Todd Perbix. January 23, 2006.

UW School of Medicine. 2005. *Research Facts: UW Medicine, The South Lake Union Campus and the Economic Promise of Biotechnology*. University of Washington School of Medicine, Office of Research and Graduate Education, April 2005.

Washington State Department of Transportation (WSDOT). 2006. *Environmental Procedures Manual*. March 2006.

Weeks, Kay D., and Anne E. Grimmer. 1995. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Cultural Resource Stewardship and Partnerships, Heritage Preservation Services, U.S. Department of the Interior, National Park Service. Washington, DC.

Chapter 7

Colliers International. 2005. *Market Reports: Seattle Industrial, Seattle Office, and Puget Sound Retail*. Colliers International, Seattle, Washington.

GVA Kidder Mathews. 2005. *Seattle Real Estate Market Reviews, Mid-Year 2005: Office, Retail, and Industrial Markets*. GVA Kidder Mathews, Seattle, Washington.

WDOE. 1995. *Guidance for Remediation of Petroleum Contaminated Soils*.

WSDOT. 2006. *Highway Runoff Manual*. Publication M31-16. March 2006.

Weeks, K.D., and A.E. Grimmer. 1995. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. U.S. Department of the Interior National Park Service Cultural Resource Stewardship and Partnerships Heritage Preservation Services, Washington, D.C.

