



Bridge Rehabilitation and Replacement Program (BRRP)

HISTORIC, CULTURAL AND ARCHAEOLOGICAL RESOURCES TECHNICAL MEMORANDUM

NE 45th Street Viaduct Project
Phase 2 – Final Design Services



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1. PROJECT DESCRIPTION

1.1 Project Background

The NE 45th Street Viaduct is a bridge that conveys NE 45th Street over Kincaid Ravine in the University District in Seattle, Washington (Figure 1). This roadway provides a direct route from Interstate 5 to the University of Washington campus, University Village shopping center, Laurelhurst neighborhood, and the Seattle Children's medical center.

The viaduct consists of a 468-foot-long west approach, a 730-foot-long main span, and a 286-foot-long east approach. It was originally built in 1938, and over the years, several partial retrofit or replacement activities have occurred. The Seattle Department of Transportation (SDOT) is proposing to replace the aging, treated timber trestle west approach structure of the 45th Street Viaduct with a new structure to carry the three lanes of traffic (one eastbound and two westbound) and pedestrian walkway. The project will also re-construct NE 45th Street from 20th Avenue NE to the viaduct. The project is funded through the City of Seattle's Bridging the Gap (BTG) program (SDOT, 2008).

The purpose of this technical memorandum is to evaluate the potential impacts to historic, cultural, and archaeological resources from construction of the NE 45th Street Viaduct Project.

1.2 Corridor

The NE 45th Street Viaduct Project corridor lies along NE 45th Street, between 20th Avenue and the easterly limits of the west approach structure (i.e., the main bridge span). The project corridor is approximately 1.5 acres and includes the limits of ground disturbance.

1.3 Construction and Ground Disturbance

The west approach replacement will consist of a mechanically stabilized flowable fill (MSFF) design. MSFF is an innovative approach which offers the advantage of shortened construction time and reduced overall project cost. Under this approach, a large portion of the existing sub-structure will not be removed, but instead will be permanently encapsulated into the flowable fill wall structure. This allows the roadway to be closed to traffic some time after beginning the construction of the new structure and saves both removal cost and construction time. The contractor can essentially construct the entire lower portion of the wall structure while the roadway is open to traffic.

The MSFF wall will have a maximum height of approximately 30 feet. Minor terracing will be done around existing footings so as not to undermine them. The wall will be "keyed in" by excavating a flat spot up to two feet deep around the perimeter to accommodate a "leveling pad"

that the wall will set on. The total grading and fill amounts are estimated to be 15,000 cubic yards.

The project will require total closure of the NE 45th Street Viaduct during construction of the West Approach Replacement to shorten the construction timeframe. The contractor will use access points and easements along the south right-of-way to perform the work. SDOT will obtain a temporary construction easement from the University of Washington. The easement will encompass approximately 0.9 acres to the southeast of the viaduct and will include a 30-foot wide strip of land along the length of the southern side of the viaduct to allow construction access. Following completion of the proposed project, up to 15 feet of the cleared easement would be maintained by the University of Washington.

The NE 45th Street Viaduct Project will not add traffic lanes or increase traffic capacity over existing conditions. The project will replace existing function, only. Detours for vehicular traffic will be established to alleviate impacts to the traveling public, essential services, local businesses, and institutions.

2. REGULATORY REQUIREMENTS

The 45th Street Viaduct Project will not utilize federal or state funds. Therefore review and consultation under Section of the 106 National Historic Preservation Act of 1966 and the Governor of Washington's Executive Order 05-05 are not required. The project is subject to review under the State Environmental Policy Act (SEPA). The City of Seattle, Department of Transportation is the lead agency under SEPA.

2.1 State Regulations

The Washington Department of Archaeology and Historic Preservation (DAHP) and the Revised Code of Washington (RCW) Chapter 27.53 require properties that are determined to be historically and/or culturally significant to be accorded heightened levels of consideration or protection. Properties that possess historical, architectural, or archaeological significance are eligible to be listed on the Washington Heritage Register maintained by DAHP. This initial cultural resources analysis was prepared in part to determine if there are any significant resources, as defined by the DAHP, in the project vicinity with the potential to be impacted by the proposed activity.

The State Environmental Policy Act (RCW Chapter 197-11) requires that state and local agencies evaluate and consider mitigation for the impacts of their actions on cultural resources. SEPA requires that significant properties, including properties listed in or eligible for the Washington Heritage Register, must be given consideration when actions have the potential to affect them.

2.2 Local Regulations

The City of Seattle also affords protection for historic properties at the local level. All projects that could potentially affect historic properties must comply with the Landmarks Preservation Ordinance, as outlined in the Seattle Municipal Code [SMC] 25.12.350 (City of Seattle, 2008a). Properties eligible for city landmark designation must be at least 25 years old and meet at least one of six criteria of significance.

3. AFFECTED ENVIRONMENT

3.1 Study Area and Records Review

For the purposes of this technical memorandum, the area of potential ground disturbance for the proposed project is the project envelope or footprint for the West Approach Replacement. Approximately 1.5 acres will be disturbed directly beneath and adjacent to the west approach portion of the NE 45th Street Viaduct (Figure 2).

A records search was performed at the DAHP office on August 18, 2009. The records search included a review of the DAHP inventory database for recorded archaeological sites, listed properties, and previous cultural resource assessments completed in the vicinity of the project. The initial search included a one-mile radius around the entire NE 45th Street Viaduct.

3.1.1 Archaeological Sites

There are no recorded archaeological sites located within one mile of the project. The nearest known site is an historic landfill dating back to the early 1900s, approximately 1.2 miles south of the NE 45th Street Viaduct. The site is known as the Miller Street Dump (Site No. K1760), located on the southern shore of Union Bay.

3.1.2 Cultural Resource Surveys

Three previous cultural resource surveys conducted within one mile of the project were reviewed.

- A survey for a wireless tower site (DAHP Document No. 134114) was conducted approximately one-half mile southwest of the 45th Street Viaduct. The survey did not find any archaeological resources (Cascadia Archaeology, 2002).
- A report for monitoring of geotechnical borings at the University/Densmore CSO project site (DAHP Document No. 1343204) was conducted approximately one mile southwest of the 45th Street Viaduct, near the contemporary shoreline of northern Lake Union and the adjacent hillside. The report states that the project area has a low probability for archaeological resources, due to alterations of the topography from development of streets, utilities, and buildings.

Monitoring of five geotechnical borings did not identify any cultural resources (LAAS, 2004).

- A cultural resource assessment of the Princeton Bridge Replacement (DAHP Document No. 1339873) was conducted approximately 1.4 miles east of the 45th Street Viaduct. No archaeological sites were identified (Northwest Archaeological Associates, Inc., 2000).

3.1.3 Listed Properties

A number of properties that are listed on the local, state, and federal historic registers are located within one mile of the proposed project. Table 1 below lists the designated historic properties in the project vicinity. The approximate locations are also shown on Figure 3.

Table 1 Designated Historic Properties within the Project APE

Resource Reference Number	Resource Name	Address	Status
1	University of Washington Columns	University of Washington	WHR
2	Ye College Inn	4000 University Way NE	NHR, WHR
3	University Methodist-Episcopal Church	4142 Brooklyn Avenue NE	WHR, SL
4	Parrington Hall	University of Washington	WHR
5	Bagley Hall	University of Washington	WHR
6	Denny Hall	University of Washington	WHR
7	Lewis Hall	University of Washington	WHR
8	Clark Hall	University of Washington	WHR
9	University Observatory	University of Washington	WHR
10	Sigma Kappa Mu Chapter House	4510 22nd Avenue NE	NHR, WHR, SL
11	Shuey, Henry Owen House	5218 16th Avenue NE	NHR, WHR, SL
12	Seattle Public Library, University Branch	5009 Roosevelt Way NE	NHR, WHR, SL
13	Church of the Blessed Sacrament, Priory & School	5040-5041 Ninth Avenue NE	NHR, WHR, SL
14	Ravenna Park Bridge	20th Avenue, Spans Ravenna Park Ravine	NHR, WHR, SL
15	Cowen Park Bridge	15th Avenue North	NHR, WHR, SL
16	Benton's Jewelers Street Clock	3216 NE 45 th Street	SL
17	Bryant Elementary School	3311 NE 60 th Street	SL
18	Seattle Fire Station #17	1010 NE 50 th Street	SL
19	Seattle Fire Station #38	5503 33 rd Ave. NE	SL
20	University Heights Elementary School	5031 University Way NE	SL
21	University Presbyterian Church	4555 16 th Ave. NE	SL
22	Wilsonian Apartments	4700-4720 University Way NE	SL

NHR: National Register of Historic Places; WHR: Washington Heritage Register; SL: Seattle Landmark

Source: DAHP, 2008; City of Seattle, 2008b

3.1.4 NE 45th Street Viaduct

The NE 45th Street Viaduct was originally built in 1938. Observational evidence indicates the bridge was originally supported by timber trestles. Several partial retrofit or replacement activities have occurred over the years, replacing most of the original timber trestles with more modern reinforced concrete materials, which has altered the original 1938 structure. The existing structure has not been previously evaluated for eligibility for listing as a City of Seattle Landmark or other register. As stated above, to be eligible for designation as a Seattle Landmark, a building, object, or site must be at least 25 years old and meet one of six significance criteria. Table 2 below evaluates the property against each criterion.

Table 2. Seattle Landmark Significance Criteria (SMC 25.12.350)

Criteria	Evaluation
It is the location of, or is associated in a significant way with, an historic event with a significant effect upon the community, City, state, or nation; or	Does not appear to meet criterion as research did not reveal any significant associations with historic events.
It is associated in a significant way with the life of a person important in the history of the City, state, or nation; or	Does not appear to meet criterion, as research did not reveal any significant associations with important people.
It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, City, state or nation; or	Does not appear to meet criterion, as research did not reveal any significant associations cultural, political, or economic heritage of the community, City, state or nation
It embodies the distinctive visible characteristics of an architectural style, or period, or a method of construction; or	Does appear to partially meet this criterion, as the timber trestles supporting the west approach embody the distinctive characteristics of a method of construction and structural style.
It is an outstanding work of a designer or builder; or	Does not appear to meet criterion, as research did not reveal whether the bridge is an outstanding work of a designer or builder.
Because of its prominence of spatial location, contrasts of siting, age, or scale, it is an easily identifiable visual feature of its neighborhood or the city and contributes to the distinctive quality or identity of such neighborhood or the City.	Does appear to meet this criterion, as the bridge is an easily identifiable visual feature for persons moving through the area and for neighboring properties. However, the bridge is not visually distinctive or a unique part of the neighborhood's identity.

In addition to meeting one of the above criteria, the building, object, or site must also possess integrity, or the ability to convey its significance. While the structure may partially meet two of the above criteria, it lacks integrity of materials and design, due primarily to previous modifications to the original timber structure. The timber trestles supporting the west approach structure are the only remaining portion of the bridge that clearly conveys that the bridge was originally constructed of wood. The majority of the structure has been replaced with more contemporary materials over time. In addition, while the trestles themselves are visually distinctive, they are not visually prominent. The wooden trestles are not visible to motorists and pedestrians traveling on NE 45th Street. The trestles are visible from the Burke-Gilman Trail and roadways passing under the bridge. However, they are not visually prominent due to the gradient and vegetation under the west approach structure and the main span of the bridge.

For these reasons, it appears that the NE 45th Street Viaduct would not be considered an historic resource eligible for listing as a City of Seattle Landmark because it does not meet most of the City's landmark criteria, and has altered integrity. Although a detailed evaluation and determination has not been completed in accordance with state and federal criteria, it is unlikely the structure would be eligible for listing on state or federal historic registers, due to the altered integrity of the bridge.

4. POTENTIAL CULTURAL RESOURCE EFFECTS

4.1 Temporary Construction Effects

There is one historic building located immediately adjacent to the NE 45th Street Viaduct Project site, the Sigma Kappa Mu Chapter House (reference number 10 in Table 1 and Figure 3). Construction activities will not alter the structure, and access to this historic resource will be maintained throughout the duration of the project.

No other historic buildings would be directly impacted by construction. Construction activities would be confined to the roadway viaduct and road right-of-way. Although construction noise may be heard from the historic properties located near the site, it would be temporary in nature and diminish with distance from the site. Construction activities are unlikely to cause direct or indirect effects to any cultural, historic, or archaeological resources in the area.

There is low probability for impacts to undiscovered archaeological resources within the project area for the following reasons:

- 1) Ground disturbance will be limited to the existing roadway prism (approximately 1.5 acres total). The depth of excavation is not expected to be greater than previously disturbed.
- 2) A records search at DAHP indicates that no recorded sites are in the vicinity of the project and previous cultural resource assessments in the vicinity have not identified archaeological resources.

4.2 Long-Term Historic, Cultural, and Archaeological Resource Effects

The proposed bridge rehabilitation would not displace or alter any known cultural, historic, or archaeological resource. In the event resources are discovered at the site during subsequent investigation or during construction, appropriate mitigation would be agreed upon by the lead agency, the City of Seattle, and DAHP, including modification of project design. No long-term effects are anticipated.

5. MITIGATION

5.1 Temporary Construction Mitigation

If cultural resources are identified during construction activities for the NE 45th Street Viaduct Project, work will halt in the immediate area and the appropriate City of Seattle department and DAHP will be contacted.

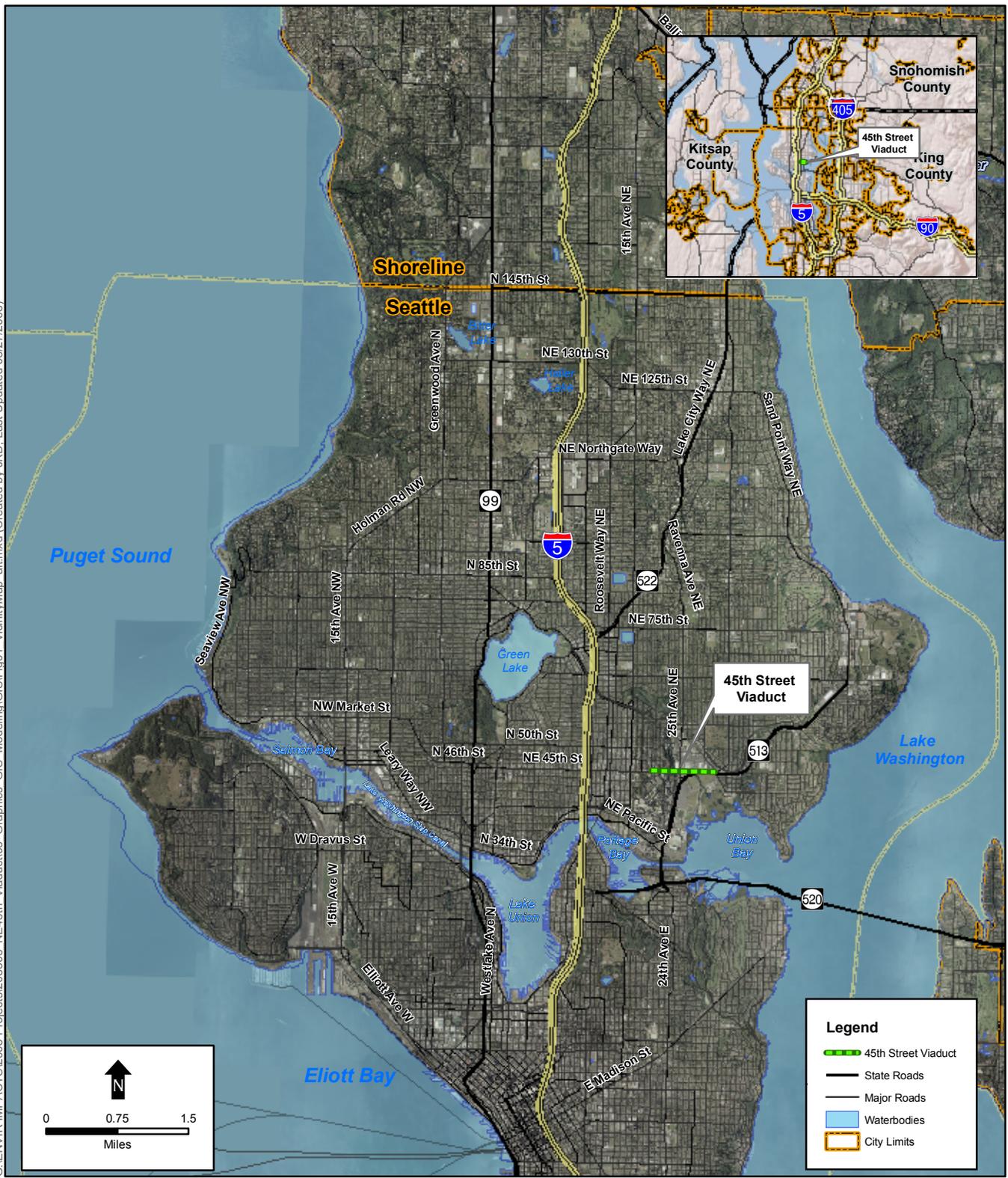
5.2 Long-Term Mitigation

No long-term effects to historic, cultural, or archaeological resources are anticipated from the proposed project; no mitigation would be necessary.

References

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SOURCE: ESRI, 2005; King County, 2007 (2002 Aerial Photo)

NE 45th Street Viaduct. 208305

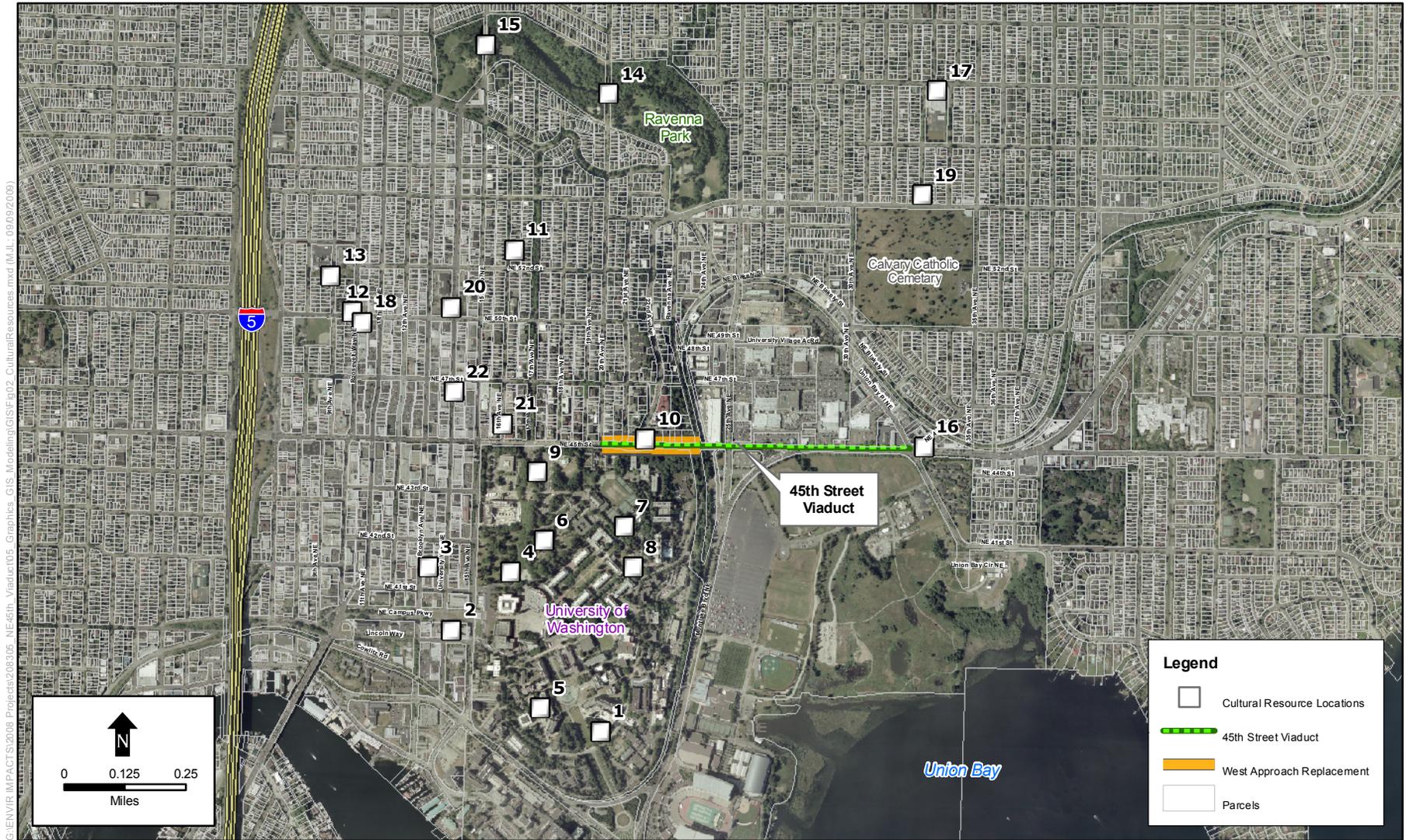
Figure 1
Vicinity Map
Seattle, Washington



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SOURCE: ESRI, 2005; King County, 2007 (2002 Aerial Photo)

NE 45th Street Viaduct. 208305
Figure 2
 Project Limits
 Seattle, Washington



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SOURCE: ESRI, 2005; King County, 2007 (2002 Aerial Photo)

NE 45th Street Viaduct. 208305
Figure 3
 Historic Properties
 Seattle, Washington