

Fremont Bridge Approach Replacement Project

Section 106 Technical Documentation

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City of Seattle

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Project Description

Introduction

The City of Seattle manages and operates four movable bridges, including the Fremont Bridge. The Fremont Bridge is a bascule bridge, also known as a drawbridge. The Fremont Bridge, located in the downtown area of Fremont, is a heavily used vehicular and pedestrian bridge that allows commuters to access neighborhoods north and south of the Lake Washington Ship Canal. The Fremont Bridge was opened on July 4, 1917. The bridge, located 30 feet above the water, rises for marine traffic on average of about 35 times a day, making it one of the busiest bascule bridges in the world. The bridge is located in the Seattle North 7.5-minute quadrangle within United State Geological Survey (USGS) Sections 18 and 19, Township 25 North, Range 4 East. The project area is defined as the Fremont Bridge and the street system bounded by 35th Street North on the north, West Nickerson Street on the south, Dayton Avenue North (north of the bridge) / Mayfair Avenue North (south of the bridge) to the west, and Linden Avenue North (north of the bridge)/4th Avenue North (south of the bridge) to the east (see Figure 1).

Major maintenance and seismic retrofit work began on the bascule sections of Fremont Bridge in June of 1999. This work was completed in the spring of 2000. In addition to strengthening the bridge, this work included replacement of the deck grating and installation of a bridge railing between the sidewalk and the traffic lanes to improve safety. However, this work did not include the approaches to the Fremont Bridge, which are now 85 years old, cracked, and in a generally deteriorated condition. The existing approaches were not designed in accordance with the current code to withstand the force of a major earthquake.

The criteria of **no adverse effect** have been applied to the proposed undertaking. The proposed undertaking will not alter, either directly or indirectly, the characteristics of the historic properties in the project area.

Setting

The Fremont neighborhood is located in north Seattle and is bounded by the Ship Canal and Lake Union to the south; 8th Avenue Northwest to the west where it joins the Ballard neighborhood; North 50th Street to the north (joining the Phinney and Greenlake Neighborhoods); Stone Way and east of Interlake Avenue North along the east (joining the Wallingford neighborhood). The neighborhood is home to approximately 12,200 residents (1990 U.S. Census).

Downtown Fremont, located at the junction of Fremont Avenue North at North 34th Street / Fremont Place / North 35th Street, is a pedestrian scale, mixed-use commercial district and community crossroads as well as the core of Fremont's designated Hub Urban Village. Along with the historic Fremont Bridge, an example of other amenities of importance to the local community in downtown Fremont include: the Troll under the Aurora Bridge, Lenin's statue, the Ship Canal, and numerous interesting shops and restaurants.

Recreational trails pass under both Fremont Bridge approach structures; the Burke-Gilman Trail passes under the north approach structure and the Ship Canal Trail begins near the south approach structure.

Project Description

The Fremont Bridge is located in north Seattle and spans the Lake Washington Ship Canal, providing an important transportation link between the Fremont and Queen Anne neighborhoods (see Figure 1). It is a drawbridge with two lanes in each direction for vehicles, with sidewalks for non-motorized users. In 1998, a condition report completed for the approach structures found them to be structurally deficient and functionally obsolete by Washington State Department of Transportation (WSDOT) standards. The study concluded that replacement of the existing bridge approaches was the prudent course of action.

The purpose of this project is to replace the existing sub-standard bridge approaches (located north and south of the bridge itself) with new approaches that meet current structural design standards (see Figure 2). The bascule bridge portion, including the bridge tender shacks, the support trusses, the railing between the tender shacks and the bridge deck and bascules, will not be affected by this project. The approaches are the elevated roadways at each end of the bridge that connect to city streets. Improvements would replace the existing structures for the north and south approaches, and seismically retrofit and strengthen the north approach off-ramp. Sidewalks, railings and lighting on the approach structure would also be replaced. The new bridge approach structures would be located in the same location as the existing structures. The north and south approach structures have average centerline lengths of 534 feet and 124 feet, respectively.

The project also includes five additional components, which are described in more detail below.

Replacement of Operations and Maintenance Shop

The City of Seattle owns and operates the Fremont Bridge Operations and Maintenance Facility. This building is located underneath the southern approach of the bridge. The facility includes a 6,130 square foot building area (gross square footage), ten parking spaces, and a yard area. The existing building includes an electrical shop and administrative offices. The existing two-story concrete structure would be removed prior to the removal of the eastern half of the southern approach structure. It is likely the demolition of the eastern half of the southern approach structure would take place immediately after the demolition of the Operations and Maintenance Building. The building would be deconstructed, and all material would be disposed of according to the City of Seattle Standard Specifications.

The City of Seattle considered four design options for the new Operations and Maintenance Facility. Through the public outreach process, Scheme 4 became the preferred alternative. The City of Seattle presented the two design options to the Citizen Advisory Group (CAG) on March 23, 2004. The CAG was in agreement with the City that Scheme 4 was the preferred alternative. In addition, the City presented the preferred alternative at a public open house on May 12, 2004.

The building areas listed below are maximum estimates that are expected to decrease as the project moves through value engineering. The new building areas will only slightly increase in size in comparison to the existing building. The City of Seattle owns the right of way in which the building will be replaced.

In the Scheme 4 design the majority of the parking area would be underneath the bridge approach with a shop building area that is structurally independent of the approach structure. This design includes a separate building with a maximum of 1,160 gross square feet on the first floor and 2,520 gross square feet on the second floor. This building was designed with a larger top floor to create a more environmental-friendly and aesthetically pleasing building as well to provide some covered parking and yard area. This building would be constructed at the east end of the site adjacent to the bridge and an open paved yard of 4,950 square feet and 1,190 gross square feet of covered shed shop area. With the Scheme 4 design, the loading area is separated from the parking spaces on the north side of the lot to allow free access to the majority of the parking yard area.

Upgrade Mechanical and Electrical System

The project would also upgrade the mechanical/electrical system used to raise and lower the drawbridge. Although this work will take place over the Lake Washington Ship Canal, no material will enter the water. The electrical work would include a number of elements. The major components of this work are listed below:

1. Removal and replacement of all existing electrical equipment, motors, controls, conduit and wire. Work will be sequenced and coordinated with structural and mechanical activities to minimize impact to the roadway and waterway traffic.
2. Installation of new service entrance equipment including: meter sockets, current transformer enclosures, and main disconnect circuit breakers at both North and South bascule piers.
3. Installation of two standby engine generator sets, automatic transfer switches and associated equipment. The generators shall be sized for operation of the bascule leaves and for the house lighting and outlets.

In addition, the mechanical system of the drawbridge would be upgraded with the following work elements:

1. Removal of bridge reduction machinery from the platforms on the bascule piers. Removal of line shafts and reduction machinery on each side of each bascule leaf.
2. Installation of new motors, brakes and enclosed reduction machinery on each side of each bascule leaf.
3. Replacement of bridge center lock system.
4. Installation and removal of a temporary bridge operating system consisting of a City-provided winch system, wire ropes and blocks.

Replacement of Existing Pedestrian/Bicycle Stairs

The project is evaluating a proposal to widen the existing stairs from the Burke-Gilman Trail to the northern bridge approach. These stairs will be either replaced in kind or replaced with wider stairs. The current width of the stairs is approximately 3 feet, and the new stairs would

be approximately 6 feet wide. The increased width would allow two people carrying bicycles to use the stairs at the same time. This project is not currently planning to change the existing stairs in the vicinity of the southern approach. During construction of the approaches, the current stairs will need to be removed as they are attached to the approach structures. If the stairs are not replaced, the current stairs will be reused to maintain the connection from the Burke-Gilman Trail to the northern bridge approach.

Non-Motorized Related Improvements

To accommodate bicycle users, SDOT plans to provide the following bicycle related improvements:

Permanent Improvements

- Widen the southbound curb land between Florentia and Nickerson Streets to 14 feet to create a substantially more street space for bicyclists as they transition from the sidewalk to the street.
- Relocate or remove poles and other vertical obstructions to create a clearer pathway for pedestrians/bicyclists and to eliminate double blind zones at the north and south end of the bridge deck.
- Use signs or other lane-markings devices to help warn drivers and bicyclists of potential conflicts.
- Trim back the northeast traffic island at the Nickerson Street and Westlake Avenue intersection to minimize debris collection.
- Provide a bicycle signal for eastbound movements at North 34th Street and Fremont Avenue. The new bicycle signal will be similar to a vehicle signal (with red, green and yellow lights), but it will be slightly smaller in size. A sign will indicate the signal is for bicyclists only.
- Provide a corner mirror at North 34th Street and Quadrant Drive
- Trim back bushes at Florentia Street to improve visibility.

Temporary Improvements

- Provide a temporary six-foot bike lane on the north side of North 34th Street between Stone Way and Fremont Ave North while the Burke-Gilman Trail is closed for construction.
- Place detour signs at locations that will give bicyclists ample opportunity to choose alternative routes during construction.
- Prohibit left turns into and out of the Quadrant complex driveway located beneath the Aurora Bridge during closure of the Burke-Gilman Trail.

To improve bicycle safety and mobility between Florentia and Nickerson Streets the City will acquire a small “sliver” of land on the south side of the Ship Canal. The land is part of a triangle-shaped parcel that is bounded by Florentia Street, Nickerson Street and 4th Avenue North (see Figure 1). The taking of this land may cause the existing espresso stand to be relocated approximately 8 feet to the west. The espresso stand is currently located a few feet into the City of Seattle right of way.

Underwater Cables

Submarine cables currently lay on the bottom of the Ship Canal, which provide power and communications to the north bascule portion of the bridge. These cables have been in place since 1917 when the bridge opened. This project will abandon in place these cables, and it is envisioned the new submarine cable(s) will be laid on the bottom of the Ship Canal and allowed to sink down by its own weight into the mud/silt. It is not expected the original cables will be removed as part of this project. In addition, stormwater facilities for the bridge approaches will be modified to provide oil-water separation and water quality wet vaults as required under the City of Seattle drainage ordinance, Title 22.800 Stormwater, Grading, and Drainage Control Code.

Phasing of Project

The entire project including all the components will take approximately 30 to 34 months beginning in 2005 (see Figure 3). This time period will include approximately 18 months to replace the approaches as well as an additional six months to complete the construction of the new mechanical and electrical system. The bridge maintenance shop construction will follow the mechanical and electrical system work and will take up to nine months to complete. During approach construction, the project would maintain full bridge operations (two lanes each way and both sidewalks) for approximately the first nine months while constructing a new micro-pile substructure beneath the existing approach structure deck, followed by half bridge closure (one lane in each direction and one sidewalk maintained) for an additional nine months while the approach structure deck is replaced one half at a time.

Up to ten bridge closures may be necessary to replace the north and south approaches. If the upgrade of the mechanical and electrical system is done after the approach replacement, up to four additional closures are possible. Although it is expected that full bridge closures would take place on nights and weekends, it is possible some full closures could occur during weekdays. Any full closures of the bridge during weekdays would be brief. In addition, weekday closures would only take place when it was determined to be more efficient than a weekend or night closure and with community support.

The Burke-Gilman and Ship Canal Trails would be closed in the vicinity of the project due to safety concerns. Users of these trails would be detoured around areas of construction. The City will close the Burke-Gilman Trail for up to approximately 24 months and the Ship Canal Trail for up to approximately 34 months. Once the approaches are replaced and the mechanical and electrical system work is completed, the City will reopen the Burke-Gilman Trail. The City will reopen the Ship Canal Trail once the new bridge maintenance shop is completed.

Figure 1: Project Vicinity

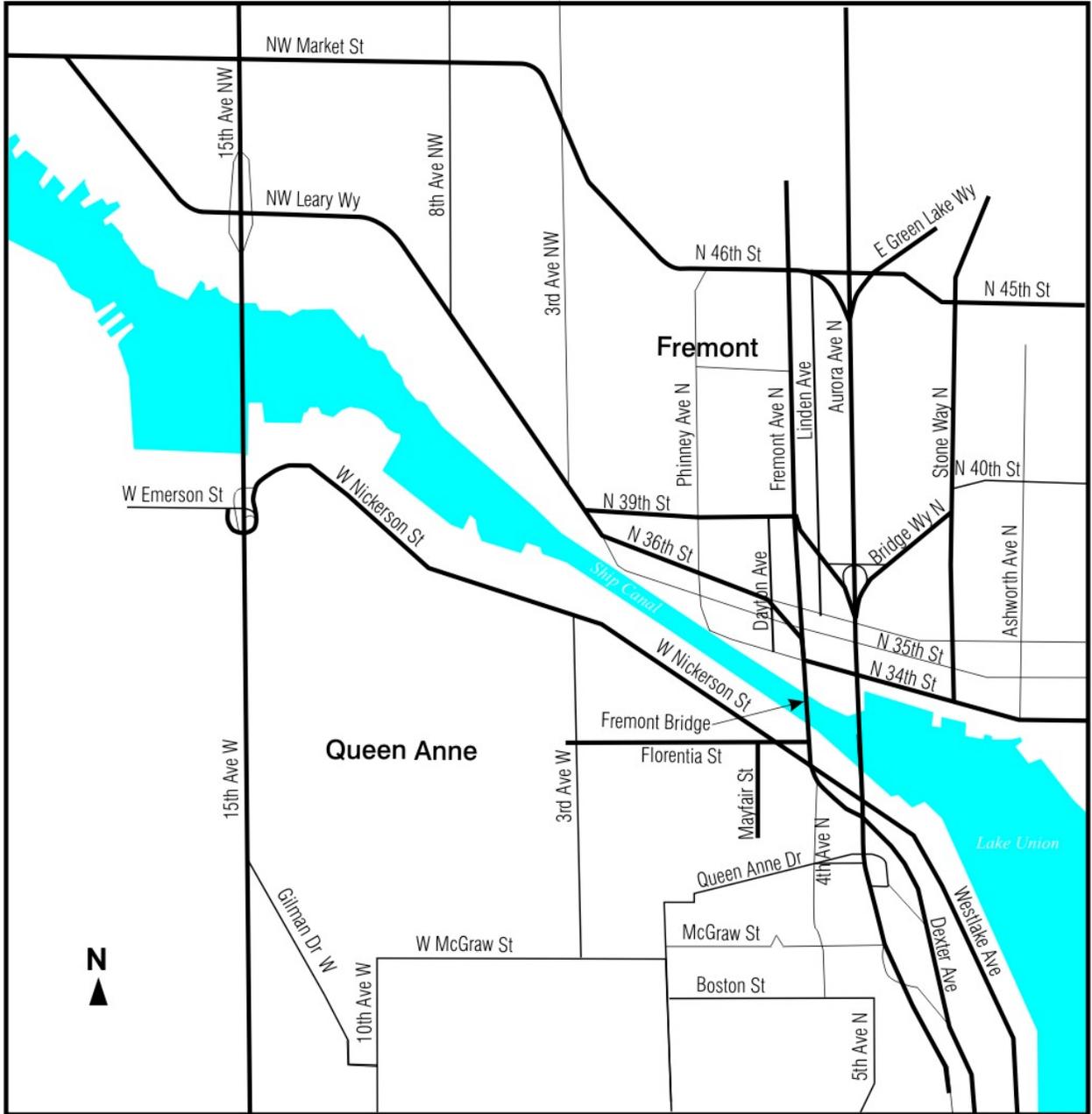


Figure 2: Layout of Fremont Bridge and Approaches

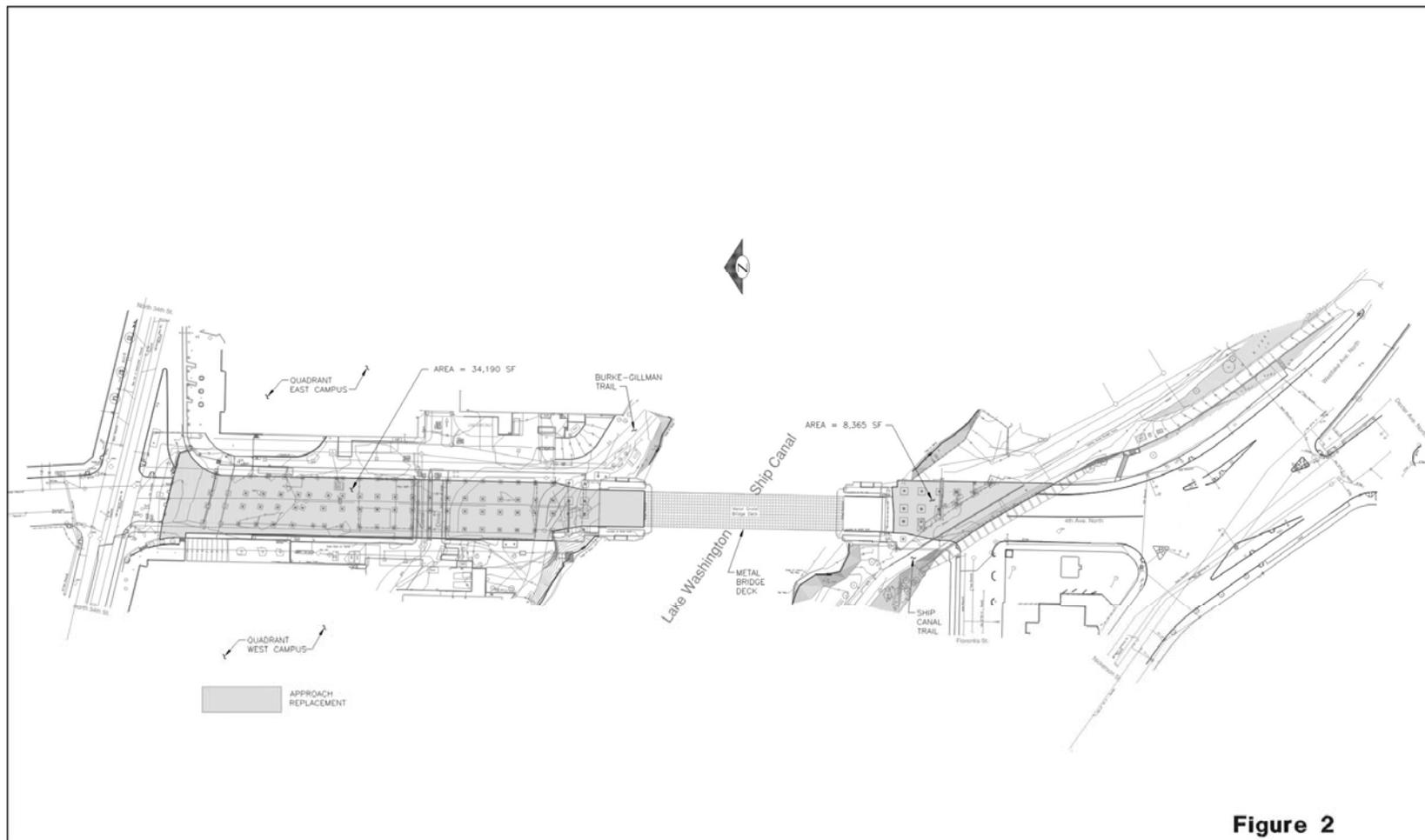


Figure 2

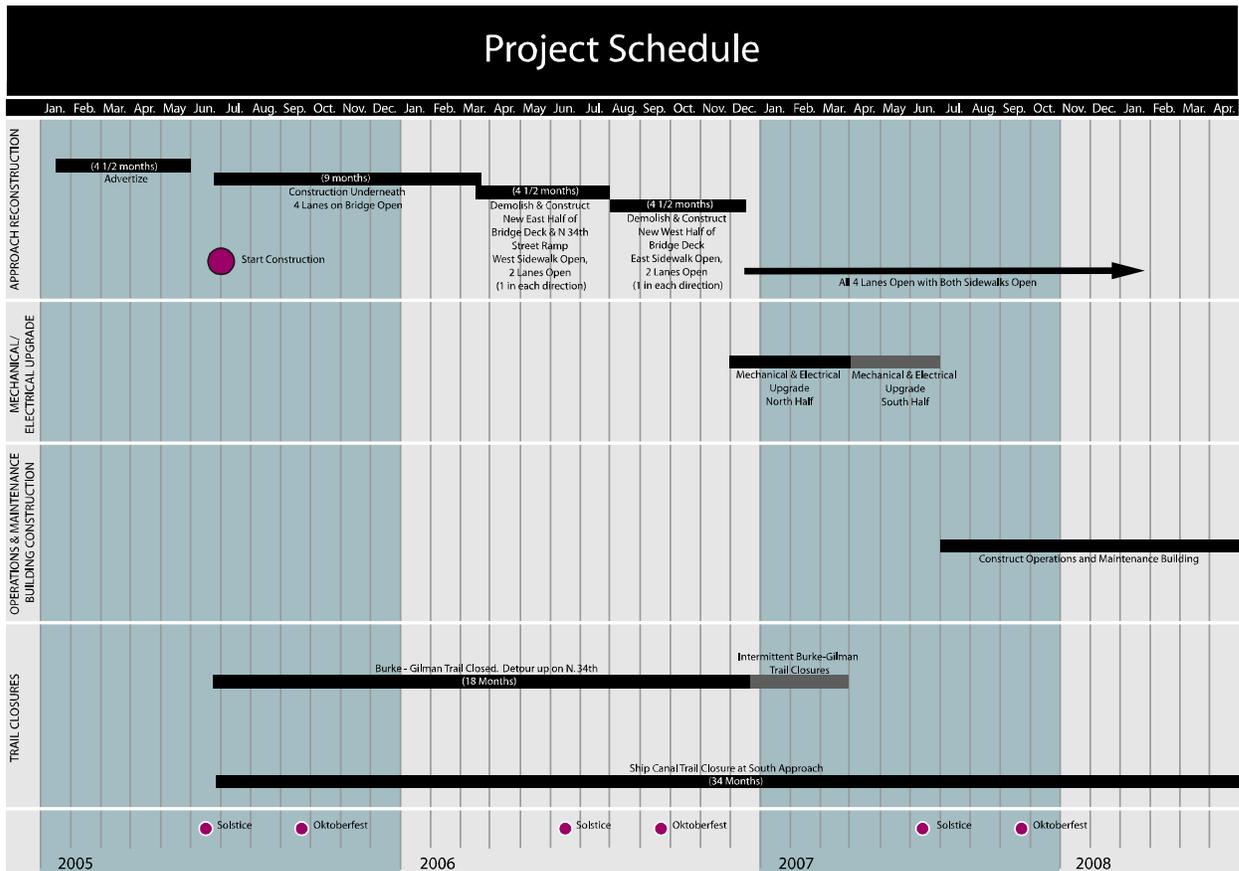
Fremont Bridge Approach Replacement

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Figure 3: Project Schedule



Project Background

Five build alternatives were considered for replacement of the Fremont Bridge approaches. To develop and evaluate these alternatives, a *Type, Size and Location Study* was prepared by Parsons Brinckerhoff in March 2003. The post-construction configuration of the approaches and other bridge improvements are the same for all the alternatives. The alternatives vary only in terms of construction methods, project duration, and pedestrian/vehicle access over the bridge or across the Ship Canal during construction. Construction of the approaches is planned to begin in 2005 and is expected to last 18 to 24 months, depending largely on whether or not traffic is maintained on the bridge during construction. All alternatives would require some full bridge closures. Although it is expected that full bridge closures would take place on nights and weekends, it is possible that some full closures could occur during weekdays. Any full closures of the bridge during weekdays would be brief, and weekday closures would only take place when it was determined to be more efficient than a weekend or night closure. Each alternative is briefly described in the following section. It is important to note that all references to bridge closures include both the north and south bridge approaches.

Alternative 1: This alternative would close the entire bridge for 12 to 24 months while the existing approach structures are completely removed and new approach structures are built on drilled shaft foundations.

Alternative 2: This alternative would consist of one half of the bridge being closed for 18 to 20 months. Half of the existing approach structures would be removed and a new half-structure would be built on drilled shaft foundations, then the second half would be removed and built. During the time period when one half of bridge would be closed, one lane would be open in each direction.

Alternative 3 (the Preferred Alternative): This alternative would support full bridge operations (two lanes each way and both sidewalks) for 9 to 12 months. Construction of a new micro-pile substructure would take place under the existing approach structure deck. While the approach structure deck is replaced one half at a time, half the bridge (one lane each way and one sidewalk) would be closed for 9 to 12 months.

Alternative 4: This alternative would include full bridge operations (two lanes each way and both sidewalks) for 9 to 12 months during construction of a new drilled shaft substructure beneath the existing approach structure deck. Half the bridge would be closed (one lane each way and one sidewalk maintained) for 9 to 12 months while the approach structure deck is replaced one half at a time.

Alternative 5: This alternative would support full bridge operations (two lanes each way and both sidewalks) for 9 to 12 months while constructing a new wall substructure beneath the existing approach structure deck. This would be followed by half bridge closure (one lane each way and one sidewalk) for 9 to 12 months while the approach structure deck is replaced one half at a time.

Alternative 6 (No Action Alternative): In this alternative, the bridge approaches would not be replaced. The City of Seattle may need to close the bridge due to safety concerns because the current bridge approaches are deteriorating.

To determine the preferred alternative, the project team used the following evaluation criteria:

- Maintenance of Traffic
- Construction Cost
- Community Impacts
- Constructability
- Environmental Impacts
- Structural Impacts
- Right of Way Requirements
- Amenities and Aesthetics
- Long-Term Operations and Maintenance
- Overall Construction Impacts

Based on the evaluation criteria, Alternative 3 became the preferred alternative. Most significantly, it would disrupt traffic the least. The alternatives that disrupted traffic the least have been the most heavily supported (over 90%) by the public involvement process to date. Alternatives 1 and 2 would cause the greatest traffic disruptions, so they were dropped from further study. The traffic disruptions from Alternatives 3, 4 and 5 would not be as great. However, Alternatives 4 and 5 scored lower in a number of the other evaluation criteria, so they were precluded from further study. The Type, Size and Location Study (Parsons Brinckerhoff, March 2003) includes a more detailed discussion on the evaluation of all the alternatives.

As previously discussed, the alternatives differ only in construction methods, project duration, and pedestrian/vehicle access over the bridge or across the Ship Canal during construction. Because a Preferred Build Alternative has already been identified through the Type, Size and Location Study, this analysis compares the Preferred Build Alternative to the No Action Alternative.

Public Involvement Process

Businesses, residents, commuters, schools, and transit and emergency service providers as well as the Pedestrian Advisory Board and Bicycle Advisory Council have been contacted to engage the public in this project and to provide opportunity to comment on the identification and treatment of historic properties. Communication with the community began with stakeholder interviews to identify key challenges and the preferred means of communication in August 2002. These interviews included a group of citizens that represented neighbors, commuters, large and small business owners, employees, and institutions. A Citizen Advisory Group was then assembled consisting of large employers, the Fremont Chamber of Commerce, the North Seattle Industrial Association, and neighborhood representatives to provide advice on ways to communicate with the public. A public meeting and open house were also held to gain community input in the fall of 2002. A newsletter was then distributed throughout the community and project information has been posted on the City of Seattle website.

The initial public outreach suggests community members understand the project need and accept the reduction in bridge capacity during construction. Community members strongly support keeping one lane of traffic open in each direction during construction. Field interviews with employers were not specifically conducted because the extensive public outreach efforts included a number of discussions with employers in the project area. An additional newsletter was mailed to businesses and residents in the area surrounding the bridge in early December 2003.

Current design plans were presented at a community open house on May 12, 2004 and at a Seattle Design Commission meeting on May 20, 2004. The community and the Design Commission showed support for lighting and railing designs consistent with historic types.

The public involvement efforts will continue throughout the project. It is expected there will be additional meetings with the public and Citizen Advisory Group as well as the publication of more newsletters. The continued outreach will result in construction mitigation strategies that gain the most community support.

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Historic and Cultural Resources

Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on properties included in or eligible for inclusion in the National Register of Historic Places. As defined in the regulations implementing Section 106 (36 CFR Part 800), undertakings include: review, funding, licensing, permits or approvals, including those subject to state or local regulations administered pursuant to a delegation or approval by a Federal agency. The Fremont Bridge Approach Project is partially funded by the Federal Highway Administration (FHWA). The project is also subject to permitting from the US Army Corps of Engineers (Section 10 and Section 404 Permits) and the US Coast Guard (Section 9), and so is subject to Section 106 review.

Area of Potential Effect

The definition of an Area of Potential Effects (APE) is the first step in the Section 106 process. The APE is:

“the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking” [36 CFR 800.16(d)].

Historical Research Associates, Inc. (HRA) prepared a cultural resource report for the Fremont Bridge Approach project in 2002 (Appendix A). In this report, HRA defined the APE for both archaeological and other historic resources. The APE for archeological resources is generally defined by the extent of ground disturbing activities, which may include construction, demolition, staging areas, and equipment storage yards. HRA assessed the potential for subsurface prehistoric and historical archaeological resources within the APE. HRA determined that the heavily disturbed character of the APE largely precludes the possibility of intact subsurface archaeological resources. The areas encompassed by the bridge approaches include city streets, former and current railroad tracks, and areas of extensive industrial use. The potential for intact archaeological remains is considered to be low.

For historical resources, the APE must include physical changes to properties, potential visual and noise effects, and changes in setting. HRA defined the APE as consisting of those properties with a clear view of the Fremont Bridge and its approaches. The APE extends from 34th Street to the north to the intersection of Fremont Avenue, Westlake Avenue North, Dexter Avenue North, and Nickerson Street to the south. The east and west boundaries of the APE are comprised of those properties that front onto the bridge approaches, which are not readily visible (see Figure 4).

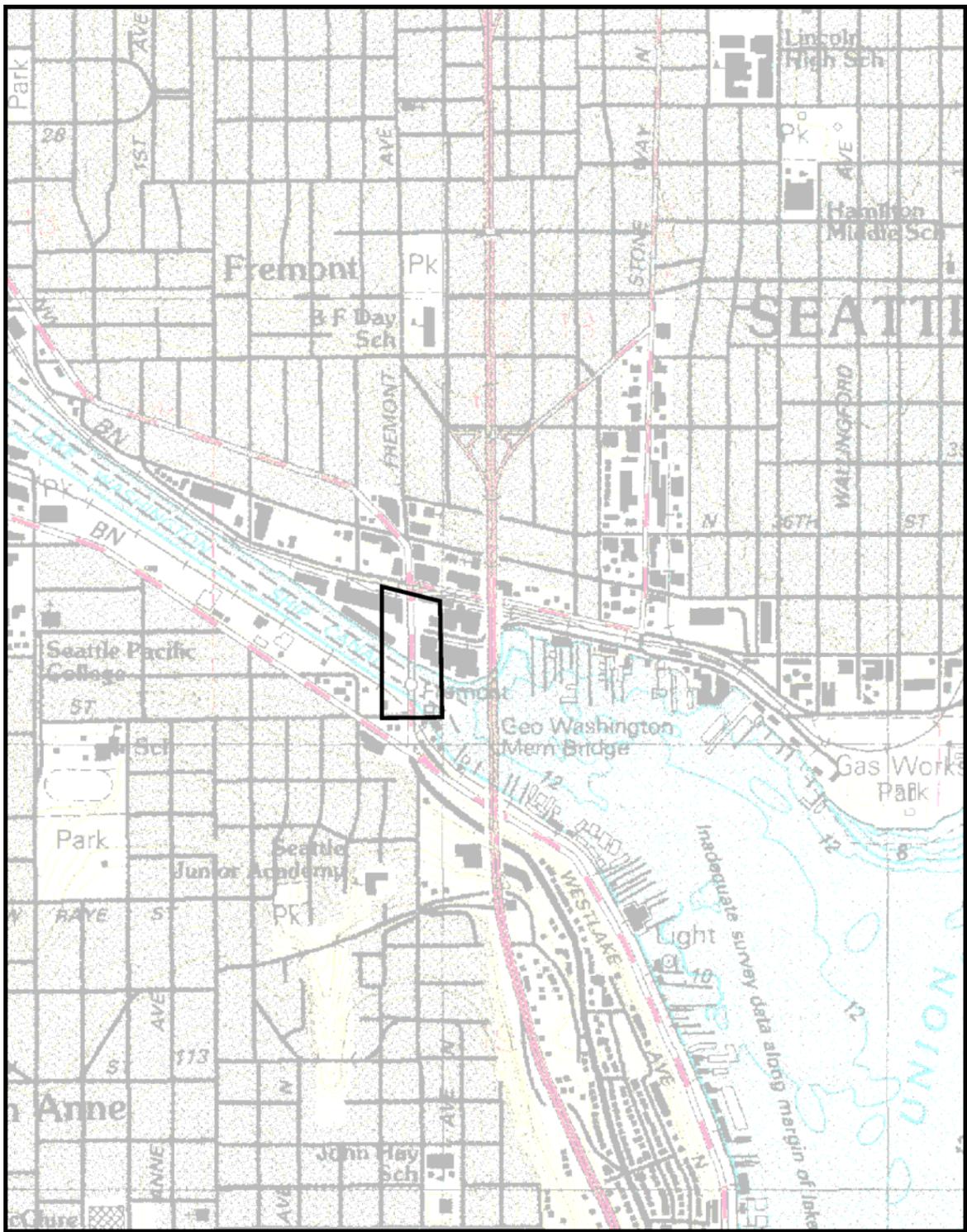
The Washington State Office of Archaeology and Historic Preservation concurred with this definition of the APE on November 17, 2003 (see correspondence in Appendix B).

Consultation with Native American Tribes

Pursuant to 36 CFR 800.4(a), the Washington State Department of Transportation formally initiated consultation with the Muckleshoot Tribe on October 27, 2003. The Muckleshoot were given an opportunity to consult on the Area of Potential Effect as well as to identify any

properties of traditional religious and/or cultural importance in the project area. To date, no such properties have been identified (see correspondence in Appendix B).

Figure 4: Area of Potential Effect



Fremont Bridge Approaches
Area of Potential Effects



Existing Conditions

Historic properties were identified through archival and background research as well as field survey (HRA 2002). Properties were evaluated for eligibility for inclusion in the National Register of Historic Places according to the criteria specified in 36 CFR 63. Five historic resources were identified within the project APE: the Fremont Bridge itself, the McKenzie Building, the Bleitz Funeral Home, the McKenzie Apartments, and “Waiting for the Interurban”, a public sculpture. These resources are discussed further below. The Operations and Maintenance facility scheduled for demolition is not eligible for inclusion in the National Register of Historic Places.

Fremont Bridge

The Fremont Bridge is a double-leaf trunnion bascule structure constructed in 1916-1917 (Figure 5). Each leaf measures 108 feet in length. The design, by Seattle City Bridge Engineer F. A. Rapp, is based upon the 1898 Chicago River bridges designed by John Ericson, City Engineer of the Chicago Department of Public Works. The concrete piers that support the structure were designed by Seattle City Architect D. R. Huntington.



The Fremont Bridge was listed in the National Register of Historic Places (NRHP) on July 16, 1982. The nomination includes the bascule spans and concrete abutments. Initially, it did not appear that the NRHP nomination included the north or south approach spans (as reported in HRA 2002, Appendix A). Based on further examination of the actual nomination for the bridges, staff from the Washington State Office of Archaeology and Historic Preservation (OAHP) concluded the approaches are part of the listed property (correspondence dated January 5, 2004, see Appendix B). While the nomination does not specifically refer to the two approaches, it does refer to the bridge’s 502-foot length, which is longer than the 242-foot length of the bascule spans. Therefore the approaches are considered part of the listed property.

The approaches consist of concrete elevated roadways supported on rows of concrete columns. The south approach measures approximately 50 feet in length and originally spanned the Northern Pacific Railroad tracks (Figure 6). The north approach measures approximately 430 feet in length and carried the approach across several streets and another set of Northern Pacific Railroad tracks, since removed, to 34th Street (Figure 7).

Both approaches were modified after removal of the railroad tracks, likely in the 1940s. Much of the south approach was retained, while sections of the north approach were completely reconstructed.

The approaches are utilitarian in design, and are not representative of a distinctive type, period, or method of construction. The railroad tracks spanned by both approaches have been removed and the structures modified. Development underneath the structures includes the Operations and Maintenance facility and an underground parking facility that compromises the integrity of the structure.

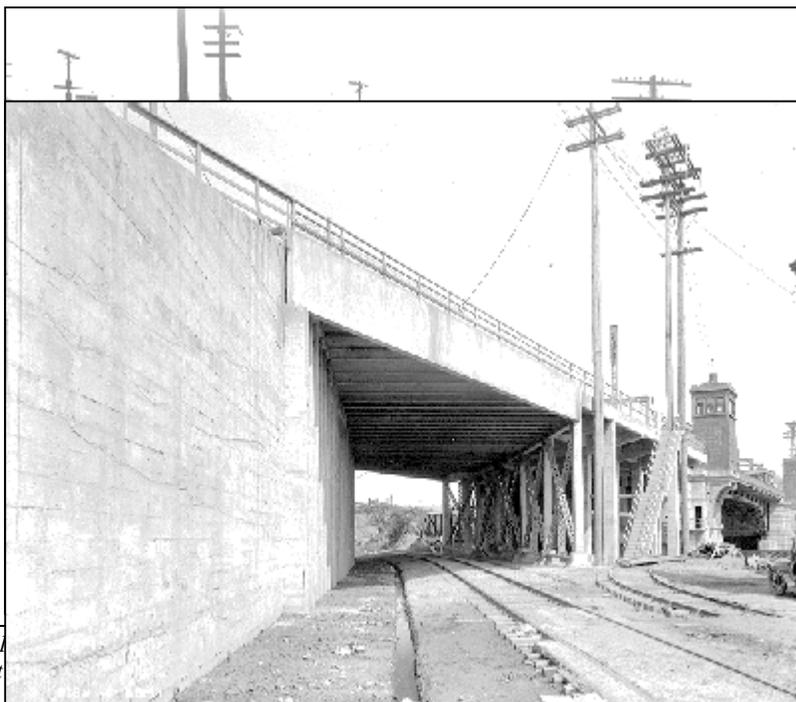


Figure 7: North Approach, June 25, 1917 (photo courtesy Seattle Municipal Archive)

Figure 6: South Approach, June 25, 1917 (photo courtesy Seattle Municipal Archive)

McKenzie Building

The McKenzie Building (3400-3412 Fremont Avenue), located at the northeast corner of Fremont Avenue and 34th Street, is the nearest historic period building to the bridge. The building is listed in the City of Seattle Inventory of Historic Resources. Constructed in 1927, this building has been altered from its historic appearance, particularly by the introduction of new storefronts. Consequently, the McKenzie Building does not appear to meet National Register eligibility criteria.

Bleitz Funeral Home

The Bleitz Funeral Home (316 Florentia Street) is located at the northwest corner of Fremont Avenue and Florentia Street and is listed in the City of Seattle Inventory of Historic Resources. Constructed ca. 1921, this property has been altered from its original appearance. However, the building does retain historic integrity and may be eligible for inclusion in the National Register of Historic Places. There is no view of the bridge approach from the building, which is located below the building's elevation, and is screened from the building by a dense stand of trees.

McKenzie Apartments

The McKenzie Apartments (704 N. 34th Street) is listed in the City of Seattle Inventory of Historic Resources. The building was constructed in 1927 but no longer retains historic integrity and does not appear to be eligible for inclusion in the National Register of Historic Places.

“Waiting for the Interurban”

“Waiting for the Interurban” is a public sculpture located on the southeast corner of Fremont Avenue and N. 34th Street and is listed in the City of Seattle Inventory of Historic Resources. Sculpted in aluminum by Richard Beyer in 1979, the sculpture refers to the Seattle- Everett Interurban electric railway. The Interurban ran between Seattle and Everett from 1910-1939 and the route crossed over the Fremont Bridge. The sculpture is only 25 years old and is not eligible for inclusion in the National Register of Historic Places. This property is not discussed further.

Impacts

This section discusses impacts to those resources determined eligible or potentially eligible for inclusion in the National Register of Historic Places.

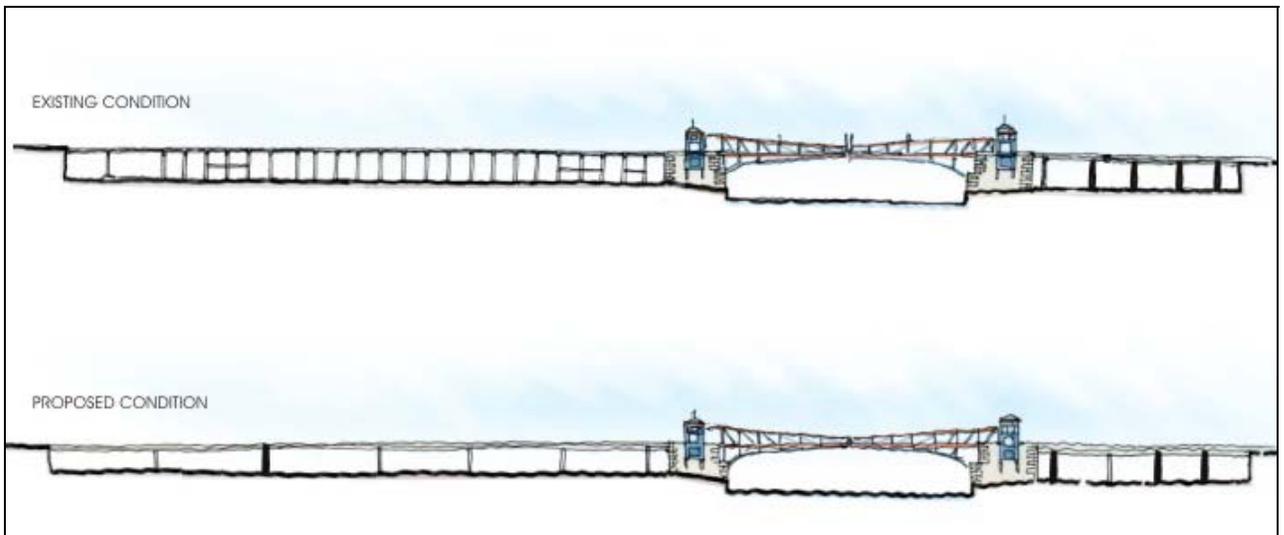
Fremont Bridge

This project will require the demolition and replacement of the existing approaches, as well as the existing sidewalks, lighting, and railings on the approaches. The existing sign bridge trusses on both ends of the bridge will be widened to provide better sight distance for motorists, pedestrians, and bicycles. Four railway cable supports (no longer in use) located on the existing approaches will be removed due to their deteriorating condition and potential safety hazard. The existing pedestrian stairs between the Burke-Gilman Trail and the northern approach may be replaced with wider stairs. The bascule bridge portion, including the bridge tender shacks, the support trusses, the railing between the tender shacks and the bridge deck and bascules, will not be affected by this project.

As discussed, the existing approaches are utilitarian in design, and are not representative of a distinctive type, period, or method of construction. The structures themselves have been modified from their original design and the context of the approaches has changed through the removal of the railroad tracks and through new development. The new approaches will duplicate the existing structure in terms of roadway width and elevation and will appear identical to the existing structures from the roadway. The approaches constitute elements of the bridge's substructure and are not readily visible from the roadway or the waterway. In profile, the new approaches will be of uniform material with longer spans and fewer supports (see Figure 8). Neither the use nor the appearance of the bridge will be changed. Replacement of the approaches will not alter the setting or feeling of the bridge. Input from the public and the Seattle Design Commission was positive regarding the design of the approaches.

The project will replace the existing lighting and railing on the approaches. Existing lighting consists of overhead “cobra head” type streetlights that are not original to the structure. New lighting will be included that is more consistent with historic types known to have existed on the bridge. Examination of historic photographs show no lighting on the approach structures themselves (Figure 9). Instead, lighting consisted of simple overhead lamps strung between the trolley wires and attached to the steel cross-beam structures (Figure 10).

Figure 8: Existing and Proposed Conditions of the Fremont Approaches



A series of proposed lighting designs were presented to the public and to the Seattle Design Commission (Figure 11). Feedback lent support to Option A as the preferred alternative as low-intensity and historically consistent lighting option. During procurement of new lighting, efforts will be made to match the look of the historic lamps.

Figure 9 also shows the historic railing on the north approach. Existing railing is of concrete and aluminum and is not consistent with the historic type. A series of railing types were also presented to the public and the Design Commission (Figure 12). Again, effort will be made during procurement to match the look of the historic railing type as much as possible without sacrificing safety.



Figure 9: North Approach, 1925 (photo courtesy Seattle Municipal Archive)



Figure 10: Approach Showing Overhead Light, June 19, 1936 (photo courtesy Seattle Municipal Archive)

The project will also affect a sign/signal bridge on each of the approaches. In order to provide a safer condition for motorists, bicycles, and pedestrians, the City plans to extend the sign supports to the outside edge of the bridge parapets (see Figure 13). These sign bridges are currently mounted near the curb on the sidewalk and present a physical obstruction. By relocating the supports further from the roadway and towards the edge of the sidewalk, access will be improved as well as the sightlines for both automobiles and non-motorized travelers. The original sign, sign bridge truss, and supports will be reused. The sign bridge will have to be extended somewhat to

Figure 12: Railing Options on Approaches

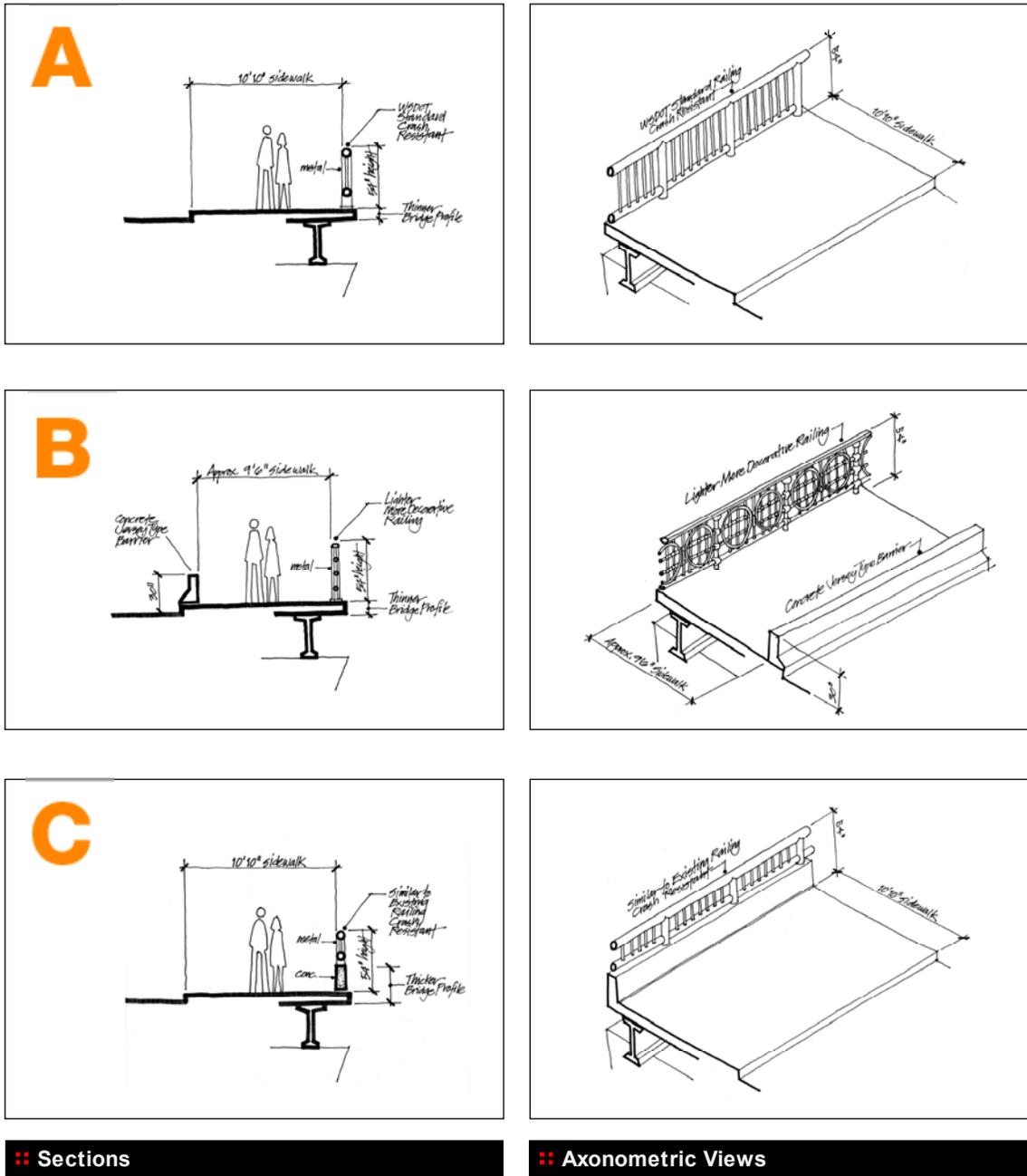


Figure 13: Existing Sign Bridge and Proposed Sign Bridge



Proposed



Existing Condition



Steel Trolley Cable Support

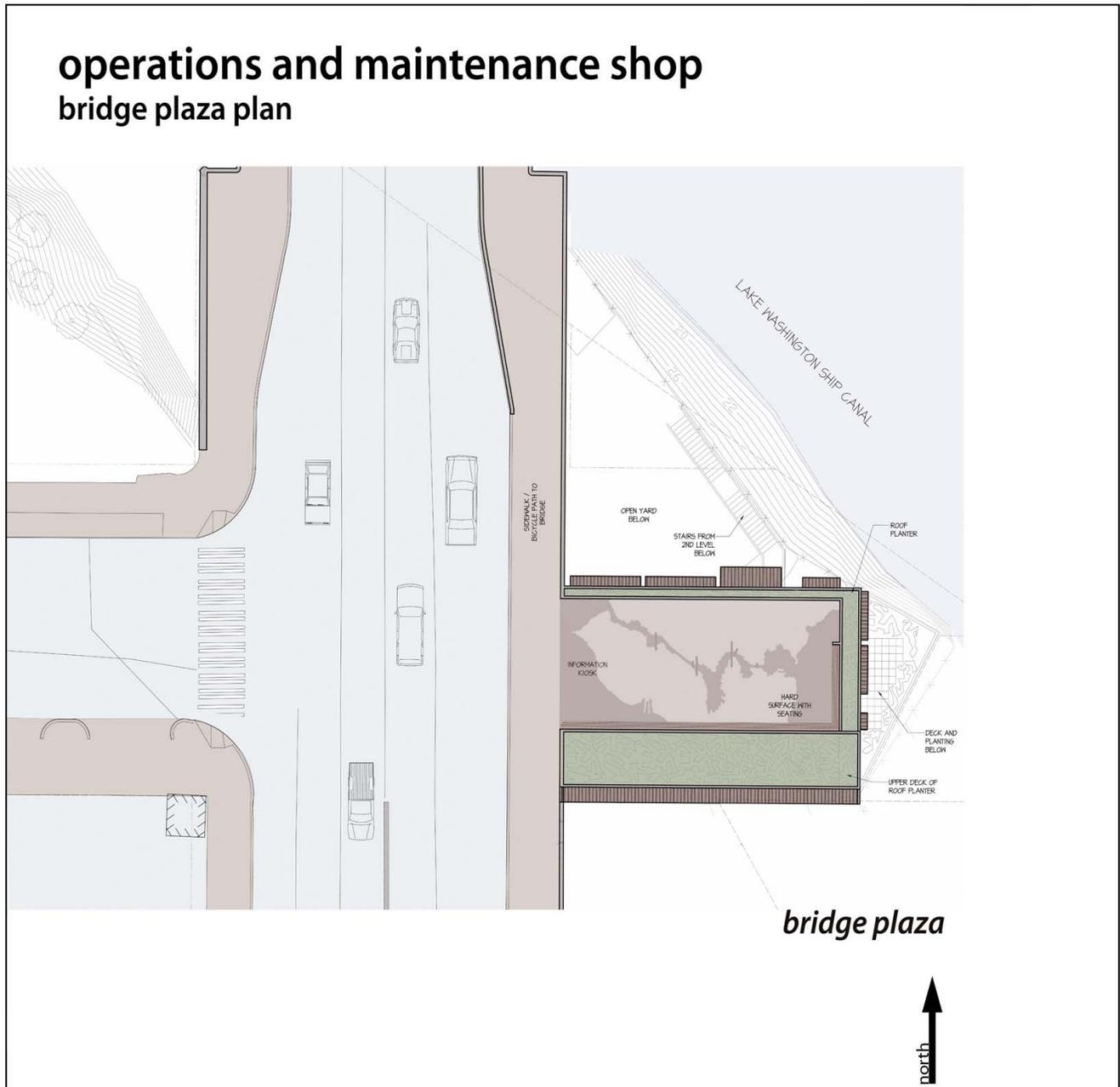
Figure 14: Fremont Bridge Showing Steel Trolley Cable Supports, November 21, 1928 (photo courtesy Seattle Municipal Archive)

In addition to and separate from the sign bridge, there are two sets of steel posts on the approaches (one set on each approach). These posts were originally part of the overhead electric Interurban railway system that operated on the bridge (Figure 14). The City will remove these posts without replacement. The antenna currently located on the southeast post will be relocated. Removal of the steel railway cable supports will slightly alter the visual appearance of the bridge from the approaches. However, these changes will not affect the characteristics of the bridge that qualify it for inclusion in the National Register of Historic Places. The visual integrity of the bridge will be retained. The removal of these posts will provide a safer and clearer pathway for pedestrians and bicyclists.

There may be opportunity to reuse the railway cable support structures on a new deck being constructed as part of the new Operations and Maintenance Facility (Figure 15). Analysis of programmatic function, construction cost and scheduling determined that the best location for the new facility would be adjacent to the bridge approach. This allows the roof of the new building to serve as a public amenity public plaza accessible from the bridge approach sidewalk. The plaza is set back from the bridge edge offering a new vantage point to the public for viewing the opening and closing of the historic drawbridge. It creates a refuge safety zone for pedestrians and the numerous bicyclists on the south side waiting for the bridge to close. Railings on the new plaza will be designed to relate to, but not replicate the historically based railings on the new approaches. The plaza surfacing materials will be used as a design opportunity to provide some visual relief from the overabundance of asphalt roadway concentrated in this area. This design has received overwhelming endorsement from the community at public presentations, focused local leadership reviews and formal review by the Seattle City Design Commission.

The existing stairs from the Burke-Gilman Trail to the northern approach will be removed during demolition of the approach structure. These stairs are recent additions to the bridge and are not part of the historic structure. These stairs may be replaced with wider (6 feet versus the existing 3 feet) stairs to better accommodate pedestrians and bicyclists. These stairs would be replaced in their existing location with similar materials. No change to the visual appearance or historic integrity of the bridge would occur. If not replaced with wider stairs, the original stairs would be reattached to the new approach structure.

Figure 15: Proposed Design of Operation and Maintenance Shop Bridge Plaza



Bleitz Funeral Home, McKenzie Building, and McKenzie Apartments

None of the historic buildings in the project area will be directly affected by the proposed undertaking. No property acquisition or significant viewshed changes will occur. These properties may experience temporary increases in noise, dust and vibration in the immediate vicinity during construction. The demolition of the existing deck structure and columns and the installation of the new support beams would generate some short-term increases in noise levels near the project area. The earthwork and bridge structure demolition would also temporarily

increase fugitive dust in the project vicinity. Access to the funeral home will be impacted for up to approximately 5 months when the west half of the south approach deck is replaced. During this timeframe traffic will not be able to exit onto 4th Avenue North from Florentia Street or enter Florentia Street from 4th Avenue North. Vehicles will need to access the funeral home via the Nickerson Street and Florentia Street intersection during this timeframe.

These impacts will be minimized through the use of Best Management Practices (BMPs) during construction. BMPs would be implemented to ensure minimal amounts of dust and exhaust fumes leave the site. Some BMP measures include watering exposed soil for dust control, regular street cleaning/sweeping, and minimizing vehicle and equipment idling to reduce exhaust emissions at the site.

Temporary short-term additional noise will be generated during demolition and construction of this project. Noise levels will remain within City of Seattle Noise Ordinance levels described in SMC 25.08. At this time, it is expected that construction noise will be limited between 7:00 am and 10:00 pm on weekdays. It is anticipated that the girder placement operation would take place on weekends (during the time between Friday evening at 8:00 p.m. and 5:00 a.m. on Monday morning).

In order to shorten the construction duration, and thus minimize the duration of construction noise impacts, a variance to the Seattle Noise Ordinance may be required for placement of the deck girders. It is anticipated that the girder placement operation would take place on weekends (during the time between Friday evening at 8:00 p.m. and 5:00 a.m. on Monday morning). Double shifting, especially during critical time periods of construction (such as approach deck construction) may be desired to shorten construction duration and lessen the overall construction impacts. No other mitigation measures are proposed at this time.

Views of the bridge at completion of the project will be virtually identical as the existing views, with the exception of the railing, lighting, sign bridge, and steel post removals/replacements described above.

Summary and Conclusion

The purpose of this project is to replace the existing sub-standard bridge approaches (located north and south of the bridge itself) with new approaches that meet current structural design standards. The bascule bridge portion, including the bridge tender shacks, the support trusses, the railing between the tender shacks and the bridge deck and bascules, will not be affected by this project. The approaches are the elevated roadways at each end of the bridge that connect to city streets. Improvements would replace the existing structures for the north and south approaches, and seismically retrofit and strengthen the north approach off-ramp. The new bridge approach structures would be located in the same location as the existing structures.

Sidewalks, railings and lighting on the approach structure would also be replaced. The two sign bridge trusses at either end of the bridge will be widened and the four steel railway cable support posts located on the approaches will be removed. These changes are required to improve motorist and pedestrian/bicyclist safety. The existing stairs from the Burke-Gilman Trail to the northern approach will be removed and may be replaced with wider stairs. The existing Operations and Maintenance shop under the southern approach will be replaced. The new shop will have an observation deck on the roof where pedestrians and bicyclists will be able to view the Fremont Bridge.

There are five historic resources within the Area of Potential Effect for the project: the Fremont Bridge and approaches, the McKenzie Building, the Bleitz Funeral Home, the McKenzie Apartments, and “Waiting for the Interurban”, a public sculpture. The Fremont Bridge (including the approaches) is listed in the National Register of Historic Places and is a City of Seattle Landmark. The other properties are listed in the City of Seattle’s historic inventory but are not officially designated properties. The Bleitz Funeral Home may be eligible for inclusion in the National Register of Historic Places but will not be affected by the proposed undertaking. The McKenzie Building, the McKenzie Apartments, and “Waiting for the Interurban” do not appear meet the criteria of eligibility for inclusion in the National Register of Historic Places and will not be affected by the proposed undertaking.

Replacement of lighting and railings, modification of the sign bridge, and any other modifications to the bridge will be done in a manner consistent with *The Secretary of Interior’s Standards for the Treatment of Historic Properties*.

The criteria of **no adverse effect** have been applied to the proposed undertaking. The proposed undertaking will not alter, either directly or indirectly, the characteristics of the Fremont Bridge and the Bleitz Funeral Home that qualify them for inclusion in the National Register of Historic Places. Subject to comment by the Office of Archaeology and Historic Preservation, **the project will have no adverse effect on the historic properties.**

Appendix A

Fremont Bridge Approaches

Prepared by: Historical Research Associates, Inc., 2002

Fremont Bridge Approaches

Prepared for
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Introduction

King County contracted with Parsons Brinckerhoff to prepare an environmental assessment of for the proposed replacement of the Fremont Bridge approaches. Parsons Brinckerhoff in turn contracted with Historical Research Associates, Inc. (HRA) to conduct cultural resources investigations for the project

Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on properties included in or eligible for inclusion in the National Register of Historic Places. As defined in the regulations implementing Section 106 (36 CFR Part 800), undertakings include: review, funding, licensing, permits or approvals, including those subject to state or local regulations administered pursuant to a delegation or approval by a Federal agency. Evaluation of the National Register eligibility of a historic resource is guided by National Register criteria for evaluation (36 CFR 60).

The definition of an Area of Potential Effects (APE) is the first step in the Section 106 process. The APE is:

the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking” [36 CFR 800.16(d)].

The APE for archeological resources is generally defined by the extent of ground disturbing activities, which may include construction, demolition, staging areas, and equipment storage yards. HRA assessed the potential for subsurface prehistoric and historical archaeological resources within the APE. HRA determined that the heavily disturbed character of the APE largely precludes the possibility of intact subsurface archaeological resources. The areas encompassed by the bridge approaches include city streets, former and current railroad tracks, and areas of extensive industrial use. The potential for intact archaeological remains is considered to be low.

For historical resources, the APE must include physical changes to properties, potential visual and noise effects, and changes in setting. HRA defined the APE as consisting of those properties with a clear view of the Fremont Bridge and its approaches. The APE extends from 34th Street to the north to the intersection of Fremont Avenue, Westlake Avenue N., Dexter Avenue N., and Nickerson Street to the south. The east and west boundaries of the APE are comprised of those properties that front onto the bridge approaches, which are not readily visible.

Archival and Background Research

At the Washington State Office of Archaeology and Historic Preservation (OAHP), HRA gathered historical property inventory forms, National Register of Historic Places (NRHP) and King County Landmark nomination forms, and cultural resource reports for properties located within the APE. Sanborn Fire Insurance Maps from 1917 and 1929 provided information on building construction dates, types, and historic uses.

The Fremont Bridge was listed in the National Register of Historic Places (NRHP) on 16 July 1982. The nominated property consists of the concrete abutments that support the

main span, and the 242-foot long span, all erected in 1917. The bridge is a double-leaf trunnion bascule structure, with each leaf measuring 108 feet in length. The design, by Seattle City Bridge Engineer F. A. Rapp, is based upon the 1898 Chicago River bridges designed by John Ericson, City Engineer of the Chicago Department of Public Works. The concrete piers that support the structure were designed by Seattle City Architect D. R. Huntington. The north and south approaches are not part of the nominated resource.

Field Investigations and Results

The approaches are architecturally undistinguished elevated roadways supported on rows of concrete columns. The south approach measures approximately 50 feet in length and originally spanned the Northern Pacific Railroad tracks. The north approach measures approximately 430 feet in length and carried the approach across several streets and another set of Northern Pacific Railroad tracks, since removed, to 34th Street. Although constructed contemporaneously with the bridge, the approaches do not meet National Register of Historic Places eligibility criteria (36 CFR 60.4). They are utilitarian in design, and are not representative of a distinctive type, period, or method of construction. The railroad tracks spanned by the north approach have been removed and replaced by an underground parking facility that compromises the integrity of the structure. Accordingly, the approaches are determined not to meet National Register of Historic Places eligibility criteria.

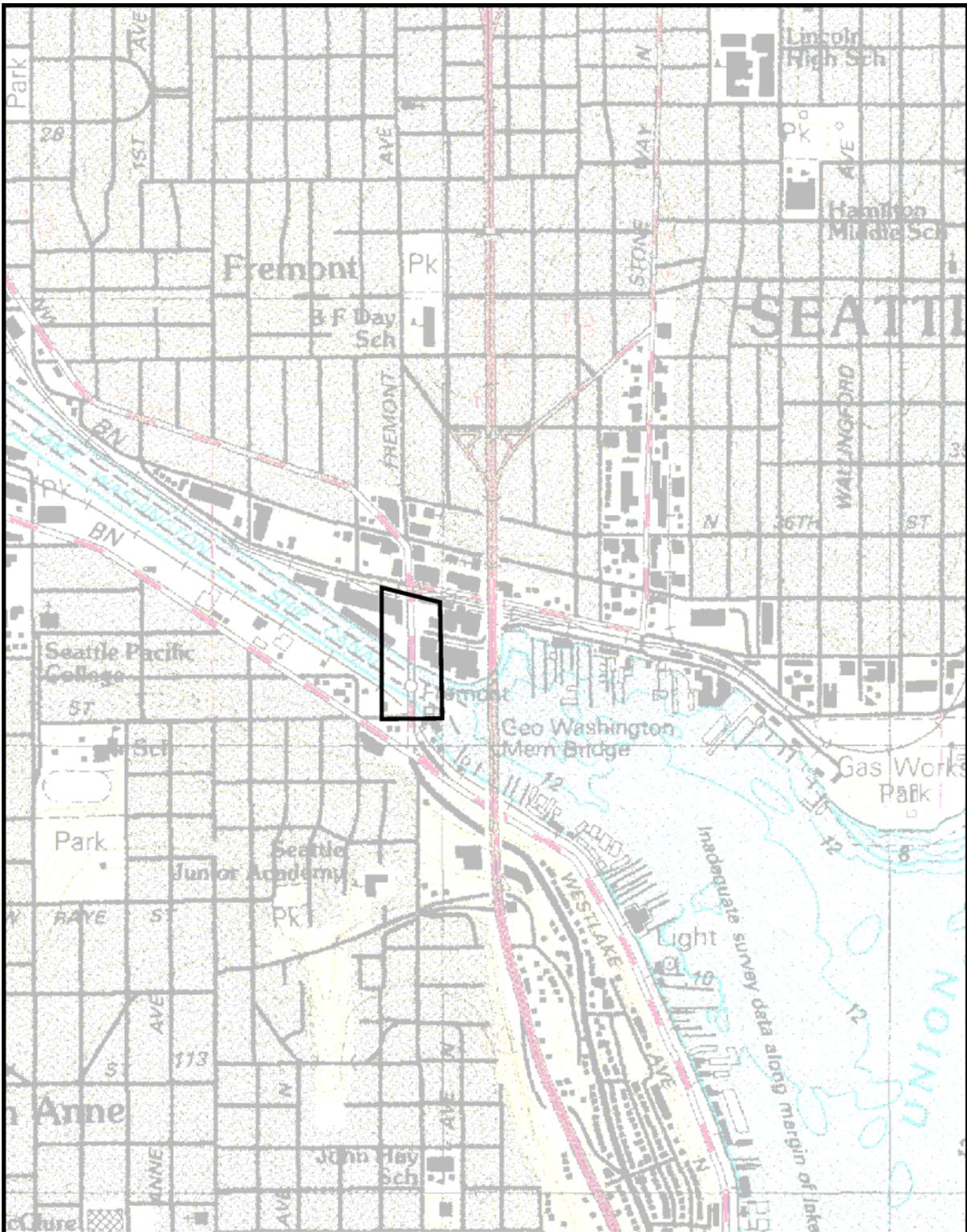
Replacement of the approaches will have no effect upon the qualities that make the Fremont Bridge eligible for the National Register of Historic Places. The approaches constitute elements of the bridge's substructure and are not readily visible from the roadway or the waterway. Replacement of the approaches will not alter the setting or feeling of the bridge. The new approaches will duplicate the existing structure in terms of roadway width and elevation, since they will have to move traffic on and off the existing historic bridge.

In addition to the bridge, there are two resources with the potential to be effected by replacement of the approaches. The area in Fremont at the north end of the bridge has undergone extensive redevelopment in recent years. The McKenzie Building (3400-3412 Fremont Avenue), located at the northeast corner of Fremont Avenue and 34th Street, is the nearest historic period building to the bridge. Constructed in 1927, this building has been altered from its historic appearance, particularly by the introduction of new storefronts. Consequently, the McKenzie Building does not appear to meet National Register eligibility criteria.

The area south of the bridge is dominated by a complex street intersection at Fremont Avenue Westlake Avenue N., Dexter Avenue N., and Nickerson Street. The only historic period building within the APE at the south approach is the Bleitz Funeral Home at the northwest corner of Fremont Avenue and Florentia Street. Constructed ca. 1921, this property has been altered from its original appearance and does not appear to meet National Register eligibility criteria. Additionally, there is no view of the bridge approach from the building, which is located below the building's elevation, and is screened from the building by a dense stand of trees.

In conclusion, the approaches to the Fremont Bridge do not appear to meet National Register of Historic Places eligibility criteria. Replacement of the approaches will have no affect upon the characteristics that make the bridge eligible for the National Register. No

additional properties that appear to meet National Register of Historic Places eligibility criteria were identified within the Area of Potential Effects.



Fremont Bridge Approaches
Area of Potential Effects





1. North Approach: View to Northeast from Bridge Deck



2. South Approach: View to Southwest



3. South Approach: View to West



4. North Approach: View to South



5. North Approach: View to North



6. North Approach: Structural Detail to Northeast



7. North Approach: View to Northwest



8. North Approach: View to Northeast



9. Bleitz Funeral Home: View to West



10. Bleitz Funeral Home: View to North



**11. Bleitz Funeral Home:
View to Southwest Toward Fremont Bridge South Approach**



12. South Approach: View to South Toward Bleitz Funeral Home



**13. South Approach:
View to Southwest Toward Bleitz Funeral Home from Bridge Deck**

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Appendix B

Correspondence