Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

SR 520, I-5 to Medina: Bridge Replacement and HOV Project

Boyer Steps Design Technical Memorandum

Prepared for

Washington State Department of Transportation

Lead Author

Adam Teepe, SR 520 NEPA/SEPA Lead

Consultant Team

HDR

January 20, 2022

We have reviewed and agree with the contents of this memorandum.

Region/Mode Official	**Date**

FHWA Official	**Date**

1. Introduction and Background

The purpose of this memorandum is to document National Environmental Policy Act (NEPA), State Environmental Policy Act (SEPA), Endangered Species Act (ESA), and Section 106 and 4(f) compliance for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project associated with the design of the replacement for the Boyer Steps as part of the Portage Bay Bridge and Roanoke Lid Project. Environmental documentation for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project includes the Final Environmental Impact Statement (EIS) (June 2011) and supporting discipline reports, the Record of Decision (August 2011), SEPA Addenda (October and November 2011), NEPA Environmental Reevaluations (December 2011, January 2012, July 2012, October 2012, February 2013, April 2016, October 2016, July 2018, August 2018, October 2019, and February 2021), and other memoranda. The proposed changes have been compared to findings in the Final Environmental Impact Statement, Record of Decision (ROD), and other existing reports and documentation and are described below.

2. Boyer Steps Replacement

WSDOT is currently completing the conceptual design for the future construction of the Portage Bay Bridge and Roanoke Lid Project. There is an existing stairway on the north side of the SR 520 mainline that connects Boyer Avenue East to Delmar Drive East (Boyer Steps). This stairway needs to be removed to accommodate the width of the new Portage Bay Bridge. To replace the functionality of the stairway, WSDOT and the Seattle Department of Transportation (SDOT) evaluated the feasibility of providing an Americans with Disabilities Act (ADA) accessible connection between Delmar and Boyer. Two potential locations were identified: one on the north side of SR 520 and the other on the south side and partially underneath SR 520.

WSDOT and SDOT determined that an accessible connection located north of SR 520 was not feasible due to insufficient right-of-way (ROW), very steep terrain, and the required acquisition of at least four single family homes, one of which is an NRHP-eligible historic property. In addition, WSDOT and SDOT agreed that an accessible connection in this area would create new accessibility barriers in the neighborhood.

With additional input from the Seattle Design Commission and the community through stakeholder and community outreach efforts, WSDOT and SDOT then refined the original design concept for a replacement trail connection located in the vicinity of the south side of SR 520. This refinement included a more detailed evaluation of the proposed ADA accessible trail connection. Several challenges were identified during this evaluation, including geotechnical constraints, as the proposed accessible route would have to run through the Delmar Landslide Area. This shallow landslide hazard was identified by geotechnical subject matter experts as a safety risk to public users of a trail constructed in this area. For these reasons, both WSDOT and SDOT determined that the concept was technically infeasible and therefore, unable to be constructed. SDOT and WSDOT determined that it was infeasible for WSDOT to install elevators or stair lifts as both proved to have long term maintenance and safety concerns. WSDOT documented removal of the stairs in a NEPA/SEPA Re-Evaluation dated February 22, 2021.

Additional stakeholder and community outreach identified the Boyer Steps provide an important connection for the community. WSDOT and SDOT, including engineers, ADA specialists, and WSDOT and City of Seattle attorneys have worked together to find a suitable alternate connection.

As part of this process, WSDOT and SDOT conducted a coordinated outreach effort focused on mobility and accessibility during Spring 2021. WSDOT and SDOT sent mailers to nearby residents and local agencies in April 2021 inviting participation in an online meeting to discuss mobility enhancements for people with disabilities near the Boyer Steps. Two online meetings occurred on May 6 that provided background on ADA options considered and why they were not feasible. WSDOT and SDOT staff also provided information about the alternate route through the neighborhood, ADA issues, and potential pedestrian improvements on the route. Four community members attended the two meetings. No ADA-related concerns or comments were brought up.

WSDOT determined, and SDOT concurred, that rebuilding this stairway and making on-street improvements to facilitate the use of existing streets as an alternate connection is the best option for replacing the function of the Boyer Steps. As such, the proposal is to replace the Boyer/Delmar connection with stairs at the existing location meeting current standards and reconstruct a small portion of the sidewalk connecting to the stairs (Exhibit A).

As documented in the attached Deviation Request Form (Exhibit B), the proposal to replace the stairs will not meet current ADA guidance. ADA guidance recommends all existing pedestrian facilities disturbed by construction be replaced and meet accessibility requirements to the maximum extent feasible. The replacement stairs and roadway will meet current WSDOT and City of Seattle design standards.

The February 2021 NEPA/SEPA Re-Evaluation for Portage Bay Bridge to I-5 Design Refinements considered removal of the stairs, but consistent with the conclusions in Exhibit B, did not consider an ADA-accessible replacement option as no feasible options had been identified. This memorandum evaluates the proposal to construct a replacement for the stairs in current location, which was not previously considered in the February 2021 NEPA/SEPA Re-Evaluation. The alternate on-street connection, using the sidewalk connection via East Edgar Street, would remain the same as today, which was identified in the February 2021 NEPA/SEPA Re-Evaluation as the shortest alternative route for all users if the stairs were removed. To improve pedestrian access, WSDOT will provide funding to SDOT to repair damaged panels in the existing sidewalk, remove blocking vegetation, and install curb ramps along the route.

3. Environmental Analysis

FHWA and WSDOT have evaluated the proposed design change, changes to the affected environment, and potential changes to the environmental effects as previously described in the Final EIS. FHWA and WSDOT have concluded that no new significant environmental impacts, beyond those described in the Final EIS and ROD, would result from the changed conditions. Changes pertaining to specific resources that have the potential to be affected are described below.

Ecosystems

The replacement of the Boyer stairs would not result in impacts to ecosystems not previously consulted on. The replacement would not result in any changes to the authorized wetland impacts for the project; therefore, no impacts are anticipated. The impacts described in Sections 5.11 and 6.11 of the Final EIS would not change. A WSDOT biologist has reviewed and concurred with this analysis.

Transportation

No impacts to transportation would occur from replacement of the stairs. The project is located along a dead-end vehicle route. Pedestrian access would be temporarily impeded during construction but would be restored once the project is completed. The restoration of pedestrian access would be an improvement over the impacts described in the February 2021 NEPA/SEPA Re-evaluation. The impacts described in Sections 5.1 and 6.1 of the Final EIS would not change.

Land Use

Land use would not be affected by replacement of the stairs. The impacts described in Sections 5.2 and 6.2 of the Final EIS would not change.

Section 4(f) Resources

The stairs replacement would not constitute a transportation use of Section 4(f) Resources and would not require revisions to the 2011 Section 4(f) evaluation. The impacts described in Chapter 9 of the Final EIS would not change.

Section 6(f) Resources

No Section 6(f) Resources would be converted by replacement of the stairs; therefore, no impacts are anticipated. The impacts described in Chapter 10 of the Final EIS would not change.

Recreation

Recreational resources would not be adversely affected by replacement of the stairs. The impacts described in Sections 5.4 and 6.4 of the Final EIS would not change.

Visual Resources

No impacts to visual resources would occur from replacement of the stairs. The impacts described in Sections 5.5 and 6.5 of the 2011 Final EIS would not change.

Noise and Vibration

No additional impacts from noise and vibration would occur from replacement of the stairs. The impacts described in Sections 5.7 and 6.7 of the 2011 Final EIS would not change.

Cultural Resources

The Boyer stairs replacement site is within the previously consulted upon Area of Potential Effects. Consultation under Section 106 of the National Historic Preservation Act did not identify the stairs as a historic property eligible for inclusion on the National Register of Historic Places. Further, they are located outside of the boundary of the Roanoke Park

Historic District. As such, replacing them would not result in an adverse effect, as new stair connections are consistent with what was there previously and would not result in direct impacts. In addition, indirect impacts to aspects of setting, feeling, or association for adjacent historic properties are not anticipated. No adverse impacts effects are anticipated. A WSDOT cultural resources specialist has reviewed and concurred with this analysis.

Air Quality

The replacement of the stairs would not impact air quality. The impacts described in Sections 5.8 and 6.8 of the Final EIS would not change.

Hazardous Materials

No impacts associated with hazardous materials are anticipated. The impacts described in Sections 5.13 and 6.13 of the Final EIS would not change.

Navigation

Replacement of the stairs would occur in an upland area and would not impact navigation. The impacts described in Sections 5.14 and 6.14 of the Final EIS would not change.

Social Elements

Replacement of the stairs would not change the conclusions regarding community cohesion, demographics, environmental justice communities, tribal fishing, or recreation from the Final EIS. Public parks and recreation facilities would remain open and available to all. The impacts described in Sections 5.3 and 6.3 of the Final EIS would not change. As described in the February 2021 NEPA/SEPA Re-evaluation, the removal of the stairs without replacement would have slightly increased walking travel time for about 40 pedestrians daily and required them to increase their walking distance by a few hundred feet. As currently proposed, the replacement of the stairs would eliminate this potential impact and restore pedestrian access via the stairs.

4. Conclusion

The changes described above will not result in additional effects beyond those described in the Final EA, FONSI, and subsequent Environmental Reevaluations. Therefore, the project remains compliant with current federal, state, local, and departmental regulations and directives with regard to NEPA/SEPA processes, Section 106 and 4(f), and the Endangered Species Act.

Exhibits

A. WSDOT/SDOT Letter of Understanding: Boyer/Delmar Accessible Connection
B. Deviation Request Form

Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program
999 3rd Avenue, Ste. 2200, MS: NB82-99
Seattle, WA 98104
206-770-3500 / Fax: 206-770-3569
TTY: 1-800-833-6388
www.wsdot.wa.gov

April 13, 2021

LTR # PR1750

Jon Layzer
Director, Interagency Programs
Seattle Department of Transportation
700 5th Avenue, Suite 3800
Seattle, WA 98124-4996

RE: SR 520 Program WSDOT/SDOT Letter of Understanding
Boyer/Delmar Accessible Connection

Dear Mr. Layzer,

This is a Letter of Understanding (LOU) between the Washington State Department of Transportation (WSDOT) and the Seattle Department of Transportation (SDOT), hereinafter the "Parties", regarding the Boyer/Delmar Accessible Connection.

WSDOT is currently completing the conceptual design for the future construction of the Portage Bay Bridge and Roanoke Lid Project (Project). There is an existing stairway on the north side of the SR 520 mainline that connects Boyer Avenue East to Delmar Drive East (Boyer Steps). As part of the Project, this stairway needs to be removed to accommodate the width of the new Portage Bay Bridge.

In 2019, WSDOT and SDOT together evaluated the feasibility of providing an accessible connection between Delmar and Boyer to replace the function of the Boyer Steps. Two potential locations were identified: one on the north side of SR 520 and the other on the south side and partially underneath the SR 520.

WSDOT and SDOT determined that an accessible connection located north of SR 520 was not feasible due to insufficient ROW width, very steep terrain, and the required acquisition of at least four single family homes. WSDOT and SDOT agreed that an accessible connection in this area would create new accessibility barriers.

With additional input from the Seattle Design Commission and the community through stakeholder and community outreach efforts, WSDOT and SDOT then refined the original design concept for a replacement trail connection located in the vicinity of the south side of SR 520. This refinement included a more detailed evaluation of the proposed ADA accessible trail connection outlined in Exhibit A, (08/17/20 Feasibility Memo). Several challenges were identified during this evaluation, including significant geotechnical constraints as the proposed accessible route would have to run through the Delmar Landslide Area. This shallow landslide hazard was identified by geotechnical subject matter experts as a significant safety risk to public users of a trail constructed in this area. For these reasons, both WSDOT and SDOT determined that the concept was

technically infeasible and therefore, unable to be constructed. SDOT and WSDOT determined that it was infeasible for WSDOT to install elevators or stair lifts as both proved to have long term maintenance and safety concerns.

A Maximum Extent Feasibility Document (MEF) is being developed to document the inability to achieve full ADA compliance.

Through the additional 2019 stakeholder and community outreach, referenced above, it became apparent that the Boyer Steps provide an important connection for the community. WSDOT and SDOT, including engineers, ADA specialists, and WSDOT and City attorneys have worked together to find a suitable accessible connection. WSDOT has determined and SDOT concurs, that rebuilding this stairway, and making on-street improvements to facilitate the use of existing streets as an accessible connection is the best option for replacing the function of the Boyer Steps. The detailed scope for the proposed improvements is provided in Exhibit B.

The purpose of this LOU is to document the Parties' concurrence on the approach to implement these improvements. The Parties' responsibilities are as follows:

WSDOT's Responsibilities:

- WSDOT, with SDOT's support, will lead the efforts in providing targeted outreach to the disabled community including but not limited to informational flyer design & distribution, determining the extent of flyer distribution, and coordination of community meetings if needed.
- WSDOT will lead development of the MEF. SDOT will review the MEF and both Parties will sign the document to provide concurrence.
- WSDOT intends to pay for SDOT's costs of implementing the proposed improvements, including but not limited to the final design and environmental review, support of WSDOT's public outreach, and any necessary permitting, and construction of the proposed on-street improvements. Funding will be provided through a future Task Order to the existing Project Services Agreement (GCA5962).
- WSDOT will fund and construct the replacement stairway for the Boyer Steps as part of its Project.
- WSDOT commits to working with SDOT to determine the schedule for implementation of the proposed on-street improvements.

SDOT's Responsibilities:

- SDOT will support WSDOT in providing targeted outreach to the disabled community including, but not limited to review of outreach flyers and notices, review and comment on presentations for the community meeting, and attending and participating in community meetings to present approach and answer questions.
- SDOT will review the MEF and both Parties will sign the document to provide concurrence.
- SDOT will use WSDOT's funds to implement the proposed improvements, including but not limited to completing final design and environmental review,

and any necessary permitting, and construction of the proposed on-street improvements.

- SDOT will coordinate with WSDOT on the schedule for implementation of the proposed on-street improvements which is intended to be completed prior to the start of the construction of the Project.

Please indicate your concurrence by signing below and returning a signed PDF to me. We look forward to continuing to work together to implement these improvements.

If you have any questions or concerns regarding the information above, please contact Dawn Yankauskas at 206-730-2402 (mobile), YankaDR@wsdot.wa.gov.

Sincerely,

Omar Jepperson, P.E., DBIA
Program Administrator
SR 520 and AWV Program

Concurrence:

Jonathan Layzer
Jonathan Layzer (Apr 27, 2021 15:43 PDT)

Jon Layzer
Director, Interagency Programs
Seattle Department of Transportation

04/27/2021
Date

cc: Dawn Yankauskas, WSDOT
SR 520 Program Document Control
Ganth Lingam, SDOT

WSDOT

SR 520 BRIDGE REPLACEMENT AND HOV PROGRAM

MEMORANDUM

To: Michael Shaw
SDOT ADA Coordinator

Jon Layzer
SDOT Director of Regional and Interagency Programs

From: Dawn Yankauskas
WSDOT Director of Project Development

Date: August 17, 2020

Subject: **Feasibility analysis of Boyer/Delmar accessible connection near SR 520**

Construction of the new SR 520 Portage Bay Bridge will impact an existing set of stairs between the Bagley Viewpoint and Boyer Ave E, "the Boyer steps", currently located north of the existing SR 520 bridge structure. The existing Boyer steps provide a connection from Delmar Dr. to Boyer Ave. and will have to be removed in order to construct the project as the existing stairs are located within the footprint of the new wider Portage Bay Bridge alignment.

The SR 520 team evaluated the feasibility of providing an accessible connection between Delmar and Boyer to replace the function of the Boyer steps. The team identified two potential locations, one on the north side of the SR520 and the other on the south side and partially underneath the SR 520 (see Figures 1 and 2 below).

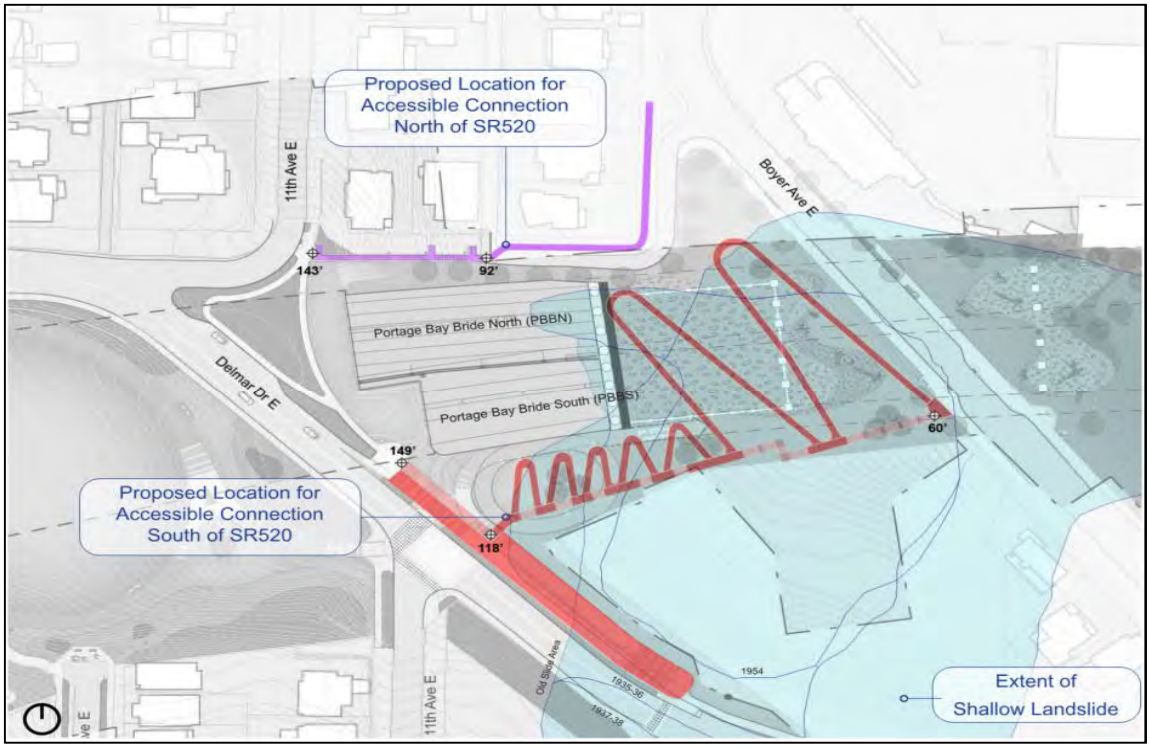


Figure 1. Plan View of Proposed Locations for Boyer/Delmar Accessible Connection (incl. Delmar Landslide Limits)

Wells Fargo Building
999 Third Ave., Suite 2200
Seattle, WA 98104
Phone: 206-770-3500
Fax: 206-770-3569

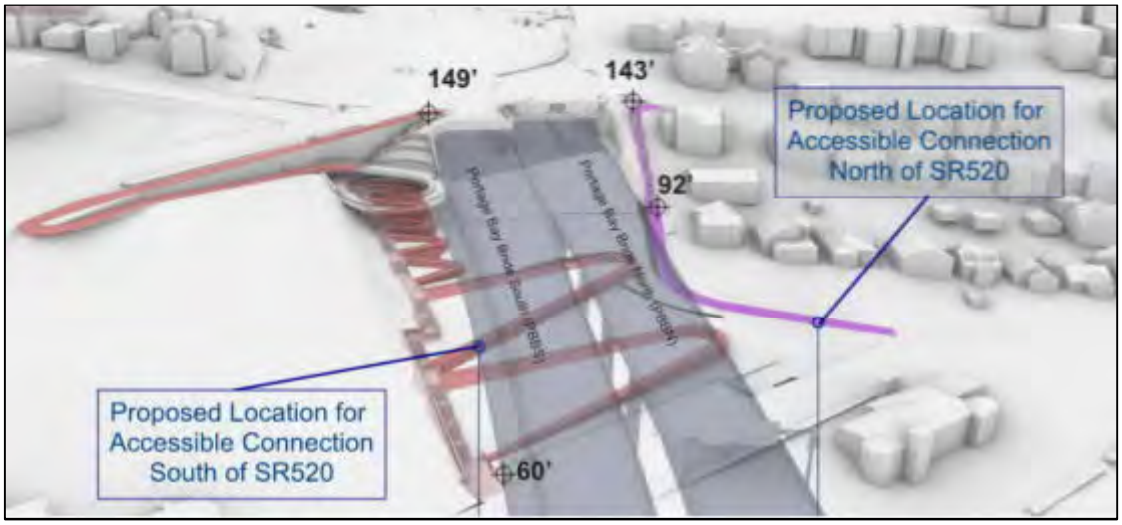


Figure 2. 3-D View of Proposed Locations for Boyer/Delmar Accessible Connection

Proposed Accessible Connection located North of SR520

On the north side of SR 520, the area near the existing stair was examined as a potential accessible connection location. It was determined that providing an ADA ramp as a replacement for the Boyer steps, within the public right-of-way, in this location is not feasible. The vertical drop between the top and the bottom landings is over 100 feet. The space between SR 520 and the available public right-of-way limit in this area is as narrow as 10 feet. There is not enough space within the public right-of-way to meet the ADA requirements to accommodate the length of ramp required per code: maximum of 8.3% profile and 5 foot landings every 2.5 feet of rise.

Adjacent to the public right-of-way, there are single family housing units and an alleyway that serves as access to the residents (refer to Figures 1 and 2). To achieve the ramp length needed to accommodate ADA requirements at this site would require significant walls built and additional right-of-way acquisition to the north. The right-of-way impacts would block access to the adjacent residences' main entryways and driveways or require full acquisition of at least four single family homes, one of which is eligible for listing on the National Register of Historic Places (NRHP). Additionally, the ramp would eliminate the portion of E. Roanoke St located adjacent to the neighborhood, which would require the construction of a turn-around at the end of the remaining alleyway for the remaining adjacent residences. In summation, an ADA-accessible ramp cannot be installed on the north side of SR 520 without creating new accessibility barriers.

Proposed Accessible Connection located South of SR 520

On the south side of the SR 520, there is adequate public right-of-way to build an accessible connection, however, this area is located within the Delmar Landslide Area (DLA) (se Figure 1 for approximate limits of DLA). The existing shallow landslide hazard has been identified by geotechnical subject matter experts as a significant risk to public users of a path constructed here. Please refer to attached memo titled "***Boyer Traverse Pathway beneath the Proposed Portage Bay Bridges (Shannon & Wilson, Inc., September 24, 2019)***" for detailed geotechnical assessment and recommendations.

Due to the physical and site constraints and the unique characteristics of the terrain at this location, an ADA accessible trail is technically infeasible and structurally impracticable. *See* 2010 ADAAG § 106.5 and 28 C.F.R. § 35.151(a)(2)(i).

Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

MEMORANDUM

To: Dawn Yankauskas, PE, and Victoria Morris, PE

From: Carole Leigh, PE, and Jeremy Butkovich, PE (Shannon & Wilson, Inc.)

Date: September 24, 2019

cc: Suryata Halim, PE **Contract & Task Order: Y-11848 CR.02**

Subject: Boyer Traverse Pathway beneath the Proposed Portage Bay Bridges

The Delmar Landslide Area (DLA) is at the western end of the existing and proposed SR 520 Portage Bay Bridges (PBBs). The DLA is about 400 feet wide, 180 feet vertical, and extends about 700 horizontal feet from the Seattle Preparatory School campus down to Portage Bay. About one-third of the DLA is within WSDOT right-of-way; other property owners in the DLA include Seattle Preparatory School, the City of Seattle, and the Queen City Yacht Club.

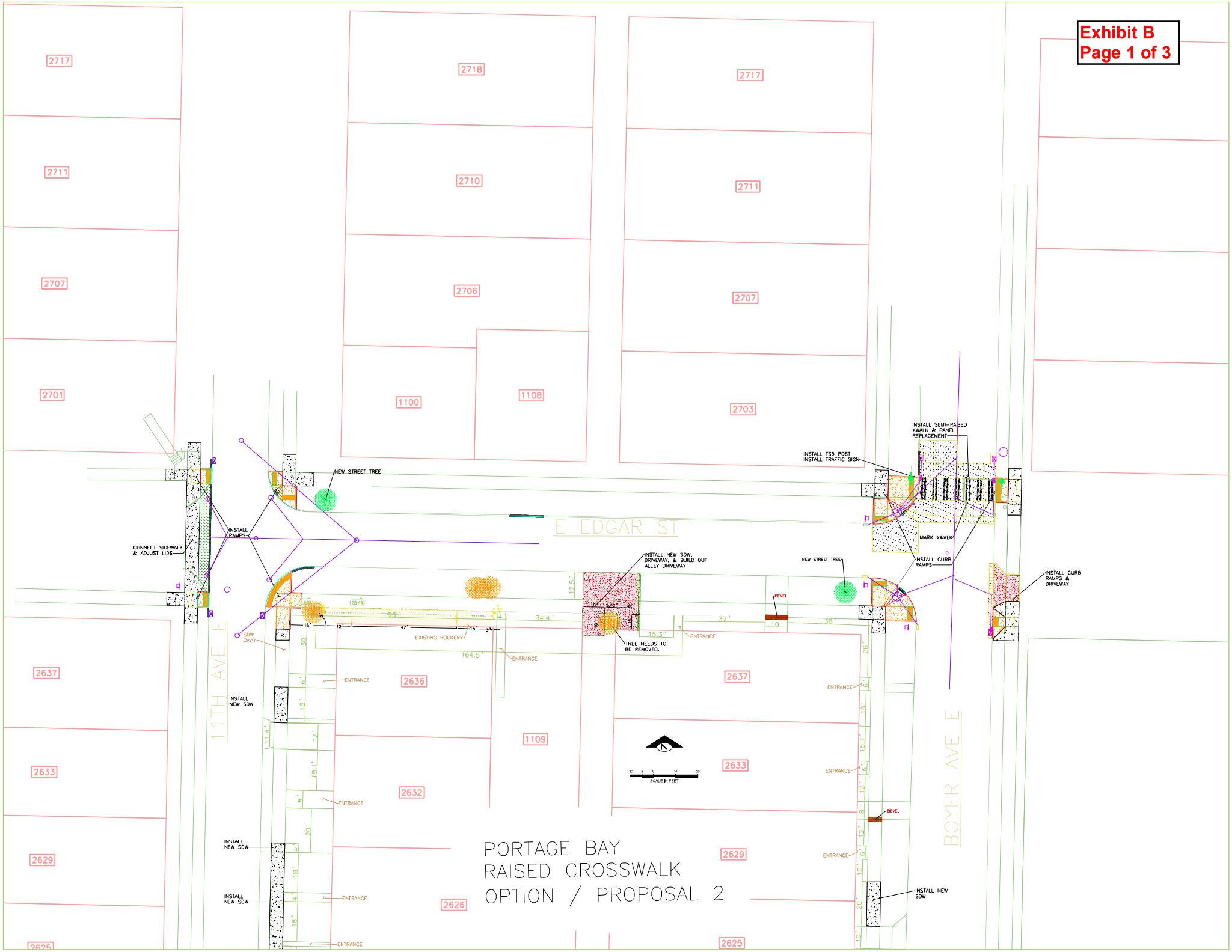
Shallow landslides within 10 to 30 feet of the ground surface are potentially the most likely hazard in the DLA. Shallow landslides that partially buried Delmar Drive and Boyer Avenue occurred in the DLA in the 1930s and 1950s and were associated with rainy season earthwork. More recently, instrumentation installed for the proposed PBB replacement has identified one location of active downhill soil creep. The creep zone is about 15 feet deep and displaced about 3 inches over 6 years before shearing the instrument. Soil movement typically occurred during the rainy season and was likely affected by a downslope maintenance road cut about 2 feet in height. Other instruments have measured between ¼ and ½ inch of creep over 8 years.

The proposed PBB replacement will include shallow landslide hazard mitigation measures at the bridge foundations. Conceptual mitigation measures include soldier pile/tieback walls and sacrificial drilled shafts. These concepts only mitigate the shallow landslide hazard immediately at the PBB foundations and no other areas in or outside the WSDOT right-of-way.

Mitigation measures for a potential ADA accessible trail in this area could take several forms. A series of tiered soldier pile/tieback walls (similar to the proposed measures for the PBB foundations) could protect the path from slides originating uphill within the WSDOT right-of-way. The path could be founded on deep foundations (pin piles or similar) that isolate the path from the landslide-susceptible soil below.

However, in unmitigated areas and areas outside the WSDOT right-of-way, the existing shallow landslide hazard will persist after PBB construction. Areas of the slope will continue to creep downhill. The exact locations and rates of creep are not known but would likely result in cracked and tilted pavement and walls with time and would likely require regular maintenance. Future shallow landslides could also be likely, associated with earthwork during wet weather, concentrated discharge of water onto the slope, or other measures that steepen or add water or increase loads on the slope, including negligent activities by adjacent property owners. These landslides could drop sections of the path several feet and/or bury other sections, resulting in severe damage and rendering it unsafe and unpassable. The public on the path during such a landslide or using the path unawares afterward could be at significant risk of serious injury or worse.

Wells Fargo Building
999 Third Ave., Suite 2200
Seattle, WA 98104
Phone: 206-770-3500
Fax: 206-770-3569


2717
2718
2717
2711
2710
2711
2707
2706
2707
2701
1100
1108
2703
NEW STREET TREE
INSTALL RAMPS
CONNECT SIDEWALK & ADJUST LIDS
E EDGAR ST
INSTALL NEW SDW, DRIVEWAY, & BUILD OUT ALLEY DRIVEWAY
EXISTING ROCKERY
TREE NEEDS TO BE REMOVED.
ENTRANCE
INSTALL T55 POST
INSTALL TRAFFIC SIGN
INSTALL SEMI-RAISED XWALK & PANEL REPLACEMENT
MARK XWALK
INSTALL CURB RAMPS
NEW STREET TREE
INSTALL CURB RAMPS & DRIVEWAY
BEVEL
11TH AVE E
BOYER AVE E
2637
2636
2637
2633
2632
1109
2633
2629
2626
2629
2625
2625
INSTALL NEW SDW
INSTALL NEW SDW
INSTALL NEW SDW
SCALE IN FEET
PORTAGE BAY
RAISED CROSSWALK
OPTION / PROPOSAL 2

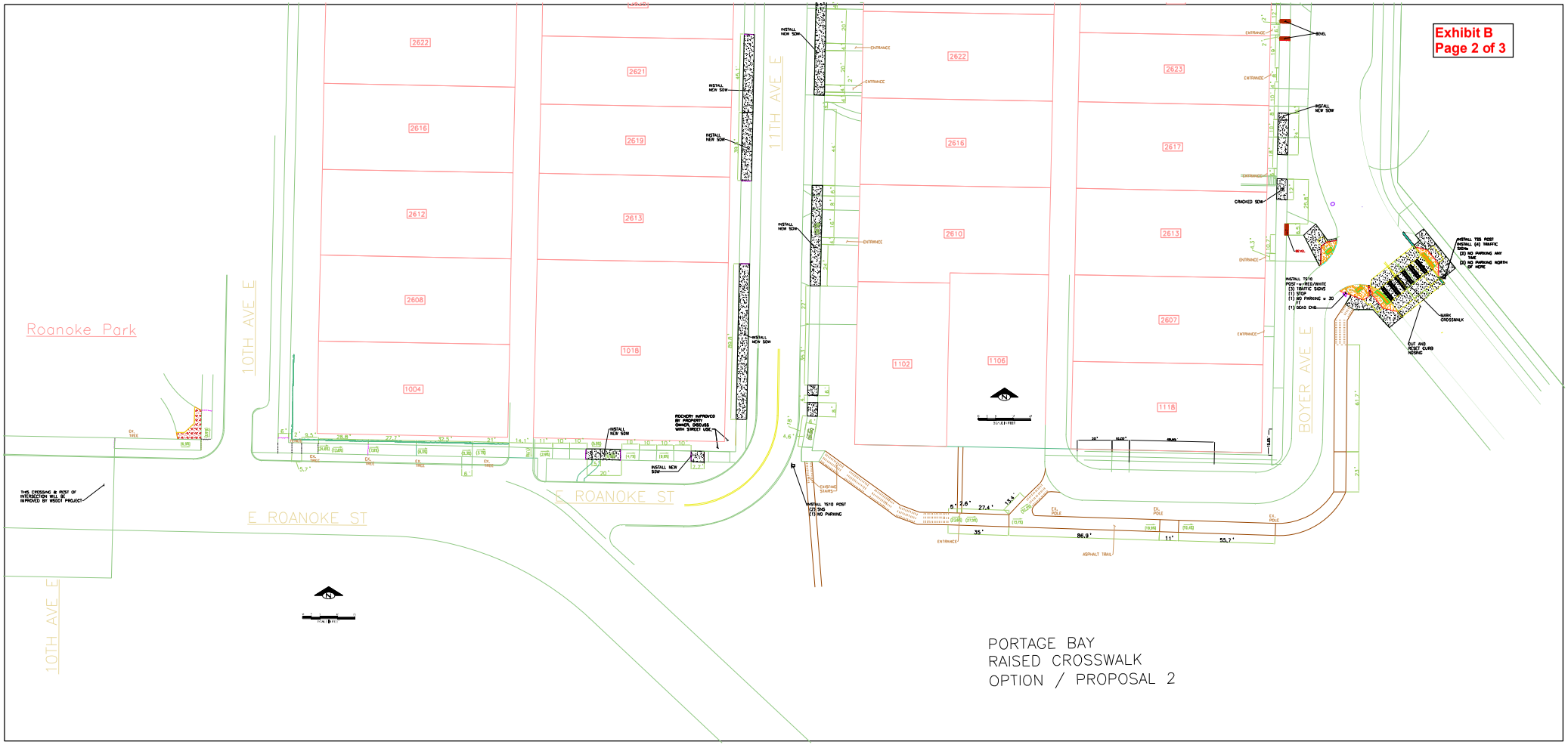
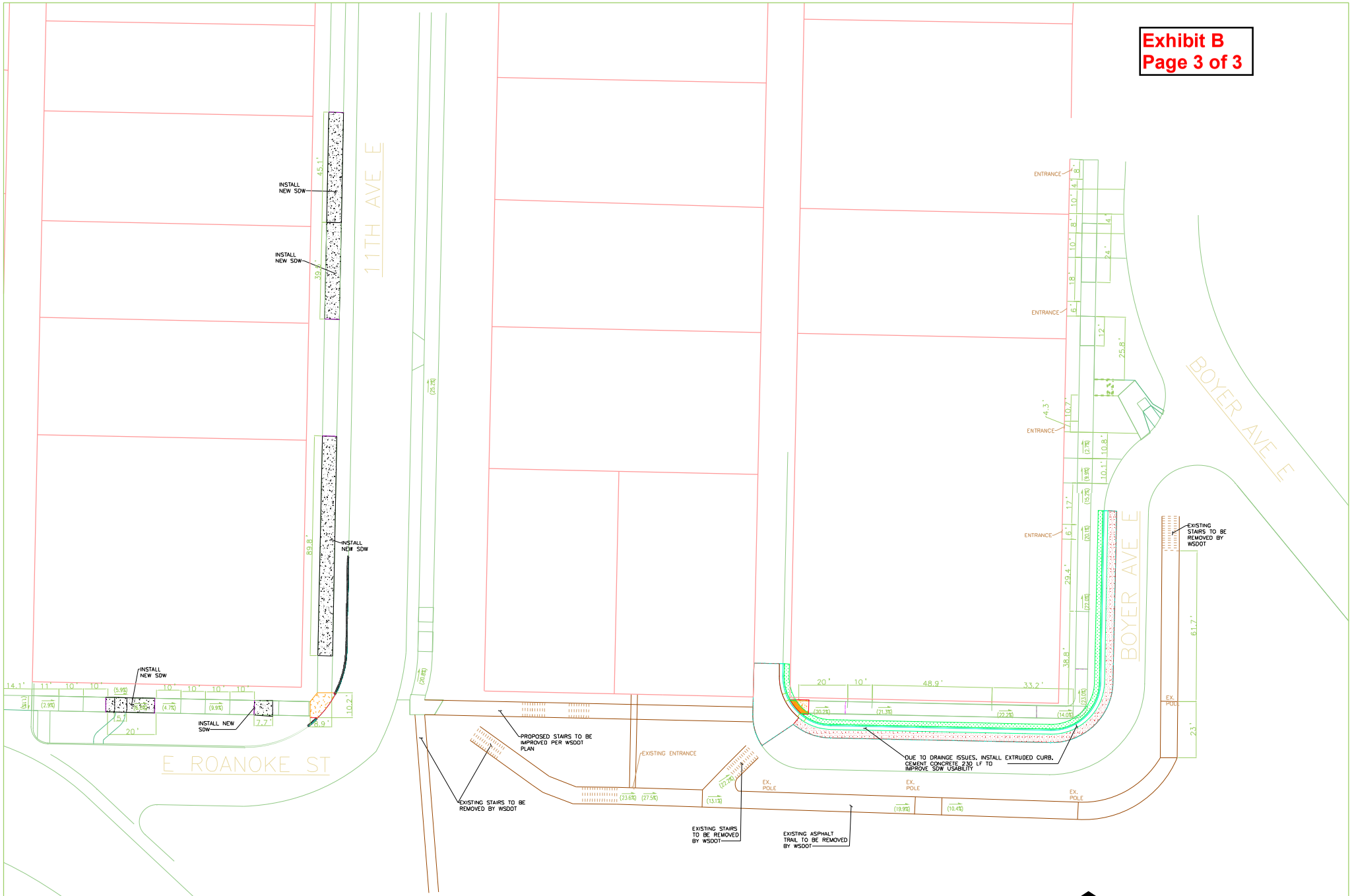


Exhibit B
Page 2 of 3
Roanoke Park
10TH AVE E
11TH AVE E
BOYER AVE E
E ROANOKE ST
E ROANOKE ST
10TH AVE E
2622
2621
2616
2619
2612
2613
2608
1018
1004
2622
2623
2616
2617
2610
2613
1102
1106
2607
1118
INSTALL NEW SDW
INSTALL NEW SDW
INSTALL NEW SDW
INSTALL NEW SDW
INSTALL NEW SDW
INSTALL NEW SDW
ROCKERY APPROVED BY PROPERTY OWNER, DEEDED WITH STREET USE
CRACKED SDW
BEVEL
INSTALL TS10 POST
INSTALL (4) TRAFFIC SIGNS
(2) NO PARKING ANY TIME
(2) NO PARKING NORTH OF HERE
MARK CROSSWALK
CUT AND RESET CURB NOSING
INSTALL TS10 POST = RED/WHITE
(3) TRAFFIC SIGNS
(1) STOP
(1) NO PARKING = 30 FT
(1) DEAD END
INSTALL TS10 POST
(2) SNS
(1) NO PARKING
THIS CROSSING & REST OF INTERSECTION WILL BE IMPROVED BY WSDOT PROJECT
EXISTING STAIRS
ENTRANCE
ASPHALT TRAIL
EX. POLE
EX. TREE
PORTAGE BAY
RAISED CROSSWALK
OPTION / PROPOSAL 2



PORTAGE BAY
SIDEWALK ZONES

Seattle Department of Transportation

DEVIATION REQUEST FORM

Please complete this form and attach materials specified in Streets Illustrated, Chapter 4.6: Deviation Process.

Project Name and Site Address:	Washington State Department of Transportation, SR 520 Portage Bay Bridge and Roanoke Lid
Today's Date:	September 2021
APPLICANT INFORMATION	
Name:	Jim Farris, PE
Contact Phone #:	206 - 492-0909
Mailing Address:	999 3rd Ave, STE 2200 Seattle, WA 98104
SUMMARY OF DEVIATION REQUEST	
Define the existing standard or design criteria to be deviated from: *(include specific references to Standard Plans and Specifications and the ROW Manual when appropriate)*	This is the Maximum Extent Feasible documentation of Washington State Department of Transportation (WSDOT) work which will be performed under the design build contract, Portage Bay Bridge and Roanoke Lid. See the attached text, appendix A.
Summarize the design proposal:	See the attached text for summary of the design proposal.
Describe your reasons for the deviation request: *(e.g., the standard or design criteria can not be met, deviation design supports overall project proposal)*	See the attached text for the reasons for the MEF.

JUSTIFICATION	
Describe how the proposal differs from the existing standard or design criteria:	The existing stairs will be replaced with a new set of stairs instead of an accessible pedestrian route, due to topographical and limited right-of-way issues and soil conditions. Under a separate project, a marginally longer alternative route will be provided and documented.
Describe how traffic safety and operations will not be adversely affected by this deviation:	This is a local access dead end vehicle route, and a pedestrian connection. This does not affect traffic safety or operations.
Describe how the deviation will not adversely affect maintenance and associated costs:	The stairs and sidewalk will meet current standards for stairs, and City standards. This will not change the maintenance needs as compared to the existing condition.
Describe how the aesthetic appearance will be maintained:	The replacement stairs and roadway will meet current standards and City standards.

Proposed by: _____ *P.E. (*Engineer of Record*)*

WSDOT Approval:

WSDOT Regional Approval

Assistant State Design Engineer Approval

Office of Equal Opportunity Concurrence

SDOT Approval:

_____ ~~*Street Use Operations Manager*~~ _____ *Other:* SDOT ADA Engineer

_____ ~~*City Traffic Engineer*~~ _____ *Other:* SDOT Interagency Progr

_____ ~~*CPRS Engineering Manager*~~

SDOT REVIEW AND COMMENTS	
☐ **Approved** ☐ **Denied**	

Appendix A - Maximum Extent Feasible Documentation

September 2021

WSDOT SR 520 Portage Bay and Roanoke Lid Project

Define the existing standard or design criteria to be deviated from:

This document is the Maximum Extent Feasible documentation of Washington State Department of Transportation (WSDOT) work which will be performed under the design-build contract, Portage Bay Bridge and Roanoke Lid. The project constructs a seismically stronger Portage Bay Bridge to replace the existing structure, a community-connecting lid at 10th Avenue East and Delmar Drive East, and extends the regional shared use path with connections to the City of Seattle's (City) non-motorized network. The project will affect an existing City connection on the north side of SR 520. The connection between Boyer Avenue East and Delmar Drive East is known as the Boyer/Delmar connection, comprised of a set of stairs along a steep city street. WSDOT and the City have partnered to come to a marginally longer alternative route agreement. This MEF addresses only the Boyer/Delmar connection. See also, Appendix D, WSDOT/SDOT Letter of Understanding.

Summarize the design proposal:

The WSDOT impact to the existing Boyer/Delmar connection will result in two separate construction projects, which reflect a marginally longer alternative route agreement between WSDOT and the City. For one project, WSDOT and its design builder are responsible for documentation of Portage Bay Bridge design and construction. As part of that effort, WSDOT will replace the Boyer/Delmar connection on City right of way with stairs meeting current standards, and a small portion of sidewalk as necessary, connecting to the stairs. For the other project, the Seattle Department of Transportation (SDOT) is responsible for design and construction of City Street improvements to be funded by WSDOT, which will provide a marginally longer alternative route.

Describe your reasons for the deviation request:

Between I-5 and the Montlake interchange, SR 520 cuts through a ridge in the North Broadway neighborhood and continues as structure over Portage Bay. City street grades on the ridge are approximately 100 feet higher than the grades at the base of the ridge, Boyer Avenue, adjacent to Portage Bay. ADA guidance recommends all existing pedestrian facilities disturbed by construction be replaced and meet accessibility requirements to the maximum extent feasible.

Replacement options for the Boyer/Delmar pedestrian connection were evaluated. The first option is to replace the connection on the north side of SR 520. Providing a ramp meeting ADA criteria on the north side of SR 520 is not feasible. The vertical drop is over 100 feet. The public right of way north of SR 520 is limited; there is insufficient space to accommodate the length of ramp required. To achieve the ramp length necessary to meet running slope would require right of way acquisition. The ramps themselves would block access to the adjacent residences main entryways and driveways, creating new accessibility barriers. The right of way needed would be at least four single family homes, one of which is eligible for listing on the National Register of Historic Places. See Appendix B, Feasibility analysis of Boyer/Delmar accessible connection near SR 520.

The second pedestrian connection evaluated is a ramp system traversing the slope south of SR 520. While there is sufficient space to construct such a facility, it is within a known active landslide area. The existing shallow landslide hazard has been identified by geotechnical subject matter experts as a significant risk to public users of any path constructed in this location. See Appendix C, Boyer Traverse Pathway beneath the Proposed Portage Bay Bridges Geotechnical Memorandum.

Due to the steep terrain, it is not feasible to replace the Boyer/Delmar connection with a reasonably ADA compliant route. Moreover, a compliant pathway cannot be constructed within the existing public right-of-way nor feasibly provided due to impact to adjacent neighborhoods and the presence of an active landslide hazard area. Without a feasible ADA compliant option, the Boyer/Delmar connection will be restored with stairs along the existing City street Right of Way.

Justifications, as noted in SDOT Streets Illustrated Deviation Request Form

Describe how the proposal differs from the existing standard or design criteria:

The existing stairs will be replaced with a new set of stairs instead of an accessible pedestrian route, due to topographical and limited right-of-way issues and soil conditions. Under a separate project, a marginally longer alternative route will be provided and documented.

Describe how traffic safety and operations will not be adversely affected by this deviation:

This is a local access dead end vehicle route, and a pedestrian connection. This does not affect traffic safety or operations.

Describe how the deviation will not adversely affect maintenance and associated costs:

The stairs and sidewalk will meet current standards for stairs and City standards. This will not change the maintenance needs as compared to the existing condition.

Describe how the aesthetic appearance will be maintained:

The replacement stairs and roadway will meet current standards and City standards.

WSDOT

SR 520 BRIDGE REPLACEMENT AND HOV PROGRAM

STATE ROUTE 520

MEMORANDUM

To: Michael Shaw
SDOT ADA Coordinator

Jon Layzer
SDOT Director of Regional and Interagency Programs

From: Dawn Yankauskas
WSDOT Director of Project Development

Date: August 17, 2020

Subject: Feasibility analysis of Boyer/Delmar accessible connection near SR 520

Construction of the new SR 520 Portage Bay Bridge will impact an existing set of stairs between the Bagley Viewpoint and Boyer Ave E, "the Boyer steps", currently located north of the existing SR 520 bridge structure. The existing Boyer steps provide a connection from Delmar Dr. to Boyer Ave. and will have to be removed in order to construct the project as the existing stairs are located within the footprint of the new wider Portage Bay Bridge alignment.

The SR 520 team evaluated the feasibility of providing an accessible connection between Delmar and Boyer to replace the function of the Boyer steps. The team identified two potential locations, one on the north side of the SR520 and the other on the south side and partially underneath the SR 520 (see Figures 1 and 2 below).

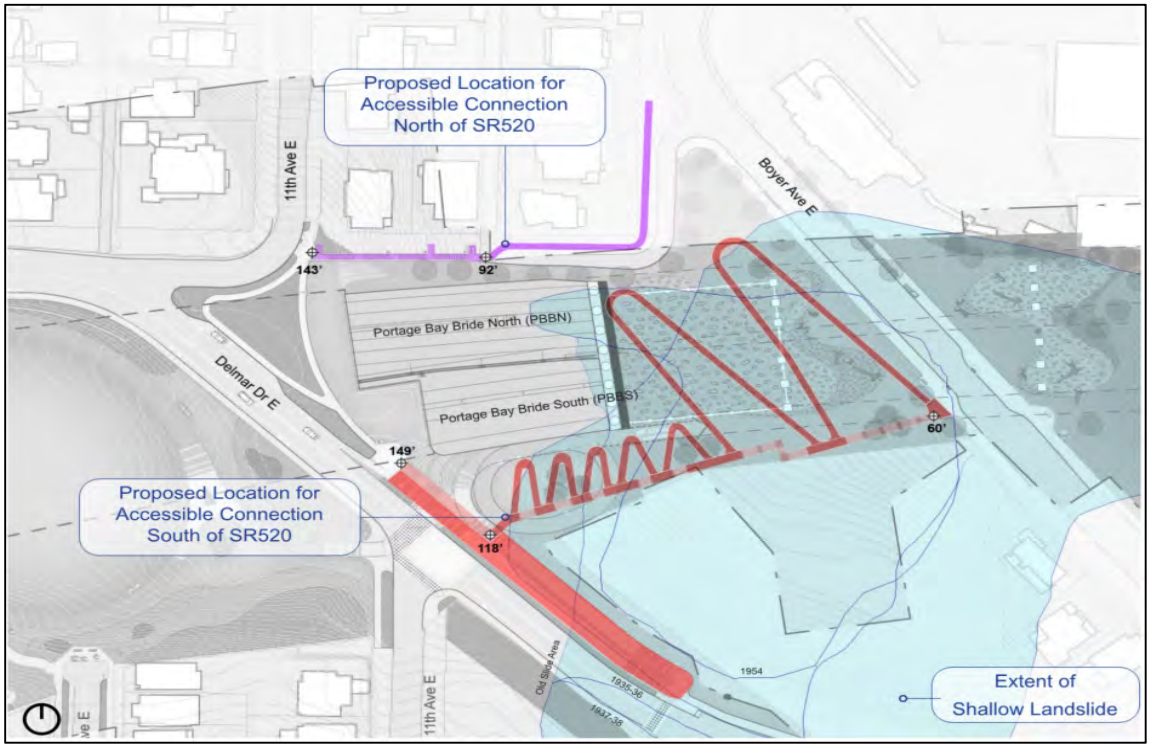


Figure 1. Plan View of Proposed Locations for Boyer/Delmar Accessible Connection (incl. Delmar Landslide Limits)

Wells Fargo Building
999 Third Ave., Suite 2200
Seattle, WA 98104
Phone: 206-770-3500
Fax: 206-770-3569

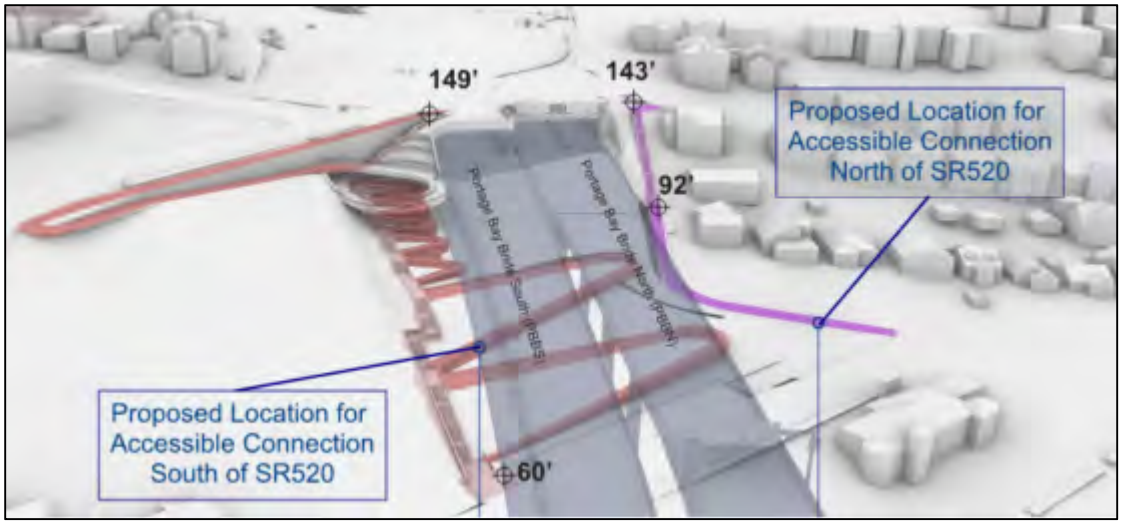


Figure 2. 3-D View of Proposed Locations for Boyer/Delmar Accessible Connection

Proposed Accessible Connection located North of SR520

On the north side of SR 520, the area near the existing stair was examined as a potential accessible connection location. It was determined that providing an ADA ramp as a replacement for the Boyer steps, within the public right-of-way, in this location is not feasible. The vertical drop between the top and the bottom landings is over 100 feet. The space between SR 520 and the available public right-of-way limit in this area is as narrow as 10 feet. There is not enough space within the public right-of-way to meet the ADA requirements to accommodate the length of ramp required per code: maximum of 8.3% profile and 5 foot landings every 2.5 feet of rise.

Adjacent to the public right-of-way, there are single family housing units and an alleyway that serves as access to the residents (refer to Figures 1 and 2). To achieve the ramp length needed to accommodate ADA requirements at this site would require significant walls built and additional right-of-way acquisition to the north. The right-of-way impacts would block access to the adjacent residences' main entryways and driveways or require full acquisition of at least four single family homes, one of which is eligible for listing on the National Register of Historic Places (NRHP). Additionally, the ramp would eliminate the portion of E. Roanoke St located adjacent to the neighborhood, which would require the construction of a turn-around at the end of the remaining alleyway for the remaining adjacent residences. In summation, an ADA-accessible ramp cannot be installed on the north side of SR 520 without creating new accessibility barriers.

Proposed Accessible Connection located South of SR 520

On the south side of the SR 520, there is adequate public right-of-way to build an accessible connection, however, this area is located within the Delmar Landslide Area (DLA) (se Figure 1 for approximate limits of DLA). The existing shallow landslide hazard has been identified by geotechnical subject matter experts as a significant risk to public users of a path constructed here. Please refer to attached memo titled "***Boyer Traverse Pathway beneath the Proposed Portage Bay Bridges (Shannon & Wilson, Inc., September 24, 2019)"*** for detailed geotechnical assessment and recommendations.

Due to the physical and site constraints and the unique characteristics of the terrain at this location, an ADA accessible trail is technically infeasible and structurally impracticable. *See* 2010 ADAAG § 106.5 and 28 C.F.R. § 35.151(a)(2)(i).

Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

MEMORANDUM

To: Dawn Yankauskas, PE, and Victoria Morris, PE

From: Carole Leigh, PE, and Jeremy Butkovich, PE (Shannon & Wilson, Inc.)

Date: September 24, 2019

cc: Suryata Halim, PE **Contract & Task Order: Y-11848 CR.02**

Subject: Boyer Traverse Pathway beneath the Proposed Portage Bay Bridges

The Delmar Landslide Area (DLA) is at the western end of the existing and proposed SR 520 Portage Bay Bridges (PBBs). The DLA is about 400 feet wide, 180 feet vertical, and extends about 700 horizontal feet from the Seattle Preparatory School campus down to Portage Bay. About one-third of the DLA is within WSDOT right-of-way; other property owners in the DLA include Seattle Preparatory School, the City of Seattle, and the Queen City Yacht Club.

Shallow landslides within 10 to 30 feet of the ground surface are potentially the most likely hazard in the DLA. Shallow landslides that partially buried Delmar Drive and Boyer Avenue occurred in the DLA in the 1930s and 1950s and were associated with rainy season earthwork. More recently, instrumentation installed for the proposed PBB replacement has identified one location of active downhill soil creep. The creep zone is about 15 feet deep and displaced about 3 inches over 6 years before shearing the instrument. Soil movement typically occurred during the rainy season and was likely affected by a downslope maintenance road cut about 2 feet in height. Other instruments have measured between ¼ and ½ inch of creep over 8 years.

The proposed PBB replacement will include shallow landslide hazard mitigation measures at the bridge foundations. Conceptual mitigation measures include soldier pile/tieback walls and sacrificial drilled shafts. These concepts only mitigate the shallow landslide hazard immediately at the PBB foundations and no other areas in or outside the WSDOT right-of-way.

Mitigation measures for a potential ADA accessible trail in this area could take several forms. A series of tiered soldier pile/tieback walls (similar to the proposed measures for the PBB foundations) could protect the path from slides originating uphill within the WSDOT right-of-way. The path could be founded on deep foundations (pin piles or similar) that isolate the path from the landslide-susceptible soil below.

However, in unmitigated areas and areas outside the WSDOT right-of-way, the existing shallow landslide hazard will persist after PBB construction. Areas of the slope will continue to creep downhill. The exact locations and rates of creep are not known but would likely result in cracked and tilted pavement and walls with time and would likely require regular maintenance. Future shallow landslides could also be likely, associated with earthwork during wet weather, concentrated discharge of water onto the slope, or other measures that steepen or add water or increase loads on the slope, including negligent activities by adjacent property owners. These landslides could drop sections of the path several feet and/or bury other sections, resulting in severe damage and rendering it unsafe and unpassable. The public on the path during such a landslide or using the path unawares afterward could be at significant risk of serious injury or worse.

Wells Fargo Building
999 Third Ave., Suite 2200
Seattle, WA 98104
Phone: 206-770-3500
Fax: 206-770-3569

DRAFT