

EXECUTIVE SUMMARY

Background and Context

State Route (SR) 302 is an important transportation corridor that connects the communities of Allyn-Grapeview and Purdy on the Kitsap Peninsula, spanning both Mason and Pierce Counties. Lack of alternative routes in the local roadway system makes SR 302 a key regional east-west corridor that links the Key Peninsula rural communities of Victor, Glencove, and Wauna to the Purdy and Gig Harbor communities. SR 302 is used by freight, local traffic, rural commuters, and recreational traffic.

Over the past 20 years, landslides and roadway collapses have resulted in partial or full closures of SR 302 within the study area. These closures resulted in long detours around the affected area. Since then, there has been increased landslide activity along SR 302 between SR 3 and Wright Bliss Road NW, which requires additional analysis and further study of improvement strategies.

In 2021, the Washington State Legislature directed WSDOT to complete a study of SR 302 near the Victor area to address landslides and roadway operations. The 2021-23 Transportation Budget (SB 5165, Section 218 (6)) instructed WSDOT to “do a corridor study of the SR 302 (Victor Area) to recommend safety and infrastructure improvements to address current damage and prevent future roadway collapse and landslides that have caused road closures.” The SR 302 Victor Area Study includes a geotechnical study to specifically address landslide issues. The study is also intended to identify a set of transportation improvements along the corridor between SR 3 and Wright Bliss Road that improve both public safety and highway infrastructure, including improvements to active transportation facilities.

Study Purpose, Problem Statement, Vision Statement, and Goals

The SR 302 Victor Area Study was initiated by establishing a study purpose, problem statement, vision statement, and goals for the study, per the WSDOT Practical Solutions Performance Framework (WSDOT no date (a) [n.d.a]). This study framework was developed by WSDOT and confirmed by the Study Advisory Committee (SAC).

Study Purpose

The SR 302 Victor Area Study is intended to study the cause of landslides and identify potential solutions. In addition, the study will evaluate SR 302 from SR 3 to Wright Bliss Road to look at public safety and infrastructure improvements to the roadway, including improvements for active transportation.

Problem Statement

SR 302 in the Victor area of Mason County is at high risk of roadway closure due to flooding and landslides, causing resiliency and infrastructure issues. Landslides cause frequent damage to the

Vision Statement

Provide a resilient and efficient multimodal transportation system that improves mobility by identifying solutions to prevent impacts to the highways from landslides and improving the roadway for all users.

Study Goals

- **Advancing Equity** – Improve and protect health, safety, and accessibility for vulnerable populations, especially in low-income communities and communities that spend more, and longer, to get where they need to go.
- **Safety** – Enhance crash reduction potential for active transportation users.
- **Environment** – Identify environmental resources that need to be protected.
- **Multimodal** – Create a transportation system that enables safe, convenient access for all types of transportation options: walking, biking, driving, and riding transit.
- **Mobility** – Improve the predictable movement of goods and people.
- **Economic Vitality** – Increase access to work and non-work destinations by multiple modes.
- **Resiliency** – Create a transportation system that is resilient against climate change and natural disaster impacts.

Study Process

The SR 302 Victor Area Study followed the WSDOT Practical Solutions approach, which is a performance-based approach to transportation decision-making. This data-driven approach uses the latest tools and performance measures to seek lower cost efficiencies in operating highways, ferries, transit, and rail and reduce travel demand to save money and reduce the need for building costly new infrastructure. This study will identify agreed-upon needs-ranked strategies and will assist WSDOT and others to make decisions on improving transportation along the SR 302 corridor within the study area.

The major work elements completed as part of this study include:

- Section 3 – Guidance from the SAC and input through community engagement, including an online open house.
- Section 4 – Documenting existing characteristics of the SR 302 corridor within the study area.
- Section 5 – Summarizing existing geotechnical conditions and recommendations.
- Section 6 – Analyzing existing and future transportation conditions and crash analysis.

- Section 7 – Documenting existing environmental characteristics of the SR 302 corridor within the study area.
- Section 8 – Documenting how strategies to address the study purpose along the SR 302 corridor within the study area were developed and evaluated.
- Section 9 – Documenting list of recommendations presented to the SAC for support.
- Section 10 – Recommending next steps.

Strategy Development and Screening

Geotechnical Strategy Development

The legislative proviso to perform the SR 302 Victor Area Study included identifying solutions to address landslides that have caused recent road closures. The consultant team performed a geotechnical engineering study that evaluated the soil and ground water conditions in the slide study area to aid in the development and evaluation of a landslide repair. From the subsurface exploration and the laboratory testing of samples collected, two main issues were identified: roadway movements and ancient slide.

Several strategies were evaluated to address drainage issues and roadway stability in the short term and midterm, and additional long-term strategies were evaluated to address the ancient slide. These strategies were screened according to performance measures for slope stability; design efforts; surfaces exposed to wave action, flood, and tides; roadway shoulder width on each side of the road; permittable; maintenance intervals; maintenance effort and impacts; cost; and detours and delays during construction.

These geotechnical recommendations were identified first before any transportation strategies were developed and screened. The recommended geotechnical solutions all allow the roadway to be expanded, if necessary, to accommodate transportation strategy recommendations.

Transportation Strategy Development

A multistep screening process was used to identify, screen, evaluate, and rank potential strategies. The first step in the screening process was to generate ideas with potential to address the needs of the corridor. Based on the study purpose and the transportation analysis of existing and future No Build conditions, the study team and SAC developed transportation strategies to address the corridor issues. Suggestions were also collected from the public through the online open house. Safety concerns were noted by participants in the online open house, as discussed in Section 3.3. In fact, safety was noted as the biggest existing challenge for travelers on the SR 302 corridor within the study area. Participants suggested strategies such as better lighting, better signage, and reduced speed limits. As discussed in Section 6.3, SR 302 has not been identified as a CAL/CAC within the study area. Safety has not been identified as a transportation need for the SR 302 corridor within the study area at this time, so safety countermeasures were

not evaluated as potential strategies. A total of eight transportation strategies, not related to safety countermeasures, were identified and evaluated for this study.

Level 1 Screening

Level 1 Screening was a high-level screening process meant to screen out any transportation strategies that would not meet the study goals. For Level 1 Screening, five questions related to the study goals were developed. If the answer to all five questions for a strategy was a “yes,” then the strategy passed Level 1 Screening. Four of the strategies evaluated for Level 1 Screening passed, and four strategies did not pass.

Level 2 Screening

Level 2 Screening was a more detailed screening process meant to narrow down the strategies to a preferred strategy or strategies. The strategies evaluated were No Build, Strategy #1 Improved Shoulder on SR 302, and Strategy #2 Shared-Use Path Adjacent to SR 302.

For Level 2 Screening, performance measures were developed based on the study goals and the WSDOT Practical Solutions Performance Framework (WSDOT n.d.a). For each performance measure, scores from 1 to 3 were assigned, with a score of 1 being low performing and a score of 3 being high performing. Each strategy was evaluated for each corridor segment separately. Planning-level cost estimates were developed for each strategy, the ranges of which are shown below:

- **Strategy #1 Improved Shoulder on SR 302:**
 - Segment 1: \$2.8 million to \$3.8 million
 - Segment 2: \$31.1 million to \$41.5 million
 - Segment 3: \$14.5 million to \$19.3 million
- **Strategy #2 Shared-Use Path Adjacent to SR 302:**
 - Segment 1: \$3 million to \$4 million
 - Segment 2: \$38.7 million to \$51.6 million
 - Segment 3: \$14.4 million to \$19.1 million

The highest scoring strategy was Strategy #2 Shared-Use Path Adjacent to SR 302. The pros of Strategy #2 Shared-Use Path are that it would provide improvements to active transportation user safety, multimodal mobility, accessibility, environment, and resiliency. The cons of Strategy #2 Shared-Use Path are that it would impact the number of conflict points, would have potential impacts to residential property in historically disadvantaged communities, and would require the highest cost of all the strategies due to widening and related retaining walls. This strategy would have minimal impacts to vehicles and freight.

Recommendations

- **Short-term/lower cost partial mitigation:** the geotechnical recommendation is lightweight cellular concrete fill with drainage improvements. The intention is to reduce groundwater levels to improve the stability of the roadway slope. For transportation, the recommendation is to improve communication during roadway closures of SR 302 for both planned construction and potential emergencies.
- **Mid-term/partial mitigation:** the geotechnical recommendation is aggregate shafts with drainage improvements. The intention is to replace weak soils below the roadway and improve the stability of the roadway slope by improving the strength parameters of the existing soils.
- **Long-term/full mitigation:** the long-term geotechnical recommendation is anchored slope stabilization with drainage improvements. The intention is to stabilize the ancient slide and roadway slope. For transportation, the recommendation is to continue to evaluate active transportation facilities on SR 302. Either Strategy #1 Improved Shoulder or Strategy #2 Shared-Use Path could be considered, as both would provide improvements to active transportation user safety, multimodal mobility, accessibility, and resiliency on SR 302 in the study area. Both types of active transportation facilities along SR 302 in the study area would also include high costs and potential impacts to environmental resources and right-of-way. However, as part of the planning-level cost estimates, it was assumed that any environmentally sensitive areas that would be impacted by these strategies would be improved or mitigated. Due to the context of the study area and the high costs of these strategies, it is recommended that any active transportation facility along SR 302 in the study area be considered in relation to a regional trail network, consistent with both Mason County and Pierce County long-term planning documents.

Next Steps

The recommendations identified in this study will assist WSDOT in addressing the landslide and transportation issues along the SR 302 corridor between SR 3 and Wright Bliss Road NW. This corridor study will be submitted to the legislature.

These strategies will be prioritized on a statewide basis for future implementation, but due to limited state funding, will need to compete for funding with other proposed improvements throughout the state absent other funding sources. Upon completion of this report, funding to implement the recommended strategies, whether from the state, grants, developer contributions, or other sources, needs to be pursued. There is no funding identified for design and construction of the recommended strategies. WSDOT should work with local and regional agencies to incorporate the recommendations of this study into local, regional, and state plans.