DESIGN MEMO

SR 524 (Yew Way) Improvements

RC 1777
UPI# 20-0055

4/7/2022

Snohomish County
Public Works
Transportation and Environmental Services
DESIGN MEMO

SR 524 (Yew Way) Improvements
RC1777, UPI# 20-2055

APPROVED BY: 
Douglas W. McCormick, P.E.
Deputy Director/County Engineer

RECOMMENDED BY: 
Steve Dickson
Director of Transportation & Environmental Services

CONCURRED BY: 
Mohammad Uddin, P.E.
Snohomish County Traffic Engineer

PREPARED BY: 
Sheela George, P.E.
Project Manager

Snohomish County Public Works
3000 Rockefeller Ave, M/S 607
Everett, WA 98201
(425) 388-3488
**Fact Sheet: SR 524 (Yew Way) Improvements**

**Project Proposal**
Snohomish County Public Works proposes to widen and restripe SR 524 (Yew Way) at the intersection of W Bostian/Paradise Lake Road. The widening will allow for an additional storage in the southbound left turn lane from SR 524 (Yew Way) to Paradise Lake Rd/SR 522. The project is scheduled for construction beginning in summer of 2022.

**Project Benefits**
- Improved traffic flow
- Increased storage for southbound traffic turning left

**Project Cost**

<table>
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<tr>
<th>Preliminary Cost Estimate Summary</th>
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<tr>
<td>Construction Sub-Total $245,890</td>
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<td>Design Eng. $98,000</td>
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<tr>
<td>Construction Eng. $49,000</td>
</tr>
<tr>
<td>Total $392,890</td>
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**Project Schedule**

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<td>Construction</td>
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</tbody>
</table>

**Required Permits**
Land Disturbing Activity Permit

**Project Contacts**
Jeff Rivers, Project Engineer
Amber Ortega, EIT, Project Engineer
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1. EXECUTIVE SUMMARY

Snohomish County Public Works proposes to widen and restripe SR 524 (Yew Way) at the intersection of Paradise Lake Road. The widening will allow for an additional storage in the southbound left turn lane from SR 524 (Yew Way) to Paradise Lake Rd/SR 522. The project is scheduled for construction beginning in summer of 2022.

2. VICINITY MAP

![Vicinity Map](image)

3. INTRODUCTION

This design memo outlines the basic criteria and aspects in designing the SR 524 (Yew Way) widening project. The objective of this project is to provide added southbound storage volume for vehicles queued at the SR 524-SR 522 (Maltby Rd) traffic signal. The added storage will reduce the chance of the vehicle queue extending north far enough to block the recently installed traffic signal at the intersection of SR 524 (Yew Way) and Maltby Road, north of the project area.
4. EXISTING CONDITIONS

The existing intersection at SR 524 (Yew Way) and W Bostian/Paradise Lake Road has a single approach lane in the north and south direction with stop signs regulating the northbound and southbound approaching traffic. The westbound approaching traffic is a single lane and is not stop controlled. North of Paradise Lake Road, SR 524 (Yew Way) is classified as an urban minor arterial with a speed limit of 35 miles per hour. South of Paradise Lake Road, West Bostian Road is classified as a local road. The lack of a left turn lane for the southbound traffic turning onto Paradise Lake Rd, in addition to the large number of trucks traveling through this portion of the roadway, causes a backup of traffic that creates a problem for the signalized intersection to the north (Maltby Rd & Yew Way). Images of the intersection are shown in Figures 4-1 and 4-2.

The roadway surface runoff sheet flows from each side of the crowned roadway into roadside ditches and culverts where it joins with stream flow through low lying areas and wetlands to eventually reach Daniel’s Creek.

Utilities in the project area include overhead power lines and buried communications lines. An unused railway exists about 30 feet to the west of and runs parallel to SR 524 (Yew Way) for the length of the project.

The land use near the project site is largely industrial in nature with a few commercial businesses, residences, and a school located within a half mile of the intersection.

Figure 4-1 SR 524 (Yew Way) & Paradise Lake Rd (looking north)
5. PROPOSED IMPROVEMENTS

North of Paradise Lake Road the project will widen SR 524 (Yew Way) by 11 feet on the east side of the roadway in order to add storage capacity for southbound vehicles turning left onto Paradise Lake Road. The roadway will be re-striped so that the southbound traffic will have two lanes: a left turn only lane and a left/thru lane at the intersection. This will result in 200 feet of additional southbound storage and improved traffic flow.

South of Paradise Lake Road, W Bostian Road will be widened by 6 feet on the east side to ease the lane shift through the intersection, and illumination will be added. Due to the poor condition of the existing pavement on W Bostian Rd, replacement of pavement down to subgrade in the northbound lane will be necessary to tie in with the new pavement. Figure 5-1 shows the poor pavement condition on the northbound lane of W Bostian Rd.
These improvements are intended to be an interim solution until WSDOT implements future upgrades of the SR 522 and SR 524 (Yew Way) intersection. In addition to the improvement option chosen, several improvement scenarios were considered and analyzed using VISSIM (a microscopic multi-modal traffic flow simulation software package). Variations of the following scenarios were considered:

- The addition of the bypass lane for southbound traffic on SR 524 (Yew Way) for 400 feet or 800 feet. However, the design work and mitigation needed due to the stream crossing would delay the project.
- Stop control for all approaches of SR 524/W Bostian Rd. This scenario would likely create westbound left turns to spill back to SR-522.
- Close the northbound lane on W Bostian Road and reroute northbound trips to Elm Street/87th Ave via a new connection to the west, but that would require a new rail crossing and additional improvement to the Elm Street/87th Ave SE which would be expensive and time consuming.
- Existing channelization with a coordinated signal installed.

Since this project is intended to provide only temporary relief to the area while a future project is being developed the option chosen provided a balance between benefit and minimal cost and time. This option included avoiding the culvert that crosses SR 524 (Yew Way). Avoiding the culvert shortened the storage length available in the new lane but allowed the project to meet the desired cost and timeline. The WSDOT upgrades will include potentially re-routing traffic in this area as part of the SR 522-Paradise Lake Rd to Snohomish River Bridge—Interchange and Widening project.

See Appendix A for Preliminary Design Plans.
6. TRAFFIC

SR 524 (Yew Way)/W Bostian Rd has a posted speed limit of 35 miles per hour. According to WSDOT’s 2019 VISSIM technical report, the daily congestion at this intersection with Paradise Lake Road is highest during the AM commute period (6-8 a.m.). Peak traffic counts for this hour include 488 southbound vehicles, 509 northbound vehicles, and 409 westbound vehicles. A high volume of trucks adds to the congestion with a south bound volume of single units at 8% and double units at almost 4%.

7. ENVIRONMENTAL AND REQUIRED PERMITS

This project is exempt from the Washington State Environmental Policy Act (SEPA) per WAC 197-11-800(2)(d)(v) and SCC 30.61.035(1)(f). There are no wetlands or streams within the project limits. Daniels Creek lies north of the project limits. A Hydraulic Project Approval (HPA) will not be required. Review of project plans show this project will extend into a stream and wetland buffer. Due to the extent of the improvements a Land Disturbing Activity (LDA) permit will be required, and the project will need to comply with the County Drainage Code (per Chapter 30.63A SCC). The proposed project is not anticipated to disturb one acre or more and will not require coverage under the NPDES Construction Stormwater General Permit.

There is no Federal nexus for this project, thus the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA) will not be applicable.

See Appendix B for Environmental Review Memo.

8. PUBLIC INVOLVEMENT

We will be coordinating with transit agencies and municipalities as well as all utility franchises within the project area. Postcards will be sent out during the design phase of the project to inform residents and business owners of the proposed improvements. A web page has been created to provide the public with access to project information. The need for additional public involvement will be determined as the project design continues.

Project website address:


9. DESIGN CRITERIA

The applicable roadway and intersection design standards for this project include the current editions of the following documents:

- Manual of Uniform Traffic Control Devices (MUTCD), 2009
- Snohomish County Drainage Code 30.63A
- Snohomish County Drainage Manual, July 2021
- Snohomish County Engineering Design and Development Standards (EDDS), 2021
- WSDOT Design Manual, September 2021
- WSDOT Highway Runoff Manual, April 2019
- WSDOT Standards Plans, September 2021
- WDFW 2013 Water Crossing Design Guidelines

<table>
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<tr>
<th>DESIGN ELEMENT</th>
<th>CRITERIA</th>
<th>DESIGN REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Classification</td>
<td>Urban Minor Arterial — SR 524 (Yew Way) Local Access Road – W Bostian Rd</td>
<td>Section 3-02A (EDDS 2021) Arterial circulation map County Road Log – Mobility Software</td>
</tr>
<tr>
<td>Access - Number of access points</td>
<td>1-2 way access or 2-1 way access points for commercial or industrial</td>
<td>Section 2-02B (EDDS 2021)</td>
</tr>
<tr>
<td>Access - Access point types</td>
<td>Commercial: 2-1 ways. Inbound min/max = 15ft/30ft. Outbound min/max = 20ft/35ft. 1-2 way access arterial min/max = 35ft/40ft</td>
<td>Sections 2-03 (EDDS 2021) Drawings 2-010, 2-020, 2-022, 2-024, 2-030, 2-035, 2-045 (EDDS 2021)</td>
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<tr>
<td>Access - Access point location, separation and spacing</td>
<td>100’ separation between adjoining commercial or industrial accesses.</td>
<td>Section 2-04C (EDDS 2021) Drawing 2-050</td>
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<tr>
<td>Access - Horizontal alignment of access points</td>
<td>90 degrees to adjacent road</td>
<td>Section 2-06 (EDDS 2021)</td>
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<tr>
<td>Access - Vertical alignment of access points</td>
<td>Residential: 15’ landing width Commercial: 30’ Residential: ± 7 % max grade Commercial: ± 5 %</td>
<td>Section 2-07 (EDDS 2021) Drawing 2-070 (EDDS 2021)</td>
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<td>Right-of-Way -</td>
<td>80’ for Urban Minor Arterial 60’ Urban Access</td>
<td>Section 3-03A (EDDS 2021) Table 3-1 / Drawing 3-010, 3-030A, 3-030B (EDDS 2021)</td>
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<tr>
<td>Horizontal Alignment - Design speed (DS)</td>
<td>Operating speed = 43 MPH based on operating speed modifier, posted speed 35 MPH, 20 MPH advised on curves</td>
<td>Section 3-06A Table 3-3 (EDDS 2021)</td>
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<tr>
<td>Vertical Alignment - Minimum/Maximum grade</td>
<td>Min: 0.5% Max: Arterial: 10% ; Max: Non-Arterial (Local Access) @ 15%</td>
<td>Section 3-07B,C (EDDS 2021) Table 3-5</td>
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<td>Pedestrian Circulation – Walkway Width</td>
<td>7’ min for commercial, industrial or other development not single family residential</td>
<td>Section 4-06A (EDDS 2021) Drawing 3-010, 3-040</td>
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<td>Side Slopes</td>
<td>3H:1V or flatter for fill slopes 2H:1V or flatter for cut slopes</td>
<td>Section 4-14A (EDDS 2021)</td>
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<td>Roadside Obstacles clear zone</td>
<td>Clear zone distances for roads with posted speeds of 35mph or less shall be 10’ beyond the edge of traveled way</td>
<td>WSDOT Design Manual 1600.02(3) (Sept 2021)</td>
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<tr>
<td>Sight Distance –</td>
<td>Flat road grades, SSD = 305’ minimum. For grade ≥ 3%, SSD shall refer to Table 3-7 of EDDS 2018,</td>
<td>Section 3-08B&amp;D (EDDS 2021) Table 3-6 (Flat Road Grade), Table 3-7 (Grade ≥ 3%),</td>
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### Table 9-1. Design Criteria

<table>
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<th>DESIGN ELEMENT</th>
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<th>DESIGN REFERENCE</th>
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<tr>
<td>Stopping sight distance (SSD)</td>
<td>For Crest vertical curve, SSD shall refer to drawing 3-110 of EDDS 2021</td>
<td>Drawing 3-110 (Crest Curve), Drawing 3-120 (Sag Curve) (EDDS 2021)</td>
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<tr>
<td></td>
<td>For Sag vertical curve, SSD shall refer to drawing 3-120 of EDDS 2021</td>
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<tr>
<td>Intersections - Angle of intersection</td>
<td>90 degrees +/- 5 degrees for new intersections</td>
<td>Section 3-09A (EDDS 2021)</td>
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<td></td>
<td>90 degrees +/- 15 degrees for existing intersections</td>
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<tr>
<td>Sight Distance - Intersection sight distance (ISD)</td>
<td>ISD = 390’ for 35 mph posted speed</td>
<td>Section 3-08A&amp;D (EDDS 2021) Table 3-9 (EDDS 2021)</td>
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<td>Guardrails</td>
<td>Where appropriate pursuant to AASHTO Roadside Design Guide</td>
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### 10. DEVIATIONS

Any deviations to the Snohomish County Public Works Engineering Design and Development Standards (EDDS) on W Bostian Rd will be documented and approved by the County Engineer. WSDOT will not require a deviation for the proposed work on SR 524 (Yew Way).

### 11. DRAINAGE

A targeted drainage report will be developed following the Snohomish County Engineering Design and Development Standards (EDDS), the Snohomish County Drainage Manual and Snohomish County Code.

The project site is located within the Little Bear Creek sub basin within the Cedar-Sammamish Watershed. The existing drainage system consists of a series of roadside ditches and culverts. There is a stream and small wetland that has been identified near the project area. The project area has two threshold discharge areas (TDAs). All of the construction will be occurring within one TDA and creates less than 5,000 square feet of estimated new hard surface. Therefore, no new detention or water quality treatment is required for the proposed roadway improvements. The low impact development techniques used for this project will be in accordance with the Snohomish County Code 30.63A.

### 12. RIGHT OF WAY

No right of way acquisition will be required for the completion of this project. As SR 524 is a WSDOT highway, this project is being completed in coordination with WSDOT. WSDOT has given a verbal approval of the channelization plan. A WSDOT Construction Agreement will be required for the construction of this project.

### 13. UTILITIES

Utilities in the project area include overhead power lines and buried communications lines. Coordination with each utility will be established and ongoing during project design to minimize...
disruption and/or relocation to the utilities. The following utility companies and agencies have been identified within the project limits:

- Wave Broadband
- Snohomish County PUD
- Zayo Fiber

14. FUNDING AND CONSTRUCTION COSTS

This project will be completed using County Road Funds. See Table 14-1 for a summary of the preliminary cost estimate. The full Preliminary Cost Estimate is located in Appendix C.

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<th>ITEM</th>
<th>COST</th>
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<td>Design Eng.</td>
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<td>Construction Eng.</td>
<td>$49,000</td>
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<td><strong>Total</strong></td>
<td><strong>$392,890</strong></td>
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Appendix A

Preliminary Plans
SR 524 WIDENING AT YEW WAY
PARADISE LAKE RD TO MALTBY RD
RC1777
20-0055

Sheet List Table

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<td>LEGEND &amp; DETAIL</td>
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<td>TESC PLAN</td>
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<td>TRAFFIC CONTROL PLAN</td>
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SECTION 25, T. 27 N., R. 5 E., W.M.

CONSTRUCTION CENTERLINE W. BOSTIAN, SR 524

LEGEND:
- INLET PROTECTION
- SAWCUT
- AREA OF PAVEMENT REMOVAL
- AREA OF CLEARING AND GRUBBING
- FILL LINE
- CUT LINE
- EXIST. RIGHT-OF-WAY
- STRAW WATTLE
- SURFACE FLOW DIRECTION
- STORMWATER ENTERING/LEAVING SITE
- EXIST. TREE (DECIDUOUS)
- INLET PROTECTION
- AREA OF PAVEMENT REMOVAL
- AREA OF CLEARING AND GRUBBING
- HMA PAVEMENT

TYPICAL SECTION

ROAD SECTION NOTES:
1. COMPACTED CBGC
2. 0.5' COMPACTED BASE COURSE
3. 0.34' COMPACTED DEPTH HMA CL 1/2" PG 58H-22
4. 0.34' COMPACTED DEPTH HMA CL 1/2" PG 58H-22
5. GEOTEXTILE
6. EXISTING PAVEMENT

Drifting note: Update this figure when Geotech provides final section

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS
SR 524 WIDENING AT YEW WAY
PARADISE LAKE RD TO MALTBY RD

PRELIMINARY
90% SUBMITTAL

DATE APPROVED:
SNOHOMISH COUNTY ENGINEER
REVIEWED AND APPROVED
FOR CONSTRUCTION

DOUGLAS W. McCORMICK, P.E.

LEGEND & DETAILS

18107
20-0055

BPQ
BPQ
NAD 83
NAD 83

0.90

18

REFERENCE SHEETS:
SURVEY NO.:
UPI NO.:
FED. AID PROJ. NO.:
DESIGNED BY:
DRAWN BY:

SNOHOMISH COUNTY
DEPARTMENT OF
PUBLIC WORKS

HORZ. DATUM:
VERT. DATUM:

NAD 83
NAVD 88

20-0055-CV.DWG

Layout Name: LG01

DATE APPROVED:
SNOHOMISH COUNTY ENGINEER
REVIEWED AND APPROVED
FOR CONSTRUCTION

DOUGLAS W. McCORMICK, P.E.

LEGEND & DETAILS
1. The implementation of the TESC measures shown on these plans and the construction, maintenance, replacement, and upgrading of these TESC facilities based on site conditions and the contractor's means and methods is the responsibility of the contractor until all construction is approved.

2. The TESC measures shown on these plans shall be constructed prior to or in conjunction with all clearing and grading so as to ensure no transport of sediment to surface waters, drainage systems, or adjacent properties.

3. The TESC measures shown on these plans are the minimum requirements for anticipated site conditions. During the construction period these TESC measures shall be upgraded/modified as needed for unexpected storm events and changing site conditions (e.g., additional cover measures, additional sump pumps, relocation of silt fences, perimeter protection, etc.).
SECTION 25, T. 27 N, R. 5 E., W.M.

GENERAL SHEET NOTES

1. SEE SHEET LG01 FOR TYPICAL SECTIONS
2. SEE SHEET EC01 FOR SAWCUT LINES & PAVEMENT REMOVAL

LEGEND

FULL DEPTH HMA PAVEMENT

SHEET KEYNOTES

1. CONSTRUCT WIDENING PER TYPICAL SECTIONS ON SHEET LG01

PRELIMINARY

90% SUBMITTAL

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

PLAN & PROFILE
GENERAL NOTES:

1. The contractor shall remove any pavement markings in conflict with the proposed markings or as directed by the engineer.

2. All existing signs to be relocated within the project limits shall be mounted on steel posts, per the special provisions.

3. All stations and offsets are to the bottom of the legend and symbol, unless otherwise noted.

4. Pavement symbols shall be installed in the center of the lanes, or as noted on the plans.

5. Some existing features were not surveyed and have been imported from GIS and are approximate in location.

6. Profiled lines per WSDOT Std Plan M-20.20.

LEGEND

CHANNELIZATION: See detail sheet 5 - Channelization Details
NEW SIGN/NEW SIGN SCHEDULE SHEET 5 - Channelization Details

CHANNELIZATION NOTES

- Profiled Plastic Double Centerline
- Profiled Plastic Edge Line
- Profiled Plastic Wide Solid Lane Line
- STOP Line
- Profiled Plastic Dotted Extension Line
- Traffic Arrow Type 3L per WSDOT Std Plan M-24.60
- Traffic Arrow Type 2L per WSDOT Std Plan M-24.20
- Drainage Marking per WSDOT Std Plan M-64.60

STATION EQUATION

SR 524/VYEW WAY STA 103+92.00
+ PARADISE LAKE RD STA 105+00
N: 422381.760
E: 1054184.855

SCALE IN FEET

WSDOT NORTHWEST REGION
APPROVED CHANNELIZATION PLAN

TRAFFIC ENGINEER - AREA OPERATIONS SIGNED: __________ DATE: __________
PRINT: __________

ENGINEERING MANAGER SIGNED: __________ DATE: __________
PRINT: __________
1. Floodlights shall be provided to mark flagger stations at night.
2. All signs shall be black on orange and be 48"x48" in size unless otherwise noted.
3. Steady burning warning lights (type 'C' mutants] must be used to mark channelizing devices as needed.
4. Contractor to position spotters as required to accommodate work activities.
5. The contractor must place the appropriate construction warning signs accompanying channelizing devices to the current standards listed in Part VI of the MUTCD throughout the duration of construction.
6. The contractor must install such appropriate warning signs as conditions dictate, i.e. rough road ahead, abrupt edge, bumpy, loose gravel, motorcycles use extreme caution, etc.
7. The use of slow or caution signs is not approved.
8. Advisory speeds are not permitted unless approved by the Snohomish County Traffic Engineer.
9. Warning lights for channelizing devices shall be used as necessary. Particular attention should be given to assuring that channelizing devices are maintained and kept clean, visible, and properly positioned at all times.
10. Additional signs or traffic control devices may be required when working on or near intersections.
11. If there is other utility work in the area, the contractor shall coordinate efforts to ensure efficiency, correct signage, and proper vehicular and pedestrian movement through the work zone.
12. The contractor must provide pedestrian facilities or spotters must assist pedestrians through the work zone.
13. The contractor shall coordinate with the School District to ensure safety and efficiency.
14. Signs, markings, and roadway conditions must be repaired or replaced as necessary when contractor completes project.
15. Work zone locations and temporary traffic control devices shall be adjusted as necessary.
16. Contractor shall provide emergency access through the work zone at all times.
17. Existing regulatory signs within construction zone shall be covered.
18. Approved work hours are X:XX PM to X:XX AM. The contractor must return the road to full operation by the end of approved work hours.
1. Floodlights shall be provided to mark flagger stations at night.
2. All signs shall be black on orange and be 48"x48" in size unless otherwise noted.
3. Steady burning warning lights (Type 'C' modular should be used to mark channelizing lane changes as needed.
4. Contractor to position spotters as required to accommodate work activities.
5. The contractor must place the appropriate construction warning signs (refer to Section 26 of the MUTCD) and marking to the current standards listed in Part V of the MUTCD throughout the duration of construction.
6. The contractor must install such appropriate warning signs as conditions dictate, i.e. rough road ahead, abrupt edge, bumpy, loose gravel, motorcycles use extreme caution, etc.
7. The use of slow or caution signs is not approved.
8. Advisory speeds are not permitted unless approved by the Snohomish County Traffic Engineer.
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Notes:

1. Floodlights shall be provided to mark flagger stations at night.
2. All signs shall be black on orange and be 48"x48" in size unless otherwise noted.
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13. The contractor shall coordinate with the school district to ensure safety and efficiency.
14. Sign markings and roadway conditions must be repaired or replaced as necessary when contractor completes project.
15. Work zone locations and temporary traffic control devices shall be adjusted as necessary.
16. Contractor shall provide emergency access through the work zone at all times.
17. Existing regulatory signs within construction zone shall be covered.
18. Approved work hours are XX AM to XX AM. The contractor must return the roadway to full operation by the end of approved work hours.
1. Floodlights shall be provided to mark flagger stations at night.

2. All signs shall be black on orange and be 48" by 48" unless otherwise noted.

3. Steady burning warning lights (Type 'C' MUTCD) should be used to mark channelization at night as needed.

4. Contractor to position spotters as required to accommodate work activities.

5. The contractor must place the appropriate construction warning signs before construction begins and maintain signage to the current standards listed in Part VI of the MUTCD throughout the duration of construction.

6. The contractor must install such appropriate warning signs as conditions dictate. Use rough road ahead, abrupt edge, bump, loose gravel, motorcycles use extreme caution, etc.

7. The use of slow or caution signs is not approved.

8. Advisory speeds are not permitted unless approved by the Snohomish County Traffic Engineer.

9. Warning lights for channelizing devices shall be used as necessary. Particular attention should be given to assuming that channelizing devices are maintained and kept clear, visible, and properly positioned at all times.

10. Additional signs or traffic control devices may be required when working in or near intersections.

11. If there is other utility work in the area, the contractor shall coordinate efforts to ensure efficiency, correct signage, and proper vehicular and pedestrian movement through the work zone.

12. The contractor must provide pedestrian flags or spotters must assist pedestrians through the work zone.

13. The contractor shall coordinate with the school district to ensure safety and efficiency.

14. Signs, markings and roadway conditions must be repaired or replaced as necessary when contractor completes project.

15. Work zone locations and temporary traffic control devices shall be adjusted as necessary.

16. Contractors shall provide emergency access through the work zone at all times.

17. Existing regulatory signs within construction zone shall be covered.

18. Approved work hours are 7:00 AM to 3:00 PM. The contractor must return the road to full operation by the end of approved work hours.

NOTES:

1. All signs shall be black on orange and be 48" by 48" unless otherwise noted.

2. Steady burning warning lights (Type 'C' MUTCD) should be used to mark channelization at night as needed.

3. The contractor must place the appropriate construction warning signs before construction begins and maintain signage to the current standards listed in Part VI of the MUTCD throughout the duration of construction.

4. The contractor must install such appropriate warning signs as conditions dictate. Use rough road ahead, abrupt edge, bump, loose gravel, motorcycles use extreme caution, etc.

5. The use of slow or caution signs is not approved.

6. Advisory speeds are not permitted unless approved by the Snohomish County Traffic Engineer.

7. Warning lights for channelizing devices shall be used as necessary. Particular attention should be given to assuming that channelizing devices are maintained and kept clear, visible, and properly positioned at all times.

8. Additional signs or traffic control devices may be required when working in or near intersections.

9. If there is other utility work in the area, the contractor shall coordinate efforts to ensure efficiency, correct signage, and proper vehicular and pedestrian movement through the work zone.

10. The contractor must provide pedestrian flags or spotters must assist pedestrians through the work zone.

11. The contractor shall coordinate with the school district to ensure safety and efficiency.

12. Signs, markings and roadway conditions must be repaired or replaced as necessary when contractor completes project.

13. Work zone locations and temporary traffic control devices shall be adjusted as necessary.

14. Contractors shall provide emergency access through the work zone at all times.

15. Existing regulatory signs within construction zone shall be covered.

16. Approved work hours are 7:00 AM to 3:00 PM. The contractor must return the road to full operation by the end of approved work hours.
1. Floodlights shall be provided to mark flagger stations at night.
2. All signs shall be black on orange and be 48" x 48" unless otherwise noted.
3. Steady burning warning lights (Type C MUTCD) should be used to mark channelizing devices when needed.
4. Contractor to position spotters as required to accommodate work activities.
5. The contractor must place the appropriate construction warning signs in advance of and marking signage to the current standards listed in Part VI of the MUTCD throughout the duration of construction.
6. The contractor must install such appropriate warning signs as conditions dictate, i.e. rough road ahead, abrupt edge, bumpy, loose gravel, motorcycles use extreme caution, etc.
7. The use of slow or caution signs is not approved.
8. Advisory speeds are not permitted unless approved by the Snohomish County Traffic Engineer.
9. Warning lights for channelizing devices shall be used as necessary. Particular attention should be given to assuring that channelizing devices are maintained and kept clean, visible, and properly positioned at all times.
10. Additional signs or traffic control devices may be required when working in or near intersections.
11. If there is other utility work in the area, the contractor shall coordinate efforts to ensure efficiency, correct signage, and proper vehicular and pedestrian movement through the work zone.
12. The contractor shall coordinate with the school district to ensure safety and efficiency.
13. The contractor shall coordinate the placement of signs to ensure safety and efficiency.
14. Work zone locations and temporary traffic control devices shall be adjusted as necessary.
15. Contractor shall provide emergency access through the work zone at all times.
16. Existing regulatory signs within construction zone shall be covered.
17. Approved work hours are X:XX PM to X:XX AM. The contractor must return the road to full operation by the end of approved work hours.
18. The use of slow or caution signs is not approved.
Appendix B

Environmental Review Memo
DATE: 3/29/2022

TO: Amber Ortega, Engineer II

FROM: Crilly Ritz, Senior Planner II, x2476

SUBJECT: Environmental Review Memo: SR 524 (Yew Way) RC 1777

This memo documents Environmental Services (ENVS) Section’s ☐ revised ☒ preliminary assessment of the proposed project referenced above. The determination of permit and approval requirements are based on field visit on February 2, 2021, and scoping meeting from April 14, 2020 and preliminary design plans.

A. Summary of Permits and Approvals Required

Our assessment may be subject to revision in the event of future design alterations or changes in scope of work, scheduling or funding

FEDERAL
☐ ESA Section 7 Compliance
☐ NEPA Compliance
  ☐ NEPA CE Form
  ☐ Section 106 Compliance
  ☐ Air Study
  ☐ Noise Study
  ☐ Environmental Justice
  ☐ Section 4(f)
  ☐ Section 6(f)
☐ Corps Permit, Section 404-Nationwide
☐ Corps Permit, Section 404-Individual
☐ Corps Permit, Section 10
☐ U.S. Coast Guard

STATE
☐ Forest Practice Permit
☐ HPA ☐ HPA (Fish Enhancement)
☐ NPDES - Construction Stormwater General Permit
☐ Aquatic Land Use Authorization
☐ Section 401, Water Quality Certification
☐ CZM Certification

LOCAL
☒ CAR Compliance
☒ SEPA Compliance (Exempt)
☐ Flood Hazard Permit
☐ Shoreline Permit
☐ Noise Ordinance Compliance
☒ Land Disturbing Activity Permit
☒ Drainage Compliance
☐ OTHER:
B. Project Narrative

Project Description

Project Location

The project is located on SR 524 (Yew Way) at the intersection with Paradise Lake Road. The project site is located within a Light Industrial zoned area within the Maltby Urban Growth Area. State Route 522 lies to the east of the project. The project is located within Section 25, Township 27 North, Range 5 East. W.M. of unincorporated Snohomish County.

Site Description

The existing intersection at SR 524 (Yew Way) and Paradise Lake Road has two lane-two way traffic flow in the north and south direction on SR 524 (Yew Way) and Bostian Road with stop signs regulating the northbound and southbound approaching traffic. The westbound approaching traffic on Paradise Lake Road contains a single lane and is not stop controlled. The north leg of Yew Way/SR 524 is classified as an urban minor arterial with a speed limit of 35 miles per hour. The lack of a left turn lane for the southbound traffic turning left onto Paradise Lake Rd, in addition to the large number of trucks traveling through this portion of the roadway, causes a backup of traffic that creates a problem for the signalized intersection to the north (Maltby Rd. & Yew Way).

This project proposes to widen West Bostian Road and SR 524(Yew Way) at the intersection to improve traffic flow. The widening would provide a left-turn lane that would provide for southbound storage volume for vehicles queued at the SR 524-SR 522 traffic signal. The added storage provided by the left-turn lane will reduce the vehicle queue length extending north so that it does not block the recently installed traffic signal at the intersection of SR 524 (Yew Way) and Maltby Road, north of the project area. The left turn lane pocket provides supplemental traffic storage to prevent traffic backup from affecting the Yew Way and Maltby Rd intersection.

Potential Environmental Impacts and Issues

This project is exempt from the Washington State Environmental Policy Act (SEPA) per WAC 197-11-800(2)(d)(v) and SCC 30.61.035(1)(f). There are no wetlands or streams within the project limits. Daniels Creek lies north of the project limits. A Hydraulic Project Approval (HPA) will not be required. Review of project plans show this project will extend into a stream buffer. Due to the extent of the improvements a Land Disturbing Activity (LDA) permit will be required and he project will need to comply with the County Drainage Code (per Chapter 30.63A SCC). The proposed project is not anticipated to disturb one acre or more and will not require coverage under the NPDES Construction Stormwater General Permit.
There is no Federal nexus for this project, thus the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA) will not be applicable.

**Critical Area Impacts**

Daniels Creek, a Type F stream, flows through a 36-inch culvert to the north of the project site. A 150-foot standard buffer around the creek is required per SCC 30.62A.320(1) Table 2a.

The design will also need to meet the no new effective impervious surfaces requirement within the buffer of streams and wetlands requirement per SCC 30.62A.320(1)(c).

BMPs will be used to minimize construction stormwater runoff into the stream. Where appropriate, impacted areas will be replanted with native vegetation once construction is complete and compensatory plantings would occur as determined during final design.

**Fish and Wildlife Impacts**

According to WDFW Fish Passage and Diversion Inventory Database, Daniels Creek flows through culverts to the north (WSDOT ID 994124) and south (WSDOT ID 994123) of the project site. The creek is a tributary to Cottage Lake Creek and WDFW identifies the stream as providing habitat to support coho, resident cutthroat and rainbow trout, and sea run cutthroat. The northern culvert is identified as a total blockage fish barrier and the southern culvert is a partial blockage. Both culverts are identified in WSDOT’s Fish Passage Barrier Correction Plan. Neither culverts are within the project construction boundaries. Culvert modification or other work affecting the streambed will not be part of the proposed project.

Birds and mammals found in the project vicinity are typical of lowland suburban habitats. Bird species likely include robin, song sparrow, common crow, violet-green swallow, goldfinch, and Northern flicker. Dense vegetation along streams may be used by warblers and other neotropical birds during migration. Mammals likely to be found in the area include opossum, spotted skunk, raccoon, and eastern gray squirrel. There are no known threatened or endangered terrestrial species within the proposed project area.

Buffer impacts will result from removing vegetation and placing roadway embankment fill along the roadside on the east side of SR 524 (Yew Way). The embankment fill is needed to provide widening along the roadway so an additional lane can be provided for southbound traffic turning left onto Paradise Road. Removing vegetation would impact an area predominately vegetated with Himalayan blackberry and would reduce vegetation cover that provides cover for birds and small wildlife that use riparian areas. This project would not impact wildlife habitat connectivity.

**Historical and Cultural Resources**

This project does not have a federal nexus thus Section 106 of the National Historic Preservation Act is not applicable. In accordance with SCC30.67.340(2) an archaeological desktop review was conducted, determining that no recorded cultural or archaeological resources or sites are located within the project vicinity. If any archaeological resources or artifacts are discovered during construction the project will stop work immediately and the ENVS Senior Planner, County
Archaeologist, Washington State Department of Archaeology and Historic Preservation, and affected Tribes will be contacted.

**Title VI/Environmental Justice**

Snohomish County Public Works must comply with Title VI of the Civil Rights Act and related laws, regulations, and other related requirements. This includes assessing if a specific program, project, or activity will discriminate against or have a disproportionately adverse impact on minority, low-income, and limited English proficiency populations. An Environmental Justice review will not be required for this project due to its proposed construction of a turn lane within existing right-of-way limits.

**D. Considerations to Reduce Impacts**

Alternative project designs may be considered that would avoid or minimize environmental impacts associated with this proposal. Limiting the extent of the turn lane fill slopes adjacent to the stream and within the buffer would reduce the amount of impacts. Low impact development (LID) elements, such as pervious concrete sidewalks, sheet flow dispersion, or bioswales should be used where appropriate within the project corridor.

**E. Mitigation Requirements and Options**

The project must follow mitigation sequencing in accordance with SCC Chapter 30.62A, Part 300.

Mitigation for unavoidable impacts to stream buffers is required per SCCC Chapter 30.62A. Federal Rule 33 CRF § 332.3(b)2 establishes the preferred hierarchy options for compensatory mitigation when federal approvals are required. The options, in order of preference, are:

- Use a mitigation bank located in the same basin as the project.
- Use an in-lieu fee program located in the same basin.
- Mitigation onsite and in-kind.
- Mitigation offsite and out-of-kind.

The mitigation needed for impacts to the critical areas will be assessed once the design is at 90%, impacts to any stream buffer from construction will be calculated. Mitigation will be provided for temporary and permanent impacts to critical areas. Temporary and permanent impacts will be restored onsite.
Appendix C

Preliminary Cost Estimate
## PROJECT ESTIMATING DATA

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