1 Introduction

1.1 Purpose

The purpose of this Transportation Management Plan (TMP) is to address traffic-related impacts of the NW Cornelius Pass Rd: US30 – NW Kaiser Rd Project, summarize the proposed traffic control staging and concepts to be used during construction, and document the traffic-related decisions being made during the design phase. This document was developed in general conformance with the Oregon Department of Transportation (ODOT) April 2015 Mobility Procedures Manual which indicates the need to:

- address traffic volumes and congestion, roadway capacity, work zone safety, work performed under traffic, and public frustration with work zones; and
- facilitate consideration of safety and mobility impacts of work zones, and implementation of management strategies to mitigate impacts.

1.2 Introduction

The NW Cornelius Pass Road Project (the “Project”) is located in the northwest part of the Portland, Oregon metropolitan area between US30 and the Multnomah/Washington County Line, just south of the NW Kaiser Road Intersection. This roadway serves as a commuter link between the St. Helens/NW Portland area and the Washington County employment areas and provides an...
alternate hazardous materials (HazMat) route bypassing the HazMat-restricted US26 Vista Ridge Tunnel.

The NW Cornelius Pass Road has historically shown to have high and severe crash rates. In 2008/2009, the U.S. Department of Transportation Federal Highway Administration (FHWA) collaborated with Multnomah County to conduct a Road Safety Audit and made several safety improvement recommendations. Under the Jobs and Transportation Act of 2009 (JTA), ODOT identified and recommended several safety improvements after conducting a more detailed safety study in 2010. Based on these reports, the 2012 Oregon legislature authorized funding for safety improvements on NW Cornelius Pass Road, with construction funds up to the amount of $3,900,000. The 2018 STIP amended the available construction funding to $3,622,255.

1.3 Project Description

This Project will be administered through the ODOT Local Agency Program for the construction of safety improvements with Resurfacing, Restoration, and Rehabilitation (3R) design criteria conforming to ODOT’s 2012 Highway Design Manual and FHWA’s Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition with Revision Numbers 1 and 2. Proposed location-specific and corridor-wide improvements include, but are not limited to:

- horizontal curve realignments,
- rumble strip construction,
- shoulder widening,
- restriping,
- installation of roadside barriers,
- guardrail upgrades,
- installation of an aquatic organism passage culvert,
- vegetation clearing to provide a sight distance increase,
- reduction of pavement drop-offs,
- signing upgrades
- grading, and
- erosion control.

Figure 1, below, provides an overview of the project area and work elements.
2 PROJECT AREA CHARACTERISTICS

2.1 Location

The Project is on NW Cornelius Pass Road in Multnomah County from US30 at MP 0 continuing south toward the Multnomah/Washington County Line, approximately 5 miles, south of the NW Kaiser Road Intersection. The project area does not fall within one of the five major corridors that have established corridor-level TMPs and delay thresholds, but it does connect the critical route pair US26 and US30.

2.2 Location of Other Construction Projects

ODOT is currently conducting a project to widen US26 from Cornelius Pass Road to 185th Avenue. No conflicts with the project are anticipated since the construction is expected to be completed by December 2018.

Figure 1: Project Overview Map
Multnomah County is conducting a project to repair and re-open NW Newberry Road after a landslide undermined a section of the road. No conflicts with the project are anticipated since the construction is expected to be completed by Spring 2019. NW Newberry Road is the planned detour route for the Project. If the NW Newberry Road repair project is delayed, it could potentially cause delays to the Project construction schedule.

ODOT is conducting a project to repair freeway ramps along Interstate 405 with construction beginning spring 2019. There is potential that truck traffic taking alternative routes due to the NW Cornelius Pass Rd closure will see additional delays due to the construction and detours for the I-405 project.

2.3 Existing Roadway Cross-Sections

NW Cornelius Pass Road is an uncurbed, two-lane, two-way roadway with a variable shoulder width. The posted regulatory speed is 45 mph with advisory signs posted at 15 mph to 30 mph for curves. The roadway crosses over the Tualatin Mountains within the project area and is geometrically constrained with a rock cliff on the north side and a ravine at the south end.

2.4 Traffic Volume and Classification Data

The Annual Average Daily Traffic (AADT) volumes recorded in 2006, 2008, 2011, and 2015 for NW Cornelius Pass Road between Skyline Boulevard and Kaiser Road are listed in Table 1 below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Northbound</th>
<th>Southbound</th>
<th>Total</th>
<th>% Heavy Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>6,270</td>
<td>6,300</td>
<td>12,570</td>
<td>N/A¹</td>
</tr>
<tr>
<td>2008</td>
<td>5,350</td>
<td>5,380</td>
<td>10,630</td>
<td>12.7%</td>
</tr>
<tr>
<td>2011</td>
<td>5,760</td>
<td>5,230</td>
<td>10,990</td>
<td>13.5%</td>
</tr>
<tr>
<td>2015</td>
<td>N/A</td>
<td>N/A</td>
<td>11,600</td>
<td>N/A¹</td>
</tr>
</tbody>
</table>

¹ Heavy vehicle data was unavailable

The functional classification of NW Cornelius Pass Road, as identified in American Association of State Highway and Transportation Officials’ (AASHTO) 2011 A Policy on geometric Design of Highways and Streets, is Rural Minor Arterial.

2.5 Local Land Use

Land use along NW Cornelius Pass Road in the project area includes, but is not limited to:

- low density residential;
- rural residential;
- farm/forest; and
- open space.
2.6 Project Stakeholders

The Multnomah County Communications Office and the Murraysmith team have been working with some of the project’s interested parties during design. A Community Advisory Committee (CAC) has been formed to represent some of the key stakeholders. See Appendix A for a list of CAC members and the committee Charter.

The community affairs team will be coordinating with emergency services providers and other interested parties. Murraysmith is also conducting permitting and utility coordination efforts with the following municipality/agency stakeholders:

- Federal Highway Administration (FHWA)
- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife Service (USFWS)
- US Army Corp of Engineers (USACE)
- Oregon Department of State Lands (DSL)
- Oregon Department of Fish and Wildlife (ODFW)
- Oregon Department of Transportation (ODOT)
- Multnomah County
- AT&T/MCI
- PGE/Comcast/Frontier
- NW Natural
- CenturyLink
- Pohlmans Power District
- Sprint/Nextel
- Bonneville Power Administration

3 FACTORS IMPACTING CONSTRUCTION

3.1 Traffic Impacts

Construction will primarily take place in the shoulder and/or single travel lane with the exception of fish passage culvert installation just north of the NW 8th Avenue intersection. The work will include a detour for NW Cornelius Pass Rd from US30 to NW Old Cornelius Pass Rd. The work can also be separated into two stages with separate traffic control and detours. Stage I will be the southern section between NW Kaiser Road and NW Skyline Boulevard, and Stage II will be the northern section between NW Skyline Boulevard and US30. During shoulder work, single lane closures are anticipated to allow local traffic through while maintaining a safe distance to workers. Shoulder work will include, but is not limited to:

- Barrier/guardrail installation
- shoulder widening and construction of vehicle pull-outs
- vegetation clearing
- signage
During construction, NW Cornelius Pass Road will be closed to through traffic between US30 and NW Old Cornelius Pass Road. Traffic will be detoured onto NW Old Cornelius Pass Road, then NW Skyline Boulevard, and then NW Newberry Road. Traffic traveling westbound on NW Kaiser Road will be directed to NW Brooks Road and then to NW Skyline Boulevard. During culvert installation at NW 8th Avenue, a full roadway closure will be required. Short duration roadway closures will also likely be required at the S-curves for pre-splitting of the rock face. This work will occur during the full closure, and local traffic may be stopped for up to 40 minutes while the explosives are detonated and debris is cleaned up sufficiently to allow traffic past. Truck traffic will not be allowed to use this detour.

If separated into two different stages, Stage I will have NW Cornelius Pass Road closed to through traffic between NW Kaiser Road and NW Skyline Boulevard. Traffic traveling westbound on NW Kaiser Road will be directed to use NW Brooks Road to NW Skyline Boulevard. Stage II will have NW Cornelius Pass Road closed to through traffic between US30 and NW Skyline Boulevard. Traffic will be detoured to NW Skyline Boulevard and then NW Newberry Road which run between NW Cornelius Pass Road and US30. The Contractor will be allowed utilize the Stage I and Stage II detours simultaneously. Neither of these routes can accommodate truck traffic.

The Contractor will be required to provide a 35-day notice to the Motor Carrier Transportation Division (MCTD) prior to roadway closures. The roadway will remain partially opened to local traffic only. Traffic impacts are expected, with delays anticipated to be higher when the detours are first introduced. The Project will cause restrictions in freight mobility since trucks cannot be accommodated on the detours.

### 3.2 Existing Mobility Restrictions

Although NW Cornelius Pass Road is not a designated Oregon Highway Plan (OHP) Freight Route, it connects the critical route pair US26 and US30 and is identified as a freight connection in Metro’s Regional Freight Plan (June 2010). It is used for hazardous materials transport to bypass the US26 Vista Ridge Tunnel where hazardous materials are prohibited. During the full road closures, trucks will not be able to use the detour and will need to use an alternate route (discussed below). This will increase travel time and distance, but will likely have better conditions with regard to height, width, length, and weight. There are no additional height, width, length or weight restrictions anticipated after the project is constructed.

The Region Mobility Liaison was contacted and informed of the project. She reviewed the project documents, and provided comments and specific traffic control requirements which are reflected in the final traffic control plan. A Mobility Considerations Project Check List has also been completed for this project and can be found in Appendix B. The Check List and Decision Tree Form will be submitted to the MCTD for review and acceptance along with this TMP. The Decision Tree Form is included in Appendix C.
3.3 Available Alternate Routes

A signed detour route will be utilized during all stages of construction, as discussed above. NW Old Cornelius Pass Road runs parallel to NW Cornelius Pass Road on the west side from south of NW Kaiser Road to NW Skyline Boulevard. NW Brooks Road runs parallel to NW Cornelius Pass Road on the east side from NW Kaiser Road to NW Skyline Boulevard. NW Skyline Boulevard to NW Newberry Road runs from NW Cornelius Pass Road to US30. During the road closure, NW Cornelius Pass Road will be restricted to local traffic only. Truck traffic will not be allowed on the detours, because these alternate routes contain corners that do not accommodate truck turning movements. Historically, NW Newberry Road has been an effective alternate route used by ODOT for a previous safety project, so no conflicts are expected. Figure 2, below, provides an overview of the detour route.

Figure 2: Detour Route
To improve safety and traffic flow, it is recommended that temporary stop signs are installed for northbound and southbound NW Cornelius Pass Rd at NW Skyline Boulevard and the existing stop signs at NW Skyline Boulevard be temporarily removed to allow free through movement for the detour traffic on NW Skyline Boulevard. It is also recommended left turns onto NW Cornelius Pass Road be prohibited at this intersection to avoid delays. At the NW Skyline Boulevard and NW Old Cornelius Pass Road intersection, it is recommended that a temporary stop sign be installed for southbound NW Skyline Boulevard and the existing stop sign at northbound NW Old Cornelius Pass Road and westbound NW Skyline Boulevard be removed to allow unrestricted movement along the detour route. Similarly, it is recommended a temporary stop sign be erected at the NW Skyline Boulevard and NW Newberry Road intersection due to the limited stopping sight distance in this area. At the NW Phillips Road and NW Old Cornelius Pass Road intersection, it is recommended that the existing stop sign for southbound NW Old Cornelius Pass Road be temporarily removed and a temporary stop sign be installed for NW Phillips Road. At the NW Old Cornelius Pass Road and NW Cornelius Pass Road intersection, it is recommended to use temporary concrete barrier to direct traffic from northbound NW Cornelius Pass Road to northbound NW Old Cornelius Pass Road and to temporarily remove the existing stop sign at southbound NW Old Cornelius Pass Road.

If separated into two separate stages, during Stage I, the intersection of NW Cornelius Pass Road and NW Skyline Boulevard should be reconfigured to allow unrestricted movements along the detour route. It is recommended that a temporary stop sign be installed for northbound NW Cornelius Pass Road and a temporary stop sign with an EXCEPT RIGHT TURN sign be installed for southbound NW Cornelius Pass Road. During Stage II, the same intersection will have a slightly different configuration. A temporary stop sign should be installed for northbound and southbound NW Cornelius Pass Road. It is also recommended that the northbound approach at the intersection of NW Cornelius Pass Road and NW Skyline Boulevard be restriped to have a right turn only lane so the right turn movement can be allowed without stopping. The left lane will be used for through and left turning movements.

Advanced signing will also be utilized at key intersections to notify drivers of closures and delays and allow them to select other alternate routes to meet their needs. A temporary signal will be erected at the intersection of US30 and NW Newberry Road to increase intersection capacity for the higher volumes of traffic that will be on NW Newberry Road.

Truck traffic will be required to find their own alternate routes. Outreach and advanced signing on the state highway system will be critical for informing truck drivers of the road closure. This information was presented at monthly Mobility Advisory Committee meetings, the Contractor will be required to notify the MCTD prior to closing the road, and variable message signs (VMS) and/or portable changeable message signs (PCMS) will be utilized on US26 and US30. The VMS’s and PCMS’s will display messages of the upcoming closure one to two weeks prior to the closure, and will continue to notify drivers throughout construction.

The recommended alternate route for trucks traveling between US30 and US26 is to utilize I-405. This will increase the trip length by approximately 16 miles compared to using NW Cornelius Pass
Road. Trucks hauling hazardous materials that cannot be transported through the Vista Ridge Tunnel on US26 should utilize I-405 to I-5 to OR217. This route will increase the trip length by approximately 26 miles. These routes are recommended because they utilize highways categorized by the MCTD as generally unrestricted freight and oversize/overweight routes. Figure 3, below, provides recommended alternate routes for trucks.

![Figure 3: Truck Alternate Routes](image)

During simultaneous construction of the I-405 Ramps Project, the ramp from US30 to I-405 southbound will be closed for an approximate 10-day period. During this time, trucks will be detoured onto I-405 northbound, and will need to take I-5 southbound to get to US26 or OR217. There is an existing vertical clearance pinch-point of 14′6″ on I-5 southbound at the Morrison St. Bridge.
Project detour strategies were discussed by ODOT, the County and the design team at a meeting held September 18, 2018. Minutes and materials from this meeting are included in Appendix D.

3.4 Environmental Issues

Several environmentally sensitive areas were identified within the project limits during field reconnaissance. One perennial waterway, one wetland, three wetlands located in roadside ditches, and three other roadside ditches were documented within the project study area. The waterway and wetland are both likely to be regulated by the Department of State Lands (DSL) and the United States Army Corps of Engineers (USACE) as jurisdictional wetlands and waterways of the state. The proposed improvements are anticipated to permanently impact just under 0.1 acre of existing delineated wetlands at the 8th Avenue site area. No other wetland impacts are anticipated in the project corridor.

The perennial waterway is a tributary to McCarthy Creek and is reported by the ODFW as a historical habitat for anadromous salmonids, including Steelhead and Coho Salmon. In-water work associated with the culvert replacement on this waterway and project-related changes in surface runoff and/or stormwater management may result in an effect on these listed fish species. The project will be designed to Federal-Aid Highway Program (FAHP) design standards in order to minimize potential impacts to Endangered Species Act (ESA)-listed fish and their habitat. The culvert replacement will be designed for ODFW and NMFS fish passage criteria.

There are several other ESA-listed wildlife and plant species likely within the project study area, but no mapped Critical Habitat. Construction activities, including tree removal and the use of explosives to remove rock at the S-curves, will follow requirements of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Erosion control measures will include check dams and inlet protection to filter stormwater runoff and prevent sediment from leaving the project area. Sediment barrier and compost blanket will also be used in newly graded areas to help prevent erosion during establishment of new vegetation.

3.5 Seasonal Restrictions

Standard paving, striping and planting season limitations, and the restrictions associated with the Migratory Bird Treaty Act apply to this project. The in-water work window must also be observed for the fish passage culvert replacement at NW 8th Avenue. This project is expected to be able to be completed within all standard seasonal limitations.

3.6 Construction Noise Regulation

Noise Variance – Per Multnomah County Code, Chapter 15: Sheriff, Section 15.265-15.274, a noise variance may be needed through the Sheriff for construction work associated with this project.
3.7 Allowable Lane Closures

Roadway closures will be required to complete this project during all stages, especially fish passage culvert installation. Passenger vehicle traffic will be detoured to NW Newberry Road. A temporary roadway diversion with a construction easement is not feasible due to environmental and geometric constraints.

During shoulder work activities, the existing narrow shoulders will generally not allow the safe completion of work. Consequently, single lane closures at a minimum will be required to maintain a safe clear distance during shoulder work. Since the road will be closed to through traffic, volumes on NW Cornelius Pass Road are expected to be low. One-lane flagged traffic control will be utilized as needed for local traffic to pass by active work zones. Allowable road and lane closure specification language has been developed and is included in Appendix E.

4 PROJECT TMP STRATEGIES

4.1 Decision Tree

ODOT’s Decision Tree Form was used to evaluate various work zone concepts, strategies and traffic control devices that may or may not be applicable to the project. The strategy that was evaluated as most applicable is to close the roadway and detour through traffic. During shoulder work, including signage, roadway widening, and guardrail installation, the roadway will be open to local traffic with single lane closures and flagged one-way traffic control. This provides increased clear space between workers and traffic and increases the safety of vehicles navigating around the work zone. The Decision Tree Form is included in Appendix C.

4.2 Staging Plan

The project can be divided into two stages, or, if the Contractor prefers, both stages can be constructed simultaneously. Stage I will be the southern section between NW Kaiser Road and NW Skyline Boulevard, and Stage II will be the northern section between NW Skyline Boulevard and US30. Each stage requires a different detour, and Stage II includes culvert replacement work that must be completed during the in-water work window. If combined, Stage I work and Stage II work will be completed simultaneously and require a combined detour. A construction schedule has been created to show one feasible way in which the project can be completed with Stage I and Stage II being completed simultaneously. Combined Stage I and Stage II is anticipated to be completed in approximately two and a half months. The construction schedule is considered a confidential document and is available from the County Project Manager upon request.

The traffic control plan for this project contains detour plans, advanced signing for truck alternate routes, and staged traffic control for the full depth roadway reconstruction locations. Other standard items will be utilized, as required by the Traffic Control Plans Design Manual, as follows:

- Standard Specifications for Construction
- Project-specific Special Provisions
4.3 Lane Closures

Lane and shoulder closures will be accomplished per the Standard Drawings. It is anticipated that all work except culvert replacement and pre-splitting of the rock face at the S-curves can be accomplished using standard shoulder and single lane closures per the Standard Drawings. These closures will only affect the local traffic, since all through traffic will be detoured onto alternate routes.

5 POTENTIAL MOBILITY ISSUES AND MITIGATION MEASURES

5.1 Traffic Mobility Issues During Construction

Some delays can be expected as a result of road closures. The Contractor will be required to notify the MCTD of lane closures, and Intelligent Transportation Systems (ITS) will be used to display messages to the traveling public to help mitigate potential delays. The following elements have been or are planned to be used for this project to inform motorists:

- Variable Message Signs (VMS’s) to notify the traveling public of the upcoming traffic changes or incidents. Portable Changeable Message Signs (PCMS’s) to identify detours and lane closures.
- Ground mounted signs to alert motorists of traffic changes within the work zone. The traffic control plans have been designed in accordance with the MUTCD and ODOT standard drawings in this regard.
- The project website and public open house to alert motorists of upcoming construction work. Alerting the public ahead of time may lessen the volume of traffic during times when traffic is expected to be slow-moving.

5.2 Stakeholder/Public Input

Public outreach has been an important consideration on this project and has been conducted throughout the alternatives analysis phase. The Community Advisory Committee (CAC) has been informed and consulted on key project objectives and decisions. An open house was held in February 2014, a CAC meeting was made open to the public in January 2017, and a public open house is scheduled for October 2018. Open house summaries are included in Appendix F. Public outreach will continue throughout design, and the public will be notified of construction activities, especially roadway closures, throughout construction. Multnomah County has created a website for this project on the Transportation Road Projects Page to help notify stakeholders at the following address: https://multco.us/roads/cornelius-pass-road-safety-improvements.
Multnomah County will continue to update the website with key project milestones and decisions and construction updates.

5.3 Holidays and Special Events

The following table lists the holidays and special events during which closures are not allowed as indicated in the Oregon Standard Specifications for Construction and the Special Provisions:

Table 2: Holidays and Special Events

<table>
<thead>
<tr>
<th>Holiday or Event</th>
<th>Date</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Year’s Day</td>
<td>January 1, 2019</td>
<td>X</td>
</tr>
<tr>
<td>Memorial Day</td>
<td>May 27, 2019</td>
<td>X</td>
</tr>
<tr>
<td>Independence Day</td>
<td>July 4, 2019</td>
<td>X</td>
</tr>
<tr>
<td>Seattle to Portland Bicycle Ride</td>
<td>July 13-14, 2019</td>
<td>X</td>
</tr>
<tr>
<td>Hood to Coast Relay</td>
<td>August 23-24, 2019</td>
<td>X</td>
</tr>
<tr>
<td>Labor Day</td>
<td>September 2, 2019</td>
<td>X</td>
</tr>
<tr>
<td>Thanksgiving Day</td>
<td>November 28, 2019</td>
<td>X</td>
</tr>
<tr>
<td>Christmas Day</td>
<td>December 25, 2019</td>
<td>X</td>
</tr>
</tbody>
</table>

Key special events that have been included are the Seattle to Portland bicycle ride and the Hood to Coast Relay. Both events take place on US30 and cause increased traffic and likely utilize PCMS’s or other traffic control devices on the highway. The detour will remain in effect during these events, but the Contractor and their Traffic Control Supervisor (TCS) should be aware that there may be additional signage and traffic on US30. The detour will also remain in effect during holidays. It is not desirable to close and re-open the road multiple times during the life of the project as this could slow construction and cause confusion for drivers. Lane closure restrictions for holidays and events apply only to US30.

6 TRAFFIC OPERATION AND MITIGATION MEASURES

6.1 Motorist Information

Public information will be important to help the traveling public be aware of construction, detour direction, and lane closures. VMS’s and PCMS’s will be used to notify the traveling public of the upcoming traffic changes. It is expected that traffic control set-ups will be standard but may be in different locations daily or weekly, and a TCS will be employed to ensure proper placement of traffic control devices and appropriate messaging on electronic signs.

Ground mounted signs will also be in place as applicable to each project area to alert motorists of the upcoming work zone. Temporary signs will be used as part of the traffic control to alert motorists of traffic changes within the work zone. The traffic control set-up will follow FHWA’s MUTCD and ODOT Standard Drawings in this regard.
Newsletters, flyers, social media and the project website will be used to alert motorists of upcoming construction work. Notifying the public ahead of time may lessen the volume of traffic during times when traffic is expected to be slow-moving.

A written notification (Form #734-2357) will be submitted to the ODOT MCTD Freight Mobility Coordinator in advance to notify commercial traffic of upcoming road closures or detours.

### 6.2 Construction Strategies

Several strategies will be used during construction to reduce impacts of construction on traffic. The following elements have been or are planned to be used for this project to reduce impacts of construction on traffic:

- The required TCS will ensure traffic control configurations are set up properly and traffic will not be delayed unnecessarily. The TCS can also play a key role in incident management as it relates to the work zone by making quick decisions on changing the traffic control to help mitigate slowed traffic.

- A broad staging plan has been created that allows the Contractor flexibility in planning work within the various project areas.

- Flaggers will be utilized to help direct traffic during one-way traffic operations. They will be able to interact with the public to help route traffic around the work zone to minimize conflicts between the public and construction equipment.

### 7 INCIDENT MANAGEMENT AND EMERGENCY RESPONSE

#### 7.1 Strategies

The County will be consulted regarding their preferences for Incident Management for this project. It is anticipated that they will rely primarily on Emergency Services Providers’ response plans, such as those of the local police and local fire and rescue.

#### 7.2 Communication

Communication is the key element in incident management and emergency response for this project. An emergency is defined as anything that has the potential to harm life, property or the environment. The Agency should provide the “Emergency Communications Plan” (included in Appendix G) with appropriate contact information to the on-site inspector, TCS and contractor so they will be able to appropriately report incidents. This can be provided at the pre-construction meeting or any time prior to the beginning of construction. The County inspector will be the primary person responsible for contacting the appropriate response teams (e.g. ODOT Emergency Operations, local police, local fire and rescue).
8 RECOMMENDED COURSE OF ACTION

Murraysmith Special Provisions, traffic control, and detour plan along with applicable ODOT Standard Drawings are used to provide a safe work zone for construction crews and the traveling public. A preliminary construction schedule outlines the work elements and shows that all work can be completed within the time windows required by the Standard Specifications and the Special Provisions. The traffic control plan will help keep motorists, bicyclists, pedestrians, and construction workers safe during the duration of this project. If the contractor proposes a different plan, it will need to be thoroughly reviewed for consistency with Agency Standard Drawings, the Traffic Control Plans Design Manual, and the MUTCD.
Figure 4: Vicinity Map
CORNELIUS PASS ROAD SAFETY IMPROVEMENTS
COMMUNITY ADVISORY COMMITTEE CHARTER

COMMUNITY ADVISORY COMMITTEE PURPOSE
The CAC is established for the purpose of reviewing and providing input to the safety improvement identification and development process. CAC advice will help Multnomah County staff when they select and prioritize improvements within the context of the corridor and budget. The CAC will meet regularly during the design development phase to discuss project progress and comment on project team products.

MEMBERSHIP
The CAC is self-nominated and installed by Multnomah County. It is intended to represent the broad range of community interests relevant to the project. It will be maintained at a size of approximately 15 people to enable active participation.

DUTIES AND RESPONSIBILITIES
Prepare for and attend CAC meetings
Members are expected to participate in up to 4 meetings between November 2013 and July 2014. The project team will work to make meeting agendas and initial materials available for member review at least one week prior to each meeting. Members representing a group should be well informed on their group’s perspectives, needs, issues and processes. Members are expected to support the outreach and involvement program by reporting back to their constituencies and being prepared to comment on their behalf at meetings.

ANTICIPATED MEETING SCHEDULE
Meetings are planned for select months from November 2013 through June 2014 from 6:00 to 8:00 PM at Skyline Elementary. Meeting dates and agendas are:
1. November 13, 2013 – Establish CAC process, provide project overview and update, gather CAC input on project outcomes
3. March 2014† – Discuss and evaluate revised safety solutions proposals
4. June 2014† – Provide input on review draft of Cornelius Pass Road Safety Improvement Plan and Designs
* March and June meetings will be scheduled at upcoming CAC meetings

MEETING GROUND RULES
The facilitator will help ensure that meetings are productive. If time becomes an issue, it may be necessary to conduct a time check part-way through the agenda to determine if any topics need a follow-up meeting or whether members are willing to stay longer to complete a discussion or decision topic. Meeting summaries will serve as documentation and will be provided to the CAC with the opportunity for comments and corrections.

Members agree to abide by the following:
• Treat each other, staff and guests with respect;
• Listen carefully, seeking to understand each other;
• Raise issues honestly, clearly and early in the process;
• Focus on the subject at hand and help the group stick to the agenda;
• Discuss topics constructively with the aim of solving problems;
• Seek to find unity and common ground;
• Share the air by allowing others to finish completely before speaking oneself and pausing to let others speak once before speaking again oneself;
• Minimize distractions during meetings by putting cell phones on silent mode and avoiding side conversation;
• After an absence, read materials from the missed meeting and contact the project team with questions or for a more in-depth briefing;
• Represent their personal views but do not speak for the CAC when engaged in other forums, including contacts with the news media or other stakeholders; and
• Discuss any process concerns with project team to help future meetings and activities work more effectively.

DECISION-MAKING
The CAC will strive to make consensus recommendations on the understanding that their recommendations to the County are strengthened by high levels of agreement. Consensus is achieved when all team members believe the best result has been obtained, can live with the solution, and will support the result. Members attending each meeting will constitute a quorum for any determinations made at that meeting. Meeting outcomes are intended to be final unless a majority of the CAC deems it important to reconsider a previous determination. CAC recommendation decisions may be made by majority vote if consensus is deemed unachievable. Committee recommendation decisions will be understood as the most preferred choice by the CAC for the project even if it may not be each individual member’s personal preference.

Decisions expected at each meeting:
1. November 13, 2013 – Input on proposed solutions and selection criteria
2. January 14, 2014 – Review staff proposed safety solutions and selection criteria
3. March 2014 – Evaluate revised safety solutions and criteria
4. June 2014 – Final review and input of plan designs

INTER-MEETING CAC COMMUNICATION
CAC members agree to share their contact information with other CAC members for the sole purpose of enabling communication among members between meetings. CAC and project team members will respect each other’s privacy by not sharing contact information with anyone outside the CAC unless legally required to do so. Inter-meeting communications will be sent to project team contacts below.

FACILITATION
The county will provide a facilitator to help plan and moderate meetings. The facilitator will enforce CAC ground rules, provide opportunities for each CAC member to provide input, work with the CAC to reach consensus and manage meeting time.

ACCESSIBILITY TO THE PUBLIC
While the primary purpose of the CAC meetings is to provide a forum for the discussion and input from the CAC, meetings will be open to the public for observation. A limited amount of time at each meeting may be reserved for public comment. Interested members of the public are also encouraged to provide comments via the project website - corneliuspass@multco.us. These comments will be shared with all CAC members.

ACCEPTANCE OF CHARTER
This charter was adopted by consensus at the January 14, 2014 CAC meeting.

PROJECT TEAM CONTACTS:
Mike Pullen, 503-209-4111, mike.j.pullen@multco.us
Sandra Prock P.E, 503-988-5050 X29627, sandra.prock@multco.us
<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation/Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jason Ascher</td>
<td>Resident (north of Skyline), commuter to Portland</td>
</tr>
<tr>
<td>Kirk Augustin</td>
<td>Resident (north of Skyline), Skyline Grange</td>
</tr>
<tr>
<td>Wayne Bauer</td>
<td>Commuters</td>
</tr>
<tr>
<td>Jan Campbell</td>
<td>Residents (north of Skyline), Skyline Elementary community</td>
</tr>
<tr>
<td>Carol Chesarek</td>
<td>Resident (south of Skyline), Forest Park Neighborhood Association</td>
</tr>
<tr>
<td>Drew Dubois</td>
<td>Emergency Services (Tualatin Valley Fire and Rescue)</td>
</tr>
<tr>
<td>Sarah Hanson</td>
<td>Resident (north of Skyline), commuter to Columbia County, Skyline Elementary community</td>
</tr>
<tr>
<td>Betsy Johnson</td>
<td>Oregon Legislature</td>
</tr>
<tr>
<td>Dave Linden</td>
<td>Local business</td>
</tr>
<tr>
<td>Tim Love</td>
<td>Commercial trucking</td>
</tr>
<tr>
<td>Bruce Penney</td>
<td>Resident (north of Skyline)</td>
</tr>
<tr>
<td>Steve Robertson</td>
<td>Resident (north of Skyline), Skyline Elementary community</td>
</tr>
<tr>
<td>Michele Roy</td>
<td>Resident (south of Skyline), Skyline Elementary community</td>
</tr>
<tr>
<td>Bob Russell</td>
<td>Commercial trucking</td>
</tr>
<tr>
<td>George Sowder</td>
<td>Residents (Skyline Ridge Neighbors), Skyline Grange</td>
</tr>
</tbody>
</table>
NOTE 1: This checklist is initiated by a Project Leader or Local Agency Liaison during the project development phase, submitted with the PS&E Package, and provided to the construction project manager when transitioning the project to the construction phase.

NOTE 2: Off-system projects that create a mobility impact on the state system must also comply with PD-16 and this checklist. Project Leaders and Local Agency Liaisons with projects (both on-system and off-system) that have no mobility impacts should check the "No Mobility Impacts" box and sign the checklist (MCTD signature is not required for a “no mobility impact” project) before submitting it with the PS&E package.

NOTE 3: The following link provides detailed guidelines for submitting project information to MCTD for Mobility Considerations Checklist Approval: http://www.oregon.gov/ODOT/MCT/docs/Guidelines%20for%20Submitting%20Project%20Information.pdf

### Impact on Mobility

- No Mobility Impacts
- Delays
- Road closure
- Width
- Weight
- Lane Closure
- Detour
- Roundabout
- Ramp closure
- Height
- Length

### Detour Reviewed For:

- Length Restrictions
- Width Restrictions
- Weight Restrictions
- Vertical Clearance
- Local Events
- Special Travel Days

### Project Mobility Restriction Considerations Worksheet

<table>
<thead>
<tr>
<th>Temporary Clearance Considerations</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are there any available options that would eliminate the restriction?</td>
<td>No; the road must be fully closed during construction, and the passenger vehicle detour route cannot support truck traffic.</td>
</tr>
<tr>
<td>2. Are there any available options that would minimize the restriction?</td>
<td>No; the County and design team determined that a full closure to minimize the duration of construction would have the least impact on the public and create the safest work zone.</td>
</tr>
<tr>
<td>3. Are there any available options that would shorten the duration of the restriction?</td>
<td>No; the project duration is already limited. Incentives will be given to the contractor for opening the road early.</td>
</tr>
<tr>
<td>4. How will restricted traffic be detoured?</td>
<td>Truck traffic will not have a signed detour, but advanced signing will notify trucks that they must seek an alternate route.</td>
</tr>
</tbody>
</table>
route. Passenger vehicle traffic will be detoured onto adjacent County and City owned roads.

<table>
<thead>
<tr>
<th>5. How will all restricted vehicle owners be notified of the restriction?</th>
<th>Advance VMS and PCMS signing will notify drivers that the road is closed and trucks must take an alternate route. Outreach has been done and will continue through the MCTD.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. How will the restriction affect existing MCTD permits?</td>
<td>Trucks shall not be permitted for NW Cornelius Pass Rd during construction.</td>
</tr>
<tr>
<td>7. How will the restrictions affect emergency services?</td>
<td>Emergency services will be allowed on signed passenger vehicle detours, and will be able to access all areas of NW Cornelius Pass Rd from one end or the other. They will not have access through the hard road closure at 8th Ave.</td>
</tr>
<tr>
<td>8. Are any other projects using the existing route as a detour? (e.g. Will you be detouring existing detoured traffic?)</td>
<td>No. Cornelius Pass Road is the alternative route for hazardous materials cargo that cannot use US26, but there are no other projects using Cornelius Pass Road as a temporary detour route.</td>
</tr>
</tbody>
</table>

**Detour Considerations**

<table>
<thead>
<tr>
<th>1. Are there any restrictions on the detour route?</th>
<th>Yes; the detour route for passenger vehicles cannot support truck traffic due to tight corners. Truck traffic will need to use US26, I-405, and other routes in the state and interstate highway system. There may be some height restrictions on the state and interstate highways (see TMP).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Is this route being used as a detour for other restricted routes?</td>
<td>Partially. A simultaneous I-405 Ramps Project at the I-405 and US30 intersection will likely cause another detour for truck traffic that is unable to use Cornelius Pass Road.</td>
</tr>
<tr>
<td>3. How will the detour route affect emergency services response times?</td>
<td>Delays are anticipated since detour routes on Newberry Road and Old Cornelius Pass Road are narrow and expected to be over capacity.</td>
</tr>
<tr>
<td>5. Are there other projects along the proposed detour route which will restrict traffic?</td>
<td>Yes. The I-405 Ramps Project will require various detours during ramp closures. Truck traffic that cannot use Cornelius Pass Road is recommended to use I-405, and will be affected by the detoured I-405 traffic.</td>
</tr>
<tr>
<td>6. Is there another detour route available if something happens to the proposed detour route?</td>
<td>For passenger vehicles, there are other minor roads such as NW McNamee Rd that could function as a detour in an emergency situation. For trucks, the state and interstate highway system should be used.</td>
</tr>
</tbody>
</table>
# PROJECT MOBILITY COMMUNICATIONS CHECKLIST

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>NA</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Contacted MCTD Freight Mobility Coordinator: <a href="mailto:MCTDMOBILITYTEAM@odot.state.or.us">MCTDMOBILITYTEAM@odot.state.or.us</a></td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Provided MCTD with current copy of TMP/Restriction Summary</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Met with Trucking Industry (if needed)</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Identified which part of the industry is effected by restriction, i.e. annual permit holders vs. single trip permits</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>Project restrictions supported by MCTD &amp; Trucking Industry: attach email(s) indicating MCTD support</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>Additional coordination is required with MCTD</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Provided project information to Region Mobility Liaison</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Worked with the following groups to identify and resolve any potential conflicts:</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>District Maintenance staff</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>Oregon Bridge Delivery Partners</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Local road authorities</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Local utilities</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>Rail Authorities</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Considered impacts of local events and special travel days prior to start of restriction</td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Confirm inclusion of local events and special travel days within project <a href="#">Special Provisions</a></td>
</tr>
<tr>
<td>✗</td>
<td>☐</td>
<td>☐</td>
<td>Identified the need for 35 day written notice to MCTD prior to start date of restriction per <a href="http://www._odot_state_or_us/special_provisions_00220_03_a.html">ODOT Special Provisions, section 00220.03(a)</a></td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>During construction provided 35 day written notice to MCTD prior to start date of restriction</td>
</tr>
</tbody>
</table>

## ADDITIONAL COMMENTS/NOTES
### SUBMITTAL INSTRUCTIONS

**Project Leaders/Local Agency Liaisons:**
- [ ] Submit signed form and supporting emails to your Region Mobility Liaison at Design Acceptance Phase (DAP).
- [ ] Re-engage MTCD as needed if there are changes to mobility impacts following DAP.
- [ ] Update and resubmit form and supporting emails to your Region Mobility Liaison as needed following DAP.
- [ ] Include a copy of the signed checklist in the PS&E packet submitted to the Office of Project Letting for ODOT bid projects. For LPA certified projects, complete *Project Mobility Considerations Checklist* and include as part of PS&E Package at the region office with a copy to the Region Mobility Liaison.

**Construction/Consultant/LAL Project Managers:**
- [ ] Before making changes during construction that have the potential to adversely affect mobility (i.e. additional restrictions) or run counter to previous agreements made during preliminary design:
  - As soon as a restriction revision proposal is identified by either the ODOT PM or the Contractor, the PM must engage the contractor, Region Mobility coordinator and any relevant region resources to discuss proposed changes to determine if the change is warranted and supported by the Region.

*If supported by Region, Project Managers must:*
- [ ] Engage MCTD to discuss and obtain concurrence with the potential changes *before* any agreements are made with the contractor
- [ ] Document MCTD and trucking industry support of any potential new restrictions and provide a copy of the documentation to the Region Mobility Liaison.

### SIGNATURES

“This project has been vetted through MCTD and the Freight Industry. Documentation in file and/or attached.”

*Note: MCTD signature is not required for a project that has no mobility impacts*

<table>
<thead>
<tr>
<th>REGION PROJECT LEADER, LAL, PROJECT MANAGER (PRINT)</th>
<th>SIGNATURE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MCTD FREIGHT MOBILITY COORDINATOR (PRINT)</th>
<th>SIGNATURE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Decision Tree

### Evaluate Separation Opportunities, Other WZ Concepts, WZ Devices

**Project Name (Section)**

NW Cornelius Pass Road: US30 – NW Kaiser Road

**NW Cornelius Pass Road**

**Highway**

**Project Name (Section)**

NW Cornelius Pass Road

**Highway**

**Project Name (Section)**

NW Cornelius Pass Road

**Highway**

**Project Name (Section)**

NW Cornelius Pass Road

**Highway**

### Instructions:

For each phase, work through each opportunity on this "decision tree." Add other project-specific decisions as needed. (Add more instructions as needed.)

**Contractor**

Phase: 3 - DAP to Final PS&E

### Opportunities to Evaluate

<table>
<thead>
<tr>
<th>Opportunities to Evaluate</th>
<th>Phase</th>
<th>Possible/Viable</th>
<th>Impacts</th>
<th>Stakeholders &amp; Input</th>
<th>Status Recommendation (R) / Decision (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full road closure</td>
<td>2</td>
<td>Yes</td>
<td>Traffic will be detoured around the project. Delays are likely.</td>
<td>Daily commuters, local residents, and trucks carrying hazardous cargo that is not allowed through the Vista Ridge tunnel.</td>
<td>(D) Full road closure will be required during construction of the fish passage culvert and pre-splitting activities. The County has a detour route that is used annually that will be applied to this project.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Yes</td>
<td>A full closure will be required during installation of the fish passage culvert. Short duration closures will be required during pre-splitting for the rock face. Traffic will be detoured around the project. Delays are likely.</td>
<td>Daily commuters, local residents, and trucks.</td>
<td>(D) Full closure will be required during construction of the fish passage culvert and pre-splitting activities. The County has a detour route that is used annually that will be applied to this project. NW Cornelius Pass Rd will be closed to all trucks during construction.</td>
</tr>
<tr>
<td>Partial road closure</td>
<td>2</td>
<td>Yes</td>
<td>A single direction of the road will need to be closed at a time with two-way flagging, or potentially with that direction following a detour. Delays are likely.</td>
<td>Daily commuters, local residents, and trucks carrying hazardous cargo that is not allowed through the Vista Ridge tunnel.</td>
<td>(D) A single direction of the road will need to be closed for much of the project construction. The open direction can have two-way flagging or remain open while traffic from the closed direction is detoured around the project area. Two-way flagging for local traffic. All other traffic will be following a detour. NW Cornelius Pass Rd will be closed to all trucks during construction.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Yes</td>
<td>A single direction of the road will need to be closed at a time with two-way flagging for local traffic. Other traffic will be following a detour.</td>
<td>Daily commuters, local residents, and all trucks.</td>
<td>(D) A single direction of the road will need to be closed for much of the project construction. Two-way flagging for local traffic. All other traffic will be following a detour. NW Cornelius Pass Rd will be closed to all trucks during construction.</td>
</tr>
<tr>
<td>Opportunities to Evaluate</td>
<td>Phase</td>
<td>Possible/Viable</td>
<td>Impacts</td>
<td>Stakeholders &amp; Input</td>
<td>Status Recommendation (R) / Decision (D)</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------</td>
<td>----------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Full detour</td>
<td>2&amp;3</td>
<td>Yes.</td>
<td>Traffic will be detoured around the project on a route used annually by the County.</td>
<td>Daily commuters, local residents, and trucks.</td>
<td>(D) Full detours will be necessary for multiple construction items and project areas.</td>
</tr>
<tr>
<td>Crossover/on-site diversion</td>
<td>2&amp;3</td>
<td>No.</td>
<td>n/a</td>
<td>n/a</td>
<td>Cross-overs are not applicable to this project.</td>
</tr>
<tr>
<td>Rigid barrier (concrete, steel, temporary guardrail)</td>
<td>2</td>
<td>No.</td>
<td>n/a</td>
<td>n/a</td>
<td>Due to limited roadway and shoulder width, there is likely no space for temporary barrier to be used between the work zone and live traffic.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Yes.</td>
<td>Concrete barrier will be used during the construction of the fish passage culvert. The barrier will be placed in between driveways to maintain local access. It will also be used along the detour to direct drivers along the detour route.</td>
<td>Local residents</td>
<td>(D) Concrete barriers will prevent vehicle from entering the excavated area during the fish passage culvert installation. It will also direct drivers along the detour route.</td>
</tr>
<tr>
<td>Increased lateral buffer space</td>
<td>2&amp;3</td>
<td>Yes: clear space is limited, but using single lane closures for shoulder work will provide some clear space between traffic and the work zone.</td>
<td>Lane closures with two-way flagging will likely cause delay.</td>
<td>The traveling public, contractor.</td>
<td>(D) There is limited roadway width, shoulder width and space alongside the roadway. Maximizing clear space by working as far from live traffic as possible is encouraged.</td>
</tr>
<tr>
<td>Decrease exposure time</td>
<td>2&amp;3</td>
<td>No.</td>
<td>n/a</td>
<td>n/a</td>
<td>(D) There does not seem to be a clear way to decrease exposure time without specifying means and methods.</td>
</tr>
<tr>
<td>Accelerated contracting strategies</td>
<td>2</td>
<td>Maybe.</td>
<td>n/a</td>
<td>n/a</td>
<td>This will be discussed with the County between the DAP and Advance submittals.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>No.</td>
<td>n/a</td>
<td>n/a</td>
<td>Multnomah County has become a certified local agency and the project will use the County contracting process which is shorter than the ODOT contracting process.</td>
</tr>
<tr>
<td>Opportunities to Evaluate</td>
<td>Phase</td>
<td>Possible/Viable</td>
<td>Impacts</td>
<td>Stakeholders &amp; Input</td>
<td>Status</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------</td>
<td>-----------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Accelerated construction strategies</td>
<td>3</td>
<td>Yes</td>
<td>There may be noise impacts for nearby residences if strategies involve nighttime work.</td>
<td>The traveling public, contractor.</td>
<td>(R) Accelerated construction strategies like nighttime work and 6-day work weeks will help minimize the duration of the roadway closure and detour.</td>
</tr>
<tr>
<td>Law enforcement overtime</td>
<td>2</td>
<td>Yes: It may be possible to work with local law enforcement to patrol the work zone areas.</td>
<td>Law enforcement presence should not impact construction or mobility, just help enforce safe travel of the public within the work zone.</td>
<td>The traveling public, local law enforcement.</td>
<td>This will be discussed with the County and Public Involvement team between the DAP and Advance submittals.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Yes</td>
<td>Law enforcement can help ensure trucks do not enter NW Cornelius Pass Road during construction.</td>
<td>The traveling public, local law enforcement and trucks.</td>
<td>(R) Contacting law enforcement is recommended to help enforce no truck traffic on NW Cornelius Pass Rd.</td>
</tr>
<tr>
<td>Radar speed trailers</td>
<td>3</td>
<td>No</td>
<td>A radar speed trailer would take up space within the narrow shoulder and may impact safety.</td>
<td>The traveling public, local law enforcement and contractor.</td>
<td>(R) Since the project shoulder is narrow, it is not recommended to implement a radar speed trailer unless it becomes evident that speeding is an issue during construction.</td>
</tr>
<tr>
<td>Construction Speed Zone Reduction</td>
<td>2</td>
<td>Yes: Speed Zone Reduction could be considered.</td>
<td>A Speed Zone Reduction might delay traffic unnecessarily and would be difficult to enforce.</td>
<td>Contractor, local law enforcement, the traveling public</td>
<td>Workers will be close to traffic with no protection of barrier, so decreasing speed may help increase worker safety.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>No</td>
<td>A Speed Zone Reduction might delay traffic unnecessarily and would be difficult to enforce.</td>
<td>Contractor, local law enforcement, the traveling public</td>
<td>(R) It is not recommended to implement a speed zone reduction.</td>
</tr>
<tr>
<td>Staged construction with temporary widening</td>
<td>3</td>
<td>No</td>
<td>n/a</td>
<td>n/a</td>
<td>(D) It was decided that widening is not a viable option due to funding restrictions.</td>
</tr>
<tr>
<td>Work at night</td>
<td>3</td>
<td>Yes</td>
<td>There may be noise impacts for nearby residences if strategies involve nighttime work.</td>
<td>The traveling public, contractor.</td>
<td>(R) Nighttime work will help minimize the duration of the roadway closure and detour.</td>
</tr>
<tr>
<td>Opportunities to Evaluate</td>
<td>Phase</td>
<td>Possible/Viable</td>
<td>Impacts</td>
<td>Stakeholders &amp; Input</td>
<td>Status Recommendation (R) / Decision (D)</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td>-------</td>
<td>----------------</td>
<td>------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Standard lane closures with channelizing devices</td>
<td>2&amp;3</td>
<td>Yes: Shoulder closures will be allowed if construction can be done off the side of the road, and lane closures will be allowed with flagged two-way traffic in the open lane.</td>
<td>Lane closures with two-way flagging will likely cause delay.</td>
<td>Daily commuters, local residents, and trucks.</td>
<td>(D) Drums and tubular markers will be used to close shoulders and lanes.</td>
</tr>
<tr>
<td>Automated Flagger Assistance Devices (AFAD)</td>
<td>2&amp;3</td>
<td>No.</td>
<td>n/a</td>
<td>n/a</td>
<td>Automated flagging or temporary signals should only be used on roadways with ADT of less than 3,500. Cornelius Pass is much higher, so these systems may not be used.</td>
</tr>
<tr>
<td>Temporary Transverse Rumble Strips (TTRS)</td>
<td>2&amp;3</td>
<td>No.</td>
<td>n/a</td>
<td>n/a</td>
<td>Much of roadway will not be re-paved and temporary rumble strips would damage the existing pavement.</td>
</tr>
<tr>
<td>Smart Work Zone System/Work Zone ITS</td>
<td>2&amp;3</td>
<td>Yes: A Smart Work Zone System will likely not be used, but other types of ITS can be. PCMSs will be set up in advance of work zones, and permanently installed VMSs can be used to convey messages about construction or delays to the traveling public.</td>
<td>Use of ITS during construction should positively impact the public by conveying messages regarding construction activities and potential delays.</td>
<td>ODOT, contractor, the traveling public.</td>
<td>(D) PCMSs and existing permanently installed ITS will be used during construction.</td>
</tr>
<tr>
<td>Public information campaigns</td>
<td>2&amp;3</td>
<td>Yes: The public will be notified of construction activities, especially road closures, so they can be prepared for detours or plan alternate routes.</td>
<td>Public awareness of delays and closures should help minimize driver frustration and allow drivers to plan accordingly. If drivers choose alternate routes, traffic volumes will be reduced, which will thereby reduce delays as well.</td>
<td>The traveling public</td>
<td>(D) Public outreach will be conducted during design and construction.</td>
</tr>
<tr>
<td>Pedestrian Detours (TPAR)</td>
<td>3</td>
<td>No.</td>
<td>n/a</td>
<td>n/a</td>
<td>No pedestrian access will be impacted during this project.</td>
</tr>
<tr>
<td>Other:</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ADD ANOTHER ITEM
US30 and NW Newberry Rd:
Temporary Widening

4' Shoulder Widening
with 1' Shoulder

5.5' Shoulder Widening
with 1' Shoulder
Turning Movements at US30 and NW Newberry Road Intersection - Existing Conditions

US 30 EB to NW Newberry Road SB
Vehicle: SU-40

US 30 EB to NW Newberry Road SB
Vehicle: SU-30
NW Cornelius Pass Road: US 30 - NW Kaiser Road
Key #18147
September 18, 2018

Turning Movements at US30 and NW Newberry Road Intersection - Proposed Temporary Widening

US 30 EB to NW Newberry Road SB
Vehicle: Firetruck with Ladder

US 30 EB to NW Newberry Road SB
Vehicle: School Bus

US 30 EB to NW Newberry Road SB
Vehicle: SU-30
Turning Movements at NW Newberry Road Hairpin Curve
NW Cornelius Pass Road: US 30 – NW Kaiser

Traffic Control and Detour Route Meeting

Traffic Analysis Overview
Volume Development

**Existing Volumes**
- Based on raw turning movement counts
- Traffic counts captured during Newberry Road closure

**Baseline Volumes**
- Intended to reflect current traffic conditions with Newberry Road traffic
- Reassigns Newberry Road traffic into the study area

**Detour Volumes**
- Intended to reflect closure of Cornelius Pass Road
- Volumes entering and departing Cornelius Pass Road were reassigned
- 50% and 70% Detour compliance was developed to reflect range of traffic impact
Baseline Traffic Volumes

Assumptions:
1. Used tube counts on Newberry Road to determine EB and WB traffic.
2. Assume traffic to US 30 comes from Skyline Boulevard.
3. Assume traffic from US 30 goes to Cornelius Pass, and gets proportionally distributed.
Detour Traffic Volumes with 50% Driver Compliance

Assumptions:
1. Remove truck traffic at Cornelius Pass/Skyline Boulevard.
2. Reassigned trips going into and coming from north on Cornelius Pass Road.
3. US 30/Cornelius Pass turning movement counts used to estimate north-south split.
4. To capture range of traffic impacts, 50% and 70% detour compliance volumes were developed.
Detour Traffic Volumes with 70% Driver Compliance

Assumptions:
1. Remove truck traffic at Cornelius Pass/Skyline Boulevard.
2. Reassigned trips going into and coming from north on Cornelius Pass Road.
3. US 30/Cornelius Pass turning movement counts used to estimate north-south split.
4. To capture range of traffic impacts, 50% and 70% detour compliance volumes were developed.
Proposed Temporary Traffic Control Modifications

- **NW Cornelius Pass Road/NW Skyline Boulevard**
  - Stop control on NB and SB approaches, with “EXCEPT RIGHT TURN” plaque on NB approach.
  - Remove stop sign on the WB approach.
  - Restripe NB approach to provide dedicated right-turn lane.

- **NW Skyline Boulevard/NW Newberry Road**
  - Stop control on NB (Skyline) approach.
  - Remove stop sign on westbound (Newberry) approach.

- **NW Newberry Road/US 30**
  - Install temporary signal with above ground detection and a protected northbound left-turn phase.
  - Consider temporary widening/striping to provide dual left-turn lanes on Newberry Road approach.
## PM Peak Hour Traffic Analysis

<table>
<thead>
<tr>
<th>Intersection</th>
<th>No Temporary Traffic Control Modifications (50% Compliance)</th>
<th>No Temporary Traffic Control Modifications (70% Compliance)</th>
<th>With Temporary Traffic Control Modifications (50% Compliance)</th>
<th>With Temporary Traffic Control Modifications (70% Compliance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW Cornelius Pass Rd/NW Skyline Blvd</td>
<td>&gt; 1.00</td>
<td>&gt; 1.00</td>
<td>0.66 (EB)</td>
<td>0.65 (NBL)</td>
</tr>
<tr>
<td>NW Skyline Blvd/NW Newberry Rd</td>
<td>&gt; 1.00</td>
<td>&gt; 1.00</td>
<td>1.56</td>
<td>2.50</td>
</tr>
<tr>
<td>NW Newberry Rd/US 30</td>
<td>&gt; 1.00</td>
<td>&gt; 1.00</td>
<td>1.12 (1LT)</td>
<td>1.29 (1LT)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.86 (2LT)</td>
<td>0.97 (2LT)</td>
</tr>
</tbody>
</table>

1LT = assumes single eastbound left-turn lane
2LT = assumes dual eastbound left-turn lane
Additional Storage Lane Analysis

- Effective vehicle length = 25 feet
- Cycle length = 110 seconds
- Max Green = 35 seconds
- Lost Time = 2 seconds
- Saturation flow rate = 1,900 vehicle/hour/lane

- Left Turn Arrival Rate (50% Detour) = 21 vehicles/cycle
- Left Turn Arrival Rate (70% Detour) = 27 vehicles/cycle
- Right Turn Arrival Rate = 7 vehicles/cycle
Left-Turn Discharge Rate by Storage Length

- **Initial Discharge (Two Lanes)**
- **Total Discharge (Two Lanes, then Single Lane)**
Left-Turn Arrival Rate by Volume Scenario

Left Turn Storage Length

- Initial Discharge (Two Lanes)
- Total Discharge (Two Lanes, then Single Lane)
- Left Turn Arrival Rate at 50% Detour
- Left Turn Arrival Rate at 70% Detour
Proposed Storage Length

- Initial Discharge (Two Lanes)
- Total Discharge (Two Lanes, then Single Lane)
- Left Turn Arrival Rate at 50% Detour
- Left Turn Arrival Rate at 70% Detour

Vehicle/Cycle vs. Left Turn Storage Length (feet):
- 0 to 400 feet
- 0 to 35 vehicle/cycle
Alternate Routes for Stage I Construction

- NB alternate route for passenger vehicle traffic from Cornelius Pass Rd
- SB alternate route for passenger vehicle traffic from Cornelius Pass Rd
- One lane road 1000 ft
- Road work ahead
- Be prepared to stop

Two way flagged traffic on Cornelius Pass Rd

- Trucks use Cornelius Pass Rd
- Alternate route to Cornelius Pass Rd
- Alternate route to Cornelius Pass Rd
- Alternate route to Cornelius Pass Rd

NW Cornelius Pass Road: US 30 - NW Kaiser Road
Key #18147
September 18, 2018
NW Cornelius Pass Road: US 30 - NW Kaiser Road
Key # 18147, PA #28354, WOC #3
Traffic Control and Detour Route Meeting Minutes

September 18, 2018, 1:00 PM to 4:30 PM

Meeting Location: Oregon Dept. of Transportation – Region 1, Room 344
123 NW Flanders
Portland, Oregon 97209

Attendees: Riad Alharithi, Carrie Warren (County), Reem Khaki, Jordan Orser, Tiffany Slauter, Thanh Tran, Maggie Bartley, Kari Sprenger, (ODOT), Gabe Crop, Gwen Montgomery, Tyler Nord (Murraysmith), Wade Scarbrough, Yi-Min Ha (Kittelson)

1) Introductions and Roles
Attendees briefly introduced themselves and their respective roles.

2) Project Overview
   a) Consultant Project Manager provided a brief background on the project to date, explaining that design was put on hold about a year and half ago due to the landslide on Newberry Road that affected the proposed detour route.
   b) Design schedule - Final Review Plans submittal was previously set for 10/3. Due to discussions at the meeting leading to additional required coordination, and the ODOT Local Agency Liaison’s planned leave, the submittal will be delayed until 10/19. Murraysmith will incorporate this change and provide a revised design schedule (Action item – Tyler Nord). There is a public meeting scheduled for 10/8, and a Motor Carriers meeting on 10/16. Design team will still develop and provide required materials for these meetings. Motor carriers material will be provided on 10/4.

3) Meeting Objectives
   a) Objective of the meeting is to obtain concurrence or direction from ODOT and the County in order to continue development and preparation of the traffic control and detour route concepts to be conveyed at the upcoming public meeting and motor carriers meeting.

4) Construction Schedule and Traffic Control Concept
   a) Briefly discussed the construction schedule, explaining that construction was split into two stages. Stage 1 would happen first and involves construction activities on Cornelius Pass Road between Kaiser Road and Skyline Blvd. Discussion of this stage will be reserved until the end of the meeting. Stage 2 involves construction activities on Cornelius Pass Road between Kaiser Road and US30. Construction at the 8th Ave curves will require a “hard” closure, allowing no access through this area. In order to safely construct improvements in Stage 2, Cornelius Pass will be closed to all through traffic. Contractor will have traffic control measures in place to allow local traffic access. A detour route will be established along Skyline Blvd to Newberry Road.
5) Overview of Traffic Analysis
   a) Kittelson presented their methods for obtaining traffic data, and their assumptions about
driver compliance when using the detour routes. They provided an analysis of each of the
three major intersections along the detour route (Cornelius Pass and Skyline, Skyline and
Newberry, and Newberry and US30).
   b) Kittelson provided estimated detour route traffic volumes and identified the critical
movements at the intersections along the detour route.

6) Cornelius Pass and Skyline
   a) The preferred alternative is to provide a stop sign for NB through movements and left
turns, a stop sign for all SB movements (local traffic only), and a stop sign for EB
movements from Skyline. NB right turns and WB movements from Skyline would be
free flow conditions. The design team intends to make these intersection modifications
without temporary widening. If temporary widening is considered, R/W location would
need to be verified.
   b) This preferred alternative address the critical turn movements, which are NB right turns
and WB left turns.
   c) ODOT Traffic commented that the preferred alternative may cause backups onto Old
Cornelius Pass from Skyline Blvd. Design team will evaluate the intersection of Old
Cornelius Pass and Skyline Blvd and likely make this an all-way stop condition (Action
item: Wade Scarbrough).
   d) Another alternative was to provide an all-way stop, but this would result in a very low v/c
ratio for the intersection.

7) Skyline and Newberry
   a) The preferred alternative at this intersection is to prioritize the detour route by making SB
left turns from Skyline onto Newberry and WB right turns from Newberry to Skyline non-
stop controlled. NB skyline would have a stop sign added.
   b) This intersection had a higher v/c ratio due to NB skyline movements being affected by
the stop sign, but overall this alternative had the best capacity.
   c) Permanent illumination will be provided at this intersection to meet City of Portland
requirements.

8) Newberry and US30
   a) Dual left turn lane alternative – design team provided a concept design of how two left
turn lanes from Newberry to US30 could be accommodated. This would require
temporary widening on both sides of Newberry, and reconstruction of the curb return and
ADA curb ramp at the corner. Two left turn lanes would significantly reduce the v/c ratio
of the intersection and the backup of vehicles on Newberry.
   b) Single left turn lane alternative – this is the existing condition, and would not require
improvements to the geometry of the roadway.
c) ODOT staff strongly preferred the dual left turn lane option, and stated that ODOT staff in Salem would likely require this. The County wanted to make sure that funding spent on temporary improvements was minimized since that detracted from available funding for permanent improvements. For this reason, the County’s first preference was a single left turn lane, but acknowledged the merits of a dual left turn lane. ODOT commented that they would not retime the signal to give a higher priority to Newberry if there was severe traffic back-ups during the detour.

d) The design team will provide the County with a comparison of the costs associated with both options, and will provide a qualitative estimate of the traffic impacts of the options (Action item: Wade Scarbrough and Gwen Montgomery).

e) Widening or other improvements within the ODOT R/W should be reviewed by an ODOT Roadway representative. During the meeting, mapping was pulled up to confirm that all proposed improvements were within ODOT R/W. ODOT Local Agency Liaison to determine who the appropriate roadway reviewer would be and set up a meeting if widening is pursued (Action item: Reem Khaki).

f) Design vehicles – design vehicles were evaluated for the detour route. A fire truck could be accommodated, but an SU-30 and larger could not navigate many of the tight turns along Newberry or the turns from US30 to Newberry. The design team showed auto-turn figures with the results. For this reason, trucks will not be allowed on the detour route. The ODOT Mobility Coordinator will convey this to Motor Carriers and let them know that alternate routes need to be taken during this Stage 2 construction. ODOT Traffic recommended a sign similar to “No trucks longer than 30ft”.

g) Crosswalk - The group agreed that a temporary crosswalk closure of the south leg of the intersection would be appropriate. If the crosswalk on the south leg were to remain open, push buttons would need to be installed behind the guardrail, or video detection could be used. Crosswalk closure requests can be submitted with the temporary signal requests.

i) There was brief discussion about the merits of continental vs. standard crosswalk striping. ODOT traffic thought that standard transverse crosswalks would be best and could use tape as the striping material.

h) Temporary signal – ODOT Traffic indicated it can take between 1 and 3 months to provide review and approval of a temporary signal request, so encouraged the team to submit this soon if possible. Items that should be included in this submittal are a signal warrant analysis for proposed and existing conditions, preliminary signal operations design form, and approximate dates of the temp signals operation (Action item: Wade Scarbrough).

i) ODOT mentioned that vehicles coming down Newberry may have trouble seeing the traffic signal due to sight distance, and that the design team should consider adding advance signal heads (Action item: Wade Scarbrough).

ii) ODOT stated that these changed traffic conditions (i.e. new traffic signal and higher volume of turning movements) would increase the potential for rear-end collisions on US30. Design team should consider advance signage and flashing beacons along US30 (action item: Gwen Montgomery).
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i) ADA ramp - ODOT commented that the existing ADA ramp is likely not compliant since it was constructed several years ago, and that if it was disturbed during construction that it would need to be replaced with dual ramps to match ODOT’s current practice.

ii) The group discussed the need for a curb ramp here, since there is no pedestrian access route. The Trimet bus stop at this corner appears to be the driving factor for needing a curb ramp. The design team will coordinate with Trimet to see if an alternate configuration of the bus stop could be used such as a widened at-grade concrete pad, which would eliminate the need for a curb ramp (Action item: Tyler Nord). ODOT Traffic said they could provide ridership data for the bus stop, which was sent that same day.

iii) ODOT’s local agency liaison suggested that the team meet with Basil Christopher and an ODOT Salem representative to further discuss impacts to the ADA ramp and restoration requirements (Action item: Reem Khaki and Tyler Nord).

j) Restoration - The intersection will be restored to its existing conditions after construction is complete. The team agreed that the temporary improvements made should not remain after construction. Since there is no topographic survey data available for the intersection, special provision language would put the responsibility on the contractor to survey existing conditions and restore them. This also means that the ADA curb ramp design and construction would not follow ODOT’s typical design process of a detailed curb ramp design and review. Curb ramp would still be inspected to confirm compliance.

k) Permits – ODOT local agency liaison will provide the Final Review package to Jim Nelson to begin the process for a permit to operate within ODOT R/W. The permit may be needed prior to construction, but typically the permit holder would be the contractor. Design team to work with ODOT to figure out the appropriate permit process (Action item: Tyler Nord and Reem Khaki).

9) Cornelius Pass and US30
   a) ODOT Traffic suggested this signal timing be evaluated during the detour route to reduce the green phase of the left turn movements onto Cornelius Pass and any movements from Cornelius Pass. Only local traffic will be utilizing these movements.
   b) ODOT requested 2 weeks notice for signal retiming. Design team will place this requirement in the specs along with contact information (Action item: Tyler Nord).

10) Stage 1 Construction
   a) The design team showed the alternate route concept that was developed for stage 1 construction. Smaller vehicles would have the option of using these alternate routes, but trucks would be required to stay on Cornelius Pass Road since the alternate routes could not accommodate trucks with the tight corners. The contractor would need to provide access through the work zone with flaggers and a pilot car for trucks and vehicles that chose not to take the alternate routes.
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b) The County raised concern that there would be insufficient space for trucks to get through the work zone if the construction activities took up an entire lane. The design team will evaluate truck turning movements through the Stage 1 construction area to determine if there is enough space for trucks (Action item: Gwen Montgomery).

c) The County suggested that the restrictions on trucks should be extended to include Stage 1 work activities that do not have enough space to accommodate trucks through the work zone. This increase in the current 2.5 month truck restriction would need to be presented to Motor Carriers.

d) County also suggested that improvements restrictive of trucks could be done under a weekend closure.

e) Design team will re-evaluate timeline for construction of improvements at Kaiser Rd intersection since these activities may impact use of the alternate route along Kaiser Rd (Action item: Tyler Nord and Gwen Montgomery).

11) Use of PCMS  
a) County suggested setting up PCMS during the winter months to inform roadway users of the upcoming closures  
b) Design team to include intended messages for PCMS and VMS in the traffic control plan (Action item: Gwen Montgomery).

c) County’s website could be placed on PCMS along Cornelius Pass Road.

12) Coordination with ODOT’s VMS System  
a) The design team suggested that to raise awareness of the project and the traffic control impacts, ODOT’s VMS system could be used for advanced notification to drivers.

b) ODOT indicated that there guidelines for VMS messaging is available online  
c) ODOT can use their VMS system up to one week in advance of the closure to notify road users of the upcoming changes.

d) ODOT requested 2 weeks notice for changing VMS signs. Design team will place this requirement in the specs along with contact information (Action item: Tyler Nord).

13) Miscellaneous Items  
a) ODOT traffic suggested that a high level truck detour route during the closure would be helpful for presenting to Motor Carriers (Action item: Gwen Montgomery).

b) County would prefer that flagger hours for the project be per hour rather than lump sum  
c) County will evaluate if enforcement officers can be utilized during construction to enforce truck compliance in avoiding the detour route.

d) Design team will see if there is an “escape route” for trucks that enter the area (Action item: Gwen Montgomery).