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MEMORANDUM

Date:	August 27, 2021	Project #: 23021.35
To:	James Feldmann	
From:	Camilla Dartnell, Bincy Koshy, Polina Polikakhina, and Phill Worth	
Project:	Highway OR 99W South Corvallis Facility Plan	
Subject:	FINAL TM #11: Existing Needs, Planned Improvements, Alternatives, and Recommendations	

PURPOSE

This memorandum compares the identified existing needs against the planned projects of Agency, City, and County and suggests potential solutions to existing needs not previously or fully addressed by planning improvements. The team also evaluated each planned project for consistency with the Performance-Based Design Decision Framework. Those results are also documented in this memorandum.

EXISTING NEEDS

The following project needs were identified in Technical Memo 10 based on the information compiled during early Task 2 efforts, which include the public online survey map and stakeholder interviews, along with findings and deliverables from Tasks 3, 4, and 6, such as Technical Memo 3, Road Safety Audit (RSA) Report, Technical Memos 6, 9, and 10. The source or sources of information that helped determine each need is identified, allowing the reader to obtain additional information, as needed.

Identified Needs Within ODOT Right-of-Way

1) **Aesthetics** – (Source: Community Input and RSA Observations) The OR 99W corridor currently does not include a buffer strip between the roadway and the sidewalk for the majority of the corridor. Community members and stakeholders expressed a great desire in having more greenery along the roadway.

2) **Comfort** – (Source: Community Input and RSA Observations) Stakeholders, local community members, and property owners have expressed that the OR 99W corridor is uncomfortable to use for people walking and biking.
   a) **Pedestrian Comfort**
      i) **Lack of Physical Separation from Traffic** – (Source: Community Input and RSA Observations) The corridor currently lacks physical separation from traffic for people using the sidewalks

for most of its length. Many community members shared that the proximity to traffic makes them feel very uncomfortable and threatened when walking. The high volumes of vehicular traffic also can generate high noise levels, which was identified as a concern through public engagement.

ii) **High Motorist Speeds –** (Source: Community Input and Road Safety Audit Observations) Many community members, property owners, and stakeholders expressed concern for posted speeds and travel speeds that are too high for the adjacent contextual use. People related observations of many motorists, including trucks, exceeding the speed limit. Locations of particular concern for high motorist speeds are within the interchange area of OR 99W / US 20-OR 34 and the section south of Richland Avenue.

iii) **Conflicts Due to Driveways –** (Sources: Community Input and TM #10) The OR 99W corridor contains approximately 100 driveways (59 on west side and 41 on east side). The large number of access points along the corridor create many potential conflict points between people driving and people walking. Stakeholders shared that they feel uncomfortable and unsafe walking along the corridor as drivers often do not pay attention to pedestrians when looking for gaps in traffic. Additionally, community members noted the difficulty of seeing pedestrians, bicyclists, and motor vehicles from driveways along the corridor without encroaching onto the sidewalk or bike lane.

b) **Bicyclist Comfort**

i) **Inconvenience and Discomfort –** (Source: Community Input and RSA Observations) Most bicycling related issues shared by the public center around inconvenience and discomfort. During the site visits, the Roadway Safety Audit (RSA) team observed many people riding bicycles on sidewalks, which confirms that people are not comfortable riding on the roadway even though there is a dedicated bike lane along much of the corridor. Many community members mentioned that they do not feel safe riding next to high-volume and high-speed traffic. People expressed a strong desire to replace the existing unprotected bicycle lanes with buffered or protected bicycle lanes.

ii) **Wayfinding –** (Source: Community Input and RSA Observations) Many locations along the highway do not provide clear signage for navigating the corridor and/or the existing alternative routes for bicyclists. The community shared that the most challenging area to navigate is the interchange of OR 99W / US 20-OR 34: some community members have a hard time finding a safe and convenient way to travel from downtown to south Corvallis and vice versa.

iii) **Conflict Points Due to Driveways and Public Street Intersections** – (Source: Community Input and RSA Observations) The density of intersections and driveways creates additional conflict points between motor vehicles and bicyclists. The most common type of a conflict mentioned by the public is a “right-hook conflict”: it occurs when a bicyclist travels straight, on the right-hand side of a motor vehicle, and the driver turns right, colliding with the bicyclist.

3) **Crossings –** (Source: Community Input, RSA Observations, and TM #10) Community members expressed that many of the pedestrian and bicycle crossings along the OR 99W corridor, both at

intersections and mid-block, are challenging and feel unsafe. A review of the most recent five years of available crash data shows that most crashes along the corridor occur at intersections and mid-block pedestrian crossings. In addition to the specific crossing issues discussed below, stakeholders and community members identified that east-west pedestrian and bicycle connectivity across the OR 99W corridor is challenging. Direct and clear bicycle and pedestrian paths are missing, and those that exist do not have sufficient signage for convenient wayfinding.

a) **Mid-Block Crossing Safety –** (Source: Community Input) Community members indicated that drivers do not always comply with stopping at mid-block pedestrian crossings. Several stakeholders said that they feel more comfortable crossing at a location that does not have a marked crosswalk, as they feel they cannot trust the drivers to stop at a designated crossing location. Additionally, people shared that they do not feel safe using this Rectangular Rapid Flashing Beacon (RRFB) crossing treatment, as drivers do not always see or recognize the flashing yellow light as a warning to stop for crossing pedestrians.

b) **Speeding** – (Source: Community Input and RSA Observations) High motorist speeds result in less reaction time for the drivers and makes it more difficult for pedestrians to determine a gap in traffic for crossing the roadway. Speeding is also discussed below as one of the key corridor-wide issues.

c) **Lack of Sufficient Lighting** – (Source: Community Input and RSA Observations) The local community and the RSA team indicated that there is not sufficient lighting at many locations along the corridor, including mid-block and intersection crossings. This can make it especially challenging for drivers to see pedestrians and bicyclists at night.

d) **Location-Specific Challenges at Midblock Crossings -** (Source: Community Input and TM #10)
   i) **Marked Crossing South of SW Twin Oaks Circle/SE Chapman Place** – This location is noted as one of the highest used pedestrian and bicyclist crossings of OR 99W due to proximity to the businesses, a significant population of unhoused individuals both east and west of OR 99W, and a shared-use path connecting south Corvallis to downtown and the waterfront park. This crossing experienced one fatal pedestrian and one fatal bicycle crash in 2018 and 2020, respectively.
   ii) **Marked Crossing Between SW Cummings Avenue and SE Lily Avenue** – This location did not experience a high number of reported crashes; however, the public commented that they do not feel safe using the RRFB at this location.
   iii) **Unmarked Crossing Between SE Viewmont Avenue and SW Tunison Avenue** – This is an offset intersection with approximately 50 feet between the east and west legs, and there were a high number of reported crashes between 2014 and 2018 at this location. This intersection is near Lincoln Elementary School, and because of the school and other destinations in the area, there is a strong desire to cross OR 99W for people of all modes. In addition to conflicts between modes, the offset intersection creates conflict points for drivers travelling between SW Tunison Avenue and SW Viewmont Avenue. Motor vehicle deficiencies at this location are discussed below.

e) **Location-Specific Challenges at Intersections -** (Source: Community Input and TM #10)
   i) **Signalized Intersection with SW Avery Avenue/Crystal Lake Drive** – This intersection experiences the second-highest number of crashes along the corridor. This intersection is

used to cross OR 99W by people bicycling southbound on the shared-use path on the east side of the road and then accessing the southbound bicycle lane on the west side of the road.

ii) **Unsignalized Intersection with SE Lilly Avenue** – People commented that they find the curb cuts at SE Lily Avenue to be "awkward" due to their large radius. They said that crossing SE Lilly Avenue north-south is very challenging as a pedestrian and on a bicycle due to the large radius of the curb returns. People expressed desire for a marked crossing across SE Lilly Avenue at this location.

iii) **Signalized Intersection with SE Alexander Avenue** – Largely due to the proximity to Lincoln Elementary School, this intersection experiences high bicycle and pedestrian volumes. The public shared that motor vehicles often stop such that they partly or fully block the pedestrian crossings. Community members and stakeholders feel unsafe at this location and proposed adding a grade-separated bicycle and pedestrian under- or over- crossing. This desire for a grade-separated facility reflects the desire for greatly improved crossing safety at this location.

iv) **Unsignalized Three-Legged Intersection with SE Goodnight Avenue** – This location is a challenge both for pedestrians and drivers. People shared that they have a desire for marked pedestrian crossings across OR 99W and SE Goodnight Avenue. At the same time, the public mentioned that the trees and the fence on the southeast corner of the intersection create sight obstructions to the vehicles traveling northbound and the vehicles making a westbound right turn. In addition, people shared that a median to the north of the intersection limits the storage length for southbound left-turning vehicles, creating a hazard when the queue of turning vehicles is greater than the available storage.

v) **Unsignalized Three-Legged Intersection with SE Rivergreen Avenue** – This intersection provides challenges for people walking and driving. The public expressed a desire for a marked pedestrian crossing across OR 99W at this location to provide access from the residential development on the east side of the highway to the businesses located on the west side. The west side is also zoned for future high-density residential development. People also mentioned that this would be a great location to start slowing down traffic entering Corvallis from the south. Drivers commented that this intersection does not provide sufficient sight distance for people making turns out of SE Rivergreen Avenue onto OR 99W.

4) **Infrastructure** – The public and stakeholders identified many corridor issues and constraints that fall under the category of infrastructure.

a) **Roadway Cross-Section** – (Source: Community Input, RSA Observations, and TM #10) Generally, OR 99W has four 12-ft travel lanes, one 14-ft two-way left turn lane, 6-ft bicycle lanes, and 6-ft sidewalks in both directions, but the width of the roadway and lanes varies along the corridor. Bicycle lanes are not separated from traffic vertically or horizontally. Generally, the corridor does not provide a buffer for the sidewalks, except for a few short segments. Current lane widths and configuration encourage high-speed driving and reduce pedestrian and bicyclist comfort. As mentioned above, vertical and horizontal separations from traffic would increase the comfort of pedestrians and those on bicycles.

b) **Lack of Sufficient Lighting** – (Source: Community Input and RSA Observations) In addition to previously mentioned concerns about the lack of lighting at crossings, the consultant and the RSA teams observed that a lack of lighting is an corridor-wide issue, especially along the east side of OR 99W, south of Crystal Lake Drive. Insufficient lighting creates an uncomfortable environment for all users. Reduced or inconsistent lighting at crossings and intersections makes it difficult for the drivers to see people crossing the roadway, including the RRFB locations. In addition, back lighting from land uses obstructs views of signs for drivers and people walking and bicycling, especially regulatory signs such as speed limit signs.

c) **Signage and Wayfinding** – (Source: Community Input and RSA Observations) The lack of appropriate signage for comfortable pedestrian and bicyclist wayfinding is discussed above. In addition to the wayfinding issue, the RSA team identified that sign clutter, consisting of roadway signs and those from private properties, is a corridor-wide problem. Another issue is the mounting of speed limit signs: the RSA team observed that some signs were mounted at a height above that which would allow many headlights to trigger signage retroreflectivity. Some speed limit signs are also hard to see due to insufficient corridor illumination. Finally, southbound on OR 99W approaching the ramps to US 20-OR 34, the right lane becomes a trap lane but does not have signage and pavement markings to indicate this prior to the ramp.

d) **Transit** – (Source: Community Input and RSA Observations) Currently, there are two bus routes that serve south Corvallis: Corvallis Transit System (CTS) route number 6 and the Night Owl, also operated by CTS. The majority of bus stops are delineated by a pole and signage. Four bus stops also provide a shelter. All bus stops along OR 99W require the transit vehicle to stop in-lane to pick up and drop off passengers. This requires a bus to completely block the bicycle lanes, which requires bicyclists to either stop behind the bus until it resumes moving, or merge in with the vehicular traffic, creating additional conflict points.

e) **Drainage** – (Source: Community Input and RSA Observations) The consultant and the RSA teams noticed that insufficient drainage causes water to settle in bicycle lanes after rain events, resulting in bicyclists moving into travel lanes or onto the sidewalk. A number of public members also provided location-specific input about poor drainage. Additionally, the study corridor is located within the 100-year flood plain, which is important to consider during future development.

5) **Safety**

a) **High Motorist Speeds** – (Source: Community Input, RSA Observations, and TM #10) High operating speeds by motor vehicles for the adjacent land use context is one of the key issues along the corridor. The posted speed along the corridor varies between 25 and 50 mph, but many vehicles, including large trucks, were observed to be uncompliant with the speed limits. High speeds result in less reaction time for the drivers and make it more difficult for pedestrians to determine a gap in traffic. Speeding is also believed to be one of the reasons why the corridor has a high proportion of rear-end collisions.

b) **Driveways** – (Source: Community Input and TM #11) Presence of a high number of driveways creates additional conflict points for roadway users. The crash data indicates that at least one driveway location correlates with a relatively high concentration of crashes.

c) **Conditions of Travelways and Infrastructure** – (Source: Community Input and RSA Observations) The roadway, bicycle lanes, and sidewalks have potholes, uplift, and other maintenance issues that decrease the comfort and safety of users, especially people walking and bicycling. Many permanent and temporary obstacles are present in bicycle lanes and on the sidewalks. Some sidewalks, pedestrian signals, and ramp locations in the corridor are not compliant with the Americans with Disability Act (ADA), though work began in early 2021 to address this as part of a lawsuit settlement agreement.

d) **Intersections of OR 99W with SW Western Boulevard** – (Source: TM #10) The one-way couplet intersections with SW Western Boulevard experienced the highest number of crashes along the study corridor between 2014 and 2018 and exceeded the state-wide 90th percentile crash rate[1]. Notably, the crashes are reported at the same milepost for both intersections. Out of the 40 crashes reported at milepost 83.93, 21 occurred at the east (northbound) intersection and 19 occurred at the west (southbound) intersection. Most crashes occurring at these intersections are turning movement (48 percent) and angle (33 percent) crashes. About 50 percent of crashes at these intersections are property damage only crashes and two of the 2014-2018 reported crashes resulted in life-altering injury, one of which was a pedestrian crash. Another bicycle crash resulted in evident minor injury. A fatal crash involving a pedestrian occurred in February 2021, according to preliminary data sources[2]. All of the crashes that resulted in fatality, life-altering injury, or involved a pedestrian or a bicyclist, involved a vehicle making an eastbound left or a westbound left turn at the intersection of SW Western Boulevard with northbound OR 99W couplet (SW 3rd Avenue).

6) **Traffic** – The corridor experiences several issues related to vehicular traffic, in addition to high operating speeds discussed above.

a) **Freight Industry** – (Source: RSA Observations) OR 99W, through the corridor, is a designated Oregon Highway Plan Freight Route. Reliability of the system is degraded when crash rates rise, delays result, and travel time predictability is diminished. Freight vehicles are more difficult to maneuver and stop than small motor vehicles, so greater speed management that leads to less speed variability is important. The friction, conflict, and unexpected movements at driveways create further challenges to freight movements.

b) **Impact on the Climate –** (Source: Community Input and TM #6) Stakeholders and community members expressed concern about the corridor's impact on the climate. The Corvallis Climate Action Plan (2016) and the Greenhouse Gas Inventory (2018) outline the importance of high-priority actions relevant to reducing car dependency along OR 99W. These plans prioritize the importance of reducing single occupancy vehicle trips, idling, and congestion.

c) **Vehicular Traffic Challenges and Deficiencies –** (Source: TM #9 and Technical Advisory Committee input) The following is a summary of the existing vehicular traffic deficiencies based on the analysis findings.

[1] https://www.oregon.gov/ODOT/Planning/Documents/APMv2_Ch4.pdf

[2] https://apnews.com/article/albany-corvallis-7a30fd6f10480b759b040ad36781fb48

i) Over half of the unsignalized east-west roadways intersecting OR 99W throughout the study area have an LOS of E or worse. This is predominantly due to the delay experienced when making a left turn onto the highway.
    i. SE Crystal Lake Drive is the only signalized intersection in the study area that exceeds the City's v/c ratio mobility target of 0.85 and the ODOT Oregon Highway Plan mobility target of 0.90.
    ii. The merging of US 20/OR 34 ramps with OR 99W creates various zones of potential conflict and congestion on OR 99W. The intersections of SE Viewmont Avenue and SW Tunison Avenue along OR 99W are in very close proximity of each other. This misalignment makes it more difficult for left turning traffic to use the highway median as a refuge causing longer delays on these streets. Additionally, the misalignment creates safety concerns for vehicle and crossing pedestrians.
    iii. The intersections of OR 99W with SW Tunison Avenue, SE Goodnight Avenue, and SE Rivergreen Avenue all experience southbound congestion due to high southbound left turn volumes. These intersection operations may present a safety concern as motorists become more willing to accept smaller gaps.

ii) Members of the Technical Advisory Committee noted that the existing partial interchange form of OR 99W with US 20-OR 34 contributes to out-of-direction travel and congestion in the vicinity.

Identified Needs Within Surrounding South Corvallis Areas

1. **Comfort**
    a. **Lack of Alternative Bicycle Route** – (Source: Community Input) Although it is important to provide bicycle connectivity on and across OR 99W for access to local destinations along the roadway, parallel routes on both sides of the highway could provide a more comfortable alternative to riding on the highway. Stakeholders and community members representing all modes, including freight, motorists, pedestrians, and bicyclists, have expressed the desire for more direct alternate routes similar to the Eric E. Austin path.
2. **Infrastructure**
    a. **Interchange** – (Source: Community Input and RSA Observations) The connection of downtown Corvallis to the southern part of the city through the interchange is challenging and uncomfortable for people walking and bicycling. The routes through this area are undefined and appear piecemealed with indirect connections between curb ramps. Inconsistent sidewalks and path portions cause pedestrians to cut through open space and cross at undesirable locations. The southbound section of the OR 99W couplet provides a standard bicycle lane but there is no connection for bicyclists to stay on OR 99W through the lane drop to the westbound on-ramp to US 20-OR 34. There is a shared-use path next to the Willamette River that people can use to avoid riding through the interchange, however, the connection of the path to the bicycle lane on the west side of OR 99W is not well signed and is out of direction for those traveling southbound from

west of OR 99W. Vehicular speeds vary through this area as well. Drivers are observed to accelerate slightly before the ramps to match the higher speeds of the connecting roadways or maintain high speeds as they come from the connecting highway. Design speeds through this area generally exceed the posted speed limit, further encouraging higher operating speeds. Drivers who enter Corvallis from the US 20-OR 34 ramps often times maintain the higher than appropriate speeds for the local context.

NEAR-TERM RELEVANT PLANNED IMPROVEMENTS

This section describes the near-term planned improvements that have been approved to take place within and around the study area and evaluates whether the improvements are consistent with the Vision statement of OR 99W corridor.

Following is the corridor vision statement:

*"*OR 99W (South 3rd Street) *contributes to the sense of place and community identity desired by residents, business and property owners, and visitors to the South Corvallis area. People of all ages and abilities find facilities and amenities along the corridor that safely support and comfortably encourage walking, biking, and the use of transit. A mix of business and civic uses attract and serve adjoining neighborhoods, as well the broader community, and the corridor is easy to find and travel to by all modes from nearby destinations, including those north of the river. The size, mix, and speed of transportation facilities (such as sidewalks, bike lanes, motor vehicle travel lanes) are well-suited to the adjacent land uses and character of each corridor segment. Travel speeds are managed and crossing treatments are provided such that people driving contribute to the sense of vitality, while not detracting from the safety or comfort of people of all ages and abilities. Gateway features reinforce the entry to Corvallis for travelers to recognize the character of the area and adapt their behaviors and expectations accordingly."*

Description & Evaluation of Relevant Near-Term Planned Improvements

Table 1 describes the planned improvements from the Statewide Transportation Improvement Program (STIP) projects including the specific purpose of the improvements, the various needs of OR 99W corridor that the projects address, and an evaluation of consistency with the corridor vision statement. Table 2 describes the near-term Corvallis Transportation System Plan (TSP)[3] projects and the same factors described above. Figure 1 presents a map of the STIP and near-term TSP projects, as well as additional proposed solutions.

[3] The near-term TSP projects are also the City's Capital Improvement Plan (CIP) Fiscal Year 2021-2025 projects

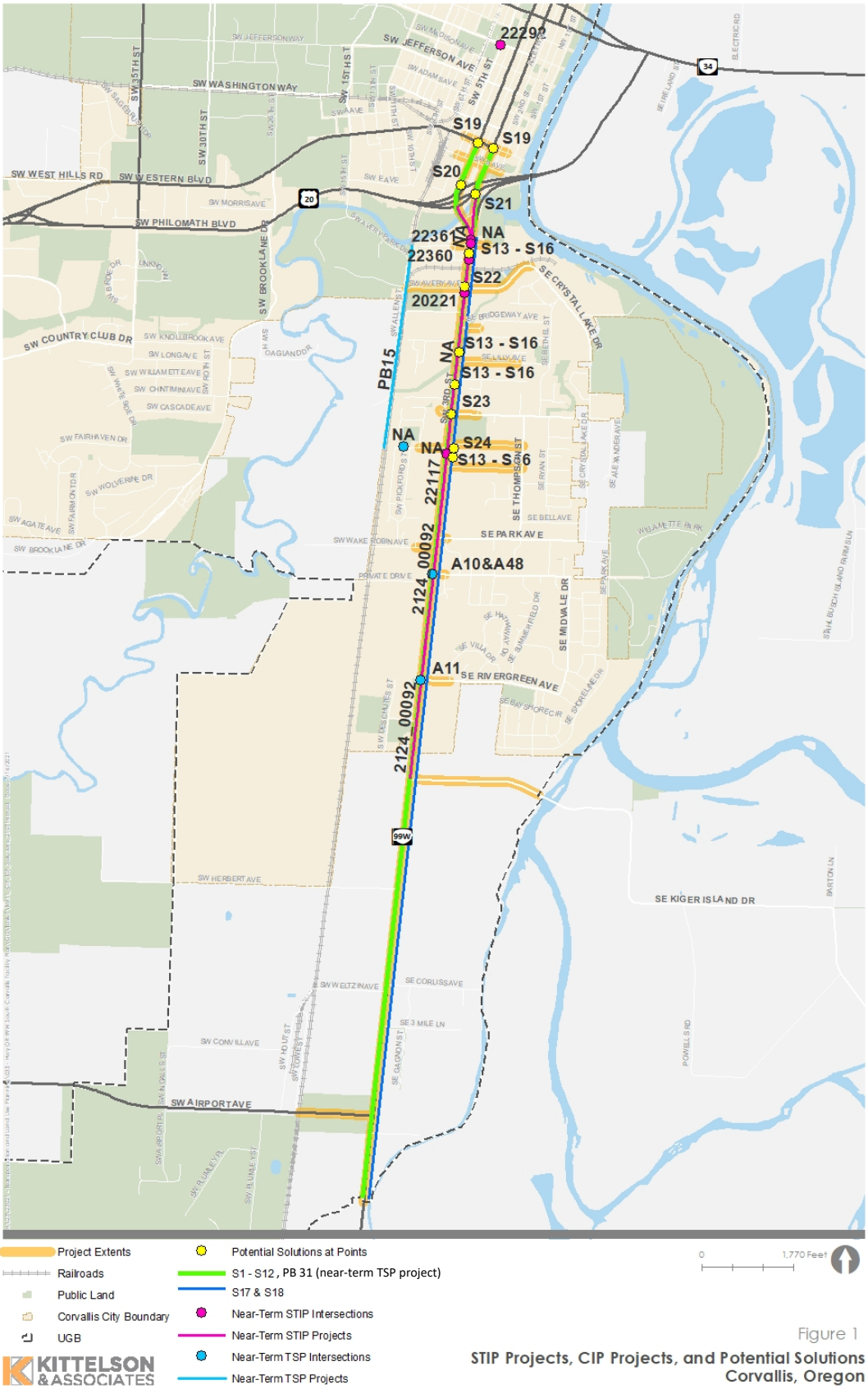

Figure 1
STIP Projects, CIP Projects, and Potential Solutions
Corvallis, Oregon

Table 1: List of STIP Projects

STIP Projects					
Project Number	**STIP Projects (2021-2024, except where noted)**	**Description**	**Purpose**	**Type Of Need Met and Issue Addressed**	**Consistent with OR 99W corridor Vision Statement**
STIP 22361	OR99: Chapman Crossing Advanced Warning Light	Install advance warning flashing lights ahead of crosswalk	Alert motorists when flashing lights are activated to improve pedestrian safety at crossing	**Crossings:** location-specific challenges at midblock crossing; pedestrian safety	Yes
STIP 22360	OR99: Chapman Crossing Illumination	Install/move pavement illumination at crossing	Improve pedestrian safety by increasing nighttime visibility	**Crossings:** location-specific challenges at midblock crossing; pedestrian safety; Infrastructure: lighting	Yes
STIP 22332	Project Administration for Battery Electric Bus Projects	Project administration for bus procurement, protocols for future Battery Electric Bus acquisitions, and technical analysis of charging infrastructure (FTA 5307 funds).	N/A	**Infrastructure:** transit; Traffic: impacts on climate	Yes
STIP 22331	Purchase Equipment and Construct Bus Charging Facilities (Corvallis)	Purchase battery charging equipment which will serve new battery electric buses. Design and construct bus charging facilities at City of Corvallis Public Work's Department's bus parking lot (FTA 5307 funds).	N/A	**Infrastructure:** transit; Traffic: impacts on climate	Yes
STIP 22330	Purchase Battery Electric Buses	Purchase battery electric buses that will replace CTS biodiesel buses that have reached their useful lives (FTA 5307 funds)	N/A	**Infrastructure:** transit; Traffic: impacts on climate	Yes
STIP 22292	Corvallis Transit System (CTS) Camera System	Install Camera System at the Downtown Corvallis Transit Center	Improve public safety and security for all users, regardless of origin or destination (e.g., downtown security enhancements benefit transit riders travelling to and from south Corvallis)	**Safety:** transit safety	Yes
STIP 21191	US20: Safety Upgrades (Albany to Corvallis)	Add various enhancements at several locations, as determined through future study	Improve safety for all users	Pedestrian, bicycle, transit rider, and motorist safety	Yes
STIP 20221	Albany and Corvallis Signal Improvements	Add signal enhancements at several intersections (Crystal Lake Drive)	Improve safety (add-ons include improving bicycle striping and a diagonal bike phase signal)	**Bicycle comfort; crossings:** location-specific challenges at intersections; bicycle safety, relocate signal cabinet to improve visibility	Yes

Project Number	STIP Projects (2021-2024, except where noted)	Description	Purpose	Type Of Need Met and Issue Addressed	Consistent with OR 99W corridor Vision Statement
STIP 20071	OR 99W: Corvallis Stormwater System	Replace current stormwater system with new drainage	Prevent collapses and plugs during the winter	**Traffic:** vehicular traffic challenges and deficiencies	Yes
Draft STIP 2024-2027 (Project Number N/A)	OR 99W: Chapman Pl – SE Richland Ave	Upgrade the enhanced crossing near Chapman Place to either an overhead Rectangular Rapid Flashing Beacon (RRFB), Pedestrian Hybrid Beacon (PHB), or pedestrian signal. Add corridor illumination from Chapman Place to Richland Avenue (4000') on both sides of the roadway at approximately 200 foot spacing. PHB or overhead RRFB near Tunison to provide an enhanced crossing for Lincoln Elementary school students (this is contingent on finding a solution through the current planning process and could also be funded by Safe Routes to School (SRTS).	Provide pedestrian facilities and improve safety of pedestrians	**Pedestrian comfort; crossings**: location-specific challenges at intersections; pedestrian safety	Yes
Draft STIP 2024-2027 (STIP 2124_00092)	OR 99W: Marys River Br – Kiger Island Rd	This preservation project on OR 99W will rehabilitate the existing pavement surface. Project will include pavement removal, paving, deck work on four bridges, inlet/manhole/box adjustments, and re-striping. Evaluate for a buffered bike per the BUD guidance based on the context (urban mix) identified in the south Corvallis facility planning process	Improve pavement facilities for pedestrians and provide buffered bike lane	**Pedestrian and Bicycle comfort**: location-specific challenges at intersections; pedestrian safety; bicycle comfort	Yes
K 22117	OR 99W Curb Ramp Project - SE Chapman Place to SW McKenzie Ave	Rebuilding Americans with Disabilities Act (ADA) curb ramps in south Corvallis to current ADA guidelines	Improve safety, accessibility and convenience for the disabled population	**Safety:** unsafe intersections and crossings for disabled population; lack of pedestrian facilities for disabled population	Yes
TSP PB 31	OR 99W South Corvallis Refinement Study	Conduct a study to evaluate safety improvements to OR 99W corridor	Make OR 99W in south Corvallis a more safe, comfortable and attractive place to walk and bike.	**Bicycle and pedestrian comfort**: bicycle and pedestrian safety; **Safety**: high motorist speeds; **Crossings**: location-specific challenges at intersections	Yes

Table 2: List of Near-Term TSP/CIP Projects

Near-Term TSP Projects						
Project Number	**Near-Term TSP Projects**	**Description**	**Purpose**	**Priority (TSP)**	**Needs Met**	**Consistent with OR 99W corridor Vision Statement**
Portion of TSP PB15	Multi-Use Path Planning - Tunison to Avery Park Drive (South Corvallis Multi-Use Path)	Construct 0.75 mile multi-use path parallel to the railroad in Southeast Corvallis, between Marys River south to SW Tunison Avenue. The preferred alignment may be on top of the planned sewer line easement that's being acquired east of the track with development. Coordinate with project PB25[4] an PB26[5]. Extend the path east along the south side of Marys River to the existing pedestrian and bicycle bridge. The existing bridge and PB17[6] bridge would provide connections to the Corvallis-Philomath Multi-Use Path.	Provide continuous low-stress facilities and access for bicyclists and pedestrians	High	Bicycle and pedestrian comfort: lack of alternative route	Yes
TSP A48	Goodnight Ave/3rd Street/OR 99W Right-of-way (ROW)	Right of Way (ROW) acquisition to allow realignment of Goodnight Avenue to make a 4-way intersection at Goodnight Ave/OR 99W. Would precede A10.	Improve safety and operations at intersections by realigning east-west connection across OR 99W.	High	Safety: high motorist speeds; crossings: location-specific challenges at intersections	Yes

[4] PB 25 - SW Cummings Avenue Railroad Crossing: Develop connection over railroad to SW Allen Street for pedestrian/bicycles. Coordinate with PB26 depending on final alignment if the South Corvallis Multi-Use Path (PB15).

[5] PB 26 - SW Tunison Avenue Railroad Crossing: Develop connection over railroad to SW Allen Street for pedestrian/bicycles. This connection may be needed if PB15 is constructed on the west side of the railroad tracks, however, he connection may not be necessary if PB25 is implemented.

[6] PB 17 - Marys River Pedestrian and Bicycle Crossing (Marys River Path Crossing): Construct a bicycle/pedestrian bridge over Marys River and construct multi-use paths to connect the Pioneer Park trail network on the north side to the South Corvallis Multi-Use Path (PB15) on the south side. This project is one segment of a citywide low-stress network.

Project Number	Near-Term TSP Projects	Description	Purpose	Priority (TSP)	Needs Met	Consistent with OR 99W corridor Vision Statement
TSP A10	3rd and Rivergreen Traffic Signal (OR99W/Rivergreen Avenue Traffic Control)	Intersection improvements (capacity): Options may include constructing a roundabout or traffic signal, when warranted which may be dependent on the construction of A10[4]. Traffic signal warrants must be met and State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.	Improve safety and operations at intersections by constructing a roundabout/traffic signal	High	**Safety**: high motorist speeds; **Crossings**: location-specific challenges at intersections	Yes
TSP A11	3rd and Rivergreen Traffic Signal (OR99W/Rivergreen Avenue Traffic Control)	Intersection improvements (capacity): Options may include constructing a roundabout or traffic signal, when warranted which may be dependent on the construction of A10[4]. Traffic signal warrants must be met and State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.	Improve safety and operations at intersections by constructing a roundabout/traffic signal	Medium	**Safety**: high motorist speeds; **Crossings**: location-specific challenges at intersections	Yes
CIP 2021-2025 (Project Number N/A)	Fire Station #4 Replacement	Construct a new Fire Station #4, replacing the current station on Tunison Avenue. The new station will have direct access to OR 99W, making egress from the station more efficient for response calls.	Facilitate building expansion and improve access to OR 99W	N/A	Safety: may facilitate pedestrian improvements in vicinity of SE Tunison Avenue & SW Viewmont Avenue	Yes

None of the planned improvements (STIP projects and near-term TSP projects) were found to be inconsistent with the corridor vision statement

POTENTIAL SOLUTIONS FOR UNMET NEEDS

The relevant planned improvements identified in the section above do not address all existing identified corridor issues. Table 3 below summarizes the proposed potential solutions for unmet needs that were identified during the Roadway Safety Audit (RSA) and in Technical Memo 10. Additional potential solutions for the needs will be addressed in future deliverables of this facility planning process.

Table 3: List of Additional Potential Solutions for Unmet Needs

Solution Number	Potential Solution	Description	Type Of Need Met	Issue Addressed
Corridor-Wide Needs and Solutions				
S1	Speed management: setting contextual differentiation	Create a contextual differentiation between connecting high-speed facilities to the north and to the south of the study corridor and the urban settings of south Corvallis. The project team proposed three options for interchange improvements at the north extent of the corridor in the Roadway Safety Audit (RSA) report and Technical Memo #10.	Pedestrian comfort	High motorists speeds
				Conflicts due to driveways
			Bicyclist comfort	Inconvenience and discomfort
				Conflicts due driveways and at public intersections
			Crossing	Mid-block crossing safety
				Speeding
			Safety	High motorists speeds
			Traffic	Freight industry
S2	Speed management: speed feedback signs	Provide speed feedback signs at multiple locations to help manage driving speeds and to reduce the risk of speed related crashes. Possible locations for installing these signs include but are not limited to: • Southbound (4th Street in downtown OR 99W couplet) between B Street and the interchange • Northbound and southbound near SE Alexander Avenue • Northbound, entering the corridor from the south	Pedestrian comfort	High motorists speeds
				Conflicts due to driveways
			Bicyclist comfort	Inconvenience and discomfort
				Conflicts due driveways and at public intersections
			Crossing	Mid-block crossing safety
				Speeding
			Safety	High motorists speeds
			Traffic	Freight industry

Solution Number	Potential Solution	Description	Type Of Need Met	Issue Addressed
S3	Cross section modification	Modify the layout of the roadway to increase the comfort and to have a positive influence on the safety of the people using the corridor. This implementation can occur primarily through restriping. Create narrower lanes to encourage slower and more careful driving behavior. Provide an additional buffer for the bicycle lanes, preferably with vertical elements such as flexposts, to create a safer and more comfortable environment for bicyclists. Construct additional medians (with landscaping) where feasible to also encourage more careful driving.	Pedestrian comfort	High motorist speeds
			Bicyclist comfort	Inconvenience and discomfort
			Crossings	Speeding
			Infrastructure	Roadway cross-section
			Safety	High motorist speeds
S4	Improve lighting	Install additional segment lighting along the corridor for lighting consistency, especially south of SW Avery Avenue (SE Crystal Lake Drive) and on the east side of the corridor. Consider additional lighting at all four corners of intersections and on the approaching motorist side of pedestrian crossings.	Crossings	Lack of sufficient lighting
			Infrastructure	Lack of sufficient lighting
S5	Improve signage	Improve signage along the OR 99W corridor based on the identified issues: • Evaluate the existing signs for their importance, remove less critical ones to reduce sign clutter, review signage for correct installation, and adjust and/or enhance signage as needed • Evaluate the location of speed limit signs and make sure they are positioned where they are most visible and retroreflectivity is optimized • Add wayfinding signs, as appropriate, for people walking and biking • Move street name signs closer to OR 99W	Bicycle and pedestrian comfort	Wayfinding
			Crossings	Speeding
			Infrastructure	Signage and wayfinding
S6	Provide vegetation buffer	Provide a vegetation buffer (between the curb and sidewalk) along the corridor to create a more welcoming environment for the people using the sidewalks, as well as to create a separation from traffic.	Aesthetics	
			Pedestrian comfort	Lack of physical separation from traffic
			Bicyclist comfort	Inconvenience and discomfort
			Infrastructure	Roadway cross-section
S7	Improve drainage	Improve drainage to have less water settling in bicycle lanes to prevent bicyclists from having to merge into vehicular travel lanes when avoiding riding through settled water.	Infrastructure	Drainage
			Safety	Conditions of travelways and infrastructure

Solution Number	Potential Solution	Description	Type Of Need Met	Issue Addressed
S8	Evaluate and improve ADA compliance	Increase Americans with Disability Act (ADA) compliance to improve corridor accessibility for people with special needs.	Pedestrian comfort	
			Safety	Conditions of travelways and Infrastructure
S9	Remove obstacles from sidewalks and bike lanes	Remove obstacles that partly or fully block sidewalks and bicycle lanes to improve the comfort and safety of people using the corridor.	Pedestrian comfort	
			Bicyclist comfort	Inconvenience and discomfort
			Infrastructure	Conditions of travelways and Infrastructure
			Safety	Conditions of travelways and Infrastructure
S10	Repave roadway and sidewalks	Repave the roadway, repave or replace sidewalks to have a positive influence on safety and to improve the comfort of people using the corridor.	Pedestrian comfort	
			Bicycle comfort	Inconvenience and discomfort
			Safety	Conditions of travelways and Infrastructure
S11	Increase transit service frequency	Increase the frequency of transit service to improve access to transit for corridor users and to increase ridership.	Infrastructure	Transit
S12	Land use management	Continue to address land use challenges through the City's update of the South Corvallis Area Plan. Continue to reduce reliance on motor vehicles.	Traffic	Impacts on the climate
Location-Specific Needs and Solutions (Occurring at Multiple Locations)				
S13	Crossing improvements: lighting	Improve lighting, especially on the motor vehicle approach side of the pedestrian crossings to make those in the crossing more visible to the approaching motorists.	Crossings	Mid-block crossing safety
				Lack of sufficient lighting
S14	Crossing improvements: striping	Stripe double white lines leading to crossings to reduce the likelihood of a double threat from a vehicle changing lanes to avoid stopping.	Crossings	Mid-block crossing safety
				Speeding
S15	Crossing improvements: RRFB advance warning	Install RRFB advance warning to increase drivers' reaction time when a vehicle ahead of them stops at a pedestrian crossing.	Crossings	Mid-block crossing safety

Solution Number	Potential Solution	Description	Type Of Need Met	Issue Addressed
S16	Crossing improvements: potential to update RRFB's to PHB's	Update mid-block crossing RRFB's to PHB's to increase the safety of people crossing OR 99W.	Crossings	Mid-block crossing safety
S17	Add curb extensions (bulb-outs) at city/local approaches	Add curb extensions on city/local approaches to shorten pedestrian crossings, therefore increasing pedestrian safety and comfort.	Crossings	Location-specific challenges at intersections
			Infrastructure	Sight distance
S18	Tighten the intersection corner curb radii on city/local road approaches	Reduce corner radii on city/local approaches to encourage slower vehicle turning movements, shorten pedestrian crossing distance, and increase visibility of crossing pedestrians.	Crossings	Speeding
				Location-specific challenges at intersections
Location-Specific Needs and Solutions				
S19	Safety improvements at the one-way couplet intersections with SW Western Boulevard	Implement the following and other improvement to enhance safety at the intersections: • Add protective left-turn phases to reduce conflict between left-turning and the through traffic • Add reflective back plates to the signal head to increase the visibility of the signal	Safety	Safety concerns at intersections with SW Western Boulevard
S20	Trap lane removal southbound on OR 99W approaching the ramps to US 20/OR 34	Remove trap lane to the north of the interchange to improve safety and comfort of all roadway users. The consultant proposed two options for implementation of this improvement in the Roadway Safety Audit (RSA) report and Technical Memo #10.	Infrastructure	Interchange
S21	Improve bicycle and pedestrian connection through the interchange	Improve the connection through the interchange to benefit comfort and safety of pedestrians and bicyclists,, such as designs described in the RSA report and Technical Memo #10.	Pedestrian comfort & Bicyclist comfort	Wayfinding
			Bicyclist comfort	Inconvenience and discomfort
			Infrastructure	Signage and wayfinding
S22	Intersection improvement: SE Avery (Crystal Lake Drive)	Create a protected intersection crossing at this location to separate the bikeways from the parallel motor vehicle traffic. Instead of merging into traffic, bicyclists could cross in a designated bike crossing location and have right of way over turning motor vehicles. The consultant proposed an initial intersection design in the RSA report and Technical Memo #10.	Crossings	Location-specific challenges at intersections
			Bicyclist comfort	Inconvenience and discomfort

Solution Number	Potential Solution	Description	Type Of Need Met	Issue Addressed
S23	Intersection improvement: SE Alexander Avenue	Add bicycle two-stage left-turn boxes at SE Alexander Avenue to provide a marked place for bicyclists to wait for making a two stage left turn at an intersection. The consultant proposed an initial intersection design in the RSA report and Technical Memo #10.	Crossings	Location-specific challenges at intersections
			Bicyclist comfort	Inconvenience and discomfort
S24	Crossing improvements: SW Tunison/SE Viewmont	Provide a marked pedestrian crossing at this location to allow for a safer option to cross OR 99W. The consultant proposed an initial crossing design in the RSA report and Technical Memo #10. The proposed improvement includes marked crosswalk striping and a median. A pedestrian hybrid beacon should be considered at this midblock location, especially because of proximity to the school.	Crossings	Mid-block crossing safety

LONG-TERM RELEVANT PLANNED IMPROVEMENTS

Table 4 describes, the long-term financially constrained improvements anticipated within the study area by the TSP that are not discussed above or otherwise noted. The specific purpose of the improvements, the various needs of OR 99W corridor users that the projects address, and consistency with the corridor vision statement are also included. These projects may be constructed or implemented within the next 20 years and, therefore, are included in the long-term future condition for the Plan. Refer to *TM#13: Planned Future Active Transportation Conditions* for a detailed review of the long-term planned improvements analysis.

There are other County projects present in the TSP that are not financially constrained and these include:

- AT-234: Corvallis TSP
- CC-49: Corvallis TSP
- CC-54: Airport Avenue Traffic Control
- CC-57: Interchange Westbound Left-Turn Flyover Ramp
- CC-58: Increase Interchange Vertical Clearance
- CC-83: New Roadway from Kiger Island Drive and OR 99W to West Corvallis Urban Growth Boundary.
- CC-136: Widening of 99W from Rivergreen Avenue to Airport Avenue
- CC-114: Kiger Island Drive Intersection Improvement
- T-189: New Regional Bus Service

Table 4. List of Long-Term TSP Financially Constrained Projects

Project Number	Projects	Description	Purpose	Type Of Need Met and Issue Addressed	Consistent with OR 99W corridor Vision Statement
TSP PB14	US20-OR34 Grade-Separated Crossing	Construct a grade-separated crossing of US20-OR34 between OR 99W and 15th Street (alignment to be determined). The purpose of this project is to provide people walking and bicycling a low-stress alternative to crossing the highway at 15th street. This project should include trail connections to Pioneer Park trails and street network north of US20/OR34 to complete the route. The project is one segment of a citywide low-stress network.	Provide low-stress alternative to crossing the highway at 15th street to pedestrians	**Pedestrian comfort**: lack of alternative route; pedestrian safety; crossings	Yes
Portion of TSP PB15	Shared-Use Path Planning - Tunison to Avery Park Drive (South Corvallis Shared-Use Path)	Construct 2.75 mile shared-use path parallel to the railroad in Southeast Corvallis, between Marys River south to SW Tunison Avenue. The preferred alignment should be on top of the planned sewer line easement that's being acquired east of the track with development. Coordinate with project PB25[1] and PB26[2]. Extend the path east along the south side of Marys River to the existing pedestrian and bicycle bridge. The existing bridge and PB17[3] bridge would provide connections to the Corvallis-Philomath Shared-Use Path	Provide continuous low-stress facilities and access for bicyclists and pedestrians	**Bicycle and pedestrian comfort**: lack of alternative route; bicycle and pedestrian safety	Yes
TSP PB 17[7]	Marys River Pedestrian and Bicycle Crossing (Marys River Path Crossing)	Construct a bicycle/pedestrian bridge over Marys river and construct multi-use paths to connect the Pioneer Park trail network on the north side to the South Corvallis Multi-Use Path (PB15) on the south side. This project is one segment of a citywide low-stress network.	Provide continuous low-stress facilities and access for bicyclists and pedestrians	**Bicycle and pedestrian comfort**: bicycle and pedestrian safety	Yes

[7] TSP PB 17 is a CIP project. It is not on the financially constrained project list and is not expected to be funded.

Project Number	Projects	Description	Purpose	Type Of Need Met and Issue Addressed	Consistent with OR 99W corridor Vision Statement
TSP PB 25	SW Cummings Avenue Railroad Crossing	Develop connection over railroad to SW Allen Street for pedestrian/bicycles. Coordinate with PB26[2] depending on final alignment if the South Corvallis Multi-Use Path (PB15).	Provide continuous connections for bicyclists and pedestrians in the road network	**Bicycle and pedestrian comfort**: bicycle and pedestrian connectivity	Yes
TSP PB 27[8]	Brooklane Bridge	Study feasibility of new bicycle/pedestrian bridge over Marys River along the Goodnight Avenue – Brooklane Place alignment	Gain understanding of feasibility of bicycle/pedestrian bridge	**Bicycle and pedestrian comfort**: bicycle and pedestrian connectivity	Yes
TSP PB 49	Goodnight Avenue – Caldwell Multi-Use Path	Develop new multi-use path connecting Goodnight Avenue and Brooklane Drive, via Caldwell Natural Area. Connect to Willamette Park via the low-stress network along Goodnight Avenue to Park Avenue (B22)[9]. Project PB27 is required as Phase 1 of this project. This is a parks projects, but is included in this TSP because it is an element of the low-stress network, and provides connectivity for people using bicycles for transportation.	Provide continuous low-stress facilities and access for bicyclists and pedestrians	**Bicycle and pedestrian comfort**: bicycle and pedestrian safety	Yes
TSP PB 86	3rd Street/OR 99W/Crystal Lake Drive/Avery Avenue	Intersection Improvement (safety): Safety improvements to address known right hook conflicts for bicyclists in the bike lane. Options may include bike boxes, improved curb cuts to provide better bicycle access between multi-use path and Crystal Lake Drive or, the installation of flexible bollards or other cost-efficient methods of increasing turning radius and slowing vehicles to improve pedestrian and bicycle safety. project is subject to ODOT approval. STIP Project 20221 may address this project.	Improve safety and operations at intersections; improve bicycle facilities.	**Safety**: high motorist speeds; lack of bike boxes, curb cuts, flexible bollards	Yes

[8] TSP PB 27 is not on the financially constrained project list. It was funded but construction remains uncertain.

[9] B22 - Goodnight Avenue Bike Lanes: Improve bicycle conditions on Goodnight Avenue between OR 99W and Park Avenue, which may include buffered bike lanes. Buffered bike lanes may require removing parking or expanding roadway width, or converting roadway to local classification with neighborhood bikeway.