

MEMORANDUM

Date: April 23, 2021
To: James Feldmann

Project #: 23021.35

From: Camilla Dartnell, Polina Polikakhina, Phill Worth
Project: Highway OR 99W South Corvallis Facility Plan
Subject: Draft TM #5: Summary of Corridor Issues, Constraints, and Opportunities

PURPOSE

This memorandum documents the information compiled during early Task 2 efforts, along with findings and deliverables from Tasks 3, 4, and 6 to prepare a draft summary of OR 99W corridor issues, constraints, and opportunities. The consultant team reviewed the following sources of information to prepare this memorandum: comments obtained from the online public input map, online open house (March 2021), Stakeholder Interview summaries, Local Access Survey highlights, Stakeholder Advisory Group (SAG) meeting minutes, Roadway Safety Audit (RSA) report, and South Corvallis Plans and Policy Review memo.

ISSUES AND CONSTRAINTS

The consultant team classified the corridor issues and constraints into the following categories: aesthetics, comfort, crossings, infrastructure, land use, safety, surface conditions and maintenance, and traffic. Even though many of the more specific issues fall into one of those categories, one of the greatest challenges in planning the future of south Corvallis and the OR 99W corridor is balancing the interests of the local community, business owners, and freight industry. While local residents expressed an interest in making OR 99W a more comfortable and low-stress facility, the corridor remains a highway that provides important access for large volumes of vehicular traffic and freight. Although many of the business owners indicated that their interests align with those of the local community, it is still important to make sure that business access, freight and cargo deliveries are not unduly impacted by future corridor modifications.

Today, the highway is perceived as a barrier that divides the neighborhood in half. Improvements to the highway are being counted on to fulfill the vision of the "complete neighborhood" that is being planned for the transformation of south Corvallis, a bustling urban place in the future where there will be even more bicycling and walking.

Input from adjacent property owner
through Access Survey.

Aesthetics

Many community members and stakeholders noted a need and desire to have more greenery along OR 99W. People mention that the corridor currently is “a plant desert, and not very desirable for anything else but cars.” The local community and property owners expressed great interest in the corridor becoming a more attractive destination and they believe that adding greenery would greatly improve the comfort level of corridor users.

People noted that when walking on the sidewalks, the proximity to traffic makes them feel uncomfortable and that having a green buffer strip would create a more welcoming environment while using the sidewalks. It was also noted that adding trees and bushes would help to reduce the noise coming from vehicles. Others cautioned that trees may potentially obstruct the view of drivers, bicyclists, and pedestrians. It would be important to select the right plantings and maintain sufficient sight distance with any trees that will be planted along the corridor. It will also be important to evaluate any necessary maintenance required for the added greenery.



**Highway segment near SE Lily Avenue
with curb-tight sidewalk and
no landscaping buffer**

Comfort

Stakeholders, local community members, and property owners have frequently mentioned how uncomfortable the OR 99W corridor is to use for anyone but motor vehicle occupants. People expressed a great interest in making this corridor more welcoming for all users, wishing they could experience the corridor by modes other than driving; however, they do not always feel comfortable and safe doing that.

Pedestrian Comfort

As mentioned above, the corridor lacks physical separation from traffic for people using the sidewalks. People shared that the proximity to traffic makes them feel very uncomfortable and threatened when walking, especially when traveling with children.

Another concern of community members, property owners, and stakeholders is the high motorist speeds. People believe that the posted speed (25-50 mph) is too high for the adjacent contextual use. People also believe that many motorists, including trucks, do not comply with the speed limit, which makes matters worse. The locations that people expressed the most concerns about with regard to high motorist speeds are near the interchange of OR 99W / US 20-OR 34 and the south portion of the corridor.

Another comfort and safety issue that was identified during the RSA process is the presence of areas with high concentration of conflict points near driveways. For example, walking toward downtown from the Tunison neighborhood requires using the highway sidewalks with 16 driveway crossings in a half mile span to SE Crystal Lake Drive/SW Avery Avenue. People who are using the sidewalks must be very cautious of motor vehicles turning in and out of the numerous driveways. People feel uncomfortable and unsafe as drivers oftentimes do not pay attention to pedestrians when looking for gaps in traffic to use driveways when both exiting and entering the highway. Bicyclist Comfort

The community expressed many concerns about the inconvenience and discomfort of experiencing OR 99W on a bicycle. During the site visits, the consultants and RSA teams observed many people riding bicycles on sidewalks, which confirms the fact that people are not comfortable riding on the roadway. 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 and protected bicycle lanes or provide separate shared use paths.

Wayfinding is another key corridor issue mentioned by many community members and the RSA team. Many locations along the highway do not provide clear signage for navigating the corridor and/or the existing alternative routes for bicyclists. The most challenging area to navigate is the interchange: people have a hard time finding a way to travel from downtown to south Corvallis and vice versa. Even local community members are not always aware of the existing alternative route along the waterfront, not to mention the people visiting Corvallis. Many people expressed interest in having a trail map that shows the possible ways to navigate through south Corvallis.



Property owner adjacent to the highway has erected signs to encourage slower driving

“Have a big trail map sign so that tourists and people new to biking/walking know where they can safely travel, from downtown to South town.”



Bicycle facility gaps at the UE 20-OR 34 interchange result in people biking on the sidewalk

Many residents stated that most of the aforementioned issues could be eliminated by creating an alternative, convenient, and direct low-stress bicycle route. Stakeholders indicated that given the high traffic volume and speeds, buffered bicycle lanes in the roadway are not sufficiently protective, therefore only separate shared use paths can assure the safety of bicyclists and pedestrians. A shared-use path, adjacent to the OR 99W corridor but separated from high-volume vehicular traffic, would significantly improve the comfort of people experiencing south Corvallis on bicycles and by foot. Multiple people expressed interest in having an alternative route along the train tracks: *“A bike path/trail along the train tracks would be a safer travel route for bikes/walkers west of 99W.”*

In addition to the corridor-wide bicyclist comfort issues, the local community expressed many location-specific concerns. Additionally, one of the key problems they mentioned are right-hook conflicts (drivers turning across the bicycle lane to enter a driveway or side street). *“I get right hooked at this intersection by about one in three drivers”*, one bicyclist said about the intersection of OR 99W with SW Avery Avenue (SE Crystal Lake Drive).

Crossings

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 the majority of crashes along the corridor occur at intersections, as well as at marked and unmarked pedestrian crossings.

Unsafe crossings comments represented the largest portion of the public feedback collected through the online mapping tool. People indicated that drivers frequently do not comply with stopping at mid-block pedestrian crossings. Many people said that often times, they feel more comfortable finding an appropriate gap in traffic and crossing at a location that does not have a marked crossing, as they feel they cannot trust the drivers to stop at a designated crossing location.



Enhanced crossing near SE Richland Avenue

A large number of public comments expressed concerns with regard to the rectangular rapid flashing beacons (RRFB's). People do not feel safe using them as drivers either do not recognize the flashing yellow light as a requirement for stopping or they disregard them: *"I never use these flashy cross walks because they feel more dangerous"*. Some people noted that sometimes, drivers actually increase their speed when they see the flashing yellow, perceiving it similar to a yellow light at a traffic signal. The most liked comment on the public feedback map is the following: *"The lights were not designed by anyone who ever walks anywhere.... It is very difficult to cross using the yellow flashing lights."*

Speeding, which is discussed in more detail below, brings an additional challenge to maintaining safe pedestrian crossings. High motorist speeds result in less reaction time for the drivers and make it more difficult for pedestrians to determine a gap in traffic for crossing the roadway. Another challenge that contributes to the perception of the current crossings being unsafe is the lack of sufficient lighting. At many locations, respondents indicate that mid-block and intersection crossings do not provide enough lighting, which makes it difficult for the drivers to see pedestrians and bicyclists at night.

The location-specific challenging mid-block crossings that were identified through the RSA process and public feedback include:

- **Crossing south of SW Twin Oaks Circle/SE Chapman Place**, near the First Alternative Natural Foods Co-op: this location experiences high volumes of pedestrians and bicyclists traveling across OR 99W due to proximity to the businesses, multi-use path connecting downtown to south Corvallis, and Riverfront Park. There are also transit stops on both sides of the street in this locations. This crossing experienced two fatal pedestrian and bicycle crashes in 2019 and 2020. The RSA team has proposed replacing the existing RRFB with a pedestrian hybrid beacon (PHB) at this location.
- **Marked crossing south of SW Cummings 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.
- **Unmarked crossing between SE Viewmont Avenue and SW Tunison**: this location is near Lincoln Elementary School and experienced a high number of reported crashes between 2014 and 2018. People have a strong desire to cross OR 99W at this location, likely because of the school and the residential neighborhoods on both sides of the highway. The RSA team has proposed possible improvements at this location.

In addition to mid-block crossings, some of the intersections also provide challenges for people crossing OR 99W:

- The signalized intersection with **SW Avery Avenue/Crystal Lake Drive** experiences the second-highest number of crashes along the corridor. This intersection is used by people bicycling 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. The RSA team proposes a protected intersection at this location.
- The unsignalized intersection with **SE Lilly Avenue**: Multiple people commented about the “awkward” curb cuts on SE Lilly Avenue. They said that crossing this street north-south is difficult as a pedestrian and on bicycle. In addition, “cars turning at every direction within this intersection are not aware of pedestrians”. People expressed desire for a marked crossing at this location.



Intersection at SE Crystal Lake Drive/SW Avery Avenue

- The signalized intersection with **SE Alexander Avenue** experiences high bicycle and pedestrian volumes, largely due to the proximity to Lincoln Elementary School. The public shared that cars often times stop such that they partly or fully block the pedestrian crossings. Multiple community members and stakeholders feel so unsafe at this location, they even proposed an idea of building a bridge over the intersection. The RSA team proposes adding two-stage left-turn bicycle boxes at this location. Two-stage left turn boxes provide a marked place for bicyclists to wait for making a two-stage left turn at an intersection.
- The unsignalized three-legged intersection with **SE Goodnight Avenue** 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 this location. At the same time, the public shared that the thick trees and the fence on the southeast corner of the intersection create sight obstructions to vehicles traveling northbound and vehicles making a westbound to northbound right turn. In addition, people shared that a median to the north of the intersection significantly reduces the storage length for southbound left-turning vehicles: “If there is more than three cars, there is a huge hazard of being rear ended.”
- The unsignalized three-legged intersection with **SE Rivergreen Avenue** also provides challenges for both pedestrians and drivers. People 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 business located on the west side. People also mentioned that this would be a great location to start slowing down traffic entering Corvallis from the south. Drivers commented on the fact that this intersection does not provide sufficient sight distance for people making turns out of SE Rivergreen Avenue onto OR 99W.

Infrastructure

The public and stakeholders identified many corridor issues and constraints that fall under the category of infrastructure.

Interchange

One of the topics brought up repeatedly by the public and stakeholders are the challenges that are created by the interchange of OR 99W with US 20-OR 34. The connection of downtown Corvallis to the southern part of the city through the interchange is highly difficult 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 trail portions cause pedestrians to cut through open space and cross at undesirable locations. A lack of wayfinding with a variety of potential routes creates confusion for users who might be unfamiliar with the area. These behaviors are evident by the number of desire lines (user paths) through this area. In addition, the northbound Marys River bridge, which is one of the OR 99W one-way couplets, has bridge girders interfering with the sidewalk, creating a confined walking space.



US 20/OR 34 Interchange and historic Marys River Bridge

Vehicular speeds vary through this area as well. Drivers are observed to accelerate as they approach the ramps onto westbound US 20-OR 34 and eastbound OR 34 (“bypass”) to match the higher speeds of those highways, or to 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 appear to not recognize the change in the context of the roadway and keep driving as if they are still traveling on a high-speed facility.

Respondents indicate that the bicycling connection is very poor through the interchange as well. 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 US 20-OR 34 on-ramp.

There is a shared-use path along the Willamette River leading to a bicycle/pedestrian bridge over the Marys 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.

Another challenge that respondents emphasized by the interchange is the transition of OR 99W from downtown one-way couplet to a two-way corridor in the south. The change in cross section adversely impacts the relationship of roadway to adjacent land use.

East to West Connection

Many community members mentioned the difficulty of pedestrian and bicycle connection east to west across the OR 99W corridor. The land use next to the corridor changes between residential and commercial and many people expressed desire to travel east to west by foot and on bicycles. However, the current infrastructure does not allow people to do so safely and conveniently. Direct and clear bicycle and pedestrian paths are missing, and those that exist do not have sufficient signage for convenient wayfinding.

Roadway Cross-Section

Stakeholders, community members, RSA team, and consultants all identified a strong need to modify the corridor cross-section--a reduction in vehicle lane width was one of the most 'liked' comments of the on-line comment mapping exercise. Generally, OR 99W has four 12-foot travel lanes, 14-foot two-way left turn lane, and 6-foot bicycle lanes in both directions, but the width of the roadway and lanes varies at a few locations. Figure 1 presents a typical cross-section of OR 99W south of the interchange.

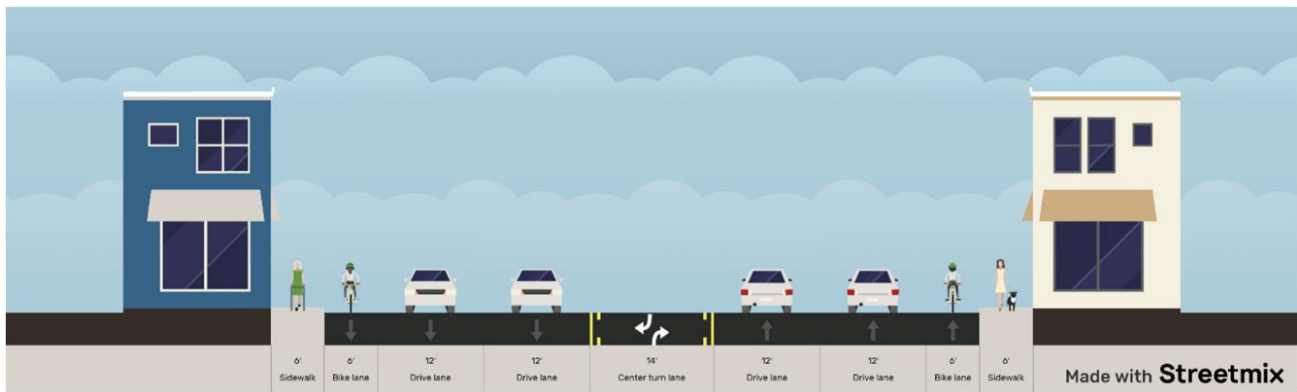


Figure 1: Typical Roadway Cross-Section

Made with Streetmix

Current lane widths and configuration encourage high-speed driving and reduce pedestrian and bicyclist safety and comfort. As mentioned above, vertical and horizontal separations from traffic would increase the comfort of people experiencing the corridor as pedestrians and on bicycles.

Lighting

Community members, local property owners, and the RSA team identified that reduced or minimal lighting is an issue along the corridor, especially the east side of OR 99W, to the south of Crystal Lake



Drive. Insufficient lighting creates poor visibility and uncomfortable environment for people using the sidewalks and the bicycle lanes. 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 adjacent land use monument signs obstructs drivers and people walking and bicycling from seeing signage, especially regulatory signs, such as speed limit signs.

Insufficient lighting and drainage near Mill Race bridge

Driveways

The OR 99W corridor contains approximately 100 driveways (59 on west side and 41 on east side), which create additional conflict points for pedestrians and bicyclists using the corridor. Generally, when a driver is making a turn onto or from the corridor, they are more focused on looking for gaps in traffic instead of paying attention to pedestrians and bicyclists. Not all driveways along the corridor provide sufficient sight distance for the drivers to see pedestrians, bicyclists, and conflicting traffic. This issue is also discussed in the section above.

Signage and Wayfinding

The lack of appropriate signage for comfortable pedestrian and bicyclist wayfinding is discussed in the section 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 illumination. Finally, southbound on OR 99W approaching the ramp to OR 34-US 20, the right lane becomes a trap lane for bicyclists and drivers but does not have signage and pavement markings to indicate this prior to the ramp.

Transit

Currently, south Corvallis is served by Corvallis Transit System Routes 6 and Night Owl (late night service on Thursday, Friday, and Saturdays, except OSU’s Summer and Winter Breaks). 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 wait for bus loading/unloading or merge in with the vehicular traffic, putting the bicyclist in danger. In addition, a number of community members and property owners expressed interest in expanding bus service to the newer development at the southern portion of the corridor and airport industrial park, as well as in increasing the frequency of transit service.



Bus stop near SE Chapam Place

Sight Distance

Some intersections and driveways might not be providing sufficient sight distance for the drivers to be able to see crossing pedestrians and bicyclists. A number of community members have provided location-specific comments about this issue as well.

Drainage

The RSA team 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.



Standing water spans the bike lane near Mill Race Bridge

Traffic, Congestion, and Vehicular Infrastructure

Some of the comments received from the public and stakeholders expressed concerns about the vehicular congestion experienced on the corridor. People have shared concerns about OR 99W being a highway that needs to move large volumes of vehicles and trucks, and not a residential street. Someone recommended that creating separate facilities for pedestrians and bicyclists would be most beneficial as it would isolate more vulnerable road users from vehicular traffic.

Additionally, people have expressed interest in creating a bypass to OR 99W, which would allow the highway users to avoid entering south Corvallis and would reduce congestion and some of the safety issues.

Noise

Many community members have expressed concerns with regard to the noise along the study corridor. They shared that high volumes of vehicular traffic make the corridor very noisy and that *“two people walking side by side on the sidewalk have to yell to have an understandable conversation.”* Multiple comments received through the online open house suggested using quieter road surface materials to reduce the noise not only along the corridor but in the nearby residential neighborhoods as well.

Land Use

Land uses adjacent to OR 99W present challenges for addressing transportation issues of the corridor. Future urbanization of the corridor is anticipated, which would result in more trips occurring within and near the corridor. Future development will include more dense, residential and mixed-use, which would allow for shorter trips and would favor bicycling, walking, and transit use. Shorter trips would also decrease greenhouse gas contributions from vehicle emissions.

Another significant challenge produced by land use is the transition from the urban downtown setting to the rural context in the south. As the land use pattern changes, the amount and speed of vehicular traffic and transportation mode split change as well. In addition, future corridor development needs to consider 100-year flood plain and wildfire connections near the Marys River and natural areas like the Mill Race. Stakeholders proposed to restore natural wetlands in the low-lying areas, respecting the original terrain and to focus the corridor plan on the water features.

Safety

Speeding

The RSA team identified high operating speeds by motor vehicles for the adjacent land use context as 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.



Winter night-time conditions near SW Tunison Avenue

High speeds result in less reaction time for the drivers and make it more difficult for pedestrians to determine a gap in traffic. The RSA team determined that speeding is one of the reasons why the corridor has a high proportion of rear-end collisions: when a car stops at a pedestrian crossing or an intersection, the following driver does not have a sufficient reaction time to stop the vehicle.

During one of the site visits, the RSA team witnessed a rear-end collision when a southbound motorist stopped for a pedestrian at the updated RRFB pedestrian crossing just south of SE Chapman Place. The team also observed multiple motorists turn on their hazard lights when they

stop for pedestrians at the updated RRFB pedestrian crossings. The drivers most likely do that to warn the vehicles behind them of their stopping.

The stakeholders and the local community members identified that reducing the speeds of vehicular traffic is a key to creating a safer and more inviting corridor.

Driveways

The presence of a high number of driveways is already discussed in the sections above. However, it is important to further emphasize that they create additional conflict points for roadway users. The crash data indicates that at least one driveway location correlates with a high concentration of crashes – Shell gas station driveway to the north of SW Cummings Avenue.

Additionally, some driveways along the corridor are longer than others and they put people crossing them into a vulnerable position for a longer period of time.

Intersection Turning Radii

The RSA team determined that some intersection have large turning radii, which encourages high speeds when turning from OR 99W onto local streets and approaches. One example of this issue is SE Lilly Avenue, which is already discussed above.

Conditions of Travel Ways and Infrastructure

Conditions of travel ways and infrastructure is discussed in more detail below, however it is important to note that poorly maintained facilities can often times create hazardous conditions for people walking and bicycling.

Surface Conditions and Maintenance

The RSA team identified that the current condition of existing sidewalks, bicycle lanes, and travel lanes create additional challenges to the corridor users. The pavement quality of the roadway, sidewalks, and the shared-use path is poor. Uplifts in the sidewalk pavement creates tripping hazards. Many permanent and temporary obstacles are present in bicycle lanes and on the sidewalks. The sidewalks and intersections are not compliant with the Americans with Disability Act (ADA) at locations throughout the corridor, though many curb ramps will be reconstructed in 2021.

Additionally, many community members provided location-specific input about infrastructure barriers and its conditions. Overall, a large number of people identified many issues with the condition of travel ways near the interchange, and the presence of debris and obstacles in bicycle lanes.



Mailboxes block a portions if the sidewalk near enhanced crossing south of SW Tunison Street

Traffic

The consultant team identified a number of corridor issues that are related to traffic. High operating speeds by motor vehicles is already discussed in the sections above. However, it is important to note that the issue of speeding creates many challenges for managing the traffic along the corridor.

Providing facilities with safe operating speeds are important for the freight industry. 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.

The public and stakeholders expressed a number of concerns with regard to the corridor's impact on the climate. In addition, Corvallis Climate Action Plan (2016) and 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.

OPPORTUNITIES

While the sections above outline a number of corridor issues and constraints, the future development of OR 99W presents many opportunities for addressing those issues. Opportunities identified to date from public input and a review of key documents include, but are not limited to:

- Aesthetics & Environment:

- Adding more greenery and stormwater management along the corridor, including a vegetation buffer and trees, while maintaining sufficient sight distance
- Comfort:
 - Providing physical separation from traffic for pedestrians and bicyclists
 - Reducing high motorist speeds
 - Providing convenient, direct low stress bicycle route alternatives to OR 99W
 - Improving wayfinding
 - Reducing obstacles in bicycle lanes and on sidewalks
- Crossings:
 - Evaluating and eliminating safety hazards at existing mid-block crossings and intersections
 - Potentially replacing selected RRFB's with PHB's
 - Encouraging driver compliance with stopping for pedestrians and bicyclists
 - Providing additional lighting at mid-block crossings and intersections
- Infrastructure:
 - Urbanizing the interchange in order to set contextual differences between high-speed highways and the urban setting of Corvallis
 - Restoring the historic Marys River Bridge, including the original lighting fixtures
 - Assessing potential flooding impacts on the Marys River and Mill Race bridges
 - Retrofitting Marys River and Mill Race bridges to be seismically sound
 - Modifying the roadway cross-section to provide separation from traffic to bicyclists and pedestrians and to encourage more careful driving
 - Providing additional lighting along the corridor
 - Evaluating sight distance at driveways and intersections and making appropriate improvements
 - Considering marking pedestrian crossing and conflict points in bicycle lanes near driveways
 - Evaluating the existing signs for their importance, removing less critical ones to reduce sign clutter, reviewing signage for correct installation, and adjusting and/or enhancing signage as needed
 - Considering extending bus routes and providing more frequent transit service
- Land Use:
 - Considering the interest of the local residents, businesses owners, and freight industry
 - Recognizing the importance of providing adequate vehicular traffic access through the corridor
 - Considering how to integrate future land use changes and transportation improvements and recognize the future land use in our corridor planning considerations
 - Involving the indigenous Kalapuya (Confederated Tribes of Siletz Indians and Confederated Tribes of Grande Ronde) in corridor planning to acknowledge and honor tribal history
 - Considering more affordable housing along the corridor

- Safety:
 - Reducing speeding along the corridor, specifically for vehicles entering from the north and the south
 - Providing speed feedback signs
 - Providing RRFB advance warning
 - Providing better law enforcement
 - Providing better east-west and north-south connections through the interchange
 - Providing curb extensions (bulb-outs) to shorten pedestrian crossing distance across city/local road approaches
 - Tightening the intersection corner curb radii on city/local road approaches to encourage slower vehicle turning movements
 - Improving safety near the Lincoln Elementary School
- Surface Conditions and Maintenance:
 - Improving drainage
 - Improving conditions of travel ways
 - Evaluating and improving ADA compliance of bus stops, ramps, crossings, and intersections
 - Repaving the roadway, and repaving or replacing the sidewalks and shared-use path segments in poor condition
 - Removing and/or reducing obstacles from bicycle lanes and sidewalks
 - Maintaining debris-free bicycle lanes
- Traffic:
 - Prioritizing traffic flow in future improvements
 - Reducing congestion and idling
 - Providing alternative truck routes
 - Considering prohibiting truck's use of compression brakes
 - Building an OR 99W bypass, converting the current highway into a neighborhood street that serves primarily local traffic

Roadway Cross-Section

Several sources suggested opportunities for a modified layout of the roadway to create more of a boulevard feeling that would increase the comfort and have a positive influence on the safety of the people using the corridor. A common terminology that is used for this kind of a cross-section modification is *road diet*. This implementation could occur primarily through restriping. Narrower lanes would encourage slower and more careful driving behavior. An additional buffer for the bicycle lanes, preferably with vertical elements such as flex-posts, would create a safer and more comfortable environment for bicyclists. Additional medians (with landscaping), where feasible, would also encourage more careful driving.

Figure 2 below presents a potential typical future cross-section of OR 99W. The presented cross-section, as suggested from input, is just one of the possible options and the lane widths could be finalized once the exact roadway measurement is available.

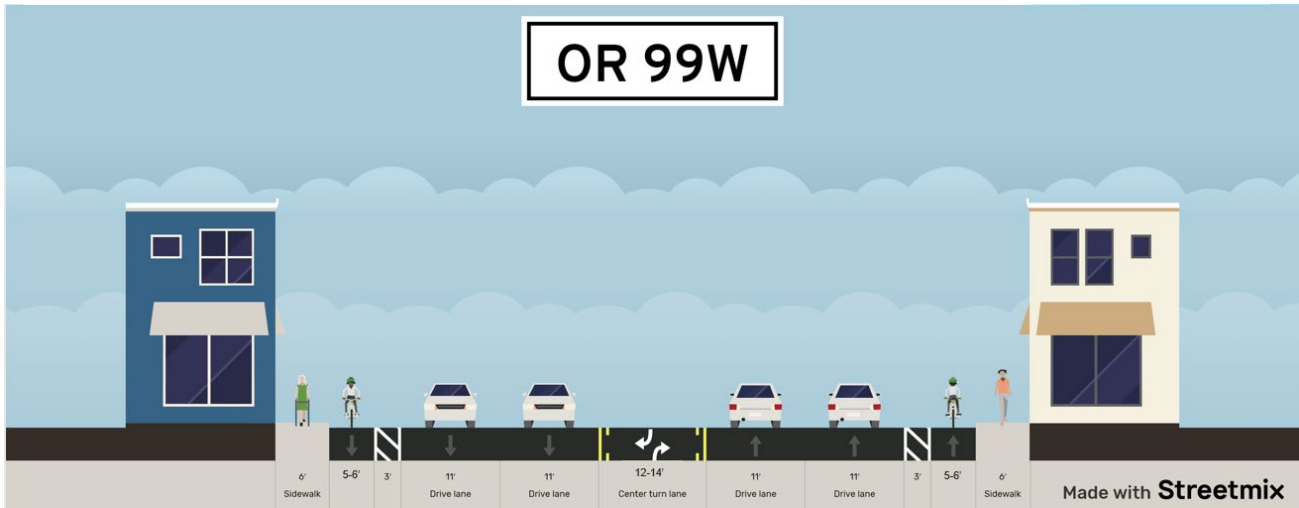


Figure 2: Future Potential Cross-Section
Source: Made with Streetmix