



Technical Memo #8

Transportation Solutions
November 18, 2022 - FINAL

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Introduction

This memorandum documents the list of transportation solutions identified following evaluation of existing and future conditions and current and forecast transportation needs in Manzanita, Nehalem, and Wheeler.

These solutions were developed through coordination with staff from each city, the Oregon Department of Transportation (ODOT) and the Planning Advisory Committee (PAC), which is made up of representatives from each of the three communities and Tillamook County.

The draft version of this memorandum presented the initial list of solutions that was shared with the community members at the second community engagement event. The project list has been revised to reflect input from the community.

This technical memorandum documents changes to the list of solutions, how solutions will be prioritized as part of the Transportation System Plan (TSP), and the final list of solutions.

Updates Based on Community Feedback

Following the online and in-person open house, the third touchpoint with community members, the lists of solutions were revised to incorporate feedback shared by community members. Primary changes to the list of solutions include:

Manzanita:

- Addition of Dorcas Lane & Classic Street Improvements: Community members shared a need to consider intersection improvements to address safety concerns and improve intersection operations ahead of planned development in the area.

Nehalem:

- Updates for solutions identified in the City of Nehalem focused on updates to project extents to clarify which improvements would fall under the responsibility of the City and which would be within the County's jurisdiction.

Wheeler:

- Addition of projects to slow traffic and enhance placemaking on U.S. 101 through Wheeler.

Regional:

- Changes to regional projects include realignment of proposed bicycle and pedestrian enhancements to improve roadways that people use for walking and bicycling today and the addition of the Salmonberry Trail which would construct a connection for people walking and bicycling between Wheeler and Mohler.

Project Goals & Evaluation

The solutions list has been evaluated for alignment with the goals using the objectives and evaluation criteria documented in *Technical Memorandum #4: Goals, Objectives, and Evaluation Criteria*. The full list of evaluation criteria are included in **Appendix A: Evaluation Criteria**, while the goals and objectives for each city and the region are listed below.

Regional Goals

Quality of Life

Create a transportation system that provides equitable multimodal access for underserved and vulnerable populations and balances the needs of local travelers and regional through-traffic.

Objectives:

1. Provide equitable access for underserved and vulnerable populations by requiring ADA compliance for new transportation infrastructure and upgrading existing infrastructure that does not meet ADA standards.
2. Increase connections to recreational opportunities by supporting the development of planned regional bicycle and pedestrian trails, including the Salmonberry Trail, Oregon Coast Trail, and Tillamook County Water Trail.
3. Create comfortable downtown spaces by identifying appropriate streetscape improvements, including landscaping, pedestrian scale lighting, benches, and street trees.
4. Reduce vehicle travel between cities by exploring options for visitors to 'park once', such as a regional shuttle service or water taxi.

Create Safe Connections

Create safer connections between the Nehalem Bay communities for people walking, biking, or using other non-auto modes and identify strategies to reduce crashes for all users when traveling on US 101.

Objectives:

1. Identify key non-motorized routes between the Nehalem Bay communities and prioritize pedestrian and bicycle facilities on these routes.

2. Connect businesses and recreational destinations with neighborhoods by enhancing pedestrian and bicycle crossings on US 101.
3. Improve areas with higher crash risk by improving the visibility of transportation users in constrained areas, such as on hills and blind curves.
4. Address known safety issues at locations with fatal or severe injury crashes, crashes involving a bicyclist or pedestrian, and vehicles entering and exiting US 101.
5. Collaborate with ODOT to implement engineering and traffic calming strategies on US 101, where appropriate, to reduce vehicle speeds.

Plan for the Future

Collaborate with ODOT and Tillamook County to create a transportation system that is resilient to extreme weather events, able to safely accommodate evacuation and recovery efforts, and consistent with the goals and objectives of each City, Tillamook County, and the state.

Objectives:

1. Maintain local infrastructure so that facilities can withstand extreme weather events and aid in evacuation efforts.
2. Improve traffic circulation and access for fire and emergency vehicles.
3. Collaborate with ODOT to develop and implement improvements to US 101 that fit the land use context and are consistent with ODOT's Blueprint for Urban Design (BUD) and other local and regional planning efforts.

Support Fiscal Responsibility

Plan for a transportation system that is financially viable with consideration for life cycle costs by identifying new funding sources to make local dollars go farther.

Objectives:

1. Develop transportation solutions that are cost effective.
2. Identify outside funding sources for transportation projects such as grants, developer contributions, or transportation system charges.
3. Prioritize investments and maximize partnerships to provide maximum benefit and return on investment for the associated cost.
4. Consider future operation and maintenance costs in investment choices.

Manzanita Goals

Manage Access

Manage access from U.S. 101 to Manzanita and the recreational opportunities in the area to minimize cut through traffic and seasonal congestion.

Objectives:

1. Improve connections within Manzanita and to the neighborhoods within the UGB to improve local vehicle circulation and encourage local traffic to use local roads.
2. Support other planning efforts to create non-motorized and transit connections from key destinations to the commercial core.

Enhance Economic Vibrancy

Support economic vibrancy and reduce parking demand by providing walking, biking, and transit connections to the commercial core and the beach.

Objectives:

1. Prioritize low stress bicycle and pedestrian facilities on arterials and collectors to enhance connections to local destinations.
2. Develop transportation and land use solutions that balance the needs of all users in the downtown area and to/from residential areas to the downtown core and beach.

Nehalem Goals

Connect Local Destinations

Increase connectivity for people walking and biking to key destinations such as schools, restaurants, and the commercial core by filling infrastructure gaps and improving existing infrastructure to provide access for users of all ages and abilities.

Objectives:

1. Improve safe access to schools and recreational centers.
2. Provide low stress connections for residents and visitors of all ages and abilities by building out sidewalks in the commercial core and improving existing sidewalks to meet ADA standards.
3. Provide sufficient facilities on local streets to accommodate pedestrians, bicyclists, parking, and vehicles based on surrounding land use and transportation needs.

Access to the Natural Environment

Increase access to recreational areas and water-based travel options while protecting the natural environment.

Objectives:

1. Increase non-motorized access to key recreational areas in Nehalem.
2. Improve wayfinding to direct visitors to recreational options and water access points.
3. Develop projects and encourage travel modes that minimize environmental impacts.

Wheeler Goals

Create More Travel Options

Improve walking and biking safety, connections, and wayfinding within Wheeler.

Objectives:

1. Provide safer connections for residents and visitors that want to access key destinations by building out sidewalks and crossings in the commercial core.
2. Create a sense of place by enhancing pedestrian-scale signage, lighting, landscaping, and amenities.

Enhance Economic Vibrancy

Support economic vibrancy by creating connections to recreational opportunities and new forms of local tourism while protecting the natural beauty that draws visitors to Wheeler.

Objectives:

1. Improve wayfinding to direct visitors to recreational opportunities and water access points.
2. Encourage new forms of local tourism such as rail bikes or a water taxi that can use the existing transportation right-of-way or local waterways

Prioritization & Timeline for Implementation

Based on the evaluation that was completed for alignment with the goals and feedback from the communities, a set of high-priority solutions were identified for each community and the region. High-priority solutions are those that address multiple needs and are essential to moving the region towards its vision for a safe and connected transportation system for all users. The high-priority solutions are highlighted in the following sections.

A timeline for implementation was also identified for each of the proposed solutions. The timeline for implementation was determined based on complexity of the proposed solution, the amount of coordination required with multiple agencies for implementation, and cost.

Solutions identified for **near-term** implementation are those that could be implemented within the next five years. These solutions generally improve existing facilities or improve spot locations and are programmatic in nature.

Solutions identified for **medium-term** implementation are likely to require between five and 10 years to implement based on cost and complexity. These solutions may cross jurisdictional

boundaries, requiring coordination between multiple agencies to implement, require more substantial upgrades to existing facilities or would require construction of off-street facilities.

Solutions identified for **long-term** implementation are high-cost projects that will require more than 10 years to secure funding and design. These solutions include projects that would construct new facilities on or parallel to U.S. 101 and would require substantial coordination with agencies and community members in the region.

Transportation Solutions

Over 80 projects that would improve transportation in the Nehalem Bay region have been identified. These projects were developed based on the technical findings documented in *Technical Memorandum (TM) #5: Existing Conditions*, *TM #6: Future Conditions*, and *TM #7: Future Needs* and feedback received from two touchpoints with the community. Projects previously identified but not yet completed also served as a starting point for development of the solutions, presented on the following pages.

Each list of solutions is grouped by the jurisdiction that would be responsible for implementation. Solutions on the Nehalem Bay list generally fall under responsibility of ODOT or Tillamook County, though in most cases substantial coordination with the Cities would be required. Within city limits, implementation of these solutions would be the responsibility of the City.

Identified Needs

The primary operational deficiency identified through the technical evaluation and early engagement with community members is the intersection of U.S. 101 and 7th Street. While the technical analysis indicates that the capacity at the intersection will be able to accommodate demand over the next 20 years under typical conditions, operations at the intersection are degraded when demand peaks. Historically, this has occurred on summer weekends, but community members shared that this is becoming more frequent. Poor operations at this intersection are attributed to the non-standard configuration which can be challenging for unfamiliar drivers.

Other needs identified through early technical evaluation and engagement include:

- Safety improvements on key roadways including U.S. 101 and Necarney City Road
- Increased delineation of space for people walking and biking on local roadways in all three cities
- More connections for people walking and biking to Nehalem Bay State Park

- A connection for people walking and biking between the three cities that is not located on U.S. 101
- Changes to U.S. 101 that will alert drivers that they are driving through downtown in Nehalem and Wheeler resulting in lower speeds

Solutions

The list of solutions is presented on the following pages by jurisdiction. There are five categories of solutions that have been identified to meet the needs and desires of the region, including:

- **Signage/Wayfinding & Other:** These solutions would add enhanced signage/wayfinding, primarily to connect people walking and biking to key destinations in the region without driving. Also included are solutions that would create “gateways” to the Cities, alerting drivers of the change in context and helping to lower vehicle speeds.
- **Bicycle/Pedestrian Enhancements:** These solutions enhance an existing facility to create dedicated space for people walking and biking within the existing Right-of-Way (ROW) or enhance existing separation of modes.
- **Roadway:** These solutions address operational deficiencies or improve the quality of a roadway that is currently hazardous or challenging to navigate because of the condition of the roadway.
- **Safety:** Solutions identified as safety enhancements address areas where crashes have historically occurred or where a safety concern was shared by community members.
- **New Bicycle/Pedestrian Connection:** These solutions create new facilities for people walking and biking. These solutions may provide a separated space next to an existing roadway or fill a gap between key destinations in the region by creating a new connection.

Maps showing the locations of identified solutions, along with a description, and alignment with the project goals can be found on the following pages.

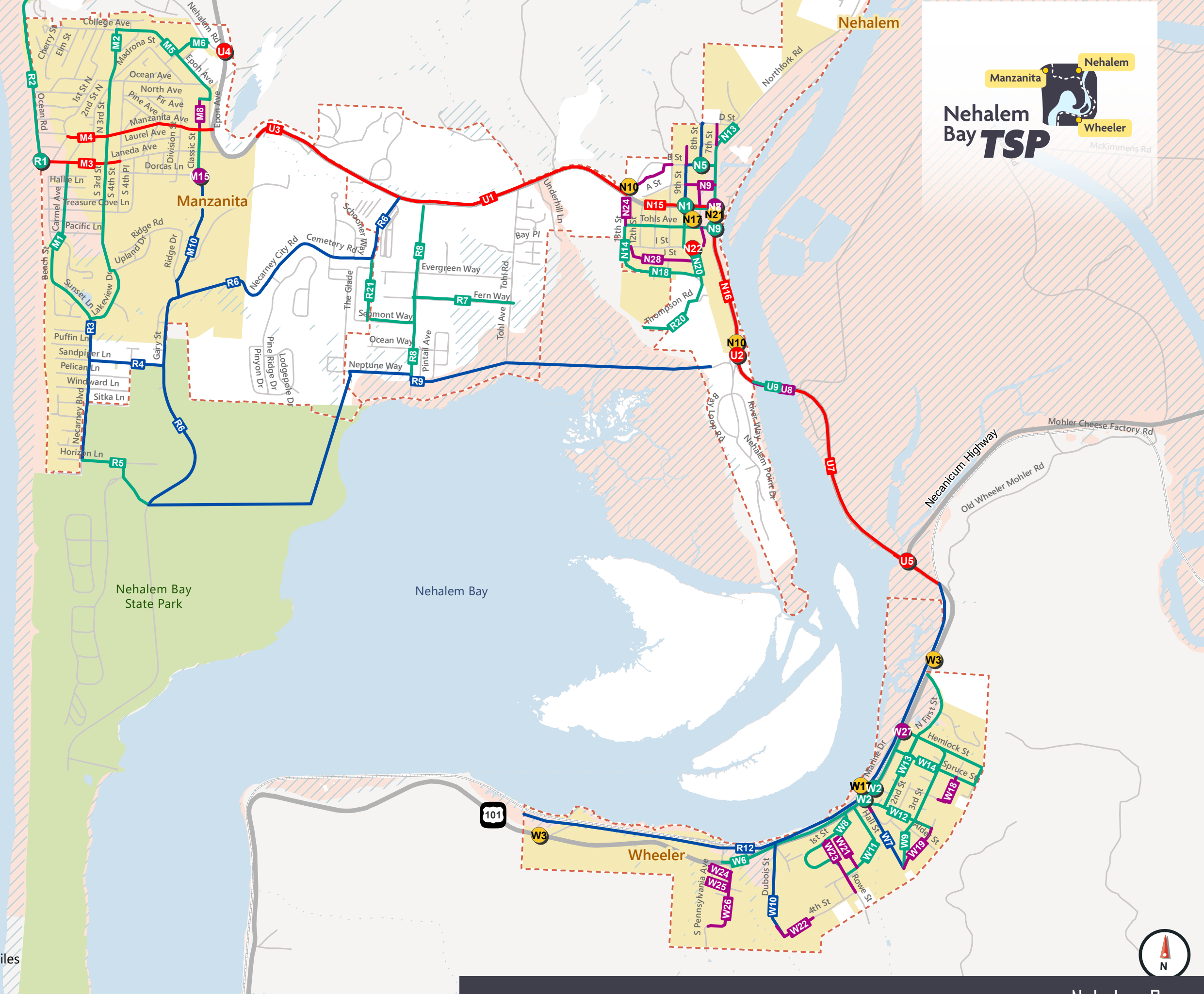
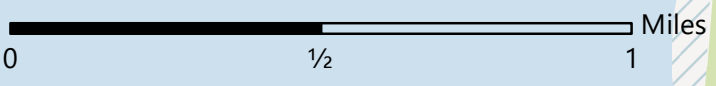
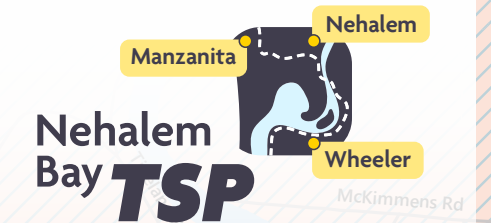
Spot Improvement

- Signage/Wayfinding & Other
- Bike/Ped Enhancement
- Roadway
- Safety

Roadway Improvement

- New Bike/Ped Connection
- Bike/Ped Enhancement
- Roadway
- Safety

- Urban Growth Boundary (2019)
- City Limits
- Wetland
- Flood Zone >1% chance



Nehalem Bay Projects

Project ID	Project Name & Description	Extents	Category	Enhance Quality of Life	Create Safe Connections	Plan for the Future	Support Fiscal Responsibility	Timeline
R1	OCEAN ROAD CROSSING ENHANCEMENTS: Enhance Ocean Road crossing at Laneda Avenue with high-visibility markings and advance signage to alert drivers of crossing.	Laneda Avenue & Ocean Road Intersection	Bike/Ped Enhancement	■	■		■	NEAR-TERM
R2	OCEAN ROAD SEPERATED FACILITIES: Construct a path, providing seperated space for people walking and biking, parallel to Ocean Road. Further analysis will be required to determine the appropriate cross-section and alignment.	Laneda Avenue to Nehalem Drive	New Bike/Ped Connection	■	■		■	LONG-TERM
R3	NECARNEY BOULEVARD BICYCLE CONNECTION: Provide bicycle sharrows along with other elements aimed at speed management to connect people biking from the existing bicycle facility at Lakeview Drive to Nehalem Bay State Park.	Lakeview Drive to Horizon Lane	Bike/Ped Enhancement	■		■	■	NEAR-TERM
R4	CLASSIC STREET TO NECARNEY BOULEVARD CONNECTION: Construct a multiuse trail with wayfinding to connect people walking and biking between Necarney Boulevard and Classic Street north of Nehalem Bay State Park. The multiuse trail would serve as a connection for people walking and biking in the area until development occurs connecting either Puffin Lane or Sandpiper Lane.	Gary Street to Necarney Boulevard	New Bike/Ped Connection	■	■	■	■	LONG-TERM
R5	HORIZON LANE BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Horizon Lane with signing and striping to identify space for people walking and biking.	Necarney Blvd to Gary Street	Bike/Ped Enhancement	■	■	■	■	NEAR-TERM
R6	BAYSIDE GARDENS TO NEHALEM BICYCLE & PEDESTRIAN CONNECTION: Provide a separated path for people walking and biking between Bayside Gardens and Nehalem Bay State Park. Further analysis would be required to identify final cross-section and alignment, which is expected to following Necarney City Road and Classic Street. This project will also require coordination with Oregon State Parks and should also include wayfinding to encourage visitors to walk and bike to the state park.	US 101 to Nehalem Bay State Park	New Bike/Ped Connection	■	■	■	■	LONG-TERM
R7	FERN WAY/SEAMONT WAY BICYCLE & PEDESTRIAN CONNECTION: Enhance signing, striping, and wayfinding to create a connection from Tohl Avenue to The Promenade to create bicycle and pedestrian connections off of US 101.	The Promenade to Tohl Avenue	Bike/Ped Enhancement	■	■	■	■	NEAR-TERM
R8	BAYSIDE GARDENS ROAD BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Bayside Gardens Road with signing, striping, and wayfinding to enhance connections from Nehalem to Manzanita off of US 101.	US 101 to Terminus	Bike/Ped Enhancement	■	■		■	NEAR-TERM
R9	NEHALEM POINT TO NEHALEM STATE PARK BICYCLE & PEDESTRIAN CONNECTION: Construct a paved trail that could serve as an evacuation route in the event of a tsunami connecting people walking and biking from Nehalem to Nehalem State Park off of US 101.	Nehalem Point to Nehalem State Park	New Bike/Ped Connection	■	■	■	■	LONG-TERM
R10	HAYES DRIVE IMPROVEMENTS: Improve the quality of B Street to create a more reliable connection to US 101 during seasonal flooding.	10th Street to US 101	Roadway	■		■	■	MEDIUM-TERM
R11	NORTHFORK ROAD IMPROVEMENTS: Improve the pavement quality of Northfork Road between C Street and D Street.	C Street to D Street	Roadway					MEDIUM-TERM
R12	SALMONBERRY TRAIL: Construct the segment of the Salmonberry Trail through Wheeler. The trail will follow the existing railroad alignment and be a "rail-with-"trail configuration which will provide a 10 to 12 foot paved trail adjacent to the railroad. Within Wheeler, there will be two shared use street segments, which will use the existing roadway network to connect the separated trail segments.	US 101 to Mohler Cheese Factory Road	New Bike/Ped Connection	■	■		■	LONG-TERM
R13	NORTH COUNTY FLEX ROUTE: Coordinate with Tillamook County Transportation District to operate flex-route service between Nehalem, Manzanita, Wheeler, Nehalem Bay State Park, and Oswald West State Park.	-	Transit	■			■	MEDIUM-TERM
R14	REGIONAL WATER TAXI: Explore options to operate a regional water taxi with stops in Nehalem, Wheeler and Nehalem Bay State Park to connect local destinations and enhance tourism.	-	Other	■	■	■	■	MEDIUM-TERM
R15	SEASONAL CIRCULATOR SHUTTLE: Coordinate with the Tillamook County Transportation District to operate a seasonal circulator providing service between Manzanita, Nehalem, Wheeler, and Mohler with stops at Nehalem Bay State Park and Neahkahnie Trailhead. This route could be operated with trolleys to enhance visitor experience.	-	Transit	■	■	■	■	MEDIUM-TERM
R16	OREGON COAST TRAIL REALIGNMENT: Realign the Oregon Coast Trail through Manzanita with more direct access to Nehalem Bay State Park. This project should include wayfinding signage and be coordinated with other enhancements for people walking and biking in the region.	Nehalem Road to Nehalem Bay State Mark	New Bike/Ped Connection	■	■	■	■	MEDIUM-TERM
R17	ELECTRIC VEHICLE INFRASTRUCTURE: Coordinate with local businesses and developments in the region to include charging stations as part of any improvements to existing parking lots or addition of new parking.	-	Other	■			■	NEAR-TERM
R18	REGIONAL WAYFINDING: Coordinate within the region to deploy wayfinding, maps, and signage that connects visitors to key destinations like Nehalem Bay State Park, local downtowns, and the Nehalem River.	-	Other	■			■	NEAR-TERM
R19	EMERGENCY PLANNING COORDINATION: Create a coordinated emergency planning group with representatives from state, county, and local agencies and emergency services.	-	Programmatic			■	■	NEAR-TERM
R20	THOMPSON ROAD BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Thompson Street with signing and striping to identify space for people walking and biking and to create a connection to planned trails.	Terminus to 9th Street	Bike/Ped Enhancement	■	■	■	■	MEDIUM-TERM
R21	THE PROMENADE BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance signing, striping, and wayfinding to create a connection from Bayside Gardens to Manzanita and Nehalem Bay State Park and improve bicycle and pedestrian connections off of US 101.	Seamont Way to Necarney City Road	Bike/Ped Enhancement	■	■	■	■	NEAR-TERM
U1	WIDEN US 101 SHOULDERS & ADD RUMBLE STRIPS: Widen shoulders on US 101 to ODOT standard to support bicycle travel and add rumble strips to improve safety.	Manzanita City Limits to Nehalem City Limits	Safety	■	■	■	■	LONG-TERM

Project ID	Project Name & Description	Extents	Category	Enhance Quality of Life	Create Safe Connections	Plan for the Future	Support Fiscal Responsibility	Timeline
U2	US 101 & NEHALEM POINT DRIVE INTERSECTION IMPROVEMENTS: Provide a two-way left-turn lane for drivers turning left onto Nehalem Point Drive and adjacent driveways to address crashes occurring at this intersection.	US 101 & Nehalem Point Drive	Safety	■	■	■	■	MEDIUM-TERM
U3	ENHANCED CURVE DELINEATION: Provide enhanced delineation treatments such as chevron signs or delineators to the horizontal curve located between milepost 43.3 and 43.5.	East of Manzanita city limits, approximately mp 43.3 to 43.5	Safety	■	■	■	■	MEDIUM-TERM
U4	US 101 & NEHALEM ROAD INTERSECTION IMPROVEMENTS: Provide a dedicated buffered turn lane for southbound drivers turning right to address turning movement crashes.	US 101 & Nehalem Road	Safety	■	■	■	■	MEDIUM-TERM
U5	SR 53 INTERSECTION ADVANCED SIGNAGE: Improve safety at the intersection by installing advanced signage to alert drivers of upcoming intersection.	US 101 near SR 53	Safety	■	■	■	■	MEDIUM-TERM
U6	SR 53 INTERSECTION ENHANCEMENTS: Review turn pockets at SR 53/US 101 intersection to confirm turn pockets meet design standards; identify improvements if needed.	US 101 near SR 53	Safety	■	■	■	■	MEDIUM-TERM
U7	WIDEN US 101 SHOULDERS: Widen shoulders on US 101 to ODOT standard to support bicycle travel.	Nehalem Point Drive to future Salmonberry Trail Crossing location east of SR 53	Safety	■	■	■	■	LONG-TERM
U8	US 101 BRIDGE SEISMIC UPGRADES: Retrofit the US 101 bridge between Nehalem and Wheeler to the most recent seismic standards.	US 101 Bridge	Roadway			■	■	LONG-TERM
U9	US 101 BRIDGE PEDESTRIAN ENHANCEMENTS: Retrofit the US 101 bridge between Nehalem and Wheeler with separated space for bicycles and pedestrians to travel.	US 101 Bridge	Bike/Ped Enhancement	■		■	■	LONG-TERM
U10	US 101 SPEED STUDY: Complete a speed study on US 101 to identify opportunities to lower speeds, particularly near city limits.	-	Programmatic	■	■	■	■	NEAR-TERM
U11	SPEED FEEDBACK SIGNS: Identify locations on US 101 where speed feedback signs may be placed to alert drivers of their speeds.	Regional	Safety	■	■	■	■	NEAR-TERM
U12	US 101 BICYCLE & PEDESTRIAN PATH: Construct a separated path for walking and biking parallel to US 101 from Manzanita to Wheeler.	Regional	New Bike/Ped Connection	■	■	■	■	LONG-TERM

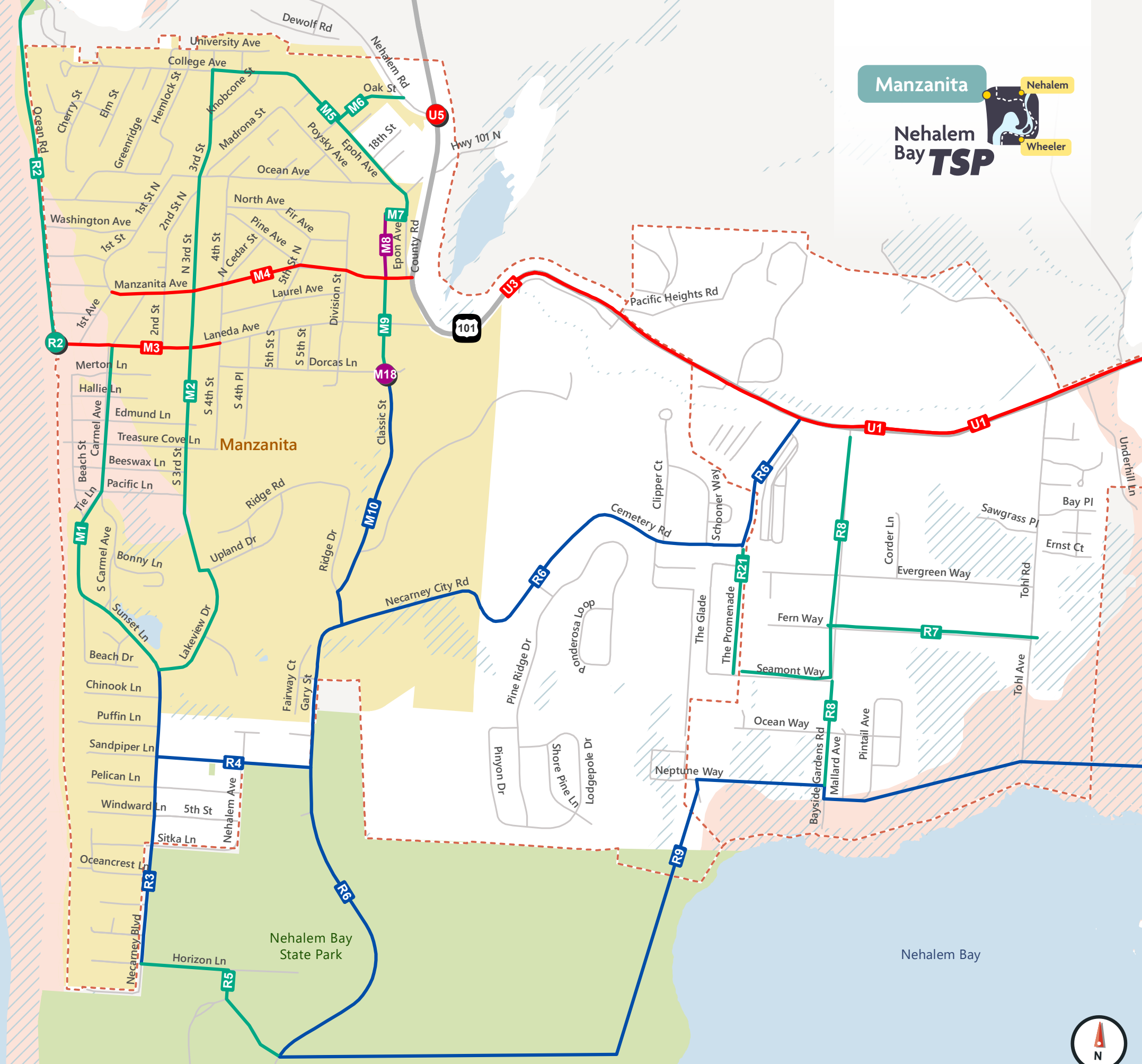
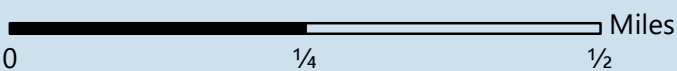
Spot Improvement

- Signage/Wayfinding & Other
- Bike/Ped Enhancement
- Roadway
- Safety

Roadway Improvement

- New Bike/Ped Connection
- Bike/Ped Enhancement
- Roadway
- Safety

- ▭ Urban Growth Boundary (2019)
- ▭ City Limits
- ▭ Wetland
- ▭ Flood Zone >1% chance



Project ID	Project Name & Description	Extents	Category	Enhance Quality of Life	Create Safe Connections	Plan for the Future	Support Fiscal Responsibility	Manage Access	Enhance Economic Vibrancy	Timeline
M1	CARMEL ROAD PEDESTRIAN ENHANCEMENTS: Enhance delineation between pedestrians and cyclists and look for opportunities to increase safety.	Laneda Avenue to Lakeview Drive	Bike/Ped Enhancement	■		■	■	■	■	MEDIUM-TERM
M2	3RD STREET/ LAKEVIEW DRIVE BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance 3rd Street/Lakeview Drive with signing and striping to identify space for people walking and biking.	College Avenue to Necarney Blvd	Bike/Ped Enhancement	■	■	■	■	■	■	NEAR-TERM
M3	LANEDA AVENUE IMPROVEMENTS: Create a connection between the downtown core and the beach by improving Laneda Avenue to feel like a main street through the use of traffic calming measures. This could include painting a solid yellow stripe, providing curb extensions at key intersections, considering back-in angled parking, and constructing consistent curbs. This project should also ensure that ADA parking requirements are being met. As this project extends past the Manzanita City Limits, coordination with Tillamook County will be required.	4th Street to Ocean Road	Safety	■	■		■	■	■	MEDIUM-TERM
M4	MANZANITA AVENUE SAFETY ENHANCEMENTS: Enhance Manzanita Avenue with signing and striping to identify space for people walking and biking and improve safety at intersections. Project may also include removing landscaping and shrubbery near intersections where needed to improve intersection sight distance.	US 101 to Ocean Road	Safety	■	■	■	■	■	■	NEAR-TERM
M5	EPOH AVENUE BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Epoh Avenue with signing and striping to identify space for people walking and biking.	3rd Street to North Avenue	Bike/Ped Enhancement	■	■	■	■	■		NEAR-TERM
M6	OAK STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Oak Street with signing and striping to identify space for people walking and biking.	Nehalem Road to Epoh Avenue	Bike/Ped Enhancement	■	■	■	■	■		NEAR-TERM
M7	NORTH AVENUE BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance North Avenue with signing and striping to identify space for people walking and biking.	Epoh Avenue to Classic Street Extension	Bike/Ped Enhancement	■	■	■	■	■		NEAR-TERM
M8	CLASSIC STREET EXTENSION: Construct an extension of Classic Street from Manzanita Avenue to North Avenue and provide dedicated space for people walking and biking.	North Avenue to Manzanita Avenue	Roadway	■		■		■		LONG-TERM
M9	CLASSIC STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Classic Street to provide space for people walking and biking and create a connection from downtown core to planned multimodal facilities. Treatments could include constructing consistent shoulders to provide space for people walking and adding sharrows to indicate that bicyclists should use the travel lane.	Manzanita Avenue to Laneda Avenue	Bike/Ped Enhancement	■	■	■	■	■	■	MEDIUM-TERM
M10	BICYCLE & PEDESTRIAN CONNECTION TO NEHALEM BAY STATE PARK: Provide a separated path for people walking to connect people walking and biking between the Manzanita and Nehalem Bay State Park along the Classic Street alignment. Further analysis would be required to identify final cross-section and alignment. This project should also include wayfinding to encourage visitors to walk and bike to the state park and will require coordination with Tillamook County to connect to segments outside city limits.	Dorcas Lane to Urban Growth Boundary	New Bike/Ped Connection	■	■	■	■	■	■	LONG-TERM
M11	COMPLETE TRAIL CONNECTIONS: Complete trail connections identified in the City's Trail Master Plan to create more local connections for people biking and walking.	Citywide	New Bike/Ped Connection	■		■	■	■	■	MEDIUM-TERM
M12	BICYCLE PARKING: Provide dedicated areas for bicycle parking near the beach and in the downtown core.	Citywide	Bike/Ped Enhancement			■	■			NEAR-TERM
M13	PARKING SIGNAGE: Provide signage near the beach and downtown core to direct visitors to public parking areas.	Citywide	Signage/Wayfinding	■		■		■		NEAR-TERM
M14	WAYFINDING SIGNS: Provide wayfinding and educational signs in the downtown core and beach to direct visitors to local destinations, enhancing visitors ability to park once. Signage should also include messaging about where pedestrians should walk.	Citywide	Signage/Wayfinding	■		■	■	■	■	NEAR-TERM
M15	DORCAS LANE & CLASSIC STREET INTERSECTION IMPROVEMENTS: Construct intersection improvements, potentially a mini-roundabout, to improve safety and operations as development continues.	Dorcas Lane & Classic Street	Roadway	■	■	■		■	■	MEDIUM-TERM

Nehalem Alternatives

The section below describes the four alternatives considered at the U.S. 101 & 7th Street intersection.

U.S. 101 & 7th Street

The U.S. 101 & 7th Street intersection was identified early on as an area where improvements were needed to address seasonal congestion, safety for people walking and bicycling through the intersection, and to improve the intersection configuration. As solutions were developed, four alternatives described below, were identified and shared with the Project Management Team (PMT), PAC, and community members for feedback.

All-Way Stop Control

To address the non-standard configuration at the intersection, changing from the current stop control, where the northbound movements and eastbound right-turn are uncontrolled, to a standard all-way stop control intersection. The primary benefits of this approach would be:

- Improved safety for pedestrians crossing at the intersection, specifically those crossing the south leg, where conflicts exist with the uncontrolled eastbound-right and northbound movements.
- Standardized control reducing confusion for drivers not familiar with the area.

As 24-hour volume data was not available for this intersection, the all-way stop control warrant was not evaluated; however, this alternative was screened based on impact to intersection operations.

Intersection operations analysis for this intersection, completed for the 30th Highest Hour, found that all-way stop control would degrade the intersection from operating at Level of Service (LOS) C conditions to LOS F. Queueing would also be severely impacted, increasing to over 1,000 feet for the eastbound right-turn.

As the increase queueing on U.S. 101 would create a safety issue, along with the substantial increase in delay drivers would experience, this alternative was **screened from further evaluation**.

One-Way Couplet

A one-way couplet concept, first developed as part of the *Nehalem Downtown Transportation Plan (2003)*, was also evaluated as an alternative at the U.S. 101 & 7th Street intersection. Under this alternative, northbound traffic would use the existing U.S. 101 right-of-way (ROW), while

southbound traffic would use 8th Street and Tohls Street, connecting back to U.S. 101 at the existing U.S. 101 & Tohls Street intersection.

This alternative would allow for wider sidewalks and reduce delay at the intersections by removing the number of conflicting movements that would need to occur.

This alternative was **screened from further evaluation** early in the process based on feedback from the PAC. Key concerns with this approach were:

- Impacts to local businesses if traffic were shifted away from U.S. 101 or if it were made more challenging for southbound drivers to access storefronts on this section of U.S. 101
- Additional ROW that would be required to construct the one-way couplet

Signal

Desire for a traffic signal at the U.S. 101 & 7th Street intersection was shared by community members during all touchpoints with the community.

To evaluate whether a traffic signal could be identified as a feasible alternative at this location, a preliminary signal warrants evaluation are completed. Warrants are conditions that an intersection must meet to justify installation of a traffic signal based on engineering guidance.

As ODOT is responsible for installation, operation, and maintenance of traffic signals on the state highway system, requirements based on ODOT's policy, as documented in the Manual on Uniform Traffic Control Devices (MUTCD) and the Oregon Supplement to the MUTCD must be met.

A preliminary signal warrant evaluation was completed, consistent with guidance in ODOT's Analysis Procedures Manual (APM).

The preliminary signal warrant evaluation found that, using traffic volume forecasts for 2040, the volume of traffic would not warrant installation of a signal.

In addition to volume, signal warrants also consider the volume of pedestrians and history of crashes. Based on a review of data gathered during the existing conditions phase, this intersection does not have the crash history or volume of pedestrians to warrant installation of a signal based on those factors.

Roundabout

Yield-control (roundabout) was also evaluated as an alternative at the U.S. 101 & 7th Street intersection. A roundabout was identified as an alternative to address several concerns at the intersection:

- Crashes that have occurred at the intersection between 2014 and 2018 involved a vehicle turning. Roundabouts reduce the number of conflict points between vehicles when compared to a standard intersection, which may lower the number of crashes that occur involving a vehicle turning.
- While roundabouts may not be familiar to some drivers, it is a more standard control than the existing stop-control.
- It would increase delay at the intersection. With installation of a roundabout, the intersection would operate at LOS C.

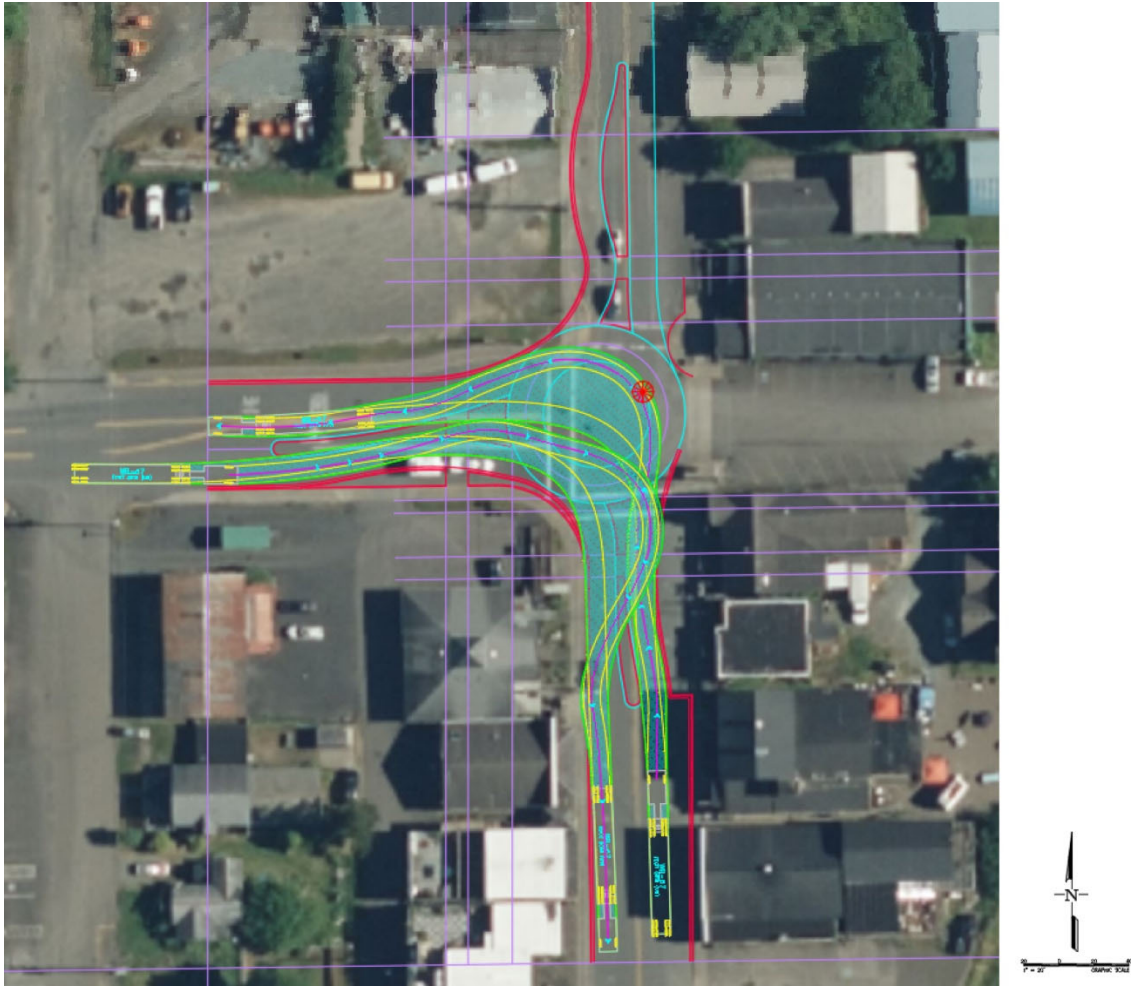
Initially, there were three primary concerns shared by the PAC and community members as part of the early engagement for this alternative: unfamiliar drivers, impacts to ROW, and the ability of large trucks to navigate the roundabout.

To address these concerns, as part of project refinement, a compact or mini-roundabout was proposed. While this alternative would not address concerns related to driver familiarity, it would require substantially less ROW and would be constructed with a mountable median and islands, such that large trucks would drive over any islands or medians if they were unable to navigate the roundabout. As shown in the image below, a smaller diameter roundabout (80') could be constructed without substantial impacts to on-street parking or buildings. The two figures below, developed for conceptual purposes only, show an 80' diameter within the existing intersection and how large trucks would navigate the intersection.



Conceptual Mini-Roundabout (80' Diameter)

NOT FOR DESIGN



Conceptual Mini-Roundabout- WB-67 AutoTurn (80' Diameter)

NOT FOR DESIGN

Spot Improvement

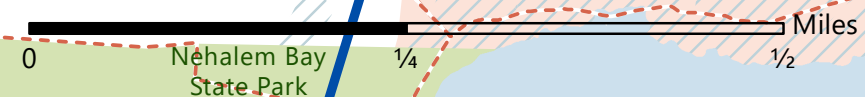
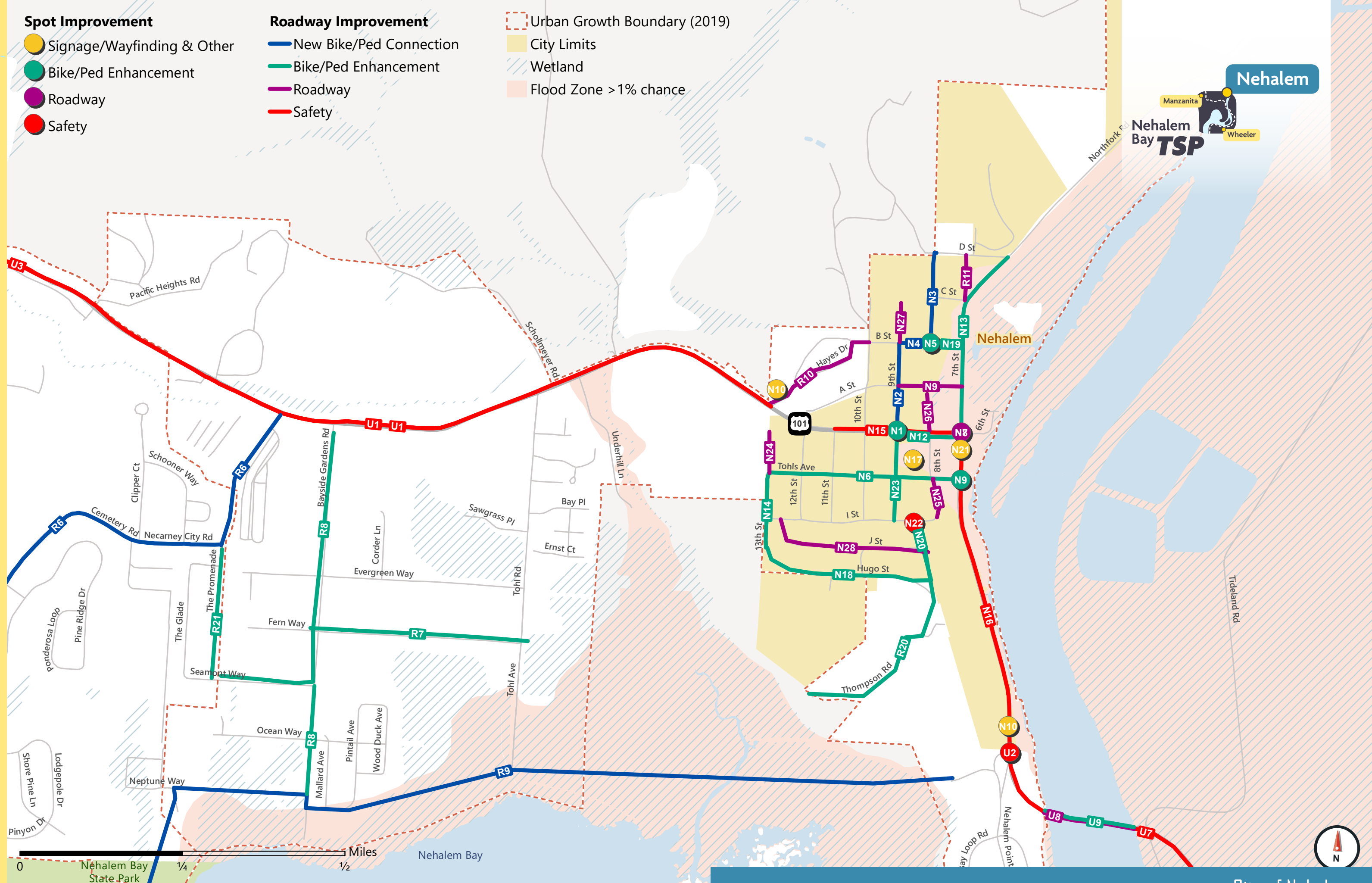
- Signage/Wayfinding & Other
- Bike/Ped Enhancement
- Roadway
- Safety

Roadway Improvement

- New Bike/Ped Connection
- Bike/Ped Enhancement
- Roadway
- Safety

Urban Growth Boundary (2019)

- City Limits
- ▨ Wetland
- ▨ Flood Zone >1% chance



Project ID	Project Name & Description	Extents	Category	Enhance Quality of Life	Create Safe Connections	Plan for the Future	Support Fiscal Responsibility	Manage Access	Access to the Natural Environment	Timeline
N1	9TH STREET CROSSING ENHANCEMENTS: Enhance pedestrian visibility and shorten the crossing distance by providing pedestrian-scale lighting, curb extensions, bollards, or planters.	US 101 & 9th Street Intersection	Bike/Ped Enhancement	■	■	■	■	■		NEAR-TERM
N2	9TH STREET PEDESTRIAN FACILITIES: Connect people walking on 9th Street to NCRD and the schools by constructing sidewalks.	B Street to US 101	New Bike/Ped Connection	■	■	■	■	■	■	MEDIUM-TERM
N3	8TH STREET PEDESTRIAN FACILITIES: Connect people walking on 8th Street to NCRD and the schools by constructing sidewalks or providing a wide shoulder.	Grade School to B Street	New Bike/Ped Connection	■	■	■	■	■	■	LONG-TERM
N4	B STREET PEDESTRIAN FACILITIES: Connect people walking on B Street to NCRD and the schools by constructing sidewalks or providing a wide shoulder.	9th Street to 8th Street	New Bike/Ped Connection	■		■	■	■	■	LONG-TERM
N5	B STREET CROSSING: Alert drivers of school children crossing by providing high-visibility crosswalks.	B Street & 8th Street Intersection	Bike/Ped Enhancement	■	■	■	■	■		MEDIUM-TERM
N6	TOHLS AVENUE BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Tohls Avenue with signing and striping to identify space for people walking and biking.	US 101 to 13th Street	Bike/Ped Enhancement	■	■		■	■	■	NEAR-TERM
N7	US 101 & 7TH STREET INTERSECTION NEAR-TERM IMPROVEMENTS: Enhance signage to alert visitors of the non-standard configuration and enhance crosswalks to improve safety for people crossing.	-	Signage/Wayfinding	■	■		■			NEAR-TERM
N8	US 101 & 7TH STREET INTERSECTION IMPROVEMENTS: Construct intersection improvements, likely a compact or mini-roundabout, to provide a long-term solution to improve operations and delay at the intersection.	-	Roadway	■	■	■	■	■		MEDIUM-TERM
N9	US 101 & TOHLS AVENUE CROSSING ENHANCEMENTS: Create a safer and more comfortable crossing by providing crossing enhancements such as a high-visibility crosswalk and curb extensions/bollards/planters.	-	Bike/Ped Enhancement	■	■	■	■			NEAR-TERM
N10	ENHANCE NEHALEM GATEWAYS: Enhance existing gateways with improved lighting and landscaping to alert drivers that they have entered city limits.	Nehalem Bay City Limits	Signage/Wayfinding	■	■	■				NEAR-TERM
N11	PROVIDE LOCAL WAYFINDING: Provide wayfinding signs to direct visitors to downtown core, parking, potential circulators or transit stops, and docks.	Citywide	Signage/Wayfinding	■		■	■		■	NEAR-TERM
N12	IMPROVE US 101 SIDEWALKS: Improve access for people of all ages and abilities by improving sidewalks on US 101, including locations not currently meeting ADA standards.	US 101 to 10th Street	Bike/Ped Enhancement	■	■	■	■	■		MEDIUM-TERM
N13	7TH STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance 7th Street with signing and striping to identify space for people walking and biking.	US 101 to D Street	Bike/Ped Enhancement	■	■		■	■	■	NEAR-TERM
N14	13TH STREET BICYCLE & PEDESTRIAN FACILITIES: Enhance 13th Street with signing and striping to identify space for people walking and biking and to create a connection to planned trails.	Hugo Street to Tohls Avenue	Bike/Ped Enhancement	■	■	■	■	■	■	NEAR-TERM
N15	US 101 TRAFFIC CALMING: Use improvements that enhance the quality of the street as a "main street" to slow vehicle traffic and make the street more comfortable for people walking and biking. Improvements could include curb extensions, landscaping, planters, and pedestrian scale lighting.	11th Street to south of Tohls Avenue	Safety	■	■	■	■			MEDIUM-TERM
N16	US 101 SAFETY IMPROVEMENTS SOUTH OF TOHLS AVENUE: To create more space for people biking, widen the shoulder on US 101 to 6 feet.	South of Tohls Avenue to Nehalem City Limits	Safety	■	■	■	■			LONG-TERM
N17	SHARED PARKING: Create a shared parking lot in the existing lot just south of US 101 on 9th Street including wayfinding signage to direct visitors to parking.	9th Street	Other	■						MEDIUM-TERM
N18	HUGO STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Hugo Street with signing and striping to identify space for people walking and biking and to create a connection to planned trails.	13th Street to 9th Street	Bike/Ped Enhancement	■	■	■	■	■	■	NEAR-TERM
N19	B STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance B Street with signing and striping to identify space for people walking and biking.	7th Street to 8th Street	Bike/Ped Enhancement	■	■	■	■	■	■	NEAR-TERM
N20	8TH/9TH STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance 8th and 9th Street with signing and striping to identify space for people walking and biking.	I Street to Hugo Street	Bike/Ped Enhancement	■	■	■	■	■	■	NEAR-TERM
N21	US 101 & 7TH STREET CAMERA: Install a traffic camera at the intersection of US 101 and 7th Street to allow agencies and travelers to check for flooding at the intersection.	-	Other	■	■	■	■			MEDIUM-TERM
N22	I STREET & 9TH STREET SAFETY IMPROVEMENTS: Create a safer crossing by providing crossing enhancements such as crosswalks and pedestrian scale lighting to make people walking more visible.	-	Safety	■	■			■	■	MEDIUM-TERM
N23	9TH STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance 9th Street with signing and striping to identify space for people walking and biking.	US 101 to I Street	Bike/Ped Enhancement	■	■	■	■	■	■	NEAR-TERM
N24	13TH STREET PAVING: Pave unpaved sections of 13th Street.	Tohls Avenue to Terminus	Roadway	■		■	■			MEDIUM-TERM
N25	8TH STREET PAVING: Pave unpaved sections of 8th Street.	I Street to Tohls Avenue	Roadway	■		■	■	■		MEDIUM-TERM
N26	8TH STREET PAVING: Pave unpaved sections of 8th Street.	US 101 to Terminus	Roadway	■		■	■			MEDIUM-TERM
N27	9TH STREET PAVING: Pave unpaved sections of 9th Street.	B Street to Terminus	Roadway	■		■	■			MEDIUM-TERM
N28	J STREET PAVING: Pave unpaved sections of J Street.	I Street to 9th Street	Roadway	■		■	■	■		MEDIUM-TERM

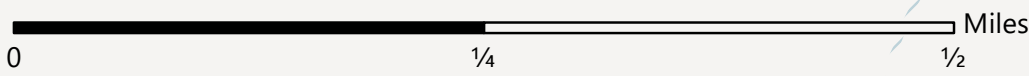
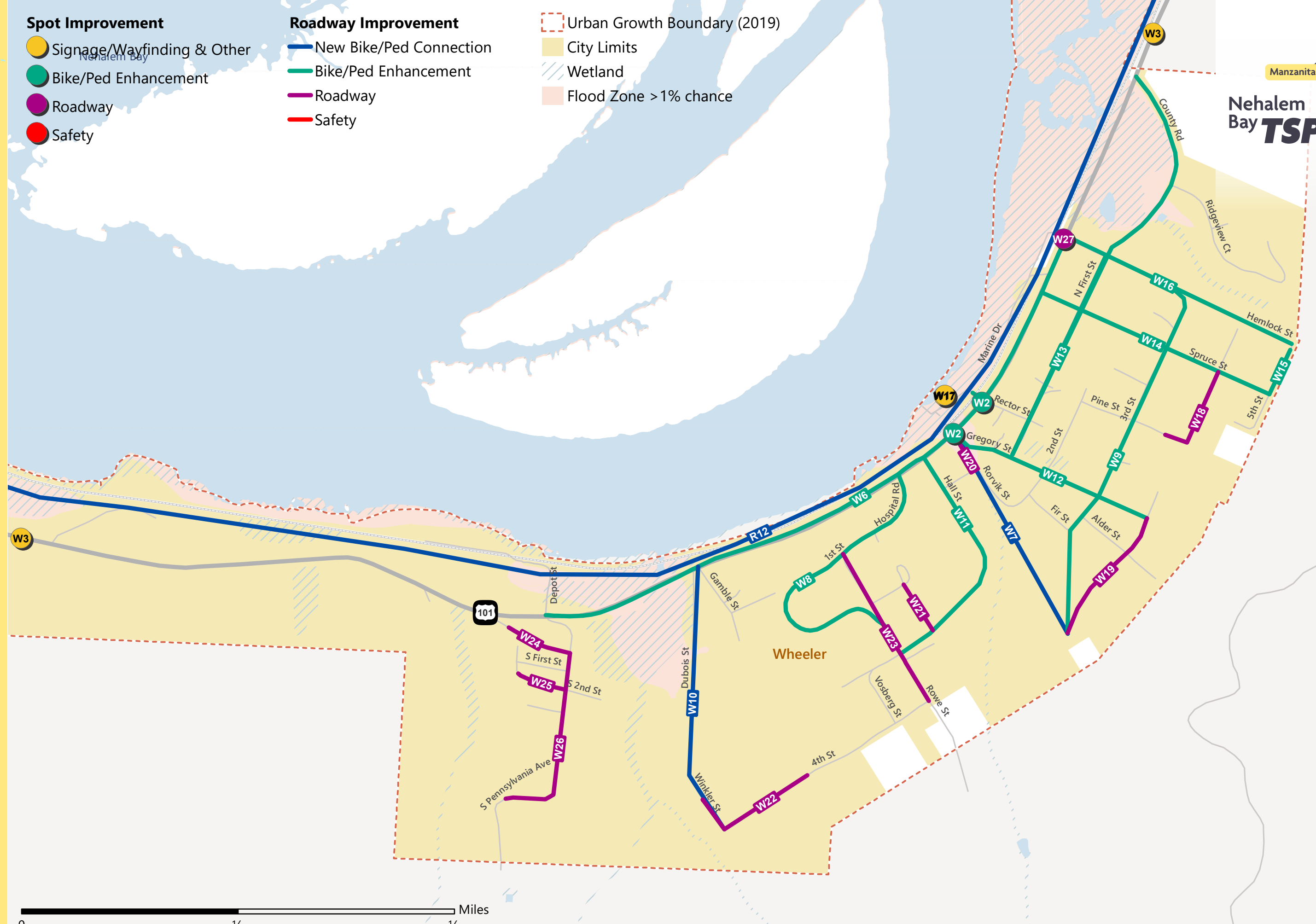
Spot Improvement

- Signage/Wayfinding & Other
- Bike/Ped Enhancement
- Roadway
- Safety

Roadway Improvement

- New Bike/Ped Connection
- Bike/Ped Enhancement
- Roadway
- Safety

- ▭ Urban Growth Boundary (2019)
- ▭ City Limits
- ▨ Wetland
- ▭ Flood Zone >1% chance



Project ID	Project Name & Description	Extents	Category	Enhance Quality of Life	Create Safe Connections	Plan for the Future	Support Fiscal Responsibility	Create More Travel Options	Enhance Economic Vibrancy	Timeline
W1	CITYWIDE SIDEWALK IMPROVEMENTS: Improve access to local destinations and ADA access by improving existing sidewalks on US 101, Gregory Street, and Rorvik Street.	Citywide	Bike/Ped Enhancement	■	■	■	■	■	■	MEDIUM-TERM
W2	ENHANCE US 101 CROSSINGS: Enhance US 101 crossings by providing high-visibility crosswalks and improving illumination.	Gregory Street/Rorvik Street & Rector Street	Bike/Ped Enhancement	■	■	■	■	■	■	NEAR-TERM
W3	GATEWAY TO WHEELER: Create a gateway to Wheeler by enhancing signage, and adding landscaping and/or local artwork to alert people that they have entered city limits.	Wheeler City Limits	Signage/Wayfinding	■	■	■			■	NEAR-TERM
W4	RAILROAD CROSSING: Connect people walking, biking, and using transit across the railroad tracks by extending the sidewalk on the north side of Rector Street to connect to the existing transit stop.	-	Bike/Ped Enhancement	■		■	■	■	■	MEDIUM-TERM
W5	ENHANCED WAYFINDING SIGNAGE: Connect people to local destinations by providing enhanced wayfinding signs to downtown, the dock, and other key local destinations.	Citywide	Signage/Wayfinding	■		■	■	■	■	NEAR-TERM
W6	US 101 BICYCLE LANES: Widen US 101 through Wheeler to accommodate separated bicycle lanes.	Rorvik Street to Hemlock Street	Bike/Ped Enhancement	■	■	■	■	■	■	LONG-TERM
W7	GERVAIS CREEK PATHWAY: Construct a pathway parallel to Gervais Creek from Fourth Street to US 101, across the highway to the bay.	Fourth Street to Nehalem Bay	New Bike/Ped Connection	■		■	■			MEDIUM-TERM
W8	HOSPITAL ROAD ENHANCEMENTS: Enhance Hospital Road and surrounding the City-owned land (future park) with signing and striping to identify space for people walking and biking.	US 101 to Rowe Street	Bike/Ped Enhancement	■	■	■	■	■	■	MEDIUM-TERM
W9	3RD STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance 3rd Street from Gervais Creek and the City-owned land (future park) to Hemlock Street with signing and striping to identify space for people walking and biking.	Gervais Creek to Hemlock Street	Bike/Ped Enhancement	■	■	■	■		■	NEAR-TERM
W10	VOSBURG CREEK PATHWAY: Construct a pathway parallel to Vosburg Creek from Fourth Street to Nehalem Bay.	Vosburg Creek to Nehalem Bay	New Bike/Ped Connection	■		■	■			NEAR-TERM
W11	HALL STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Hall Street from US 101 to Rowe Street with signing and striping to identify space for people walking and biking.	US 101 to Rowe Street	Bike/Ped Enhancement	■	■	■	■		■	NEAR-TERM
W12	GREGORY STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Gregory Street with signing and striping to identify space for people walking and biking.	US 101 to 4th Street	Bike/Ped Enhancement	■	■	■	■		■	NEAR-TERM
W13	1ST STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance 1st Street with signing and striping to identify space for people walking and biking.	Gregory Street to US 101	Bike/Ped Enhancement	■	■		■		■	NEAR-TERM
W14	SPRUCE STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance Spruce Street with signing and striping to identify space for people walking and biking.	US 101 to 5th Street	Bike/Ped Enhancement	■	■	■	■		■	NEAR-TERM
W15	5TH STREET BICYCLE & PEDESTRIAN ENHANCEMENTS: Enhance 5th Street with signing and striping to create space for people walking and biking.	Spruce Street to Hemlock Street	Bike/Ped Enhancement	■	■	■	■		■	NEAR-TERM
W16	HEMLOCK STREET ENHANCEMENTS: Complete pavement repairs and enhance Hemlock Street with signing and striping to identify space for people walking and biking.	5th Street to Marine Drive	Bike/Ped Enhancement	■	■	■	■		■	MEDIUM-TERM
W17	MARINE DRIVE PARKING LOT ENHANCEMENTS: Pave the parking lot located off Marine Drive.	-	Other					■	■	MEDIUM-TERM
W18	4TH STREET CONNECTION: Connect 4th Street from Spruce Street to Pine Street.	Spruce Street to Pine Street	Roadway	■	■	■		■	■	LONG-TERM
W19	4TH STREET PAVING: Pave 4th Street from Gregory Street to Rorvik Street and from Davis Street to Rowe Street.	Gregory Street to Rorvik Street & Davis Street to Rowe Street	Roadway	■	■	■		■	■	MEDIUM-TERM
W20	RORVIK STREET PAVING: Pave Rorvik Street from 1st Street to 2nd Street.	1st Street to 2nd Street	Roadway	■	■	■		■	■	MEDIUM-TERM
W21	AKIN STREET PAVING: Connect and pave Akin Street from 2nd Street to 3rd Street.	2nd Street to 3rd Street	Roadway	■	■	■		■	■	LONG-TERM
W22	WINKLER STREET IMPROVEMENTS: Improve the condition of Winkler Street from 4th Street to Dubois Street.	4th Street to Dubois Street	Roadway	■	■	■		■	■	MEDIUM-TERM
W23	ROWE STREET IMPROVEMENTS: Improve pavement condition and enhance Rowe Street with signing and striping to identify space for people walking and biking.	1st Street to 4th Street	Roadway	■	■	■		■	■	MEDIUM-TERM
W24	BAYVIEW PAVING: Pave Bayview between Oregon Avenue and Pennsylvania Avenue.	Oregon Avenue to Pennsylvania Avenue	Roadway	■	■	■		■	■	MEDIUM-TERM
W25	RIVER VIEW PAVING: Pave River View from Pennsylvania Avenue to its terminus.	Pennsylvania Avenue to Terminus	Roadway	■	■	■		■	■	MEDIUM-TERM
W26	PENNSYLVANIA AVENUE PAVING: Pave Pennsylvania Avenue from 1st Street to Dichter Drive.	1st Street to Dichter Drive	Roadway	■	■	■		■	■	MEDIUM-TERM
W27	US 101 & HEMLOCK STREET INTERSECTION IMPROVEMENTS: Construct intersection improvements, potentially a roundabout, to improve safety and slow vehicles creating a "gateway" to Wheeler.	US 101 & Hemlock Street	Roadway	■	■	■		■		LONG-TERM
W28	US 101 PLACEMAKING: Improve safety and comfort of users by enhancing US 101 with traffic calming and placemaking enhancements such as painted crosswalks, planter boxes and other features to create a sense of place.	Hall Street to Hemlock Street	Bike/Ped Enhancement	■	■		■	■	■	MEDIUM-TERM

Appendix A: Evaluation Criteria

Regional Goal	Evaluation Criteria	Pts.	Scoring
Create a transportation system that provides equitable multimodal access for underserved and vulnerable populations and balances the needs of local travelers and regional through-traffic.	R1.1: Project improves access for underserved or vulnerable populations.	4	Project provides new connection that meets ADA standards.
		2	Project improves an existing connection to meet ADA standards.
		0	Project does not create new ADA compliant connection or enhance existing infrastructure.
	R1.2: Project improves a route predominately used by local travelers off US 101.	4	Project improves a local roadway to better meet the needs of all travelers.
		0	Project does not improve a local roadway.
	R1.3: Project improves the experience of people traveling through Nehalem Bay.	4	Project improves a regional route (US 101, connections to Nehalem Bay State Park, etc.) to better meet the needs of all travelers.
		2	Project provides wayfinding signage on regional routes to direct regional travelers to local destinations, parking, etc..
		0	Project does provide any of the above.
	Create safer connections between the Nehalem Bay communities for people walking, biking, or using other non-auto modes and identify strategies to reduce crashes for all users when traveling on US 101.	R2.1: Project addresses a location with a history of fatal/severe injury crashes and/or bike/ped crashes.	4
2			Location with one or more crashes of any type and severity in the past 5 years.
0			Location with no crashes in the past 5 years.
R2.2: Project creates new connections off US 101 between Nehalem Bay communities.		4	Project provides a new connection off of US 101 between communities.
		0	Project does not provide any of the above.
R2.3: Project includes a traffic calming element aimed at slowing vehicle traffic to improve safety and comfort for active transportation users.		4	Project adds a traffic calming element such as speed reduction measures, roadway narrowing, or sidewalk bulb outs.
0	Project does not provide any of the above.		
Collaborate with ODOT and Tillamook County to create a transportation system that is resilient to extreme weather events, able to safely accommodate evacuation and recovery efforts, and consistent with the goals and objectives of each City, Tillamook County, and the state.	R3.1: Project maintains or rebuilds critical infrastructure; or improves access for emergency vehicles.	4	Project provides a new connection out of a Tsunami zone, improving access and/or circulation for emergency vehicles.
		2	Project includes maintenance, repair, or seismic upgrades on U.S. 101, a bridge, or an identified evacuation route.
		0	Project does not provide any of the above.
	R3.2: Project includes a maintenance component on local roads.	4	Project is outside the floodplain and therefore likely to have lower ongoing mainenance costs.
		2	Project extends the lifespan of existing local facilities or reduces future maintenance needs such as pavement overlays, replacing and upgrading existing facilities, making signal improvements, or replacing signals with roundabouts.
	0	Project does not provide any of the above.	
R3.3: Project improves US 101 consistent with ODOT design guidance or other regional planning efforts.	4	Project would provide improvements to US 101 consistent with ODOT design guidance or other regional planning document.	
	0	Project does not provide any of the above.	
Plan for a transportation system that is financially viable with consideration for life cycle costs by identifying new funding sources to make local dollars go farther.	R4.1: Project builds on investments in transportation funded primarily by entities other than the cities (state, regional, county).	4	Project may receive funding from non-local sources.
		2	Project would rely on local funding but would extend or improve facilities funded by other agencies.
		0	Project would rely entirely on local funding.
	R4.2: Project leverages grant funding opportunities.	4	Project is likely to qualify for grant funding.
		0	Project is not likely to qualify for grant funding.
Manzanita Goal	Evaluation Criteria	Pts.	Scoring
Manage access from Highway 101 to Manzanita and the recreational opportunities in the area to minimize cut through traffic and seasonal congestion.	M1.1: Project improves local roadway connections and/or wayfinding within Manzanita's UGB.	4	Project improves local connections and/or wayfinding.
		0	Project does not provide any of the above.
	M1.2: Project supports efforts to create connections between key destinations and the commercial core	4	Project is on City's Trail Master Plan or supports efforts by the Oregon Parks and Recreation Department to create connections to Nehalem Bay State Park.
		0	Project does not provide any of the above.
Support economic vibrancy and reduce parking demand by providing walking, biking, and transit connections to the commercial core.	M2.1: Project creates new connections for active transportation modes on arterials or collectors.	4	Project provides a new connection or improves an existing connection for people walking or biking on or parallel to an arterial or collector roadway.
		2	Project enhances an existing roadway to improve travel for people walking or biking on or parallel to an arterial or collector roadway.
		0	Project does not provide any of the above.
	M2.2: Project encourages travelers to walk, bike, or take tranist rather than drive.	4	Project provides improved wayfinding signange for non-auto users connecting to local destinations.
		0	Project does not provide any of the above.

Regional Goal	Evaluation Criteria	Pts.	Scoring
Create a transportation system that provides equitable multimodal access for underserved and vulnerable populations and balances the needs of local travelers and regional through-traffic.	R1.1: Project improves access for underserved or vulnerable populations.	4	Project provides new connection that meets ADA standards.
		2	Project improves an existing connection to meet ADA standards.
		0	Project does not create new ADA compliant connection or enhance existing infrastructure.
	R1.2: Project improves a route predominately used by local travelers off US 101.	4	Project improves a local roadway to better meet the needs of all travelers.
		0	Project does not improve a local roadway.
	R1.3: Project improves the experience of people traveling through Nehalem Bay.	4	Project improves a regional route (US 101, connections to Nehalem Bay State Park, etc.) to better meet the needs of all travelers.
		2	Project provides wayfinding signage on regional routes to direct regional travelers to local destinations, parking, etc..
		0	Project does provide any of the above.
	Create safer connections between the Nehalem Bay communities for people walking, biking, or using other non-auto modes and identify strategies to reduce crashes for all users when traveling on US 101.	R2.1: Project addresses a location with a history of fatal/severe injury crashes and/or bike/ped crashes.	4
2			Location with one or more crashes of any type and severity in the past 5 years.
0			Location with no crashes in the past 5 years.
R2.2: Project creates new connections off US 101 between Nehalem Bay communities.		4	Project provides a new connection off of US 101 between communities.
		0	Project does not provide any of the above.
R2.3: Project includes a traffic calming element aimed at slowing vehicle traffic to improve safety and comfort for active transportation users.		4	Project adds a traffic calming element such as speed reduction measures, roadway narrowing, or sidewalk bulb outs.
0	Project does not provide any of the above.		
Collaborate with ODOT and Tillamook County to create a transportation system that is resilient to extreme weather events, able to safely accommodate evacuation and recovery efforts, and consistent with the goals and objectives of each City, Tillamook County, and the state.	R3.1: Project maintains or rebuilds critical infrastructure; or improves access for emergency vehicles.	4	Project provides a new connection out of a Tsunami zone, improving access and/or circulation for emergency vehicles.
		2	Project includes maintenance, repair, or seismic upgrades on U.S. 101, a bridge, or an identified evacuation route.
		0	Project does not provide any of the above.
	R3.2: Project includes a maintenance component on local roads.	4	Project is outside the floodplain and therefore likely to have lower ongoing mainenance costs.
		2	Project extends the lifespan of existing local facilities or reduces future maintenance needs such as pavement overlays, replacing and upgrading existing facilities, making signal improvements, or replacing signals with roundabouts.
		0	Project does not provide any of the above.
R3.3: Project improves US 101 consistent with ODOT design guidance or other regional planning efforts.	4	Project would provide improvements to US 101 consistent with ODOT design guidance or other regional planning document.	
0	Project does not provide any of the above.		
Plan for a transportation system that is financially viable with consideration for life cycle costs by identifying new funding sources to make local dollars go farther.	R4.1: Project builds on investments in transportation funded primarily by entities other than the cities (state, regional, county).	4	Project may receive funding from non-local sources.
		2	Project would rely on local funding but would extend or improve facilities funded by other agencies.
		0	Project would rely entirely on local funding.
	R4.2: Project leverages grant funding opportunities.	4	Project is likely to qualify for grant funding.
		0	Project is not likely to qualify for grant funding.
Nehalem Goal	Evaluation Criteria	Pts.	Scoring
Increase connectivity and fill infrastructure gaps for people walking and biking to access key destinations such as schools, restaurants, and the commercial core.	N1.1: Project improves safe access to school and recreational centers.	4	Project improves or creates a safe route for walking, biking, or taking transit to a school or recreational center.
		0	Project does not provide any of the above.
	N1.2: Project creates new connections for active transportation modes on local roadways.	4	Project provides a new connection or improves an existing connection for people walking or biking on a local roadway.
		2	Project enhances an existing roadway to improve travel for people walking or biking on a local roadway.
Increase access to recreational areas and water-based travel options while protecting the natural environment.	N2.1: Project would improve walking, biking, or watercraft access to natural areas and/or park	4	Pedestrian, bicycle, or watercraft-focused connection or wayfinding within 1/4 mile of a park or trail.
		0	Project does not provide any of the above.
	N2.2: Project provides wayfinding signage to connect travelers to natural areas and/or parks.	4	Project provides improved wayfinding signage for non-auto users connecting to local destinations.
		0	Project does not provide any of the above.

Regional Goal	Evaluation Criteria	Pts.	Scoring
Create a transportation system that provides equitable multimodal access for underserved and vulnerable populations and balances the needs of local travelers and regional through-traffic.	R1.1: Project improves access for underserved or vulnerable populations.	4	Project provides new connection that meets ADA standards.
		2	Project improves an existing connection to meet ADA standards.
		0	Project does not create new ADA compliant connection or enhance existing infrastructure.
	R1.2: Project improves a route predominately used by local travelers off US 101.	4	Project improves a local roadway to better meet the needs of all travelers.
		0	Project does not improve a local roadway.
	R1.3: Project improves the experience of people traveling through Nehalem Bay.	4	Project improves a regional route (US 101, connections to Nehalem Bay State Park, etc.) to better meet the needs of all travelers.
		2	Project provides wayfinding signage on regional routes to direct regional travelers to local destinations, parking, etc..
		0	Project does provide any of the above.
	Create safer connections between the Nehalem Bay communities for people walking, biking, or using other non-auto modes and identify strategies to reduce crashes for all users when traveling on US 101.	R2.1: Project addresses a location with a history of fatal/severe injury crashes and/or bike/ped crashes.	4
2			Location with one or more crashes of any type and severity in the past 5 years.
0			Location with no crashes in the past 5 years.
R2.2: Project creates new connections off US 101 between Nehalem Bay communities.		4	Project provides a new connection off of US 101 between communities.
		0	Project does not provide any of the above.
R2.3: Project includes a traffic calming element aimed at slowing vehicle traffic to improve safety and comfort for active transportation users.		4	Project adds a traffic calming element such as speed reduction measures, roadway narrowing, or sidewalk bulb outs.
0	Project does not provide any of the above.		
Collaborate with ODOT and Tillamook County to create a transportation system that is resilient to extreme weather events, able to safely accommodate evacuation and recovery efforts, and consistent with the goals and objectives of each City, Tillamook County, and the state.	R3.1: Project maintains or rebuilds critical infrastructure; or improves access for emergency vehicles.	4	Project provides a new connection out of a Tsunami zone, improving access and/or circulation for emergency vehicles.
		2	Project includes maintenance, repair, or seismic upgrades on U.S. 101, a bridge, or an identified evacuation route.
		0	Project does not provide any of the above.
	R3.2: Project includes a maintenance component on local roads.	4	Project is outside the floodplain and therefore likely to have lower ongoing mainenance costs.
		2	Project extends the lifespan of existing local facilities or reduces future maintenance needs such as pavement overlays, replacing and upgrading existing facilities, making signal improvements, or replacing signals with roundabouts.
		0	Project does not provide any of the above.
R3.3: Project improves US 101 consistent with ODOT design guidance or other regional planning efforts.	4	Project would provide improvements to US 101 consistent with ODOT design guidance or other regional planning document.	
0	Project does not provide any of the above.		
Plan for a transportation system that is financially viable with consideration for life cycle costs by identifying new funding sources to make local dollars go farther.	R4.1: Project builds on investments in transportation funded primarily by entities other than the cities (state, regional, county).	4	Project may receive funding from non-local sources.
		2	Project would rely on local funding but would extend or improve facilities funded by other agencies.
		0	Project would rely entirely on local funding.
	R4.2: Project leverages grant funding opportunities.	4	Project is likely to qualify for grant funding.
		0	Project is not likely to qualify for grant funding.
Wheeler Goal	Evaluation Criteria	Pts.	Scoring
Improve walking and biking safety, connections, and wayfinding within Wheeler.	W1.1: Project builds or enhances sidewalks or crossings in the commercial core or as a connection to key local destinations.	4	Projects constructs a sidewalk or marked crossing, consistent with design criteria, in Wheeler's commercial core or connecting to a key destination such as a hospital or transit stop.
		2	Project enhances and existing sidewalk or crossing in Wheeler's commerical core or connecting a key destination such as a hostpital or transit stop.
		0	Project does not provide any of the above.
	W1.2: Project includes streetscape improvements or wayfinding improvements.	4	Project adds landscaping, pedestrian-scale lighting, benches, wayfinding, and/or street trees.
		0	Project does not provide any of the above.
Support economic vibrancy by creating connections to recreational opportunities and new forms of local tourism while protecting the natural beauty that draws visitors to Wheeler.	W2.1: Project would improve walking, biking, or watercraft access to natural areas and/or parks.	4	Project improves pedestrian and/or bicycle access on a roadway that connects to a natural area and/or park.
		0	Project does not provide any of the above.
	W2.2: Project minimizes runoff by not increasing the amount of impervious surface within Wheeler.	4	Project does not increase the amount of impervious surface within the City.
		0	Project increases the amount of impervious surface within the City.



Appendix B: LOS Results

MOVEMENT SUMMARY

 Site: 101 [U.S. 101 - AWSC (Site Folder: General)]

New Site

Site Category: (None)

Stop (All-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	410	4.0	446	4.0	0.588	13.1	LOS B	3.1	80.1	0.80	1.47	3.16	23.7
8	T1	40	4.0	43	4.0	0.588	13.1	LOS B	3.1	80.1	0.80	1.47	3.16	23.8
18	R2	10	5.0	11	5.0	0.588	13.1	LOS B	3.1	80.1	0.80	1.47	3.16	23.8
Approach		460	4.0	500	4.0	0.588	13.1	LOS B	3.1	80.1	0.80	1.47	3.16	23.7
East: RoadName														
1	L2	10	3.0	11	3.0	0.116	17.4	LOS C	0.4	10.2	0.94	1.26	2.07	22.7
6	T1	10	3.0	11	3.0	0.116	17.4	LOS C	0.4	10.2	0.94	1.26	2.07	22.7
16	R2	10	3.0	11	3.0	0.116	17.4	LOS C	0.4	10.2	0.94	1.26	2.07	22.8
Approach		30	3.0	33	3.0	0.116	17.4	LOS C	0.4	10.2	0.94	1.26	2.07	22.7
North: RoadName														
7	L2	10	3.0	11	3.0	0.423	19.0	LOS C	1.9	52.3	0.95	1.45	2.64	22.3
4	T1	40	25.0	43	25.0	0.423	19.0	LOS C	1.9	52.3	0.95	1.45	2.64	22.3
14	R2	100	12.0	109	12.0	0.423	19.0	LOS C	1.9	52.3	0.95	1.45	2.64	22.4
Approach		150	14.9	163	14.9	0.423	19.0	LOS C	1.9	52.3	0.95	1.45	2.64	22.4
West: RoadName														
5	L2	100	10.0	109	10.0	0.439	19.3	LOS C	2.0	53.4	1.00	1.50	2.71	22.2
2	T1	10	0.0	11	0.0	0.439	19.3	LOS C	2.0	53.4	1.00	1.50	2.71	22.3
12	R2	410	3.0	446	3.0	1.500	266.3	LOS F	38.2	978.2	1.00	5.00	15.13	6.4
Approach		520	4.3	565	4.3	1.500	214.0	LOS F	38.2	978.2	1.00	4.26	12.51	7.5
All Vehicles		1160	5.5	1261	5.5	1.500	104.0	LOS F	38.2	978.2	0.91	2.71	7.25	12.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [U.S. 101 Mini-Roundabout (Site Folder: General)]

U.S. 101 & 7th Street
 Site Category: Proposed Design 1
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	410	5.0	446	5.0	0.439	7.8	LOS A	2.7	70.1	0.42	0.26	0.42	31.1
8	T1	40	4.0	43	4.0	0.439	7.8	LOS A	2.7	70.1	0.42	0.26	0.42	31.2
18	R2	10	4.0	11	4.0	0.439	7.8	LOS A	2.7	70.1	0.42	0.26	0.42	30.5
Approach		460	4.9	500	4.9	0.439	7.8	LOS A	2.7	70.1	0.42	0.26	0.42	31.1
East: RoadName														
1	L2	10	3.0	11	3.0	0.046	5.6	LOS A	0.2	4.5	0.56	0.48	0.56	33.4
6	T1	10	3.0	11	3.0	0.046	5.6	LOS A	0.2	4.5	0.56	0.48	0.56	33.5
16	R2	10	3.0	11	3.0	0.046	5.6	LOS A	0.2	4.5	0.56	0.48	0.56	32.6
Approach		30	3.0	33	3.0	0.046	5.6	LOS A	0.2	4.5	0.56	0.48	0.56	33.2
North: RoadName														
7	L2	10	3.0	11	3.0	0.224	7.0	LOS A	0.9	24.0	0.56	0.52	0.56	33.1
4	T1	40	25.0	43	25.0	0.224	7.9	LOS A	0.9	24.0	0.56	0.52	0.56	32.7
14	R2	100	12.0	109	12.0	0.224	7.4	LOS A	0.9	24.0	0.56	0.52	0.56	32.1
Approach		150	14.9	163	14.9	0.224	7.5	LOS A	0.9	24.0	0.56	0.52	0.56	32.3
West: RoadName														
5	L2	100	10.0	109	10.0	0.462	7.9	LOS A	3.1	80.5	0.32	0.16	0.32	32.5
2	T1	10	0.0	11	0.0	0.462	7.6	LOS A	3.1	80.5	0.32	0.16	0.32	32.8
12	R2	410	3.0	446	3.0	0.462	7.7	LOS A	3.1	80.5	0.32	0.16	0.32	32.0
Approach		520	4.3	565	4.3	0.462	7.8	LOS A	3.1	80.5	0.32	0.16	0.32	32.1
All Vehicles		1160	5.9	1261	5.9	0.462	7.7	LOS A	3.1	80.5	0.40	0.25	0.40	31.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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November 18, 2022



Appendix C: Preliminary Signal Warrant Evaluation

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis¹

Major Street: U.S. 101	Minor Street: 7th Street
Project: Nehalem Bay TSP	City/County: Nehalem/Tillamook
Year: 2040	Alternative: 30th HV

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	Percent of standard warrants 70	Percent of standard warrants 100	Percent of standard warrants 70

Case A: Minimum Vehicular Traffic

1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500

Case B: Interruption of Continuous Traffic

1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250

X	100 percent of standard warrants
	70 percent of standard warrants ²

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	8850	6282	N
	Minor	1	2650	577	
Case B	Major	1	13300	6282	N
	Minor	1	1350	577	

Analyst and Date: Fehr & Peers/04-21-2022 Reviewer and Date:

¹ Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. When preliminary signal warrants are met, project analysts need to coordinate with Region Traffic to initiate the traffic signal engineering investigation as outlined in the Traffic Manual. Before a signal can be installed, the engineering investigation must be conducted or reviewed by the Region Traffic Manager who will forward signal recommendations to headquarters. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

² Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.