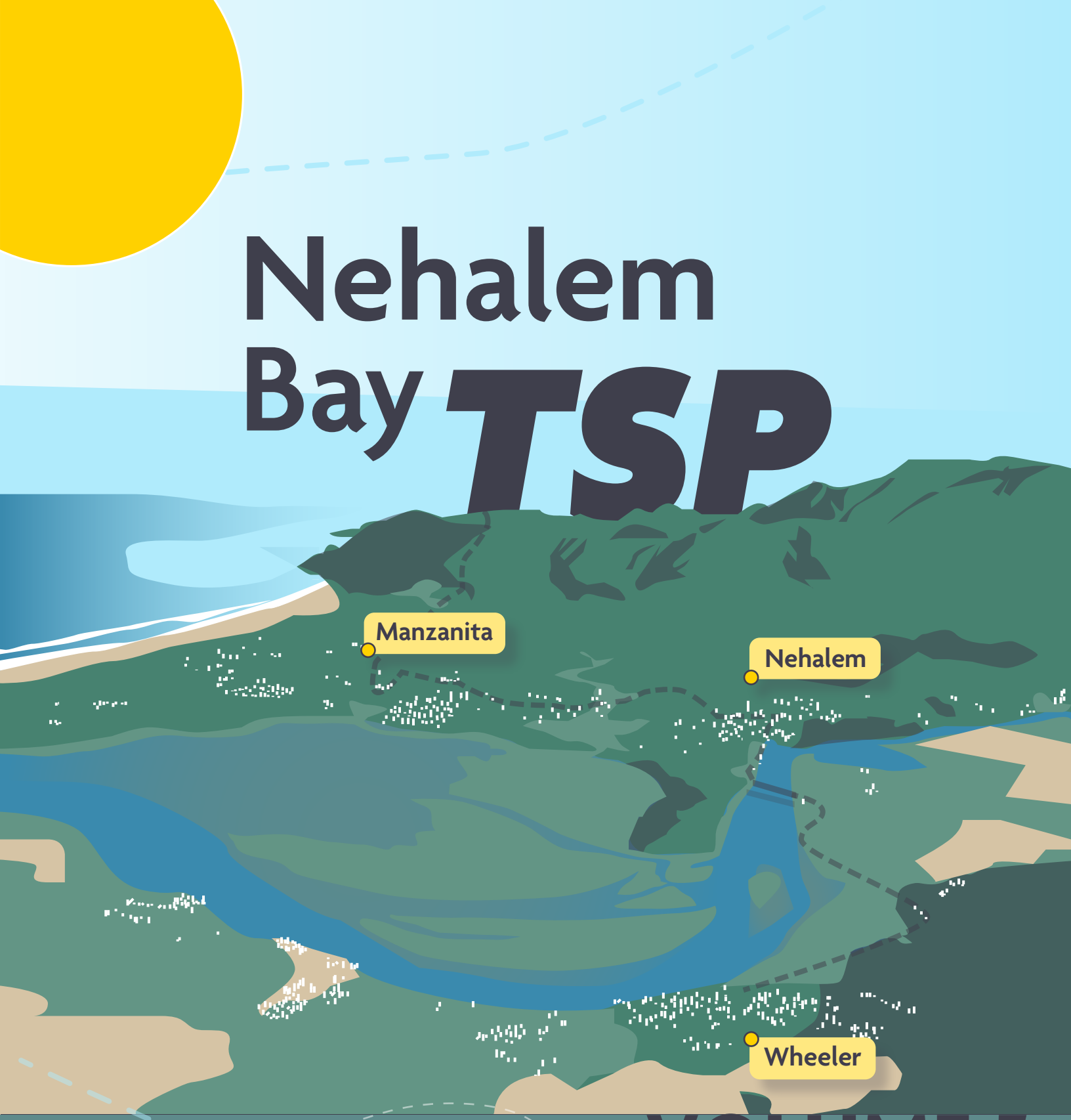
Nehalem Bay TSP



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Technical Appendices

FEHR PEERS

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FEHR & PEERS

Technical Memo #2

Nehalem Bay Transportation System Plan
Plans and Policy Review
May 17, 2021.

Prepared by Angelo Planning Group

Overview

This memorandum presents a review of existing plans, regulations, and policies that affect transportation planning in the cities of Nehalem, Manzanita, and Wheeler. The review explains the relationship between the documents and planning within the cities, identifying key issues that will guide the Nehalem Bay Transportation System Plan (TSP) process. This memorandum is intended to guide later decisions regarding the development and selection of preferred transportation solutions and necessary amendments to related plan documents and regulations.

Some documents included in this review establish transportation-related standards, targets, and guidelines with which the TSPs must coordinate and be consistent with; others contain transportation improvements that will need to be factored into the future travel demand modeling and otherwise reflected in the draft TSPs. Local policy and regulatory requirements described in this review may be subject to amendments in order to implement the

recommendations of the TSPs. This memorandum helps set the stage for those potential amendments, which will be prepared as part of project implementation (Task 6).

There are a number of local plans that have been completed subsequent to the adoption of the cities' existing TSPs. To the extent that existing policies, standards, and recommendations therein have an impact on the transportation system, relevant elements of these plans will be considered during this TSP update.

Statewide Plans

Statewide Planning Goals

The foundation of Oregon's statewide land use planning program is a set of 19 Statewide Planning Goals.[1] The goals express the state's policies on land use and other related topics, such as citizen involvement, housing, and natural resources. Oregon's statewide goals are achieved through local comprehensive planning, including the development and implementation of TSPs.

All of the Statewide Planning Goals have an influence on transportation planning, either directly or indirectly. However only certain Goals directly apply to transportation planning at a local level; the Goals listed in Table 1 are most relevant to the Nehalem Bay TSP process.

Table 1: Statewide Planning Goals

Statewide Planning Goal	Relevancy to the TSP Process
Goal 1: Citizen Involvement	Establishes citizen involvement as the primary goal of the land use planning process in Oregon. The Nehalem Bay TSP process is guided by a robust Public and Stakeholder Involvement Strategy that includes public involvement goals, identified affected and interested stakeholder and target audiences, and critical factors that will gauge success. In addition, this project will be guided by a project advisory committee that will inform the Nehalem Bay TSP process throughout the course of the project.
Goal 2: Land Use Planning	Establishes a process and policy framework for all decisions and actions related to uses of land; ensures that such decisions and actions are premised on an adequate factual base. Existing and future transportation needs will be based on inventories of existing conditions in Technical Memorandums #5, #6, and #7, including existing and planned land uses, as well as improving efficient multi-modal connections to housing, public services, employment areas, and recreational opportunities.
Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces	Existing natural resources and environmental features influence the siting, construction, and cost of transportation improvements. Technical Memorandum #5 will provide inventories of these resources illustrate and describe areas within the cities that may pose barriers to providing transportation access or improvements.

[1] https://www.oregon.gov/lcd/op/pages/goals.aspx

Statewide Planning Goal	Relevancy to the TSP Process
Goal 7: Natural Hazards	The risk of natural hazards affects site selection and alignment decisions and facility design standards. Transportation improvement projects in the cities should avoid natural hazard areas, such as floodplains, to the extent feasible.
Goal 9: Economic Development	Addresses the need for a variety of economic opportunities in support of the health, welfare, and prosperity of Oregon's citizens. The TSP process should be coordinated with current and planned economic development activities.
Goal 10: Housing	Cities are required to anticipate ongoing needs for housing, and to provide adequate infrastructure to serve residential uses. Transportation facilities and project prioritization will be based, in part, on the demands generated by current and projected housing needs.
Goal 11: Public Facilities and Services	Local governments are required to provide adequate public facilities, including transportation facilities, in a timely and efficient manner. The TSP project update project will coordinate with or consider the provision of other public facilities consistent with adopted plans.
Goal 12: Transportation	Requires multi-modal transportation plans that: • Are based on factual inventories, • Minimize adverse social, environmental, economic, and energy impacts, • Meet the needs of the transportation disadvantaged, • Facilitate the flow of goods and services, and • Are consistent with related local and regional plans. Goal 12 is implemented through the Transportation Planning Rule (OAR 660, Division 12).
Goal 13: Energy Conservation	Land uses must be managed and controlled to maximize the conservation of all forms of energy based upon sound economic principles. In transportation planning, this includes consideration of travel distances and mode share.
Goal 14: Urbanization	Requires land within the Urban Growth Boundary to "provide an orderly and efficient transition from rural to urban land use." Findings of feasibility regarding providing adequate transportation and other public facilities is required for expansion of UGB's.
Goal 16: Estuarine Resources	Requires individual estuary plans to designate appropriate uses for different areas within each estuary based on biological and physical characteristics and features. Proposed estuarine alterations must be reviewed to ensure that they are consistent with overall management objectives and that adverse impacts are minimized.
Goal 17: Coastal Shorelands	The management of shoreland areas and resources must be conducted in a manner that is compatible with the characteristics of the adjacent coastal waters. Goal 17 requirements are implemented primarily through local comprehensive plans and zoning.
Goal 18: Beaches and Dunes	Local governments are required to inventory beaches and dunes and describe the stability, movement, groundwater resources, hazards, and values of the beach, dune, and interdune areas. Local governments must then apply appropriate beach and dune policies for use in these areas.

Project Relevance: The TSPs will be consistent with the Statewide Planning Goals.

Oregon Transportation Plan (2006)

The Oregon Transportation Plan (OTP) is the state's long-range multi-modal transportation plan that addresses the future transportation needs of the State of Oregon through the year

2030. The primary function of the OTP is to establish goals, policies, strategies, and initiatives that are translated into a series of modal plans, such as the Oregon Highway Plan and Oregon Bike and Pedestrian Plan. The OTP considers all modes of Oregon's transportation system, including Oregon's airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation, and railroads. It assesses state, regional, and local public and private transportation facilities. In addition, the OTP provides the framework for prioritizing transportation improvements based on varied future revenue conditions, but it does not identify specific projects for development.

The OTP provides broad policy guidance and sets seven overarching goals for the state.[2] Through these goals and associated policies and strategies, the OTP emphasizes:

1. Maintaining and maximizing the assets in place
2. Optimizing the performance of the existing system through technology
3. Integrating transportation, land use, economic development, and the environment
4. Integrating the transportation system across jurisdictions, ownerships, and modes
5. Creating sustainable funding
6. Investing in strategic capacity enhancements

The Implementation Framework section of the OTP describes the implementation process and how state multimodal, modal/topic plans, regional and local TSPs and master plans will further refine the OTP's broad policies and investment levels. Local TSPs can further OTP implementation by defining standards, instituting performance measures, and requiring that operational strategies be developed.

The last chapter of the OTP provides implementation and investment frameworks and key initiatives to be consulted in developing TSP projects and implementation measures.

In 2018, the Oregon Transportation Commission adopted an amendment to incorporate the Statewide Transportation Strategy (STS) as part of the OTP. The STS describes how the transportation sector can move towards the goal of a 75% reduction in GHG emissions from 1990 levels by 2050. It includes strategies for greenhouse gas reductions and furthers and supports the OTP and its goals to provide a safe, efficient, and sustainable transportation system that enhances Oregon's quality of life and economic vitality.

> **Project Relevance**: The OTP's policies and strategies will guide the TSPs, specifically in the areas of system management, maximizing performance of the existing

[2] The seven goals are Goal 1 – Mobility and Accessibility; Goal 2 – Management of the System; Goal 3 – Economic Vitality; Goal 4 – Sustainability; Goal 5 – Safety and Security; Goal 6 – Funding the Transportation System; and Goal 7 – Coordination, Communication, and Cooperation.

transportation system using technology and creative design solutions, pursuing sustainable funding sources, and investing strategically in capacity projects.

Oregon Highway Plan (and subsequent amendments) (1999)

The Oregon Highway Plan (OHP) is a modal plan of the OTP that guides Oregon Department of Transportation's (ODOT's) Highway Division in planning, operations, and financing. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems.

The following policies are relevant to the TSP process.

Policy 1A: State Highway Classification System

The OHP classifies the state highway system into four levels of importance: Interstate, Statewide, Regional, and District. ODOT uses this classification system to guide management and investment decisions regarding state highway facilities. The system guides the development of facility plans, as well as ODOT's review of local plan and zoning amendments, highway project selection, design, and development, and facility management decisions including road approach permits.

US 101 is a classified as a Statewide Highway in the state classification system. The purpose and management objectives of these highways are provided in Policy 1A, as summarized below.

> **Statewide Highways** (US 101) typically provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports, and major recreation areas that are not directly served by Interstate Highways. A secondary function is to provide connections for intra-urban and intra-regional trips. The management objective is to provide safe and efficient, high-speed, continuous-flow operation. In constrained and urban areas, interruptions to flow should be minimal.

The following classifications also apply to US 101.

- National Highway System (NHS)
- Oregon Scenic Byway

Policy 1B: Land Use and Transportation

Policy 1B recognizes the role of both the state and local governments in planning for the transportation system and the need for collaboration in decision-making. The policy permits special highway segment designations where specific types of land use patterns foster compact development and in areas where the need for appropriate local access outweighs the highway mobility considerations. Inside Special Transportation Areas (STAs), local access may also be a priority. In **Nehalem** where US 101 turns west at the intersection of Seventh Street and in **Wheeler** between Hemlock St and First Street, the highway has a STA designation.

Policy 1C: State Highway Freight System

The primary purpose of the State Highway Freight System is to facilitate efficient and reliable interstate, intrastate, and regional truck movement through a designated freight system. This freight system, made up of the Interstate Highways and select Statewide, Regional, and District Highways, includes routes that carry significant tonnage of freight by truck and serve as the primary interstate and intrastate highway freight connection to ports, intermodal terminals, and urban areas. Highways included in this designation have higher highway mobility standards than other statewide highways. There are no OHP designated freight routes in the three cities, but US-101 is designated a reduction review route and part of the National State Network.[3]

Policy 1D: Scenic Byways

Several highways throughout the state have been designated Scenic Byways because of their exceptional scenic value. To protect the scenic assets of its Scenic Byways, ODOT has developed guidelines for aesthetic and design elements within the public right-of-way that are appropriate for Scenic Byways. US 101 is designated as an All-American Roads Scenic Byway and is designated as an Oregon State Scenic Byway.

Policy 1F: Highway Mobility Policy

Policy 1F sets mobility targets for ensuring a reliable and acceptable level of mobility on the state highway system. The standards are used to assess system needs as part of long range, comprehensive planning and transportation planning projects, during development review and to demonstrate compliance with the Transportation Planning Rule. Policy 1F also provides a clear framework for considering measures other than volume-to-capacity (v/c) ratios for evaluating mobility performance.

Table 2 includes the mobility targets for US 101 in the TSP study area. Per the OHP, US 101 is classified as a Statewide Highway (not a Freight Route).

[3] A High Clearance Route as defined by ODOT meets vertical clearance standards; these routes are important for oversize loads use.

Table 2: Volume to Capacity Ratio Targets Outside Metro

	STA	Outside STA Speed Limit <= 35mph	Outside STA Speed Limit >35 mph but <45 mph	Outside STA Speed Limit >= 45
Statewide (not a Freight Route)	0.95	0.90	0.85	0.80

Policy 1G: Major Improvements

This policy requires maintaining performance and improving safety on the highway system by improving efficiency and management on the existing roadway network before adding capacity. The state's highest priority is to preserve the functionality of the existing highway system. Tools that could be employed to improve the function of the existing highways include access management, transportation demand management, traffic operations modifications, and changes to local land use designations or development regulations.

After existing system preservation, the second priority is to make minor improvements to existing highway facilities, such as controlled intersections, or making improvements to the local street network to minimize local trips on the state facility.

The third priority is to make major roadway improvements such as adding lanes to increase capacity on existing roadways. As part of this TSP process, ODOT will work with the cities and other stakeholders to determine appropriate strategies and tools that can be implemented at the local level that are consistent with this policy.

Policy 2B: Off-System Improvements

This policy recognizes that the state may provide financial assistance to local jurisdictions to make improvements to local transportation systems if the improvements would provide a cost-effective means of improving the operations of the state highway system. As part of this TSP process, ODOT will work with the cities and project stakeholders to identify improvements to the local road system that support the planned land use designations in the study area and that will help preserve capacity and ensure the long-term efficient and effective operation of US 101.

Policy 2F: Traffic Safety

This policy emphasizes the state's efforts to improve safety of all users of the highway system. Action 2F.4 addresses the development and implementation of the Safety Management System to target resources to sites with the most significant safety issues. The TSP process will include a crash analysis to identify sites with a history of fatal and serious injury crashes and identify potential countermeasures to reduce crashes.

Policy 3A: Classification and Spacing Standards

State policy seeks to manage the location, spacing, and type of road intersections on state highways in a manner that ensures the safe and efficient operation of state highways consistent with their highway classification.

Action 3A.2 calls for spacing standards to be established for state highways based on highway classification, type of area, and posted speed. Tables in OHP Appendix C present access spacing standards which consider urban and rural highway classification, traffic volumes, speed, safety, and operational needs. The access management spacing standards established in the OHP are implemented by access management rules in OAR 734, Division 51, addressed later in this report. The TSP process will include an analysis of how existing ODOT facilities in the three cities compare to these standards.

Policy 4B: Alternative Passenger Modes

Policy 4B encourages the development of alternative passenger services and systems as part of broader corridor strategies. The policy promotes the development of alternative passenger transportation services located off the highway system to help preserve the performance and function of the state highway system. Tillamook County Transit provides public transportation service in the study area. Improving safety, access, and mobility for pedestrians and bicyclists to local transit service and to community destinations throughout the project study area is an objective of this process.

Policy 4D: Transportation Demand Management

This policy supports the efficient use of the state transportation system through investment in transportation demand management (TDM) strategies. Action 4D.1 calls for reducing peak period single-occupancy vehicle travel and to move traffic demand out of the peak period so as to improve the flow of traffic on state highways. The TSP process will review TDM strategies that can be adopted into the city ordinances in the form of requirements for new developments and incentives for employers.

> **Project Relevance:** The TSP planning process will consider policies in the OHP for any improvements, modifications, or policies that would affect US 101. OHP policies provide guidance in developing recommended improvements that would impact the accessibility, mobility, or function of the highway. The TSP is being developed in coordination with ODOT so that projects, policies, and regulations proposed as part of each City TSP will comply with or move in the direction of meeting the standards and targets established in the OHP related to safety, access, and mobility.

Oregon Bicycle and Pedestrian Plan (2016)

The intent of the Oregon Bicycle and Pedestrian Plan (OBPP) is to create a policy foundation that supports decision-making for walking and biking investments, strategies, and programs that help to develop an interconnected, robust, efficient, and safe transportation system. The OBPP established the role of walking and biking as essential modes of travel within the context of the entire transportation system and recognizes the benefit to the people and places in Oregon.

The OBPP provides direction for what needs to be achieved in the state, including 20 policies and associated strategies designed to help develop, sustain, and improve walking and biking networks. It identifies nine goals based upon the broader goals of the OTP that reflect statewide values and desired accomplishments relating to walking and biking:

- Goal 1: Safety
- Goal 2: Accessibility and Connectivity
- Goal 3: Mobility and Efficiency
- Goal 4: Community and Economic Vitality
- Goal 5: Equity
- Goal 6: Health
- Goal 7: Sustainability
- Goal 8: Strategic Investment
- Goal 9: Coordination, Cooperation, and Collaboration

The OBPP also provides background information related to state and federal law, funding opportunities, and implementation strategies proposed by ODOT to improve bicycle and pedestrian transportation. It outlines the role that local jurisdictions play in the implementation of the Plan, including the development of local pedestrian and bicycle plans as stand-along documents within TSPs.

> **Project Relevance**: The TSP process will consider OBPP policies and strategies for their applicability to the cities and, where appropriate, TSPs will reflect the OBPP in local policies and project selection. The State standards and strategies for pedestrian and bicycle improvements can serve as "best practices" and inform recommended bicycle and pedestrian improvements in the TSPs. The TSP planning process will identify and address areas where enhancements are needed to improve sidewalk accessibility, including curb ramps, to better comply with the Americans with Disabilities Act (ADA). The TSP planning process will consider OBPP standards and designs where pedestrian and bicycle projects are recommended on, or parallel to,

state facilities. In addition, advisory committees for the project include members that represent pedestrian and bicycle interests.

Oregon Public Transportation Plan (2018)

The Oregon Public Transportation Plan (OPTP) is the modal plan of the OTP that provides guidance for ODOT and public transportation agencies regarding the development of public transportation systems[4]. The guiding vision for the State is to create:

- A public transportation system that is an integral, interconnected component of Oregon's transportation system that makes Oregon's diverse cities, towns, and communities work.
- Public transportation that is convenient, affordable, and efficient helps further the state's quality of life and economic vitality and contributes to the health and safety of all residents, while reducing greenhouse gas emissions.

The OPTP is designed to respond to trends, opportunities, and challenges that exist today, while providing an adaptable foundation for the future. The policies and strategies advance public transportation as an important piece of the overall transportation system, linking people to destinations, services, opportunities, as well as to communities in neighboring states.

While the OPTP does not recommend specific projects or investments, new efforts in planning for transit come with the passage of HB 2017 (Keep Oregon Moving Act) and the establishment of a new dedicated source of funding for expanding public transportation service in Oregon.[5] The Statewide Transportation Improvement Fund (STIF) provides the impetus for coordinating the prioritization of needed infrastructure. STIF funds are continuously appropriated to finance investments and improvements in public transportation services and may be used for public transportation purposes that support the effective planning, deployment, operation, and administration STIF-funded public transportation programs. STIF funds may be also used as the local match for state and federal funds that also provide public transportation service.[6]

Project Relevance: The OPTP is a modal plan that provides guidance for ODOT and public transportation agencies regarding the development of public transportation systems. The TSP process will coordinate with Tillamook County Transportation District (TCTD) long-range and strategic planning in the TSP study area. A

[4] Goals: Goal 1 – Mobility, Goal 2 – Accessibility and Connectivity, Goal 3 – Community, Livability and Economic Vitality, Goal 4 – Equity, Goal 5 – Health, Goal 6 – Safety and Security, Goal 7 – Environmental Sustainability, Goal 8 – Land Use, Goal 9 – Strategic Investment, Goal 10 – Communication, Collaboration, and Coordination

[5] https://www.oregon.gov/ODOT/Pages/HB2017.aspx

[6] https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=245662

representative from TCTD may be invited to participate in the project advisory committee or to receive copies of each deliverable for review to ensure coordination between the recommendations of the TSP and transit plans.

Oregon State Rail Plan (2014)

The Oregon State Rail Plan is a state modal plan under the OTP that addresses long-term freight and passenger rail planning in Oregon. The Plan provides a comprehensive assessment of the state's rail planning, freight rail, and passenger rail systems. It identifies specific policies concerning rail in the state, establishes a system of integration between freight and passenger elements into the land use and transportation planning process, and calls for cooperation between state, regional, and local jurisdictions in planning for rail.

The Oregon Coast Scenic Railroad passenger rail access is located in Wheeler and is classified as a tourist operation. The operation provides excursions into the Salmonberry Canyon and is actively working on restoring more track mileage. There are no other long-term freight or passenger rail facilities in Nehalem or Manzanita.

Project Relevance: The Wheeler TSP will consider the needs of the Oregon Coast Scenic Railroad in developing recommended policies and projects related to improving safety and mobility in the area.

Oregon Freight Plan (2017)

The Oregon Freight Plan (OFP) is a modal plan of the OTP that implements the State's goals and policies related to the movement of goods and commodities. Its purpose statement identifies the State's intent to "improve freight connections to local, Native America, state, regional, national and global markets in order to increase trade-related jobs and income for workers and businesses." The objectives of the plan include prioritizing and facilitating investments in freight facilities (including rail, marine, air, and pipeline infrastructure) and adopting strategies to maintain and improve the freight transportation system.

The plan defines a statewide strategic freight network. There are no strategic freight networks within the cities' limits. ORS 366.215 protects the routes that are necessary for the movement of freight, and limits the situations in which the state can reduce the carrying capacity (defined as the horizontal or vertical clearance) on routes; US-101 is a designated "Reduction Review Route."

The policy and strategic direction provided in the OFP prioritizes preservation of strategic corridors as well as improvements to the supply chain achieved through coordination of freight and system management planning.

Project Relevance: Maintaining and enhancing efficiency of the truck and rail freight system in the study area will be an objective of the TSP. The project advisory committee includes representatives from ODOT.

Oregon Aviation Plan (2018)

The Oregon Aviation Plan (OAP) was published in 2007 and updated in 2018. The 2018 update is a result of a three-phase study to reflect the economic and population growth in the state and changes in the aviation industry regarding technologies and decreases in passenger air service for small markets. The plan classifies airports based on their roles; recommends airside facilities, general/landside facilities, and services according to classification; and provides a statewide perspective relating to airport planning decisions while further refining the goals and policies of the OTP. The update specifically includes a Technical Report that documents each airport's Report Card, summarizing projects and costs the airports could anticipate in the next five to ten years.

The Nehalem Bay State Airport in Manzanita is classified as a Commercial Service Airport in the OAP. Based on recommended facilities and services, an analysis of the airport conducted for the 2018 update showed a high liquefaction hazard and severe Cascadia Event hazard.

Project Relevance: The TSP will generally account for airports in the region and each city's residents and businesses access to these facilities in developing TSP policies and projects.

Transportation Planning Rule (OAR 660-012) (Last Updated 2012)

The Transportation Planning Rule (TPR), OAR 660-012, implements Goal 12 (Transportation) of the statewide planning goals. The TPR contains numerous requirements governing transportation planning and project development, including the required elements of a TSP. In addition to plan development, the TPR requires each local government to amend its land use regulations to implement its TSP (OAR 660-012-0045). It also requires local government to adopt land use or subdivision ordinance regulations consistent with applicable federal and state requirements: "to protect transportation facilities, corridors and sites for their identified functions."

Local compliance with -0045 provisions is achieved through a variety of measures, including access control requirements, standards to protect future operations of roads, and notice and coordinated review procedures for land use applications. Local development codes should also include a process to apply conditions of approval to development proposals, and regulations ensuring that amendments to land use designations, densities, and design standards are

consistent with the functions, capacities, and performance standards of facilities identified in the TSP.

Amendments to the TPR adopted in 2012 include new language in Section -0060 that allows a local government to exempt a zone change from the "significant effect" determination if the proposed zoning is consistent with the comprehensive plan map designation and the TSP. The amendments also allow a local government to amend a functional plan, comprehensive plan, or land use regulation without applying mobility standards (V/C, for example) if the subject area is within a designated multi-modal mixed-use area (MMA).

> **Project Relevance:** The TPR directs local TSP development and requires specific transportation elements be implemented in the local development ordinance. Local requirements such as access management, coordinated land use review procedures, and transportation facility standards and requirements are meant to protect road operations and safety and provide for multi-modal access and mobility. Implementation measures that will be developed with the Nehalem Bay TSP may entail proposed amendments to the cities' various development ordinances to ensure consistency with TPR requirements as well as to reflect TSP recommendations.

Access Management Rule (OAR 734-051) (2014)[7]

Oregon Administrative Rule (OAR) 734-051 defines the State's role in managing access to highway facilities in order to maintain functional use and safety and to preserve public investment. OHP Policy 3A and OAR 734-051 set access spacing standards for driveways and approaches to the state highway system[8]. The most recent amendments presume that existing driveways with access to state highways have written permission from ODOT as required by ORS 734. The standards are based on state highway classification and differ depending on posted speed and average daily traffic volume.

The TPR does not regulate access management. ODOT adopted OAR 734-051 to address access management and it is expected that ODOT, as part of this project, will coordinate with the partner cities in planning for access management on state roadways consistent with its Access Management Rule.

[7] Amendments to OAR 734-051 were adopted in early 2014 based on passage of Senate Bill 1024 (2010, Senate Bill 264 (2011), and Senate Bill 408 (2014). The amendments were intended to allow more consideration for economic development when developing and implementing access management rules and involved changes to how ODOT deals with approach road spacing, highway improvement requirements with development, and traffic impact analyses requirements for approach road permits.

[8] ODOT Access Management Standards – OHP Appendix C Revisions to Address Senate Bill 264 (2011): http://www.oregon.gov/ODOT/TD/TP/docs/ohp_am/apdxc.pdf

Project Relevance: Analysis for the TSP and final project recommendations will need to reflect state requirements for state facilities; the TSP will comply or move in the direction of meeting access management standards for state facilities. Implementation measures that will be developed for the TSP may entail amendments to each city's development ordinances to ensure that they are consistent with these access management requirements as well as TSP recommendations related to access management.

Oregon Transportation Safety Action Plan (2016)

An element of the OTP, the Oregon Transportation Safety Action Plan (TSAP) provides long-term goals, policies and strategies and near-term actions to eliminate deaths and life-changing injuries. The TSAP addresses all modes on all public roads in Oregon. Over the long term, the goals of the TSAP are:

- Infrastructure – Develop and improve infrastructure to eliminate fatalities and serious injuries for users of all modes.
- Healthy, Livable Communities – Plan, design, and implement safe systems. Support enforcement and emergency medical services to improve the safety and livability of communities, including improved health outcomes.
- Technology – Plan, prepare for, and implement technologies (existing and new) that can affect transportation safety for all users.

The Plan identifies actions that cities can take to increase transportation safety. They include adopting a Safe Communities Program and a Safe Routes to School program. The Safe Communities Program is a collaborative partnership with the National Highway Traffic Safety Administration and the ODOT to promote safety. The Safe Routes to School program is a local initiative supported by grant funding that targets safety improvements to encourage walking and biking to schools.

In addition, the TSAP also identifies activities and roles for cities to improve safety. They include:

- Evaluate local hot spot and systemic safety needs; develop plans and programs to address needs.
- Collaborate with the state and stakeholder partners to educate the public about transportation safety-related behavioral issues.
- Integrate safety programming, planning, and policy into local planning.

Project Relevance: The TSAP will be used as a resource to develop local goals, policies, and strategies while updating the TSPs to increase safety in the project study area.

Oregon Resilience Plan (2013)

The Oregon Resilience Plan (ORP) provides policy guidance and recommendations to mitigate risks, accommodate emergency response and recovery, and support the resilience of government and business before, during, and after a Cascadia earthquake and tsunami. The plan assesses the seismic integrity of Oregon's multi-modal transportation system, including bridges and highways, rail, airports, water ports, and public transit systems.

> **Project Relevance:** The Oregon Resilience Plan provides guidance on Oregon's multi-modal transportation system. Policies and standards adopted by each of the cities should be considered for additional guidance, concepts, and strategies for design to prepare for a possible Cascadia event.

Oregon Roadway Departure Implementation Plan (2017)

The Roadway Departure Implementation Plan provides specific information regarding roadway departure safety improvements to implement the current TSAP. It identifies the most cost-effective types of transportation improvements for reducing roadway departure crashes. The countermeasures that are generally considered to be the most effective are listed below. Each method is intended to address specific safety concerns and is considered a low-cost way to systematically reduce fatal and serious injury accidents.

- Curve signing and marking
- Center line rumble strips
- Edge rumble strips
- Delineation
- High friction surface treatments
- Tree management
- Shoulder widening

> **Project Relevance:** The Roadway Departure Implementation Plan identifies low cost, cost effective safety treatments (e.g., resurfacing, surface transportation projects) to reduce the potential for future crashes. The Nehalem Bay TSP will consider and incorporate safety treatments for transportation projects where crash history exists.

Oregon Intersection Safety Implementation Plan (2012)

The Intersection Safety Plan provides specific information and direction regarding intersection safety improvements to implement the current TSAP. It directs that the traditional approach of relying primarily on pursuing major improvements at high-crash intersections be

complemented with an expanded systematic approach. This approach should involve deploying large numbers of relatively low-cost, cost-effective countermeasures at many targeted high-crash intersections and coordinating engineering, education, and enforcement (3E) initiatives on corridors with high numbers of severe intersection crashes.

> **Project Relevance:** Consistent with the State's TSAP, the TSPs will consider corridors and appropriate countermeasures identified in the Intersection Safety Implementation Plan to reduce bicycle and pedestrian crashes.

Statewide Transportation Improvement Program

The State Transportation Improvement Program (STIP) is the four-year programming and funding document for transportation projects and programs for state and regional transportation systems, including federal land and Indian reservation road systems, interstate, state, and regional highways, bridges, and public transit. It includes state and federally funded system improvements that have approved funding and are expected to be undertaken during the upcoming four-year period.

The projects and programs undergo a selection process managed by ODOT Regions or ODOT central offices, a process that is held every two years in order to update the STIP. The current STIP identifies planned improvements for 2021-2024.

The 2021-2024 STIP does not include any projects in the cities, but the project list does identify adding culverts and curve signs along US 101 throughout Tillamook and Clatsop County—these projects are both in design phase.

> **Project Relevance:** An expected outcome of this planning process is proposed recommendations that may eventually amend the STIP to include projects from the TSP. The STIP projects will most likely involve improvements that are eligible for funding through the ODOT Enhance program, which awards funding through a competitive application process.

Statewide Transportation Strategy; A 2050 Vision for Greenhouse Gas Emissions Reduction (2013)

The Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Emissions Reduction (STS) describes what it would take for the transportation sector to get as close to the 2050 carbon emissions goal as is plausible. The STS contains 18 distinct strategies, with 133 potential elements that generally fall into the following categories:

- *Vehicle and Engine Technology Advancements* - Strategies in this category increase the operating efficiency of multiple transportation modes through transition to more fuel-

efficient vehicles, improvements in engine technologies, and other technological advances.

- *Fuel Technology Advancements* - Strategies in this category increase the operating efficiency of fuel-powered transportation modes through transitions to fuels that produce fewer GHG emissions or have a lower lifecycle carbon intensity.
- *Enhanced System and Operations Performance* - Strategies in this category improve the efficiency of the transportation system and operations through technology, infrastructure investment, and operations management.
- *Transportation Options* - Strategies in this category increase opportunities for travelers and shippers to use transportation modes that are more energy efficient and produce fewer emissions.
- *Efficient Land Use* - Strategies in this category promote more efficient movement throughout the transportation system by supporting compact growth and development. This development pattern reduces travel distances and increases opportunities for using lower energy and zero energy transportation modes.
- *Pricing and Funding Mechanisms* - Strategies in this category support a transition to more sustainable funding sources to maintain and operate the transportation system, pay for environmental costs of climate change, and provide market incentives for developing and implementing efficient ways to reduce emissions.

While the cities are not specifically mentioned, projects and policies identified in the Strategy provide options which could be implemented in the TSP. Specifically, EV charging stations along the West Coast Green Highway, runs through US 101 along these cities.

Project Relevance: The strategies identified in the Vision should be considered when the TSPs are being developed, and will reflects each city's commitment to reducing GHG emissions in the development of plan recommendations.

ODOT Analysis Procedures Manual (2020)

The Analysis Procedures Manual, last updated in October 2020, was created to provide a comprehensive source of information regarding current methodologies, practices, and procedures for conducting analysis of ODOT plans and projects. The methods and practices identified include best practices for scoping, transportation system inventories, safety, existing year volumes and forecasting, system planning analysis, mesoscopic analysis, transportation analysis performance measures, analyzing alternatives, segment and facility analysis, intersection analysis, multimodal analysis, traffic simulation models, environmental traffic data, travel demand modeling, and traffic analysis documentation.

Project Relevance: The TSP should use the most up-to-date methodologies, practices, and procedures when performing analyses during the development of the TSP.

Oregon Bicycle and Pedestrian Safety Implementation Plan (2014)

The Bicycle and Pedestrian Safety Implementation Plan identifies priority locations and countermeasure options for reducing pedestrian and bicycle crashes. The Plan conducted a systemic planning process to create a prioritized list of candidate locations for safety improvement within each ODOT Region. It also provides recommendations on appropriate countermeasures to reduce crashes. There are no Region 2 Pedestrian or Bicycle Project Corridors in the planning area (Figure 4 in each section of the Oregon Bicycle and Pedestrian Safety Implementation Plan). The Pedestrian Risk Factor Screening on Highway 53 [9] and US 101 shows areas with a risk in the top 20%, while the Bicycle Risk Factor Screening is in the second 20%.

> **Project Relevance:** The TSP will document local safety sites where accidents have occurred. The TSP will ensure that planned projects will serve to reduce bicycle and pedestrian crashes.

ODOT Highway Design Manual (2012)

The 2012 Highway Design Manual (HDM) provides ODOT with uniform standards and procedures for planning studies and project development for the state's roadways. It is intended to provide guidance for the design of new construction; major reconstruction (4R); resurfacing, restoration, and rehabilitation (3R); or resurfacing (1R) projects. It has not been updated since the release of American Association of State Highway and Transportation Officials (AASHTO) document *A Policy on Geometric Design of Highways and Streets – 2018.* Therefore, sound engineering judgment will continue to be a vital part in the process of applying the design criteria to individual projects. The flexibility contained in the 2012 HDM supports the use of Practical Design concepts and Context Sensitive Design practices.

The HDM is to be used for all projects that are located on state highways. National Highway System or Federal-aid projects on roadways that are under local jurisdiction will typically use the 2018 AASHTO design standards or ODOT 3R design standards. Table 3 shows which design standards are applicable for certain projects based on project type, and whether or not the project involves a state route. State and local planners will also use the manual in determining design requirements as they relate to the state highways in TSPs, Corridor Plans, and Refinement Plans. Some projects under ODOT roadway jurisdiction traverse across local agency boundaries. Some local agencies have adopted design standards and guidelines that may differ from the various ODOT design standards. Although the appropriate ODOT design standards are to be applied on ODOT roadway jurisdiction facilities, local agency publications,

[9] Highway 53 is located outside, but in close proximity to the City of Wheeler's Urban Growth Boundary.

and design practices can also provide additional guidance, concepts, and strategies related to roadway design.

Table 3: Design Standards Selections Matrix, ODOT Highway Design Manual

Project Type	Roadway Jurisdiction, Classification and Standards				
	State Highways			Local Agency Roads	
	Interstate	Urban State Highway	Rural State Highways	Urban	Rural
Modernization/ Bridge New/Replacement	ODOT 4R/New Freeway	ODOT 4R/New Urban	ODOT 4R/New Rural	AASHTO	AASHTO
Preservation/ Bridge Rehabilitation	ODOT 3R Freeway	ODOT 3R Urban	ODOT 3R Rural	AASHTO	ODOT 3R Rural
Preventive Maintenance	1R	1R	1R	NA	NA
Safety- Operations-Miscellaneous/ Special Programs	ODOT Freeway	ODOT Urban	ODOT Rural	AASHTO	ODOT 3R Rural

Source: HDM Table 1-1

The HDM includes mobility standards related to project development and design that are applicable to all modernization projects, except for development review projects (see Table 4). The v/c ratios in the HDM are different than those shown in the OHP. The v/c ratio values in the OHP are used to assist in the planning phase to identify future system deficiencies; the HDM v/c ratio values provide a mobility solution that corrects those previously identified deficiencies and provides the best investment for the State over a 20-year design life.

Table 4: 20-Year Design Mobility Standards (Volume/Capacity [V/C]) Ratio

Highway Category	Inside UGB		
	STA	Non-MPO/ STA, MPH <45	Non-MPO/ STA, MPH 45+
Statewide (NHS, Freight Rte)	0.85	0.70	0.70
Statewide (NHS, Non-Freight Rte)	0.90	0.75	0.70
District/Local Interest Roads	0.95	0.80	0.75

Project Relevance: The HDM provides design standards on state roadways; analysis for the TSP and final project recommendations will need to reflect state requirements for

state facilities. Standards and guidelines adopted by the Cities should be considered for additional guidance, concepts, and strategies for design.

ODOT Blueprint for Urban Design (2020)

The Blueprint for Urban Design (BUD) takes a context-sensitive approach to designs on urban highways to provide flexibility in order to produce appropriate designs to accommodate all modes of transportation affecting all urban roadway users. The BUD serves as a replacement of the urban design guidance in the Highway Design Manual until the manual's next comprehensive update. The BUD provides information and criteria to aid project teams in making choices when developing final project designs to meet established project goals and create the expected outcomes. The BUD provides six urban contexts, each with their respective design criteria, which allow project teams to better align ODOTs transportation needs with local community aspirations. While design criteria for roadways is described in multiple ODOT manuals, the Blueprint for Urban Design is intended to be the primary resource for urban design on Oregon state highway systems. It should be used to plan, design, construct and maintain highways in urban locations under jurisdiction of the state.

The six urban contexts identified in the for ODOT roadways are: Traditional Downtown/CBD, Urban Mix, Commercial Corridor, Residential Corridor, Suburban Fringe, and Rural Community. The manual provides intersection and cross section design guidance. The Blueprint increases ODOT's context-based design game by providing design recommendations (e.g., dimensional standards for elements of the roadway) for specific urban contexts (e.g., suburban fringe). Important to ODOT's implementation work program obligations, it helps implement the State's bike-pedestrian plan by providing urban design guidance for those modes.

> **Project Relevance:** The TSPs will consider the BUD's urban context within the cities, considering land use, modal priorities, roadway function, and future planned use. The guidance from the BUD, including the cross-section recommendations based on these contexts, can be used to address future highway and frontage improvements.

State Law on Reduction in Vehicle-Carrying Capacity (ORS 366.215)

ORS 366.215 states that the Oregon Transportation Commission may not permanently reduce the vehicle-carrying capacity of specific state routes when improvement projects alter, relocate, change, or realign the facility. Exceptions are allowed if safety or access considerations require a reduction.

Transportation improvements that are identified by ODOT as having the potential for a Reduction of Vehicle-Carrying Capacity are required to conduct a stakeholder forum. The

stakeholder forum is intended to include representatives from a range of affected groups to discuss design issues with the planned improvements.

> **Project Relevance:** US-101 through Nehalem, Manzanita, and Wheeler is a Reduction Review Route that qualifies for the potential Reduction of Vehicle-Carrying Capacity requirements provided by ORS 366.215.

Oregon TSP Guidelines (2020)

The Transportation System Plan (TSP) Guidelines are intended to assist local jurisdictions in the preparation and update of city and county TSPs. The guidelines help jurisdictions develop plans that meet local needs and comply with state regulation and policy direction, including applicable elements of the TPR, as well as the OTP and associated mode and topic plans. The TSP Guidelines answer the "What, Why and When" questions surrounding TSP projects and provide detailed direction on scoping, developing, and administering TSPs. The planning guidance is best accessed via a web-based platform and includes helpful information and examples for both citizens and practitioners.

> **Project Relevance:** The TSP Guidelines will be a reference for the project management team to ensure that required plan elements and methodology are employed in the development of the local TSPs. They may also be used by the cities to inform citizens and local decision makers on the required planning steps in the TSP process and plan implementation.

Regional Plans

Tillamook County Comprehensive Plan (2004)

The Tillamook County Comprehensive Plan provides a long-range guide for planning in the unincorporated areas within the county. The Comprehensive Plan includes background information and policies that address each of the 19 applicable statewide planning goals. The Comprehensive Plan Transportation Chapter, last amended in 2004, lists the County policies related to transportation planning of road network and design, pedestrian and bicycle facilities, public transportation, and air, rail, and water transportation.

Policies in the adopted Comprehensive Plan that are applicable to the Nehalem Bay TSP are included below.

1. *General Transportation Policies*

   e. The County shall coordinate its Transportation System Plan with the planning process of other jurisdictions to assure adequate connections to streets and transportation systems between incorporated and unincorporated areas.

2. *Road Network Planning Policies*

   2.1 Road Network Planning Policies.

   a. Transportation systems and roadway networks are not restricted to jurisdiction boundaries. The County shall promote cooperation and coordination with other jurisdictions in roadway maintenance and improvement.

The Transportation Chapter also provides policy direction for functional classification, road design, and access management for roads under the County's jurisdiction, some of which are located within city limits or the urban growth boundary (UGB).

> **Project Relevance:** City transportation policy should be consistent with County policy, in particular for areas related to transportation. The outcome of the Nehalem Bay TSP will be city policies that support the recommendation and implementation of the TSP; to the extent these policies intersect with County needs and objectives, an outcome of this project may be recommended policy amendments.

Tillamook County Transportation System Plan (2005)

The Tillamook County TSP is an element of the County Comprehensive Plan, with the goals of adding capacity, improving safety, increasing mobility and accessibility, providing coordination, addressing traffic, providing non-motorized options, increasing feasibility, benefitting the environment, evaluating TSP projects for costs, and improving lifeline route connections. The

TSP identifies policies and projects related to each mode of transportation within Tillamook County.

The Tillamook County TSP identified the following improvements for the each of the cities.

Manzanita

- SRD-1. US 101: Manzanita – Wheeler Overlay
- SRD-13 US 101: North of Manzanita to Clatsop County. Northbound (NB) Passing Lanes.
- SRD-14. US 101: Clatsop/Tillamook Line to Manzanita. Construct left-turn lanes onto public streets where feasible (Oswald West State Park, Sunset Drive, Falcon Cove Road, Scenic Overview)
- INT-25 US 101 at Manzanita Avenue. Intersection improvements (Note: left- and right-tum lanes on US 101 are warranted).
- CRD-3 Laneda Avenue : Construct roadway improvements, including sidewalk and parking. Consider transferring jurisdiction to Manzanita.
- CRD-29 Manzanita/Bayside Gardens/Nehalem. Local roadway system improvements to connect communities.
- PB-20 US 101 Manzanita through Wheeler. Develop a pedestrian and bicycle circulation 2 strategy west of highway. Strategy could include off- and on-road facilities and connections to Nehalem River and Estuary and Nehalem Bay State Park.

Nehalem

- SRD-3 US 101: Nehalem to Garibaldi. Safety improvements (access management, guardrail, rumble strips, remove vegetation to improve sight distance, slope flattening on curves, relocate utility poles, modify striping to not allow passing).
- PB-20 US 101 Manzanita through Wheeler. Develop a pedestrian and bicycle circulation 2 strategy west of highway. Strategy could include off- and on-road facilities and connections to Nehalem River and Estuary and Nehalem Bay State Park.
- INT-18 US 101 at North Fork Nehalem River Road. Potential solutions identified in the County TSP include roundabout, all-way stop, or geometric improvements. Note: the left-turn lane criteria are met on US 101.

Wheeler

- PB-20 US 101 Manzanita through Wheeler. Develop a pedestrian and bicycle circulation 2 strategy west of highway. Strategy could include off- and on-road facilities and connections to Nehalem River and Estuary and Nehalem Bay State Park.
- PB-21 Wheeler. Develop a pedestrian connection between Wheeler and Paradise Cove.

- INT-29 US 101 at Oregon 53. Realign intersection pe1pendicular with US 101. Construct left-turn pocket on Oregon 53 approach. Add a stop sign ahead on Oregon 53 approach. Restripe left-turn lane on US 101 to make smooth tum movement.
- SRD-2 US 101: Jetty Creek Realignment. Correct alignment problem.

  Project Relevance: This planning project will consider Tillamook County TSP transportation improvements that relate to both the County and partner cities in updating policies and identifying improvements that serve the area. As needed and appropriate, the Nehalem Bay TSP will coordinate projects, programming, and planning with the Tillamook County representative on the technical advisory committee.

Transit Development Plan (2016)

The Transit Development Plan (TDP), developed by the Tillamook County Transportation District[10] (TCTD) in 2016, identifies service improvement alternatives over a 20-year planning horizon. TCTD provides deviated fixed route and dial-a-ride services in the western portion of the County, primarily along the US 101 corridor. Route 3 provides service to the Nehalem Bay cities with connections between Tillamook and Cannon Beach. The route is served 6 times per day with two-to-four-hour headways from approximately 5 a.m. to 8 p.m.

The following operation strategies are applicable to the Nehalem Bay TSP.

- Route 3 connection to Sunset Empire Transportation District. The route currently provides three connections to the Sunset Empire Transit District (SETD), one of which is located in Manzanita. This strategy would add a fourth connection with the SETD.
- Modify Route 3 to better serve Nehalem by adding a stop at the United Methodist Church and North Cost Recreation District.

  Project Relevance: The TSPs will reflect the service enhancements in Tillamook County, as well as be consistent with TCTD recommendations regarding transit planning in the region.

Oregon Coast Bike Route Plan (ongoing)

The Oregon Coast Bike Route (OCBR) project is currently ongoing. The project will identify improvements to the route, which runs the length of the Oregon Coast. The route – designated in the early 1980s – attracts tourists from all over the world and is a treasured

[10] The TCTD has adopted additional transit plan to implement the TDP and/or coordinate with other transit agencies for service improvements. The subsequent transit plans can be found at https://www.nworegontransit.org/tctd-plans/

resource for many visitors and coastal residents. While ODOT does not currently have funding identified for improvements, the plan sets the stage for future investments. The plan is currently in Phase 4, identifying projects. Information found on the project website includes the following:

- North of Manzanita (MP 39.5 to MP 43.0) – This segment has a narrow shoulder, and lacks any shoulder in some places. Parts of this segment are shared with the Oregon Coast Trail (though the Oregon Coast Trail will be moved off of US 101 in the future).
- Wheeler Corridor (MP 47.5 to MP 48.4) - This corridor has a very narrow shoulder, and the speed limit jumps to 45 mph from 25 mph. It has a high level of traffic stress for people on bikes.

In Spring 2018, ODOT held a survey about the OCBR, which highlighted the following information:

- The Youngs Bay Bridge/Astoria, North Lincoln City, and the Arch Cape Tunnel are critical needs areas.
- Safety improvements are needed along the route.
- Signage for both people biking and people driving the corridor could help solve issues at specific locations.
- The route would benefit from widening bike lanes wherever possible.
- Cyclists should be directed onto alternative routes when possible
- People expressed interest in creating protected or separated bike facilities

  Project Relevance: Projects and improvements identified in the Oregon Coast Bike Route Plan will be reviewed for reference and possible inclusion in the TSP for all three cities.

Salmonberry Trail Concept Plan (2015)

The Salmonberry Trail Concept Plan is a 40-year strategic plan for the Salmonberry Trail, which runs from Banks to Tillamook Rail/Trail along the former Southern Pacific rail corridor which was determined to be unusable after a massive storm in 2007. The Concept Plan identifies the history and potential issues surrounding the Salmonberry Trail with the objective to turn the corridor into a multi-use trail. The Development portion of the plan identifies the overall trail design, conceptual costs, funding ideas, implementation, and management. The Concept Plan identifies three potential alternatives or concepts at each segment: Rail with Trail, Multi-use Rail to Trail (removing the rails), and Bypass Alternatives (route moved off the railbed and onto a bypass/adventure trail).

Wheeler

The trail passes through Wheeler, abutting few private residences along this segment, mostly small farms outside of Wheeler and predominantly residential lots within City limits. There are sections of this segment that could potentially accommodate a trail parallel to the rail line, but a continuous trail would be difficult to achieve, due to a range of physical constraints, including stretches of line that run along the coast or across wetlands and active farmland. A bypass alternative using a reconfigured US 101 shoulder or local roadways was discussed, but further feasibility and design would need to be reviewed because of the traffic speeds and volumes along US 101. Most promising seemed to be the multi-use trail option, which would remove the rails along the path.

Tiles 32 and 33 in the Plan identify several improvements for trail segments in and around the City of Wheeler. The Plan also identifies several cross-section street designs that apply to trail segments generally as well as specific segments in Wheeler. Cross Sections C, H, I, and P apply to trail and/or road segments in Wheeler and illustrate desired street designs.

> **Project Relevance:** Projects and improvements identified in the Salmonberry Trail Plan will need to be factored into the Wheeler TSP update.

Oregon Coast Trail

The Oregon Coast Trail, or OCT, is part of the Oregon State Parks system.[11] Most of the route is on the beach; some segments wind through state parks, public lands, or private property trail easements. About 10 percent of the trail is on the shoulders of U.S. 101, county roads, and city streets. **Manzanita** is included along the OCT Section 2 map, as part of the trip from Oswald West to Cape Lookout. In Manzanita, two routes are provided: along the beach using Laneda Ave from US 101 and using a ferry to cross the jetty at Nehalem Bay, or taking US 101 south around Nehalem Bay through Wheeler. Beach restrictions due to nesting seasons means that the beach route is more limited between March and September.

[11] https://stateparks.oregon.gov/index.cfm?do=v.page&id=95

City of Wheeler Plans

City of Wheeler Comprehensive Plan (Adopted 1979, Last Amended 2017)

The City of Wheeler Comprehensive Plan is a long-range guide for land use in the Wheeler UGB, consistent with Statewide Planning Goals. Its goals and policies work in concert to provide direction on transportation system and land use decision-making in the City.

Transportation policies are addressed under Comprehensive Plan Goal 12. Generally, the policies seek to promote and maintain a safe multi-modal transportation system that provides options for all users. It seeks to limit additional access points on US 101. It also supports the development of the Salmonberry Trail through the City by utilizing the Port of Tillamook Bay rail right-of-way and/or by sharing portions of local streets or US 101 for non-motorized use.

The Comprehensive Plan also directs future transportation improvement plans to address the following considerations:

- The enhancement of pedestrian and vehicular access across US 101.
- The maintenance or improvement of parking facilities along US 101.
- The minimization of short-term disruptions which would adversely affect the business and residential areas of Wheeler.
- The enhancement of the long-range viability of the downtown and waterfront areas.
- The minimization of noise and air pollution impacts on adjacent areas.
- The provision of appropriate landscaping.
- The protection of views across Nehalem Bay and surrounding area.
- The enhancement of access to and along the waterfront.
- Opportunities to improve the safety of the coastal bike route including but not limited to such means as: constructing separate bike lanes, widening the highway shoulder, or diverting bike traffic.

Project Relevance: The updated TSP will be adopted as the transportation element of the Comprehensive Plan; updated policy that results from this planning process will need to be reflected in the Comprehensive Plan document. The TSP process will evaluate existing transportation goals and policies as to whether they are still applicable and reflect community needs.

City of Wheeler Transportation System Plan (2001)

The Wheeler TSP guides the development and management of transportation facilities in the City, reflecting community goals and objectives and providing consistency with state, regional, and local plans. The plan was adopted in 2001 and is approaching the end of its planning horizon. The TSP establishes standards for access management and street design, recommends multimodal improvements to address the City's transportation needs, and explores potential funding sources to implement these projects.

The TSP describes and recommends transportation improvement projects and implementation strategies that cover the following areas:

- Street Plan Element. The Street Plan Element identifies standards and improvements related to the City's street network. The element is organized into several sections, listed below:
    - Functional street classifications
    - Street design standards
    - Access management
    - Highway 1010 downtown improvements
    - Street maintenance
    - Local street network connections
    - Site specific improvement projects.
- Public Transportation Plan. The Public Transportation Plan identifies transit improvements to be completed in coordination with the local transit service provider.
- Bicycle/Pedestrian Plan. The Bicycle/Pedestrian Plan identifies active transportation facility improvements to support a connected bicycle/pedestrian system.
- Air / Rail / Water / Pipeline Plan. The plan identifies improvements for rail, water, and pipeline facilities in the Wheeler.
- Transportation System and Demand Management Plan. The plan identifies Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies, which are incorporated into other TSP plan elements.
- Implementation Mechanisms. Implementation mechanisms in the TSP identifies potential mechanisms available for implementing the improvements in the TSP.

Street Plan Element

The TSP classifies US 101 as an Arterial. All other streets are classified as Local Streets. Minimum street design standards for each functional classification are provided in Figure 1.

Figure 1: Wheeler TSP Minimum Street Design Standards

MINIMUM STREET DESIGN STANDARDS

Functional Class	Right-of-Way Width	Surface Width	Turn Lane Width	Surface Type	Base Depth	Maximum Grade	Design Speed	Minimum Tangent	Minimum Curve	Curb Type
Principal Arterial (Highway 101) *	80'	60-80'(1)	14'	(see note #1)		6%		(see note #1)		16"
Local Street Option A	50'	22'	--	3" AC	8"	15% (3)		(see note #2)		16'' (4)
Local Street	50'	33'	--	3" AC	6"	15% (3)		(see note #2)		12" (4)
nning.com) is signed in	10-50'	10'	--	Varies	--	15% (3)		--		--

* Minimum street design standards identified for Highway 101 are typical standards for state highways. As plans for Highway 101 are developed as part of the recommended Downtown Refinement Plan, these standards will likely change.
(1) Design shall be in accordance with Oregon Department of Transportation Design Standards.
(2) Design shall be in accordance with AASHTO standards.
(3) Maximum 15% is preferred however this may increase up to 20% due to topographical constraints.
(4) Curb not required. If constructed, alternative storm drainage system required.

The Street Plan element also identifies the following recommendations for improving US 101 in the downtown area:[12]

- Accommodate through traffic along US 101.
- Improve pedestrian safety and circulation along US 101 and from local streets and parking areas that connect to US 101.
- Provide additional parking spaces in the downtown area.[13]
- Bicycle Traffic US 101 has considerable through-bicycle traffic in the summer. Consider the safety of bicyclists when addressing US 101 improvements.
- Urban design elements improve the appearance of a downtown – which leads to increased tourism and commerce.
- Consider a Special Transportation Area (STA).
- Concept Plan A detailed design study is recommended for US 101 and downtown improvements in Wheeler – called a Downtown Refinement Plan, incorporating the following transportation elements:
    - Two lanes with one 14' travel lane in each direction
    - A wider sidewalk on the east side
    - West side diagonal parking with access lane that is separated from the travel lanes.

[12] Note that some of these recommendations, such as the designation of an STA in Wheeler, have been implemented.
[13] Wheeler is currently considering parking management strategies such as timed parking restrictions in the business district and water access area to increase economic vitality

- Reduce US 101 parking by eliminating east side parallel parking.

The TSP identifies two local street network connections - extending First Street to provide a connection from Hospital Road to Third Street and from Rorvik Street to Gregory Street (the TSP also identifies an alternate route) and extending Fourth Street to provide a connection from Gamle Street to Vosburg Street, Hall Street to Alder Street, and Gregory Street to Spruce Street.

Other site-specific improvement identified in the TSP include:

- Waterfront Circulation and Parking Improvements
- US 101/Pennsylvania Avenue Intersection Realignment
- Hall Street/Third Street Curve
- Hemlock Street/Third Street
- Provide Additional and Convenient RV Parking
- Gateway Improvements
- Citywide Stormwater Master Plan

Pedestrian and Bikeway System Element

Designated On-Street Pedestrian/Bicycle Facilities recommended projects include:

- US 101 – East and West Sides. Future plans and improvements to US 101 throughout the city should include bicycle and pedestrian facilities wherever possible.
- Fourth Street from Dubois St. to Hemlock St. Hemlock Street from Fourth St. to US 101 and across the highway.
- Country Road from US 101 to Hemlock St.
- Gregory Street from Fourth St. to US 101 and across the highway.
- Gervais Creek Pathway Construct a pathway parallel to a daylighted Gervais Creek from Fourth Street to US 101, across the highway to the bay.
- Akin Street from Fourth Street to Hospital Road and surrounding the City-owned land (future park) between Akin, Hall, Third, and Hospital streets.
- Third Street from Gervais Creek south to the City-owned land (future park).
- Rowe Street/Hospital Road from Fourth Street to US 101.
- First Street from Gregory St. to Hospital Rd.
- Second Street from Akin St. (future park) to Dubois St.
- Vosburg Creek Pathway: Construct a pathway parallel to Vosburg Creek from Fourth Street to US 101 and across the highway.

- Third Street and Dichter Drive from Vosburg Creek to US 101 and across the highway.

Manzanita and Nehalem

The TSP notes that during the summer peak season, the Port of Tillamook Bay operates the Oregon Coast Scenic Railroad between Nehalem and the Air Museum in Tillamook. This train ride also includes stops in Rockaway Beach and Garibaldi. In 2000, over 1,800 passengers rode this train through Wheeler. The TSP identifies the project to protect and improve access to and within the bay and river next to Nehalem, while still preserving the surrounding environmental resources and private property. The TSP also identifies the need for improvements to the TCTD service, which provides service through Nehalem.

The Wheeler TSP does not identify improvements or policies that would impact the Manzanita TSP.

> **Project Relevance:** The TSP process will review the recommended projects from the 2001 TSP to determine what needs to be retained or changed in the TSP. This planning process will update recommended transportation improvement projects for all modes, based on existing and projected needs. Updated data, stakeholder and community involvement, and evaluation criteria will be used in making these recommendations.

Wheeler Zoning Ordinance (2018)

The City of Wheeler Zoning Ordinance implements the long-range land use vision embodied in the Wheeler Comprehensive Plan and TSP. It regulates uses within the City, and established standards for development and land divisions. Additional information on the zoning ordinance, including a review of the ordinance for compliance with the TPR is provided in *Technical Memorandum #3 – Regulatory Review*.

> **Project Relevance:** Amendments to the Zoning Ordinance will be considered as part of implementation of the City's updated TSP. Proposed amendments will address consistency with the TPR and between local requirements in the Zoning Ordinance and the updated TSP, such as transportation facility design standards that may be found in both documents.

Wheeler Waterfront Development Plan (2008)

The Wheeler Waterfront Development Plan provides design and development guidelines and standards for the waterfront area. The plan identifies the opportunities and advantages of the area, including the tourism and sporting industry, scenic beauty, historic buildings, easy access, and proximity to the Portland metro area. Recommendations for the waterfront that are related to the TSP included:

- Improve the entrance to the waterfront at Marine Drive and Rector Street where it intersects with US 101 (Wheeler Waterfront Access Plan).
- Establish pathway development plan for Marine Drive that will promote pedestrian usage.
- Approve conceptual parking plan developed by the Port of Tillamook Bay to be established at the north end of Marine Drive.
- Develop Signage guidelines that will encourage highway monument signs at the entrances to the marina.
- Enhance parking on the west side of US 101.

Project Relevance: Projects and improvements identified in the Waterfront Development Plan will be considered as part of this planning process and, where applicable, incorporated into the Wheeler TSP update recommendations.

City of Manzanita Plans

City of Manzanita Comprehensive Plan (Adopted 1996, Last Amended 2014)

The City of Manzanita Comprehensive Plan is the City's long-range guide for growth and development within the Manzanita UGB, consistent with Statewide Planning Goals. Its goals and policies work in concert to provide direction on transportation system and land use decision-making in the City.

The Transportation element includes the following policies:

1. *Efforts to reduce speeding on Laneda Avenue should be carried out by the city. This should take the form of maintaining a low speed (20 MPH), requesting that the City police and Tillamook County Sheriff's Department maintain a high level of enforcement and installing appropriate warning signs.*
2. *Sufficient pavement width should be included on all major streets or roads to accommodate bicycle traffic. Facilities such as bicycle racks should be considered in the city park and downtown area.*
3. *The city traffic management plan should be used as a guide for the installation of traffic signs, crosswalks, and other street improvements. The plan should be communicated to the county for their participation on county roads, and should be d on a regular basis. In addition, crosswalks and other improvements on Highway 101, Classic Street and Laneda Avenue are included in the adopted Downtown Transportation Plan, Section 4.*
4. *Crosswalks in the downtown commercial area should be a high priority for the city. Consideration should be given to the installation of planters or other landscaping devices in conjunction with the crosswalks.*
5. *The city and state shall cooperate to retain the airport at Nehalem Bay State Park. It is the position of the city that the airport should be surfaced, that "T- Hangers" should be installed, and that a caretaker should be stationed at the airport. It is the goal of the city that the facility be improved for existing traffic rather than expanded.*
6. *The city and state shall cooperate to limit the number of accesses onto US Highway lol to as few as possible. No new accesses shall be permitted north of Laneda, or in other locations where traffic visibility is limited.*
7. *The city will work with the Oregon Department of Transportation to coordinate plans and projects particularly through the Oregon Transportation Plan and the US Highway 101 Corridor Study. Specifically, the city wishes to have direct input into*

highway improvement plans on US Highway lol in the vicinity of the city, and on future uses of the unused highway right-of-way.

8. *The City discourages property owners from improving street rights-of-way with landscaping, driveways, walkways and similar projects, especially in the vicinity of water, sewer, and storm drainage lines. All parking required by the zoning ordinance must be useable by the property owners, generally not exceeding 10% grade from the street.*

The Comprehensive Plan also includes street policies in Public Facilities and Services element of the plan.

1. *The cost of constructing streets in new subdivisions, planned developments, or in rights-of-way where no improved street exists shall be the responsibility of the developer or the adjacent property owners. The City shall share costs in the following way:*

   A. *On existing dedicated, but unimproved streets, which are arterials or feeders, the City will pay the difference in pavement width between the existing width and arterial or feeder width. On existing dedicated unimproved or underimproved residential streets, the abutting property owners shall pay all costs of the improvement.*

   B. *Substantial improvement of existing street intersections shall be the responsibility of the City.*

   C. *There shall be no city participation in bearing the cost of streets in subdivisions or planned developments. Owners wishing to build access to their property on unimproved rights-of-way must adhere to City Street Standards.*

2. *Asphaltic concrete pavement shall be required for all streets.*

3. *Storm drainage, as determined by the PWD, shall be required for all street improvements and construction.*

4. *Street right-of-way which cannot be improved due to steep topography, or other valid reason, should be used for other purposes, such as parks or open space, walking trails or greenbelts.*

5. *Street standards for the City of Manzanita are located in the Street Improvement Standards Ordinance and future improvements to intersections along US 101 are identified in the adopted Downtown Transportation Plan, Section 4. (Added by Ord. 03-05, passed July 9, 2003)*

Project Relevance: The TSP will be adopted as the transportation element of the Comprehensive Plan; updated policy that results from this planning process will need to be reflected in the Comprehensive Plan document. The TSP process will evaluate existing transportation goals and policies as to whether they are still applicable and reflect

community needs. In addition to d goals and policies, implementation of the Manzanita TSP may prompt other policy-level changes in areas related to transportation.

City of Manzanita Downtown Transportation Plan (2003)

The Manzanita Downtown Transportation Plan addresses key transportation issues in the City of Manzanita, including north and south extensions of Classic Street and the Laneda Avenue street design. The Transportation Plan also identifies the following short-term and long-term improvements to US 101 that seek to improve intersection safety and operations:

- US 101/Laneda Avenue: In the short-term, add separate left- and right-turn lanes from Laneda Avenue to US. 101 and study pedestrian circulation and access management issues. In the long-term, reconstruct the intersection to improve its alignment and lengthen the left-turn lane from US 101 to Laneda Avenue.
- US. 101/Manzanita Avenue: In the short-term, add separate left- and right-turn lanes from Manzanita Avenue to US 101. In the long-term, add left- and right-turn lanes from US 101 to Manzanita Avenue and close County Road to vehicles to improve intersection safety.

The Transportation Plan also identifies a need to improve north-south connections in the City; improvements call for extending Classic Street north of Laneda Avenue to North Avenue and south of Laneda Avenue to Ridge Drive/Necarney City Road. The southern extension is recommended to include two travel lanes and a pedestrian/bicycle path separated by a landscape buffer.

The Laneda Avenue street design improvement entails vehicle, bicycle, and pedestrian improvements to support and enhance the existing downtown character and provides a framework for street reconstruction (2003-2004). Designs for Laneda Avenue indicate it should have a two-way cross section with wider sidewalks and on-street parking. Curb extensions and marked crosswalks should be provided at selected locations, with landscaping and access management on private properties.

> **Project Relevance:** The TSP process will review the recommended projects that have yet to be constructed, or that can be amended and carried forward, from the 2003 Downtown Transportation Plan. This planning process will update recommended transportation improvement projects for all modes, based on existing and projected needs. Updated data, stakeholder and community involvement, and evaluation criteria will be used in making these recommendations.

Manzanita Zoning Ordinance (2018), Street Improvement Standards Ordinance (2006), and Subdivision and Land Partition Ordinance (2003).

The City of Manzanita implements its long-range land use vision through improvements made with future development, as required by the following ordinances:

- Street Improvement Standards (Ordinance No. 91-2)
- Manzanita Zoning Ordinance (Ordinance No. 95-4
- Subdivision and Land Partitioning Standards and Procedures (Ordinance No. 95-5)

These ordinances regulate uses within the City and establish standards for development and land divisions. Additional information on the ordinances, including a review for compliance with the TPR is provided in *Technical Memorandum #3 – Regulatory Review*.

> **Project Relevance:** Amendments to the ordinances will be considered where needed to implement the City's TSP. Proposed amendments will address consistency with the TPR. Consistency will need to be ensured between requirements in the ordinances and the TSP, particularly for transportation facility design standards and access management standards.

City of Nehalem Plans

City of Nehalem Comprehensive Plan (2019)

The City of Nehalem Comprehensive Plan is a long-range guide for future growth and development in the Nehalem UGB, consistent with Statewide Planning Goals. Its goals and policies work in concert to provide direction on transportation system and land use decision-making in the City. The Comprehensive Plan is organized by Statewide Planning Goals, with objectives and policies for each goal described.

The City's Transportation goals are:

- Improve mobility, safety, and accessibility for all travel modes.
- Improve pedestrian and bicycle circulation and facilities.
- Provide for improvements that can be implemented and comply with applicable standards.

The policies provided under the Transportation Goal include the following:

1. *Street patterns shall minimize the need for cutting and filling.*
2. *The City may permit narrower street widths in steep slope areas consistent with traffic safety and emergency vehicle access.*
3. *The City shall accept private streets as public streets only after they have been improved to City standards.*
4. *The City, County, and the State Department of Transportation shall discourage new access points onto Highway 101.*
    a. *Wherever possible, new residential development shall not have a direct access to Highway 101.*
    b. *New commercial and multi-family uses should be clustered with access being provided by a consolidated access point, preferably not directly onto Highway 101.*
5. *Alternative uses of City rights-of-way should be considered where they are not needed as streets.*

    a. These uses may include trails, small parks or natural areas.
6. *The City shall be notified prior to the installation of any underground utility in a City right- of-way.*

a. *The City will require reasonable efforts to improve or restore the road after construction.*

7. *The City supports efforts such as bus service, to provide transportation for people with limited transportation opportunity, and supports the Tillamook County Transit District to maintain bus stops and shelters as described in the Downtown Transportation Plan.*
8. *The City will work to incorporate (as resources allow) streetscape elements for pedestrian and bicycle friendly street design as illustrated in the Downtown Transportation Plan.*
9. *The City will encourage (as resources allow) an interpretive trail that provides access to the wetlands and river.*
10. *Street design standards are contained within the City's Subdivision Ordinance.*
11. *The City will work with ODOT to improve the design and safety of the US 101/7th Street intersection.*
12. *The City will work with ODOT to provide pedestrian safety improvements and traffic calming measures and safe routes to school and encourage all types of transportation that limit greenhouse gas emissions.*
13. *The City recognizes the importance of and encourages a link between the Oregon Coast Trail and the Salmonberry Trail, and the Tillamook County Water Trail.*

Project Relevance: The TSP will be adopted as the transportation element of the Comprehensive Plan; updated policy that results from this planning process will need to be reflected in the Comprehensive Plan document. The TSP process will evaluate existing transportation goals and policies as to whether they are still applicable and reflect community needs. In addition to updated goals and policies, implementation of the Nehalem TSP may prompt other policy-level changes in areas related to transportation.

City of Nehalem Downtown Transportation Plan (2003)

The Nehalem Downtown Transportation Plan addresses key transportation issues in the City's downtown area (see Figure 1-1 in the Plan). With a focus on US 101 in Nehalem, it identifies the following short-term and long-term improvements to the intersection of Highway 101 and 17th Street that seek to improve intersection safety and operations:

Short-Term: Widen northbound receiving lane to accommodate truck turning; off-set sop bar for southbound left-turn lane; extend A Street between 7th and 8th Streets[14];

[14] The A Street right-of-way between 7th and 8th Streets has been vacated since the adoption of the Nehalem Downtown Transportation Plan.

provide curb extensions on east side of intersection to improve pedestrian crossing; reduce posted speed to 25 mph; consider larger turning radius on southwest corner of intersection.

Long-Term: A roundabout may be a possible long-term solution at the US 101/7th Street intersection; however, a number of concerns would need to be addressed adequately before it would be a preferred solution. Without further analysis, no action is recommended at this time.

Other identified improvements on US 101 include, over the long term, adding and or/widening sidewalks on US 101; providing curb extensions and crosswalks at key intersections; reducing posted speed to 25 mph; providing gateways as recommended by the Oregon Downtown Development Association (ODDA) plan; locating a new bus shelter to the south/west of US 101; and exploring an STA designation in Nehalem.

The Plan also identifies three different local street cross sections (depending on right-of-way widths). The street designs include standards for sidewalks and on-street parking. Projects include adding sidewalk connection between the school and community center on 8th Street between B and C Streets and extending A Street between 7th and 8th Streets.

Finally, the Transportation Plan identifies a need for an interpretive trail. It calls for designing and constructing an interpretive trail leading to wetlands and the Nehalem River, as shown in the ODDA plan.

Project Relevance: The TSP process will review the recommended projects from the 2019 Downtown Transportation Plan to determine what needs to be retained or changed in the updated TSP. This planning process will update recommended transportation improvement projects for all modes, based on existing and projected needs. Updated data, stakeholder and community involvement, and evaluation criteria will be used in making these recommendations.

Nehalem City Code: Title XV Land Usage

The Title XV of the City Code includes the Subdivision Ordinance (Chapter 156) and Zoning Ordinance (Chapter 157). These ordinances implement the long-range land use vision embodied in the Nehalem Comprehensive Plan. The Zoning Ordinance regulates uses within the city and, along with the Subdivision Ordinance, established standards for development and land divisions. Details on requirements related to transportation, including a review for compliance with the TPR is provided in *Technical Memorandum #3 – Regulatory Review*.

Project Relevance: Amendments to Title XV Land Usage will be considered as part of implementation of the City's TSP. Proposed amendments will address consistency with

the TPR. Consistency will need to be ensured between requirements in the Title and the TSP, particularly for transportation facility design standards.

Nehalem Bay TSP

TECHNICAL MEMO 3 | REGULATORY REVIEW

FEHR & PEERS

Technical Memo #3

Nehalem Bay Transportation System Plan
Regulatory Review
May 17, 2021.

Prepared by Angelo Planning Group

Introduction

This memorandum presents a review of applicable development ordinances from the Cities of Nehalem, Manzanita, and Wheeler for compliance with the State of Oregon's Transportation Planning Rule (TPR), OAR 660 Division 12. The memorandum provides the intent, purpose, and requirements of the TPR, followed by a comprehensive review in the subsequent tables.

The purpose of the TPR is "*...to implement Statewide Planning Goal 12 (Transportation) and promote the development of safe, convenient and economic transportation systems that are designed to reduce reliance on the automobile so that the air pollution, traffic and other livability problems faced by urban areas in other parts of the country might be avoided."* The TPR also establishes requirements for coordination among affected levels of government for preparation, adoption, refinement, implementation, and amendment of transportation system plans.

Specifically, Section -0045 of the TPR addresses implementation of the Transportation System Plan (TSP). TPR Section -0060 (Plan and Land Use Regulation Amendments) specifies measures to be taken to ensure that allowed land uses are consistent with the identified function and capacity of existing and planned transportation facilities. Section -0060

establishes criteria for identifying the significant effects of plan or land use regulation amendments on transportation facilities, actions to be taken when a significant effect would occur, identification of planned facilities, and coordination with transportation facility providers.

In summary, the TPR requires that local governments revise their land use regulations to implement the TSP in the following manner:

- Amend land use regulations to reflect and implement the TSP.
- Clearly identify which transportation facilities, services, and improvements are allowed outright, and which will be conditionally permitted or permitted through other procedures.
- Adopt land use or subdivision ordinance measures, consistent with applicable federal and state requirements, to protect transportation facilities, corridors, and sites for their identified functions, through:
    - access management and control;
    - protection of public use airports;
    - coordinated review of land use decisions potentially affecting transportation facilities;
    - conditions to minimize development impacts to transportation facilities;
    - regulations to provide notice to public agencies providing transportation facilities and services of land use applications that potentially affect transportation facilities; and
    - regulations ensuring that amendments to land use applications, densities, and design standards are consistent with the TSP.
- Adopt land use or subdivision regulations for urban areas and rural communities to provide safe and convenient pedestrian and bicycle circulation and bicycle parking, and to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel.
- Establish street standards that minimize pavement width and total right-of-way.

Tables 1 through 3 provide an assessment of TPR compliance for each city based on adopted ordinances regulating land development. Each table lists TPR implementation requirements, an assessment of existing city code and regulatory provisions that meet the requirements, and recommendations for changes that will likely be needed to fully implement the new TSP and bring city regulations in compliance with the TPR. Recommended changes to local regulatory documents are intended to provide guidance to project staff during the update of each city's

TSP. Modifications to individual development ordinances will be drafted later in the planning process, during the implementation phase.

Manzanita Regulatory Review

Table 1 provides a review of the following ordinances for the City of Manzanita:

- Zoning Ordinance (Ord. #95-4)
- Subdivision Ordinance (Ord. #95-5)
- Street Improvement Standards (Ord. #91-2)

Table 1: City of Manzanita Ordinances – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
OAR 660-12-0045	
(1) Each local government shall amend its land use regulations to implement the TSP.	
(a) The following transportation facilities, services and improvements need not be subject to land use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use: (A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals; (B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and objective dimensional standards; (C) Uses permitted outright under ORS 215.213(1)(j)–(m) and 215.283(1)(h)–(k), consistent with the provisions of OAR 660-012-0065; and (D) Changes in the frequency of transit, rail and airport services.	The purpose of this provision is to allow for certain transportation uses, such as operation, maintenance, and repair of transportation facilities identified in the TSP, without being subject to land use regulations. Currently transportation uses are not included in the list of permitted uses in the zoning ordinance, nor is there a general provision indicating that transportation uses consistent with the adopted transportation system plan do not require a separate land use review. **Recommendation:** The City should amend the Zoning Ordinance (ZO, Ord. 95-4) to allow transportation improvements in all zones, provided that the proposed improvements implement the TSP and/or can be shown to be consistent with adopted policy.
(b) To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment;	See responses to -0045(1)(a)

Table 1: City of Manzanita Ordinances – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with OAR 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.	This TPR Section references project development and implementation - how a transportation facility or improvement authorized in a TSP is designed and constructed (660-012-0050). Project development may or may not require land use decision-making. The TPR directs that during project development, projects authorized in an acknowledged TSP will not be subject to further justification with regard to their need, mode, function, or general location. To this end, the TPR calls for consolidated review of land use decisions and proper noticing requirements for affected transportation facilities and service providers. ZO Article 10, Public Deliberations establishes public notice requirements. These notice requirements do not specifically address actions that may impact transportation facilities. The ZO does not currently include provisions for allowing multiple land use applications to be consolidated into one review. **Recommendation:** The City should amend ZO Article 10 to include notice requirements to transportation providers where proposed actions may impact their facilities. The City should also amend ZO Article 11, General Provisions to allow for consolidated review for transportation facilities and land use decisions.
(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:	
(a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;	Section 3 of the Street Improvement Standards establishes right-of-way widths for each road functional classification (arterial, collector, and residential). ZO Section 4.010 addresses access requirements and requires each lot to abut a street for at least 25. Lots in the rear of street fronting lots (flag lots) are required to have a length to width ratio not to exceed 3:1. ZO Section 4.906, Manufactured Dwelling Parks includes street access and width requirements. Subsection 41(2) of the Subdivision Ordinance requires that each lot or parcel abut a street for minimum width of 25 feet. Requirements that regulate driveway, street, and intersection spacing are not provided in City ordinances. **Recommendation:** The TSP process will assess the adequacy of existing standards to meet current and future needs and may result in new or updated roadway and access management standards. Street Improvement Standards will need to be made consistent with TSP standards.

Table 1: City of Manzanita Ordinances – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(b) Standards to protect future operation of roads, transitways and major transit corridors;	ZO Subsection 4.060 provides multi-family and apartment siting criteria. Subsection (3) requires the Planning Commission to consider safety of ingress/egress, among other considerations. ZO Subsection 4.136(5) requires PUDs to ensure streets are adequate to support anticipated traffic. ZO Section 5.025 provides conditional use approval criteria for the Planning Commission. Subsection (b) requires a site to have adequate access to a public street or highway, and that the street or highway is adequately sized to accommodate the expected demand of the conditional use. Subsection 39(2) of the Subdivision Ordinance allows street widths to be increased to serve probable traffic conditions that warrant such widths. Standards for when a traffic study is applicable (i.e., traffic increase thresholds or zone changes) and requirements for identifying and mitigating impacts as part of the study are not found in the City ordinances. **Recommendation:** As part of the TSP implementation, create a new Section in the ZO for transportation impact studies (TIS). The section should include thresholds for requiring a TIS and include standards for study requirements, approval standards, and a process to allow the City to require mitigation of identified transportation impacts as a condition of approval.
(c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation;	ZO Sections 3.095 through 3.097 provide regulations for the City's Airport Overlay Zone. ZO Subsection 3.097(6) regulates land use and development in noise sensitive areas (within 1500 ft. of airport of noise contour boundaries of 55 DNL and above). ZO Section 3.096 and subsection 3.097(1) regulate land uses and activities withing the Runway Protection Zone and the Airport Imaginary Surfaces to ensure safe aircraft operation and minimize impacts on nearby land uses. These requirements are in accordance with FAA regulations. **Recommendation:** Existing Ordinance provisions meet this TPR requirement. No further changes to the code are recommended.
(d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;	See response to -0045(1)(c).

Table 1: City of Manzanita Ordinances – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;	ZO Section 5.020 gives the Planning Commission the authority to impose conditions in accordance with the standards and procedures in ZO Section 5.025 through 5.039 as well as the goals and policies of the City's Comprehensive Plan. ZO Section 5.030, Standards Governing Conditional Uses authorizes the City to impose conditions it considers necessary to minimize impacts on surrounding area. These conditions may include but are not limited to: • Controlling the location and number of vehicle access points. • Increasing street width • Adjustments to off-street parking ZO Section 10.120 gives a hearing body the authority to impose conditions as part of a public hearing decision. The standards do not expressly list the purview of conditions that may be imposed. However, it generally requires the decision to be supported by findings that state which criteria or standards are the basis for a decision. **Recommendation:** Existing code provisions meet the TPR requirement. However, the City should consider specifying that transportation-related improvements are potential conditions of approval, including improvements that facilitate transit or pedestrian and bicycle travel (see -0045(3)(c)).
(f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of: (A) Land use applications that require public hearings; (B) Subdivision and partition applications; (C) Other applications which affect private access to roads; and (D) Other applications within airport noise corridors and imaginary surfaces which affect airport operations; and	ZO Sections regarding airport standards and requirements (3.095 – 3.097) do not address public notice to the Airport Operator of land use actions that may have an impact on airport operations. ZO Article 10, Public Deliberations establishes public notice requirements. These notice requirements do not specifically address actions that may impact transportation facilities. **Recommendation:** The City should add noticing requirements in Article 10 that are specific to applications within the Airport Overlay Zone and noise sensitive areas.

Table 1: City of Manzanita Ordinances – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(g) Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and performance standards of facilities identified in the TSP.	OZ Article 9, Amendments establishes procedures for amendments to the text of the ordinance or the zoning map. It requires the Planning Commission to conduct a public hearing, review the proposal, and make a recommendation for City Council. City Council is required to conduct a public hearing and render a decision. The standards in Article 9 do not include review requirements or approval criteria, including compliance with transportation performance standards. **Recommendation:** Add language to Article 9 that ensures zoning map and ordinance amendments are consistent with the planned transportation system. See recommendations for TPR Section -0060.
(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.	
(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots;	Manzanita ordinances do not have bicycle parking standards. **Recommendation:** The City should amend ZO Article 4 to adopt bicycle parking facility standards for all uses outlined -0045(3)(a).
(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways. (A) "Neighborhood activity centers" includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers; (B) Bikeways shall be required along arterials and major collectors. Sidewalks shall be required along arterials, collectors and most local streets in urban areas, except that sidewalks are not required along controlled access roadways, such as freeways;	Subsection 39(9) of the Subdivision Ordinance requires cul-de-sacs or dead ends to be connected with walking or bicycle paths, or public or private open space, wherever possible. ZO Subsection 4.153(3)(d) requires design plans to show pedestrian circulation areas. ZO Subsection 4.155(3) includes site design criteria that creates pedestrian pathways and/or open systems that connect other properties. ZO Subsection 4.156(7) includes architectural/landscape design evaluation criteria that "addresses the pedestrian nature" of a commercial area. Section 42 – Blocks – of the Subdivision Ordinance (establishes requirements for blocks. There are no standards in City ordinances that require bikeways or bicycle facilities. There are no standards City ordinances that regulate the design of parking areas to accommodate and promote bicycle/pedestrian safety. **Recommendation:** The City should adopt on-site pedestrian and bicycle access and circulation standards for:

Table 1: City of Manzanita Ordinances – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(C) Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section; (D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel; (E) Streets and accessways need not be required where one or more of the following conditions exist: (i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided; (ii) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or (iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.	• Parking areas • New commercial, light industrial, and multi-family residential development The City should adopt bikeway and sidewalk/pedestrian requirements along arterials and major collectors. The City should consider expanding block standards to include exceptions in accordance with -0045(3)(b)(E). The City should update the general parking off-street vehicle parking and loading requirements to include standards for parking areas over a specified size to include pedestrian circulation design standards. The City should adopt transit access provisions and pedestrian and bicycle access standards to connect these "active modes."
(c) Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors; *[Note: Subsection (d) defines safe and convenient]*	See response to Section -0045(2)(e).
(e) Internal pedestrian circulation within new office parks and commercial developments shall be provided through clustering of buildings, construction of accessways, walkways and similar techniques.	City ordinances do not include internal pedestrian circulation requirements for commercial development. **Recommendation:** The City should adopt internal pedestrian circulation and access requirements for all commercial zones.

Table 1: City of Manzanita Ordinances – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(6) In developing a bicycle and pedestrian circulation plan as required by OAR 660-012-0020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.	The TSP will make recommendations to the bicycle and pedestrian plan that are consistent with TPR -0020. This TPR requirements is currently addressed in the following areas: • Bicycle/pedestrian connection between cul-de-sacs and adjacent streets. See response to section -0045(3)(b) • Site design criteria that create pedestrian paths – see response to section -004(3)(b) • Site design plans to demonstrate pedestrian circulation – see response to section -0043(3)(b) **Recommendation:** This TPR requirement will be addressed by the TSP planning process, which will identify pedestrian and bicycle improvements for inclusion in the TSP, and is met by requiring improvements in developing areas consistent with adopted code provisions.
(7) Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Not withstanding section (1) or (3) of this rule, local street standards adopted to meet this requirement need not be adopted as land use regulations.	Section 3 of the Street Improvement Standards establishes right-of-way standards, including width requirements for arterials, collectors, and residential streets. | | Pavement | ROW | | --- | --- | --- | | Arterial | 24' | 50' | | Collector | 22' | 40' | | Residential | 20' | 40' | The Residential street right-of-way width standard is consistent with the recommended widths illustrated in the Transportation Growth Management Neighborhood Street Design Guidelines, which range from 20'-28' paved roadway within a right-of-way that ranges from 42'-56'. **Recommendation:** The TSP process will revisit adopted roadway cross-sections and design requirements, keeping in mind that the TPR requires that cities minimize pavement width and total right-of-way consistent with the operational needs of the facility. Standards should be made consistent between the TSP and Street Improvement Standards.

Table 1: City of Manzanita Ordinances – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
OAR 660-12-0060	
Amendments to functional plans, acknowledged comprehensive plans, and land use regulations that significantly affect an existing or planned transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility.	ZO Article 9, Amendments authorizes amendments to the Zoning Ordinance and/or map. The approval criteria do not contain specific requirements that ensures proposed amendments are consistent with planned facilities within the adopted TSP. **Recommendation:** ZO Article 9 should add provisions that address plan amendment consistency with transportation facilities.

Nehalem Regulatory Review

Table 2 provides a review of the City of Nehalem's Land Usage Code – Title XV – and transportation policies found in the Comprehensive Plan for compliance with the State of Oregon's Transportation Planning Rule (TPR), OAR 660 Division 12. Title XV is organized into Chapters. Chapter 156 addresses subdivision requirements and Chapter 157 addresses zoning requirements.

Table 2: City of Nehalem Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
OAR 660-12-0045	
(1) Each local government shall amend its land use regulations to implement the TSP.	
(a) The following transportation facilities, services and improvements need not be subject to land use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use: (A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals; (B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and objective dimensional standards; (C) Uses permitted outright under ORS 215.213(1)(j)–(m) and 215.283(1)(h)–(k), consistent with the provisions of OAR 660-012-0065; and (D) Changes in the frequency of transit, rail and airport services.	The purpose of this provision is to allow for certain transportation uses, such as operation, maintenance, and repair of transportation facilities identified in the TSP, without being subject to land use regulations. Currently transportation uses are not included in the list of permitted uses in the zone chapters, nor is there a general provision indicating that transportation uses consistent with the adopted transportation system plan do not require a separate land use review. **Recommendation:** The City should amend Chapter 157 to allow transportation improvements in all zones, provided that the proposed improvements implement the TSP and/or can be shown to be consistent with adopted policy. Alternatively, the City could include specific language as a stand-alone code section in lieu of amending individual zone chapters.
(b) To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment;	See responses to -0045(1)(a)

Table 2: City of Nehalem Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with OAR 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.	This TPR Section references project development and implementation - how a transportation facility or improvement authorized in a TSP is designed and constructed (660-012-0050). Project development may or may not require land use decision-making. The TPR directs that during project development, projects authorized in an acknowledged TSP will not be subject to further justification with regard to their need, mode, function, or general location. To this end, the TPR calls for consolidated review of land use decisions and proper noticing requirements for affected transportation facilities and service providers. Section 157.418, Preliminary Matters includes administrative provisions for providing notice. It requires the City to send notice to any person, agency, or organization that has requested to receive notices on a particular matter or as deemed appropriate by the City Manager/Recorder. Chapter 157 does not currently include provisions for allowing multiple land use applications to be consolidated into one review. **Recommendation:** The City should amend Section 157.416 (Application) to allow consolidated review of land use decisions regarding transportation facilities or projects.
(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:	
(a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;	Section 156.081, Subdivision Street Design Standards includes standards for streets. These standards include minimum right-of-way widths – 156.081(B); and right-of-way classifications – 156.081(B)(4). Section 157.268, Access requires all lots to abut a street for at least 20 feet. Requirements that regulate driveway and intersection spacing are not provided in Title XV. **Recommendation:** Access standard requirements will need to be modified as necessary to be consistent with, and implement the TSP.

Table 2: City of Nehalem Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(b) Standards to protect future operation of roads, transitways and major transit corridors;	Subsection 156.081(A)(2), Subdivision Street Design Standards requires that right-of-way widths be determined by a number of factors, including anticipated traffic generation, on-street parking needs, and emergency vehicle access. Subsection 156.081(B)(3), Subdivision Street Design Standards permits City Council, Planning Commission, and/or the City Manager/Recorder to require a traffic study to justify the appropriate type of street classification for a development. Standards for when a traffic study is applicable (i.e., traffic thresholds or zone changes) and requirements for identifying and mitigating impacts as part of the study are not found in Title XV. **Recommendation:** As part of the TSP implementation, create a new Section in Chapter 157 for transportation impact studies (TIS). The section should include thresholds for requiring a TIS and include standards for study requirements, approval standards, and a process to allow the City to require mitigation of identified impacts as a condition of approval.
(c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation;	This provision is not applicable. There are no airports in the City of Nehalem. No recommendation.
(d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;	See response to -0045(1)(c).
(e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;	Subsection 157.346(C), Zoning – Conditional Uses authorizes the City to impose conditions it considers necessary to minimize impacts on surrounding areas. These conditions may include but are not limited to: • Controlling vehicle access points • Increasing off-street parking • Increasing street width **Recommendation:** Existing code provisions meet the TPR requirement. However, the City should consider identifying transportation-related improvements as potential conditions of approval, including improvements that facilitate pedestrian and bicycle travel (see -0045(3)(c)).

Table 2: City of Nehalem Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of: (A) Land use applications that require public hearings; (B) Subdivision and partition applications; (C) Other applications which affect private access to roads; and (D) Other applications within airport noise corridors and imaginary surfaces which affect airport operations; and	See response to -0045(1)(c) and -0045(2)(c)
(g) Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and performance standards of facilities identified in the TSP.	See response to 0045(2)(b) and -0060.
(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.	
(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots;	Title XV does not have bicycle parking standards, transit transfer stations, or park-and-ride lots. **Recommendation:** The City should adopt bicycle parking facility standards for all uses outlined -0045(3)(a).
(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways. (A) "Neighborhood activity centers" includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers; (B) Bikeways shall be required along arterials and major collectors. Sidewalks shall be required along arterials, collectors and most local streets in urban	**Comprehensive Plan Policies.** The City of Nehalem Comprehensive Plan promotes pedestrian access and safety in Goal 12 – Transportation: Policy 8: The City will work to incorporate streetscape elements for pedestrian and bicycle friendly street design Policy 11. The City will work with ODOT to improve the design and safety of the U.S. 101/7th Street intersection. Policy 12. The City will work with ODOT to provide pedestrian safety improvements and traffic calming measures and safe routes to school and encourage all types of transportation that limit greenhouse gas emissions. **Streets.** Subsection 156.081(B)(2), Subdivision Street Design Standards require right-of-way widths that account for:

Table 2: City of Nehalem Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
areas, except that sidewalks are not required along controlled access roadways, such as freeways; (C) Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section; (D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel; (E) Streets and accessways need not be required where one or more of the following conditions exist: (i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided; (ii) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or (iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.	(d) sidewalk and bikeway requirements based on anticipated level of use and; (h) Safety and comfort for motorists, bicyclists, and pedestrians Section 156.084, Blocks regulates the formation of blocks. The requirements restrict blocks to a maximum of 1,800 feet between street corner lines for arterial streets and 1,000 feet for all other streets. The requirements allow exceptions to block lengths where topography or the location of adjoining streets exist. **On-site facilities.** Subsection 157.182(B)(7), Planned Development Application Requirements requires site plans to show proposed pedestrian circulation systems. Subsection 157.271(3)(b), Mixed-Use Shoreland Development Standards requires subdivisions in this zone to provide pedestrian access to the shoreline within the development. Subsection 156.087(D), Subdivision Improvement Requirements requires the installation of sidewalks as a subdivision improvement requirement. There are no standards in Title XV that regulate the design of parking areas to accommodate and promote bicycle/pedestrian safety. **Cul-de-sacs.** Subsection 156.081(E)(1), Subdivision Street Design Standards allows dead-end streets to be approved for subdivision plans. **Recommendation:** The City should adopt on-site pedestrian and bicycle access and circulation standards for the following: • Parking areas • New commercial, light industrial, and multi-family residential developments. The City should consider refining block standards to include exceptions in accordance with -0045(3)(b)(E). The City should expand cul-de-sac requirements to limit the use of and/or length cul-de-sacs and also require pedestrian access between the end of a cul-de-sac and adjoining development. The City should update the general parking off-street vehicle parking and loading requirements to include standards for parking areas over a specified size to include pedestrian circulation design standards.

Table 2: City of Nehalem Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
	The City should adopt transit access provisions and apply pedestrian and bicycle access standards to these provisions.
(c) Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors; *[Note: Subsection (d) defines safe and convenient]*	See response to Section -0045(2)(e).
(e) Internal pedestrian circulation within new office parks and commercial developments shall be provided through clustering of buildings, construction of accessways, walkways and similar techniques.	Subsection 157.271(3)(b), Mixed-Use Shoreland Development Standards requires subdivisions in this zone to provide pedestrian access to the shoreline within the development. **Recommendation:** The City should adopt internal pedestrian circulation and access requirements for all remaining commercial zones.
(6) In developing a bicycle and pedestrian circulation plan as required by OAR 660-012-0020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.	The TSP will make recommendations to the bicycle and pedestrian plan that are consistent with TPR -0020. This TPR requirements is currently addressed in the following areas: Access to shoreline for mixed-use development – See response and recommendations in Section – 0045(3)(b). Right-of-way standards in subdivision requirements that account for bicycle and pedestrian use – See response to 0045(3)(b) Walkways between cul-de-sacs and adjacent roads – See response and recommendation related to cul-de-sacs, Section -0045(3)(b) **Recommendation:** This requirement will be addressed by the TSP planning process, which will identify pedestrian and bicycle improvements for inclusion in the TSP, and is met by requiring improvements in developing areas consistent with adopted code provisions.

Table 2: City of Nehalem Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(7) Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Not withstanding section (1) or (3) of this rule, local street standards adopted to meet this requirement need not be adopted as land use regulations.	Subsection 156.081(B), Subdivision Street Design Standards establishes right-of-way standards, including width requirements for arterials, collectors, driveways, private streets/alleys, and residential streets. The standards for Residential street classifications – the most equivalent to a local street – varies based on the presence of on-street parking. Residential streets with on-street parking on both sides require a minimum right-of-way width of 40 feet and pavement width of 32 feet. Residential streets with on-street parking on one side of the street requires a minimum right-of-way width of 30 feet and pavement width of 25 feet. The standard Residential street right-of-way width is consistent with the recommended widths illustrated in the Transportation Growth Management Neighborhood Street Design Guidelines, which range from 42'-56'. However, pavement width requirements are slightly wider than recommended widths, which range from 20'-28' paved roadway. **Recommendation:** The TSP process will revisit adopted roadway cross-sections and design requirements, keeping in mind that the TPR requires that cities minimize pavement width and total right-of-way consistent with the operational needs of the facility. Standards should be made consistent between the updated TSP and Street Improvement Standards.
OAR 660-12-0060	
Amendments to functional plans, acknowledged comprehensive plans, and land use regulations that significantly affect an existing or planned transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility.	Section 157.388, Standards for approval of zone changes or comprehensive plan amendments, states the necessary standards to justify a zone changes or comprehensive plan amendments. The approval criteria do not contain specific requirements that ensures proposed amendments are consistent with planned facilities within the TSP. **Recommendation:** Sections 157.388 and 157.416 should add provisions that address plan amendment consistency with transportation facilities.

Wheeler Regulatory Review

Table 3 provides a review of the following ordinances for the City of Wheeler:

- Title IX: General Regulations
- Title XV: Land Usage
- Wheeler Zoning Ordinance

Table 3: City of Wheeler Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
OAR 660-12-0045	
(1) Each local government shall amend its land use regulations to implement the TSP.	
(a) The following transportation facilities, services and improvements need not be subject to land use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use: (A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals; (B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and objective dimensional standards; (C) Uses permitted outright under ORS 215.213(1)(j)–(m) and 215.283(1)(h)–(k), consistent with the provisions of OAR 660-012-0065; and (D) Changes in the frequency of transit, rail and airport services.	The purpose of this provision is to allow for certain transportation uses, such as operation, maintenance, and repair of transportation facilities identified in the TSP, without being subject to land use regulations. Currently transportation uses are not included in the list of permitted uses in the zone chapters, nor is there a general provision indicating that transportation uses consistent with the adopted transportation system plan do not require a separate land use review. **Recommendation:** The City should amend Zoning Ordinance (ZO) Section 150.02 to allow transportation improvements in all zones, provided that the proposed improvements implement the Transportation System Plan and/or can be shown to be consistent with adopted policy. Alternatively, the City could include specific language as a stand-alone code section in lieu of amending individual zone chapters.
(b) To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment;	See responses to -0045(1)(a)

Table 3: City of Wheeler Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with OAR 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.	This TPR Section references project development and implementation - how a transportation facility or improvement authorized in a TSP is designed and constructed (660-012-0050). Project development may or may not require land use decision-making. The TPR directs that during project development, projects authorized in an acknowledged TSP will not be subject to further justification with regard to their need, mode, function, or general location. To this end, the TPR calls for consolidated review of land use decisions and proper noticing requirements for affected transportation facilities and service providers. ZO Section 18.035, Filing Fees allows proposed developments that require multiple applications to be processed in a consolidated manner. ZO Sections 13.050 – 13.080 include administrative provisions for providing notice. Section 13.050(1) requires mailed notice be sent to property owners near to the subject property. It does not require notice to be sent to agencies when a proposal would affect a transportation facility under their jurisdiction. **Recommendation:** The City should amend ZO Article 10 to include notice requirements for transportation facilities that affect or are affected by land use decisions.

Table 3: City of Wheeler Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:	
(a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;	Section 92.04 of Title IX establishes right of way widths based on street classification. ZO Subsection 15.100(5)(f) provides conditional use standards for street and walkway widths in Mobile Home Parks. Subsection 154.101(C) of Title XV provides standards for street alignment requiring centerlines of streets having approximately the same direction to have a minimum distance of 200 feet. Subsection 154.103(B) of Title XV and ZO Section 11.070 require each lot and parcel to abut a street for at least 25 feet. Subsection 154.101(L) of Title XV authorizes the Planning Commission to require marginal access streets where a land division abuts or contains an existing or proposed arterial street. Requirements that regulate driveway and intersection spacing are not provided in Title XV or Title IX. **Recommendation:** Access standard requirements will need to be modified as necessary to be consistent with, and implement the updated TSP. Street Improvement Standards will need to be made consistent with updated TSP standards.
(b) Standards to protect future operation of roads, transitways and major transit corridors;	ZO Subsection10.060(18) requires applicants for Planned Developments to submit a traffic impact study when deemed appropriate by the City, County, or State. ZO Subsection 10.070(4) provides review criteria that evaluates whether streets are adequate to support anticipated traffic from a Planned Development. Subsection 154.101(B)(1) of Title XV authorizes the City Council to require increased street widths beyond City standards where probable traffic conditions warrant. **Recommendation:** As part of the TSP implementation, create a new Section in ZO Article 11 for transportation impact studies (TIS). The section should include thresholds for requiring a TIS and include standards for study requirements, approval standards, and a process to allow the City to require mitigation of identified impacts as a condition of approval.

Table 3: City of Wheeler Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation;	This provision is not applicable. There are no airports in the City of Wheeler. No recommendation.
(d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;	See response to -0045(1)(c).
(e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;	See response to -0045(2)(a) and -0045(2)(b). **Recommendation:** Existing code provisions meet the TPR requirement. However, the City should consider identifying additional transportation-related improvements as potential conditions of approval, including improvements that facilitate pedestrian and bicycle travel (see -0045(3)(c)).
(f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of: (A) Land use applications that require public hearings; (B) Subdivision and partition applications; (C) Other applications which affect private access to roads; and (D) Other applications within airport noise corridors and imaginary surfaces which affect airport operations; and	See response to -0045(1)(c) and -0045(2)(c)
(g) Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and performance standards of facilities identified in the TSP.	See response to 0045(2)(b) and -0060.
(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.	
(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots;	Title XV and Title IX do not have bicycle parking standards. **Recommendation:** The City should adopt bicycle parking facility standards for all uses outlined -0045(3)(a).
(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping	ZO Subsection 11.050(4)(a) requires the following guidelines for Planning Commission site design review:

Table 3: City of Wheeler Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways. (A) "Neighborhood activity centers" includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers; (B) Bikeways shall be required along arterials and major collectors. Sidewalks shall be required along arterials, collectors and most local streets in urban areas, except that sidewalks are not required along controlled access roadways, such as freeways; (C) Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section; (D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel; (E) Streets and accessways need not be required where one or more of the following conditions exist: (i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided; (ii) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or (iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.	(6) Primary building entrances to open and connect to street sidewalk or create ADA accessible courtyard/plaza with pedestrian amenities. (9) Walkways or sidewalks to be provided to separate parking from public streets and adjacent property and (10) Uses shall provide hard-surfaced well-marked and lighted pedestrian access systems that are consistent with ADA standards. ZO Subsection 10.080(3)(c) Final Development Plans to show walkways or sidewalks. Section 154.104 of Title XV regulates the formation of blocks. The requirements restrict blocks to a maximum of 500 feet between street corners lines unless it is adjacent to an arterial street or unless the topography or the location of adjoining streets justifies an exception. Subsection 154.101(I) of Title XV establishes cul-de-sac development and design standards. The standards limit cul-de-sacs to a maximum of 400 feet in length and limited to serving not more than 18 dwelling units. There are no development requirements or standards for bicycle facilities in Title XV or Title IX. There are no standards in Title XV or IX that regulate the design of parking areas to accommodate and promote bicycle/pedestrian safety or circulation. **Recommendation:** The City should adopt requirements to provide walkways/sidewalks and bikeways along arterials and major collectors. The City should adopt on-site pedestrian and bicycle access and circulation standards for the following: • Parking areas • New commercial, light industrial, and multi-family residential developments. The City should consider refining block standards to include exceptions in accordance with -0045(3)(b)(E). The City should expand cul-de-sac requirements to require pedestrian access between the end of a cul-de-sac and adjoining development. The City should update the general parking off-street vehicle parking and loading requirements to include standards for parking areas over a specified size to include pedestrian circulation design standards.

Table 3: City of Wheeler Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
	The City should adopt transit access provisions and apply pedestrian and bicycle access standards to these provisions.
(c) Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors; *[Note: Subsection (d) defines safe and convenient]*	See response to Section -0045(2)(e).
(e) Internal pedestrian circulation within new office parks and commercial developments shall be provided through clustering of buildings, construction of accessways, walkways and similar techniques.	See response to Section -0045(3)(b). **Recommendation:** The City should adopt internal pedestrian circulation and access requirements for all commercial zones.
(6) In developing a bicycle and pedestrian circulation plan as required by OAR 660-012-0020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.	The TSP update will make recommendations to the bicycle and pedestrian plan that are consistent with TPR -0020. This TPR requirements is currently addressed in the following areas: Final Development Plans need to show walkways or sidewalks – See response and recommendations in Section – 0045(3)(b). Primary building entrances to open and connect to street sidewalk or create ADA accessible courtyard/plaza with pedestrian amenities – See response and recommendations in Section -0045(3)(b) Uses need to provide hard-surfaced well-marked and lighted pedestrian access systems. – See response to 0045(3)(b) Walkways or sidewalks must be provided to separate parking from public streets and adjacent property – See response to -0045(3)(b) **Recommendation:** This requirement will be addressed by the TSP update planning process, which will identify pedestrian and bicycle improvements for inclusion in the TSP, and is met by requiring improvements in developing areas consistent with adopted code provisions.

Table 3: City of Wheeler Land Usage Code – Title XV – Regulatory Review	
Oregon Revised Statutes	**Comments & Recommendations**
(7) Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Not withstanding section (1) or (3) of this rule, local street standards adopted to meet this requirement need not be adopted as land use regulations.	Subsection 92.04 of Title IX, General Regulations establishes street right-of-way widths based on street functional classification. Arterial: Pavement 24′, ROW 50′ Collector: Pavement 22′, ROW 50′ Minor: Pavement 20′, ROW 50′ The Residential street right-of-way width standard is consistent with the recommended widths illustrated in the Transportation Growth Management Neighborhood Street Design Guidelines, which range from 20′-28′ paved roadway within a right-of-way that ranges from 42′-56′. **Recommendation:** The TSP update process will revisit adopted roadway cross-sections and design requirements, keeping in mind that the TPR requires that cities minimize pavement width and total right-of-way consistent with the operational needs of the facility. Standards should be made consistent between the updated TSP and Street Improvement Standards.
OAR 660-12-0060	
Amendments to functional plans, acknowledged comprehensive plans, and land use regulations that significantly affect an existing or planned transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility.	Article 16 of Title XV establishes procedures and standards for amendments. Some of the approval criteria include meeting transportation demands or provide community facilities or services. The approval criteria do not contain specific requirements that ensures proposed amendments are consistent with planned facilities within the TSP. **Recommendation:** Article 16 should add provisions that address plan amendment consistency with transportation facilities.

Nehalem Bay TSP

TECHNICAL MEMO 4 | GOALS, OBJECTIVES & EVALUATION CRITERIA

FEHR & PEERS

Technical Memo #4

Goals, Objectives, and Evaluation Criteria
October 29, 2021

Prepared by Fehr & Peers

Introduction

This memorandum presents the proposed Goals and Objectives for the Nehalem Bay Transportation System Plan (TSP), along with a framework for evaluating transportation solutions with respect to their performance towards desired outcomes. The Goals, Objectives, and evaluation framework presented here were developed in coordination with staff from the Oregon Department of Transportation (ODOT), the cities of Manzanita, Nehalem, and Wheeler and the Planning Advisory Committee (PAC).

The **Goals** below provide strategic direction for collaboration and investment decisions over the next 20 years. **Objectives** provide actionable paths to fulfill the TSP goals and inform the **Evaluation Criteria** which are the measurable benchmarks by which **Projects** will be scored and prioritized.

Stakeholder Outreach

On June 9, 2021, the project team led a workshop with ODOT, City and County Staff, and PAC members to discuss key priorities that should serve as the foundation for the development of the Nehalem Bay TSP. The workshop resulted in a draft set of regional and city goals. These were then shared with the public through the Nehalem Bay TSP website, which was advertised through both print and online sources during the month of August. Following input from the communities, the feedback gathered was shared with the PAC to ensure that the priorities of the communities were reflected in the regional and local goals and objectives.

Goals and Objectives

The goals are divided into regional goals that apply to all three cities and city-specific goals that speak to the unique needs of each community. These goals build on past planning efforts and are consistent with other local and regional planning, while reflecting the changing transportation landscape as the cities plan for growth. Each goal is supported by objectives which are focused and measurable ways by which the goals can be achieved.

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 Highway 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.

Evaluation Criteria

The Transportation Goals and Objectives were used to develop an evaluation framework for potential transportation projects and solutions. A total of 12 regional criteria and four criteria for each city were developed and each was assigned a maximum number of points as shown in **Table 1** and **Table 2**.

Using this framework, potential projects and solutions will be evaluated as part of the Solutions Evaluation phase of work. While each project will have a numeric score showing how well it advances the TSP's adopted Transportation Goals, the evaluation will be used to inform a final "bundle" of solutions that will be considered for the 2040 planning horizon. In addition to advancing the identified Transportation Goals, the final bundle of investments is expected to be:

- Individualized for each City.
- Multimodal, with benefits among all primary modes of travel.
- Distributed geographically, including neighborhoods with large environmental justice communities priority land use areas.
- Wide ranging in project cost, with smaller projects that can be acted on more swiftly and larger projects that may require phasing, additional funding, and agency partners.

The final evaluation will group projects solutions into phasing, typically identified as near term (within 10 years) and long term (remainder of the planning horizon).

Table 1. Regional 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.	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.
	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.
	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.	Project addresses a location with a history of fatal/severe injury crashes and/or bike/ped crashes.	4	Location with one or more fatal/severe injury crashes and/or bike/ped crashes in the past 5 years.
		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.
	Project creates new connections off US 101 for active transportation modes between Nehalem Bay communities.	4	Project provides a new connection off of US 101 for people walking or biking, such as a sidewalk, trail, or bike lane.
		0	Project does not provide any of the above.
	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.
	Project addresses a location with a latent risk of crashes.	4	Location identified as having latent risk based on the built environment.
		0	Location not identified as having latent risk based on the built environment.

Regional Goal	Evaluation Criteria	Pts	Scoring
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.	Project maintains or rebuilds critical infrastructure; or improves access for emergency vehicles.	4	Project includes maintenance, repair, or seismic upgrades on U.S. 101, a bridge, or an identified evacuation route; or improves access and/or circulation for emergency vehicles.
		2	Project is not on a critical route but improves access and/or circulation for emergency vehicles.
		0	Project does not provide any of the above.
	Project includes a maintenance component on local roads.	4	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.
	Project improves US 101 consistent with ODOT's Blueprint for Urban Design (BUD) or other regional planning efforts.	4	Project would provide improvements to US 101 consistent with ODOT's BUD 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.	Project builds on investments in transportation funded primarily by entities other than the cities. (state, regional, county, grants, or development impact fees).	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.
	Project decreases future operation and/or maintenance costs.	4	Project lowers future operational and/or maintenance costs.
		0	Project does not provide any of the above.
	Total Points	**48**	

Table 2. City Evaluation Criteria

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.	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.
	Project supports efforts to create connections between key destinations and the commercial core.	4	Project is on the 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.	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.
		0	Project does not provide any of the above.
	Project builds roadway shoulders to city standards/greater than standard where no bike/ped facility is available.	4	Project builds roadway shoulder to wider than city standards or builds a sidewalk on a local road (non-arterial/collector)
		2	Project builds roadway shoulder to meet city standards.
		0	Project does not provide any of the above.
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.	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.
	Project builds shoulders to city standards/greater than standard where no bike/ped facility is available.	4	Project builds roadway shoulder to wider than city standards.
		2	Project builds roadway shoulder to meet city standards.
		0	Project does not provide any of the above.
Increase access to recreational areas and water-based travel options while protecting the natural environment.	Project would improve walking, biking, or watercraft access to natural areas and/or parks.	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.
	Project preserves and minimizes impact on ecological resources.	4	Project (other than trails) avoids crossing through or encroaching onto one of the following: estuary, wetland, or shoreline.
		0	Project located in a floodway (NOT floodplain), significant wetland, or sensitive shoreline.
Wheeler Goal	**Evaluation Criteria**	**Pts**	**Scoring**
Improve walking and biking safety, connections, and wayfinding within Wheeler.	Project builds sidewalks or crossings in the commercial core or as a connection to key local destinations.	4	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.
		0	Project does not provide any of the above.
	Project includes streetscape improvements.	4	Project adds landscaping, pedestrian-scale lighting, benches 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.	Project would improve walking, biking, or watercraft access to natural areas and/or parks.	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.
	Project preserves and minimizes impact on ecological resources.	4	Project (other than trails) avoids crossing through or encroaching onto one of the following: estuary, wetland, or shoreline.
		0	Project located in a floodway (NOT floodplain), significant wetland, or sensitive shoreline.
	Total Points Per City	**16**	

Appendix

Goals in Existing Local, Regional, and State Plans

Wheeler Comprehensive Plan (2017)

City Goal

To provide and encourage a safe, convenient, and economic transportation system.

Priorities

3. Protect the Natural Beauty
4. Preserve Small Town Atmosphere
5. Keep Town Safe and Functional
6. Improve Livability of Wheeler
7. Support a Vital Economy
8. Enhance Citizen Enjoyment

Policies

9. The City supports efforts to provide a broad range of transportation options for all users.
10. The City shall seek to maintain a multi-modal transportation system plan to provide and strengthen safe and efficient transportation connections between the highway, the community, the downtown, and the waterfront.
11. The City shall provide clear standards for highway and street construction projects.
12. Street developments shall be designed consistent with city standards to create a minimal need for cutting and filling.
13. The City shall maintain a street master plan.
14. Where the City determines that street standards cannot be met, the City Council may approve an alternative design if appropriate support is provided by a site investigation report and engineering recommendations.
15. The City shall be notified prior to the installation of any underground utility in a City right-of-way. The City will require the property owner and/ or their agent(s) authorized by the City to be responsible for the cost of improving or restoring the road consistent with City standards.
16. Additional access points to US Highway 101 shall be discouraged including those within new residential developments. Access to commercial uses should be provided by a consolidated access point.

17. The City will participate in Transportation Studies within the Wheeler jurisdiction with the intention of providing safer and more efficient highway transportation through Wheeler.
18. The City of Wheeler 2006 Transportation System Plan is part of the Comprehensive Plan.
19. Future improvement plans should not preclude passenger rail services to Wheeler.
20. To enhance public safety and recreational opportunities the City supports the development of the planned regional multi-use bicycle and pedestrian Salmonberry Trail designed to pass through the City by utilizing the Port of Tillamook Bay rail right-of-way and/or by sharing portions of local vehicular streets or US Highway 101.
21. When transportation planning or development work is undertaken within the Wheeler jurisdiction, the Wheeler Planning Commission or another committee designated by the City Council shall be used by the Oregon Department of Transportation as its citizen involvement committee.
22. The Oregon Department of Transportation (ODOT) shall coordinate any Transportation Studies, Transportation System Plans, and highway improvements within the City jurisdiction with the City and the Port of Tillamook Bay Railroad to insure that their combined improvement plans are consistent with the criteria in Policy 15.
23. Transportation improvement plans shall address the following considerations:
    a. The enhancement of pedestrian and vehicular access across Highway 101;
    b. The maintenance or improvement of parking facilities along Highway 101;
    c. The minimization of short-term disruptions which would adversely affect the business and residential areas of Wheeler;
    d. The enhancement of the long range viability of the downtown and waterfront areas;
    e. The minimization of noise and air pollution impacts on adjacent areas;
    f. The provision of appropriate landscaping;
    g. The protection of views across Nehalem Bay and surrounding area;
    h. The enhancement of access to and along the waterfront; and
    i. Opportunities to improve the safety of the coastal bike route including but not limited to such means as: constructing separate bike lanes, widening the highway shoulders, or diverting bike traffic.

Wheeler Vision (2011)

With remarkable consistency the citizens of Wheeler have had many of the same concerns and priorities for the past 40+ years. Their vision of Wheeler is a place where all of the citizen's and their priorities as a group are valued and acted upon by the City. For Wheeler to be a city in which government supports, through policy and ordinance, the continuation of a small town atmosphere that is environmentally friendly. For the City to also be a well- functioning municipality that is a safe and naturally beautiful place to live.

Nehalem Comprehensive Plan (2019)

Vision Statement

In 2040, Nehalem is a livable, economically sustainable, rural coastal community, a place where people know each other and celebrate its setting of natural beauty.

Aspirations

Infrastructure

- Nehalem's infrastructure of water, sewer, storm drains, streets and parks is developed to good standards for a rural community, well-maintained and renewed as needed from well-funded and well-managed reserve funds.

City Transportation Goal

To provide and encourage a safe, convenient, and economic transportation system.

Policies

1. Street patterns shall minimize the need for cutting and filling.
2. The City may permit narrower street widths in steep slope areas consistent with traffic safety and emergency vehicle access.
3. The City shall accept private streets as public streets only after they have been improved to City standards.
4. The City, County, and the State Department of Transportation shall discourage new access points onto Highway 101.
    a. Wherever possible, new residential development shall not have a direct access to Highway 101.
    b. New commercial and multi-family uses should be clustered with access being provided by a consolidated access point, preferably not directly onto Highway 101.
5. Alternative uses of City rights-of-way should be considered where they are not needed as streets.
    a. These uses may include trails, small parks, or natural areas.
6. The City shall be notified prior to the installation of any underground utility in a City right- of-way.
    a. The City will require reasonable efforts to improve or restore the road after construction.
7. The City supports efforts such as bus service, to provide transportation for people with limited transportation opportunity, and supports the Tillamook County Transit District to maintain bus stops and shelters as described in the Downtown Transportation Plan.

8. The City will work to incorporate (as resources allow) streetscape elements for pedestrian and bicycle friendly street design as illustrated in the Downtown Transportation Plan.
9. The City will encourage (as resources allow) an interpretive trail that provides access to the wetlands and river.
10. Street design standards are contained within the City's Subdivision Ordinance.
11. The City will work with ODOT to improve the design and safety of the U.S. 101/7th Street intersection.
12. The City will work with ODOT to provide pedestrian safety improvements and traffic calming measures and safe routes to school and encourage all types of transportation that limit greenhouse gas emissions.
13. The City recognizes the importance of and encourages a link between the Oregon Coast Trail and the Salmonberry Trail, and the Tillamook County Water Trail.

Nehalem Downtown Transportation Plan (2003)

Goal 1: Mobility, Safety and Accessibility

Improve mobility, safety and accessibility for all travel modes

Objectives:

1. Improve street connections and intersections, especially with U.S. 101, as needed to address circulation, safety and capacity deficiencies.
2. Reduce impacts of truck traffic in Nehalem's downtown; address truck parking and loading issues.
3. Improve on- and-off street parking opportunities; connect with school and recreation center as possible.
4. Provide for improvements to public transportation loading areas and circulation routes.
5. Improve traffic circulation for fire and emergency vehicles.
6. Address flooding on U.S. 101 as applicable, including alternate routing during floods.
7. Explore potential for special transportation area (STA) designation for U.S. 101 in Nehalem.

Goal 2: Pedestrians and Bicycles

Improve pedestrian and bicycle circulation and facilities.

Objectives:

1. Create better pedestrian and bicycle linkages across U.S. 101 to link business and recreational destinations to downtown.

2. Identify appropriate streetscape improvements, including landscaping, pedestrian-scale lighting, benches and street trees.
3. Provide facilities, such as sidewalks, crosswalks, curb extensions and signage, for safe and pleasant pedestrian travel.
4. Identify potential alignment for shared-use path to connect residents and visitors with the Nehalem River.

Goal 3: Implementation

Provide for improvements that are implementable and comply with applicable standards.

Objectives:

5. Propose new or updated design standards for city streets, in particular to emphasize traffic calming and pedestrian and bicycle travel.
6. Develop designs that improve local street connectivity as applicable.
7. Ensure that new facilities (and existing facilities as feasible) comply with the Americans with Disabilities Act (ADA).
8. Develop designs that minimize environmental impacts.
9. Develop designs that are cost-effective.
10. Develop designs that meet applicable local, county, state and federal plans, standards and criteria.
11. Develop a plan with sufficient detail to qualify for funding of engineering and construction phases.

Manzanita Comprehensive Plan (2014)

Transportation planning in Manzanita includes cars and trucks, commercial buses, the senior citizen bus, bicycles and walking. The street system is described in the public facilities section of the plan. In addition, improvements along Highway 101, Classic Street and Laneda Avenue are included in the adopted Downtown Transportation Plan, Section 4. (Amended by Ord. 03-05, passed July 9, 2003) Additional policies concerning the transportation system are:

1. Efforts to reduce speeding on Laneda Avenue should be carried out by the city. This should take the form of maintaining a low speed (20 MPH), requesting that the City police and Tillamook County Sheriff's Department maintain a high level of enforcement and installing appropriate warning signs. (Amended by Ord.14-02; passed on April 9, 2014)
2. Sufficient pavement width should be included on all major streets or roads to accommodate bicycle traffic. Facilities such as bicycle racks should be considered in the city park and downtown area.
3. The city traffic management plan should be used as a guide for the installation of traffic signs, crosswalks, and other street improvements. The plan should be communicated

to the county for their participation on county roads, and should be updated on a regular basis. . In addition, crosswalks and other improvements on Highway 101, Classic Street and Laneda Avenue are included in the adopted Downtown Transportation Plan, Section 4. (Amended by Ord. 03-05, passed July 9, 2003)

4. Crosswalks in the downtown commercial area should be a high priority for the city. Consideration should be given to the installation of planters or other landscaping devices in conjunction with the crosswalks.
5. The city and state shall cooperate to retain the airport at Nehalem Bay State Park. It is the position of the city that the airport should be surfaced, that "T- Hangers" should be installed, and that a caretaker should be stationed at the airport. It is the goal of the city that the facility be improved for existing traffic rather than expanded.
6. The city and state shall cooperate to limit the number of accesses onto U.S. Highway lol to as few as possible. No new accesses shall be permitted north of Laneda, or in other locations where traffic visibility is limited.
7. The city will work with the Oregon Department of Transportation to coordinate plans and projects particularly through the Oregon Transportation Plan and the US Highway 101 Corridor Study. Specifically, the city wishes to have direct input into highway improvement plans on U.S. Highway lol in the vicinity of the city, and on future uses of the unused highway right-of-way.
8. The City discourages property owners from improving street rights-of-way with landscaping, driveways, walkways and similar projects, especially in the vicinity of water, sewer, and storm drainage lines. All parking required by the zoning ordinance must be useable by the property owners, generally not exceeding 10% grade from the street.

Manzanita Downtown Transportation Plans (2003)

Goal 1: Mobility, Safety and Accessibility

Improve mobility, safety and accessibility for all travel modes

Objectives:

1. Improve vehicle circulation, particularly for north-south travel, as well as along Laneda Avenue and side streets.
2. Develop and mark new on- and off-street parking areas for auto and recreation vehicle (RV) users at business and recreational destinations downtown.
3. Identify intersection improvements (especially at Laneda Avenue/U.S. 101 and Manzanita/U.S. 101) to address circulation, safety and capacity deficiencies.
4. Provide detail for the extension of Classic Street to enhance local circulation and encourage local traffic to stay off U.S. 101.
5. Provide for improvements to public transportation loading areas and circulation routes.
6. Ensure transportation system allows for safe emergency vehicle access and circulation.

7. Ensure improvements maintain Manzanita's secluded, restful feel while encouraging business opportunities.
8. Develop solutions that balance the needs of motor vehicle and pedestrian/bicycle travel in the downtown area.

Goal 2: Pedestrians and Bicycles

Improve pedestrian and bicycle circulation and facilities.

Objectives:

1. Improve crosswalks and maximize pedestrian safety in the downtown area.
2. Identify appropriate streetscape improvements, including landscaping, pedestrian-scale lighting, benches and street trees.
3. Improve bicycle and pedestrian safety and comfort on Laneda Avenue through the use of traffic calming and other design features.
4. Identify opportunities for off-street pedestrian and bicycle facilities, such as shared-use paths, trails and greenways.
5. Provide an American with Disabilities Act (ADA)-compliant ramp to the beach at the west end of Laneda Avenue.

Goal 3: Implementation

Provide for improvements that are implementable and comply with applicable standards.

Objectives:

1. Propose new or updated design standards for city streets, in particular to emphasize traffic calming and pedestrian and bicycle travel.
2. Develop designs that improve local street connectivity as applicable.
3. Ensure that new facilities (and existing facilities as feasible) comply with ADA.
4. Develop designs that minimize environmental impacts.
5. Develop designs that are cost-effective.
6. Develop designs that meet applicable local, county, state and federal plans, standards and criteria.
7. Develop a transportation plan with sufficient detail to qualify for funding of engineering and construction phases.

Tillamook County Transportation System Plan (2004)

Goals

- Reduce reliance on the automobile

- Provide transportation options for all people, including the transportation disadvantaged
- Promote a safe transportation system
- Minimize conflicts between modes
- Promote intermodal linkages for passengers and goods
- Minimize impacts to the natural and built environment
- Make decisions about the community intentions and expectations for the future of its transportation system

ODOT Oregon Transportation Plan (2006)

1. **Goal 1 – Mobility and Accessibility:** Provide a balanced, efficient and integrated transportation system that ensures interconnected access to all areas of the state, the nation and the world. Promote transportation choices that are reliable, accessible and cost-effective.
2. **Goal 2 – Management of the System:** Improve the efficiency of the transportation system by optimizing operations and management. Manage transportation assets to extend their life and reduce maintenance costs.
3. **Goal 3 – Economic Vitality:** Expand and diversify Oregon's economy by transporting people, goods, services and information in safe, energy-efficient and environmentally sound ways. Provide Oregon with a competitive advantage by promoting an integrated freight system.
4. **Goal 4 – Sustainability:** Meet present needs without compromising the ability of future generations to meet their needs from the joint perspective of the environment, economy and communities. Encourage conservation and communities that integrate land use and transportation choices.
5. **Goal 5 – Safety and Security:** Build, operate and maintain the transportation system so that it is safe and secure. Take into account the needs of all users: operators, passengers, pedestrians and property owners.
6. **Goal 6 – Funding the Transportation System:** Create sources of revenue that will support a viable transportation system today and in the future. Expand ways to fund the system that are fair and fiscally responsible.
7. **Goal 7 – Coordination, Communication and Cooperation:** Foster coordination, communication and cooperation between transportation users and providers so various means of transportation function as an integrated system. Work to help all parties align interests, remove barriers and offer innovative, equitable solutions.

ODOT Oregon Bicycle and Pedestrian Plan (2016)

Vision

In Oregon, people of all ages, incomes, and abilities can access destinations in urban and rural areas on comfortable, safe, well-connected biking and walking routes. People can enjoy Oregon's scenic beauty by walking and biking on a transportation system that respects the needs of its users and their sense of safety. Bicycle and pedestrian networks are recognized as integral, interconnected elements of the Oregon transportation system that contribute to our diverse and vibrant communities and the health and quality of life enjoyed by Oregonians.

Goals

1. **Goal 1: Safety** Eliminate pedestrian and bicyclist fatalities and serious injuries, and improve the overall sense of safety of those who bike or walk.
2. **Goal 2: Accessibility and Connectivity** Provide a complete bicycling and pedestrian network that reliably and easily connects to destinations and other transportation modes.
3. **Goal 3: Mobility and Efficiency** Improve the mobility and efficiency of the entire transportation system by providing high quality walking and biking options for trips of short and moderate distances. Support the ability of people who bike, walk, or use mobility devices to move easily on the system.
4. **Goal 4: Community and Economic Vitality** Enhance community and economic vitality through walking and biking networks that improve people's ability to access jobs, businesses, and other destinations, and to attract visitors, new residents, and new business to the state, opening new opportunities for Oregonians.
5. **Goal 5: Equity** Provide opportunities and choices for people of all ages, abilities, race, ethnicities, and incomes in urban, suburban, and rural areas across the state to bike or walk to reach their destinations and to access transportation options, assuring transportation disadvantaged communities are served and included in decision making.
6. **Goal 6: Health** Provide Oregonians opportunities to become more active and healthy by walking and biking to meet their daily needs.
7. **Goal 7: Sustainability** Help to meet federal, state, and local sustainability and environmental goals by providing zero emission transportation options like walking and biking.
8. **Goal 8: Strategic Investment** Recognize Oregon's strategic investments in walking and biking as crucial components of the transportation system that provide essential options for travel, and can help reduce system costs, and achieve other important benefits.
9. **Goal 9: Coordination, Cooperation, and Collaboration** Work actively and collaboratively with federal, state, regional, local, and private partners to provide consistent and seamless walking and biking networks that are integral to the transportation system.

ODOT Oregon Transportation Options Plan (2015)

Goals

1. **Goal 1: Safety** To provide a safe transportation system through investments in education and training for roadway designers, operators, and users of all modes.
2. **Goal 2: Funding** To establish an optimized transportation system with funding for transportation options equally considered with other programs at the state, regional, and local levels, with strategic partnerships that support jurisdictional collaboration, and with public and private sector transportation investment.

3. **Goal 3: Accessibility** Expand the availability, information, and ease of use of transportation options, improving access to employment, daily needs, services, education, and travel to social and recreational opportunities.
4. **Goal 4: Mobility and System Efficiency** To improve the mobility of people and goods and the efficiency of the transportation system by managing congestion, enhancing transportation system reliability, and optimizing transportation investment through transportation options.
5. **Goal 5: Economy** To enhance economic vitality by supporting job creation and retention, decreasing household spending on transportation, supporting vibrant local businesses, and helping goods move reliably.
6. **Goal 6: Health and Environment** To support healthier natural and built environments by developing and promoting transportation options that reduce the environmental impacts of motorized travel and allow more people to incorporate physical activity in their daily lives.
7. **Goal 7: Land Use and Transportation** To ensure land use planners, developers, and decision makers have transportation options tools and strategies to implement livable development patterns by supporting the availability, access, and co-location of transportation options.
8. **Goal 8: Coordination** To work collaboratively with public and private partners to integrate transportation options into local, regional, and state planning processes, operations and management, and investment decisions.
9. **Goal 9: Equity** To support the diverse transportation needs of people of all ages, abilities, income levels, and ethnicities throughout Oregon.
10. **Goal 10: Knowledge and Information** To provide Oregonians and visitors with easily accessible information about the full range of transportation options available to them, to improve the customer experience through increased human capital, and to help customers match options with individual travel needs.

Nehalem Bay TSP

TECHNICAL MEMO 5 | EXISTING CONDITIONS ASSESSMENT

FEHR & PEERS

Technical Memo #5

Existing Conditions Assessment
July 12, 2021 – FINAL

Prepared by Fehr & Peers

Introduction

Manzanita, Nehalem, and Wheeler are distinct communities with unique needs, challenges, and goals. However, these coastal communities are also deeply interconnected by their location along U.S. 101 and proximity to Nehalem Bay, which reinforces strong economic and cultural ties. The three cities have an exceptional history of cooperative planning and are now undertaking a joint Nehalem Bay Transportation System Plan (TSP).

This memorandum summarizes conditions experienced by all travel modes in Manzanita, Nehalem, and Wheeler as of 2020. The memorandum includes a comprehensive review of current transportation policies in the Nehalem Bay communities as they relate to county, regional, and state designations and standards. The memorandum then reports on the current operations of the transportation system, with consideration given to all modes, and identifies existing infrastructure gaps and deficiencies, transportation system completeness, operations, and safety.

This analysis establishes the base condition upon which a forecast conditions analysis will be built. The forecast conditions analysis will be integral to identifying future (2040) system gaps and opportunities for Nehalem Bay's TSP.

Plan Area

Located on the northern Oregon coast in Tillamook County, the Nehalem Bay planning area is composed of the cities of Manzanita, Nehalem, and Wheeler. The three cities are arranged around the bay where the Nehalem River meets the Pacific Ocean and are connected by U.S. 101, as shown in **Figure 1**.

Manzanita has an estimated population of 393 people and has the largest land area of the three cities. U.S. 101 provides access to the City at Manzanita Avenue and Laneda Avenue, but only flanks the city's northeast border. Laneda Avenue is Manzanita's main commercial corridor, and Manzanita is the only one of the three cities with beach access. The Manzanita urban growth boundary (UGB) encompasses a section of the Bayside Gardens neighborhood located between Manzanita and Nehalem in unincorporated Tillamook County.

Nehalem is located between Manzanita and Wheeler, with U.S. 101 serving as its main street. With a population of 355 people, it is bounded by the Nehalem River to the east. Nehalem's urban growth boundary encompasses a large portion of the Bayside Gardens neighborhood between Manzanita and Nehalem and stretches north and south of the City boundary along the Nehalem River.

Wheeler is the southern-most city in Nehalem Bay, and like Nehalem, U.S. 101 is the main commercial corridor. Wheeler has a population of 357 people and the Nehalem River runs along the north side of the city. The Wheeler UGB extends to a small area north of the city.

Figure 1. Nehalem Bay Planning Area

Urban Growth Boundary (2019)
City
Park
Railroad

Figure 1

Nehalem Bay Planning Area

Land Use and Key Destinations

The development in an area, coupled with the characteristics of the transportation network, provides a distinct experience for people who live, work, or visit a place. Moreover, the types and densities of land uses in a city are major determinants of traffic levels and travel patterns. The zoning map for Nehalem Bay (shown in **Figure 2**) guides the types of land uses and allowable densities in different areas.

The location of key destinations such as schools, parks, and public facilities also drives both local and recreational trip making. Within Nehalem Bay, the three cities share some facilities such as:

- Nehalem Elementary School (Nehalem)
- Nehalem Bay Fire & Rescue (Nehalem UGB)
- Urgent Care (Manzanita UGB)
- Water and wastewater treatment facilities (Nehalem)
- Grocery stores (Manzanita, Nehalem)
- Tillamook County Library (Manzanita)

In Manzanita, the land on either side of Laneda Avenue and along U.S. 101 is zoned for commercial use. Directly off of Laneda Avenue there is a small area zoned for high density residential use; the rest of the city is medium to low density residential uses. Manzanita has a library, police department, and grocery stores within city limits. Directly south of the city limits is Nehalem Bay State Park, which receives approximately 700,000 visitors a year. The park has an airport, boat launch, and a variety of year-round recreational offerings.

The commercial core of Nehalem is location along U.S. 101 from 10th Street to the river, and from B Street to Tohls Street. Medium and low density residential uses make up the rest of the city, with some designated park and shoreland space along the riverfront. There is also a public dock in Nehalem and watersports are a popular draw to the area. Nehalem Elementary School is located in Nehalem and serves all three cities, while the middle and high schools are south of Nehalem Bay in Rockaway Beach. Outside of the city limits but within Nehalem's UGB there is a mix of commercial uses along U.S. 101 and medium density residential in the Bayside Gardens area.

The majority of Wheeler is medium density residential land, with commercial uses along U.S. 101. There is a small amount of industrial land along the river, along with a public marina for boat access to the river. Wheeler does not have a grocery store, so residents have to travel to Nehalem, Manzanita, or nearby Mohler for groceries.

Figure 2. Nehalem Bay Zoning

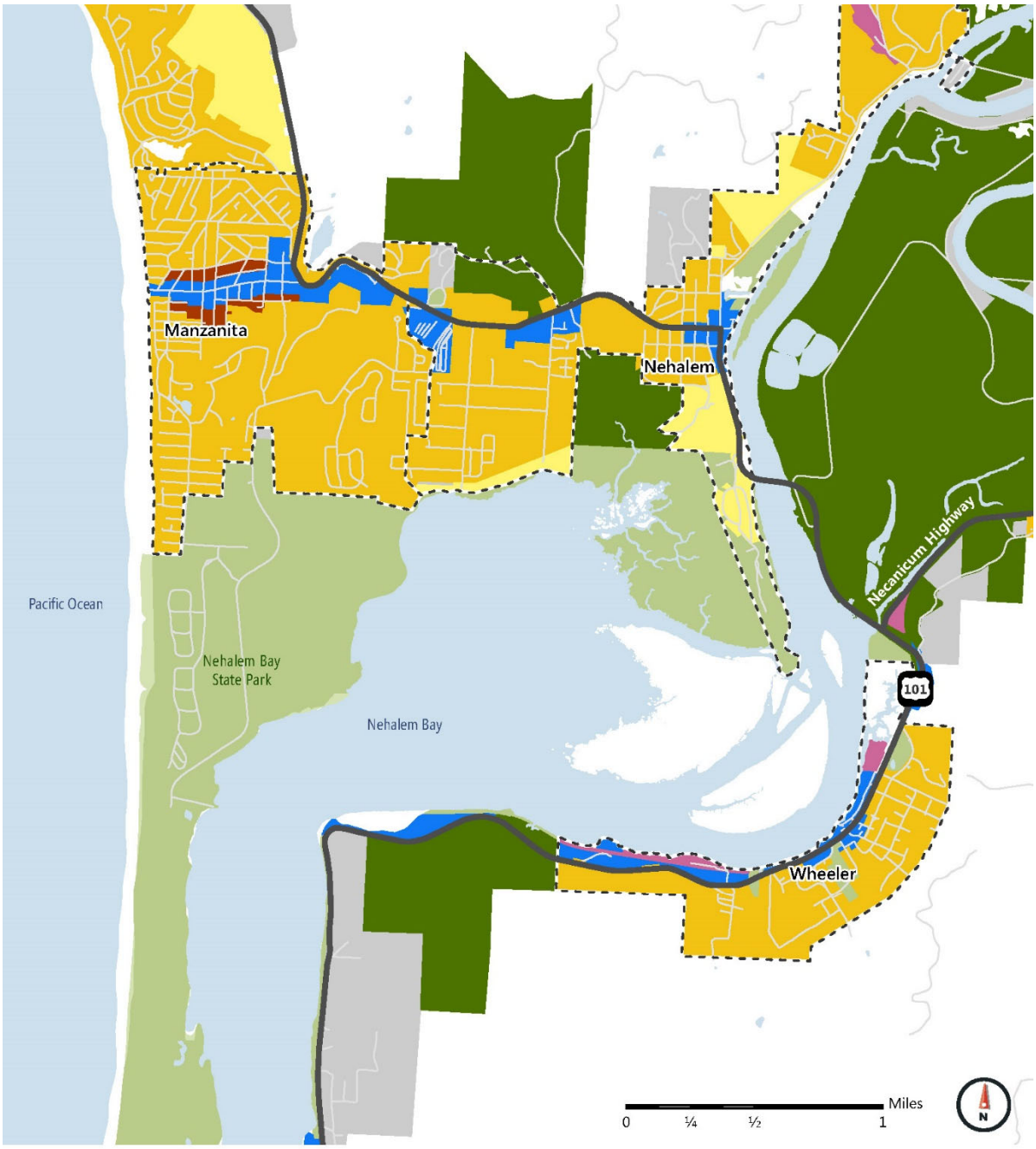


Figure 2

Zoning

Population and Employment

The total permanent population living within the cities of Nehalem, Wheeler, and Manzanita is fairly small, but many of the residences in Nehalem Bay are a second home for part-time residents. There are also many homes within the UGB areas just outside the city limits.

Title VI and Environmental Justice Populations

The distribution of Title VI and Environmental Justice populations in Nehalem Bay was reported from the U.S. Census Bureau's most recent American Community Survey (2015-2019). There are four Census Block Groups in the region which make up Census Tract 9601 as shown in

Figure 3 below. The Census areas do not directly match up with the City boundaries so **Table 1** below lists the breakdown for each city and Tillamook County, while **Table 2** shows the totals for the Block Group or Census Tract depending on how the information is reported.

As seen in Table 1, Wheeler and Manzanita have high percentages of residents over the age of 65, while proportionally they both have smaller percentages of children than the Tillamook County average. All three cities have a lower share of residents that identify as non-white than Tillamook County, and both Manzanita and Wheeler have a lower percentage of residents in poverty than the County as a whole. Due to a large number of vacation homes, Manzanita has the most housing units of the three cities, eclipsing both Nehalem and Wheeler combined.

Table 1: Demographics of Nehalem Bay Cities

	Total Population	Over age 65		Under age 18		Non-white		Below Poverty Level		Disability		Housing units
Manzanita	393	196	*50%*	15	*4%*	8	*2%*	16	*4%*	115	*29%*	1,250
Nehalem	355	43	*12%*	82	*23%*	20	*6%*	45	*13%*	80	*23%*	163
Wheeler	357	135	*38%*	54	*15%*	30	*8%*	41	*11%*	81	*23%*	259
Tillamook County	*26,389*	*6,560*	*25%*	*5,033*	*19%*	*4,555*	*17%*	*3,365*	*13%*	*5,706*	*22%*	*19,000*

Source: U.S. Census Bureau American Community Survey, 2015-2019

Table 2: Demographics of Nehalem Bay Block Groups

	Total Population	Over age 65		Under age 18		Non-white[1]	Below Poverty Level[1]	Disability[1]	Housing units[1]
Census Tract 9601, Block Group 1	1,155	362	*31%*	250	*22%*	*162 (5%)*	*233 (7%)*	*639 (20%)*	4060
Census Tract 9601, Block Group 2	932	348	*37%*	94	*10%*				
Census Tract 9601, Block Group 3	444	213	*48%*	15	*3%*				
Census Tract 9601, Block Group 4	*775*	*317*	*41%*	*144*	*19%*				

Source: U.S. Census Bureau American Community Survey, 2015-2019

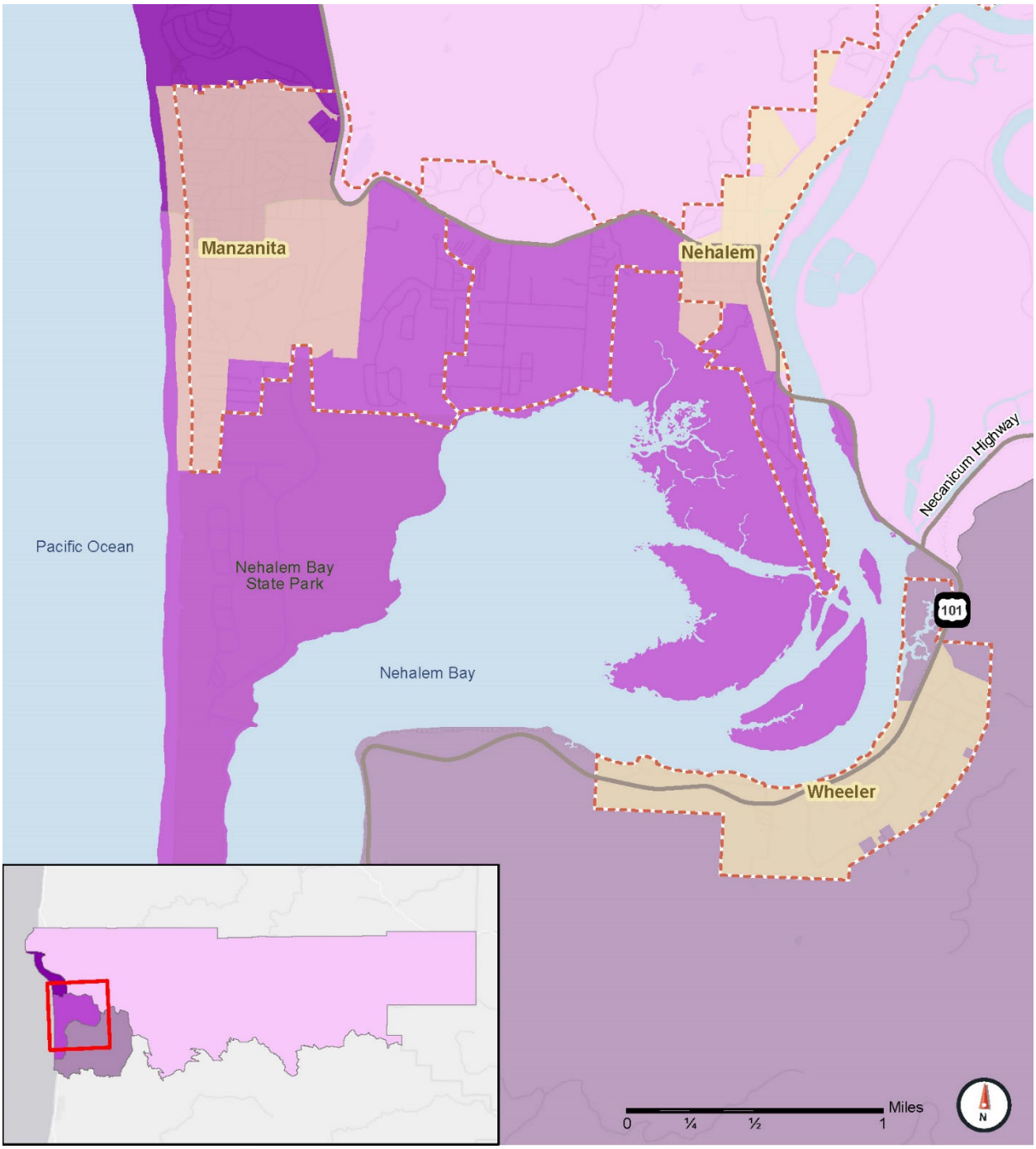
1 This data is only reported at the Census Tract level, not at the Block Group level.

Employment

Manzanita has the highest number of jobs in the area, though there are also many in the UGB area between Manzanita and Nehalem. Approximately 91 percent of people employed in Manzanita live outside of the city limits[1]. In Nehalem and Wheeler, 97.5 percent and 95 percent, respectively, of the people employed within city limits live outside of the city.

[1] U.S. Census Bureau Longitudinal-Employer Household Dynamics data, 2018.

Figure 3. Nehalem Bay Census Block Groups



Census Tract 9601
- Block Group 1
- Block Group 2
- Block Group 3
- Block Group 4

Urban Growth Boundary (2019)
City

Figure 3

Nehalem Bay Census Block Groups

Existing System Inventory

Nehalem Bay's transportation system is primarily a network of local and neighborhood roadways. These facilities must accommodate many travel modes within their rights of way, with users' experience also shaped by the surrounding land use and by seasonal factors. The following section inventories the current state of the network for each mode of travel.

Roadway

Streets in Nehalem Bay are owned and maintained by ODOT, Tillamook County, and the Cities. They are designed to fit the purpose that they serve, from longer distance mobility on the highway to neighborhood circulation. Overall, the roadway network serves auto, freight, and transit needs in addition to active transportation needs. Locations that have inconsistencies between their design and their intended function, such as gaps in sidewalks, are opportunities for further evaluation and potential improvements.

Functional Class

Functional classification is an important identifying metric for roadways. Roadways are assigned a functional classification to indicate purpose, design, and function. General descriptions of functional classes are as follows.

Principal arterials carry the highest volume of traffic of any roadway type below grade-separated freeways and provide regional connections. Mobility is a priority on principal arterials and access control is important.

Arterials are designed for higher volumes but carry fewer regional trips. These streets link major commercial, residential, industrial, and institutional areas.

Collectors distribute trips between local streets and arterials. They serve as transition roadways between commercial and residential areas and provide a citywide circulation function. Collectors can be split into **Major** and **Minor** collectors, with major collectors generally having longer lengths, higher speed limits, higher traffic volumes, and more travel lanes than minor collectors. Major collectors offer more mobility and minor collectors offer more access.

Local streets are the lowest functional classification. They provide circulation within residential neighborhoods, provide access to homes and properties, and serve a slower-moving mix of modes.

Nehalem Bay's street network contains a mix of collector and local streets which connect users to City main streets and U.S. 101. **Table 3** shows the jurisdiction and functional classification of roadways in

Nehalem Bay that are classified as collectors or higher, while **Figure 4** shows the functional class of all streets in the region.

Table 3: Roadway Jurisdiction and Functional Classification

Roadway	Location	Jurisdiction	Functional Classification
U.S. 101	Study Area	ODOT	Principal Arterial
Laneda Avenue	Manzanita	Manzanita and Tillamook County	Major Collector
7th Street / North Fork Road	Nehalem	Tillamook County	Major Collector
Necarney City Road	Nehalem UGB	Tillamook County	Minor Collector
Ocean Road	Manzanita	Tillamook County	Minor Collector
Nehalem Road	Manzanita	Tillamook County	Minor Collector
Carmel Avenue/ Necarney Boulevard	Manzanita	Manzanita	Minor Collector
Classic Street	Manzanita	Manzanita	Minor Collector
Sitka Lane	Manzanita UGB	Tillamook County	Minor Collector
Sandpiper Lane	Manzanita UGB	Tillamook County	Minor Collector
Gary Street	Manzanita UGB	Tillamook County	Minor Collector

Source: Fehr & Peers.

Both Nehalem and Wheeler have a Special Transportation Area (STA) designation for U.S. 101 through the cities. An STA is an ODOT highway segment designation for an existing downtown or planned downtown that straddles the state highway. The primary objective of an STA is to provide access to community activities and businesses to accommodate pedestrian, bicycle and transit movement. These areas must balance the need for appropriate local access with the considerations of highway mobility.

Freight Routes

Freight movement is essential to bring goods to residents and to move products throughout the region. U.S. 101 is designated by the FHWA as part of the National Highway System (NHS), which is defined as roads that are important to the nation's economy, defense, and mobility. The highway is the only designated freight route in Nehalem Bay, and must balance the needs of residents, visitors, and goods. It is also classified by ODOT as a Reduction Review Route, which are facilities that require review during any planning, project development, development review and maintenance for any potential reduction in vehicle-carrying capacity. These routes may not have any permanent reduction in the vehicle-carrying capacity unless required for safety or access considerations or through a local exemption.

Figure 4. Nehalem Bay Functional Classifications

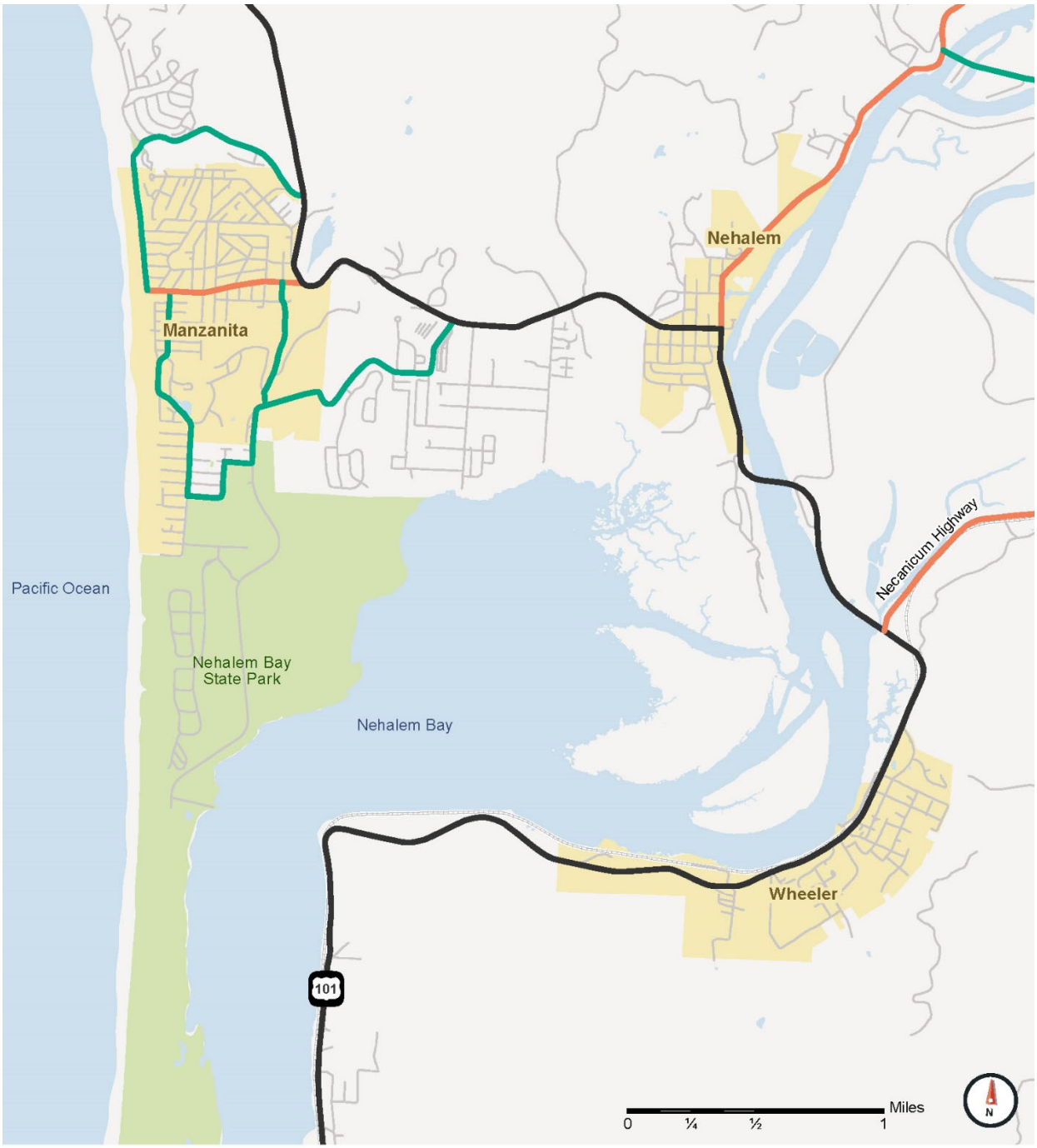


Figure 4

Roadway Functional Classification

Roadway Design Standards

Design standards set the minimum widths for roadways, usually based on functional classification, as well as street elements such as parking lanes, sidewalks, and bike lanes. **Table 4** to **Table 6** summarize design standards for roadway cross-section elements in each City.

Table 4: Manzanita Roadway Standards by Functional Class

Functional Class	ROW Width	Base Width	Gravel Width	Paving Width
Arterial	50 feet	28 feet	28 feet	24 feet
Collector	40 feet	26 feet	26 feet	22 feet
Residential	40 feet	24 feet	24 feet	20 feet

Source: Manzanita Ordinance No 91-2

Table 5: Nehalem Roadway Standards by Functional Class

Functional Class	ROW Width	Curb to Curb Pavement Width	Travel Lanes	Parking Lanes	Sidewalks
Arterial	60 feet	40 feet	12 feet	8 feet	6 feet
Collector	50 feet	38 feet	11 feet	8 feet	6 feet
Driveway	10 feet	10 feet	10 feet	-	-
Private street, alley	20 feet	18 feet	9 feet	-	-
Residential	40 feet	32 feet	9 feet	7 feet	4 feet
	30 feet	25 feet	9 feet	7 feet	4 feet

Source: Nehalem Municipal Code 156.081

Table 6: Wheeler Roadway Standards by Functional Class

Functional Class	ROW Width	Base Width	Gravel Width	Paving Width	Shoulder Width
Arterial	50 feet	32 feet	32 feet	24 feet	5 feet
Collector	50 feet	32 feet	32 feet	22 feet	5 feet
Minor	50 feet	26 feet	26 feet	20 feet	3 feet

Source: Wheeler Ordinance 92.04

Travel Lanes

All of the roads in Nehalem Bay have a two-lane cross-section, with the exception of Highway 101 which has a three-lane cross section (two travel lanes and one center turn lane) between Bayside Gardens Road and the Rex Champ Field entrance. There are also left-turn bays at the intersections of:

- U.S. 101 and Manzanita Avenue (Manzanita)
- U.S. 101 and Laneda Avenue (Manzanita)
- U.S. 101 and 8th Street (Nehalem)
- U.S. 101 and Tideland Road
- U.S. 101 and OR 53
- U.S. 101 and the Paradise Cove Resort and Marina entrance

Pavement

The pavement condition of U.S. 101 through Nehalem Bay ranges from "Good" to "Very Good" according to ODOT's pavement condition records. Most public roadways within Manzanita city limits are paved. In Wheeler Depot Street and the northernmost quarter of First Street are unpaved, while in Nehalem a portion of 8th Street, the north end of 9th street, and J Street are unpaved. There are also several gravel roadways outside of city limits but within urban growth boundaries that are maintained by Tillamook County.

Intersection Control

There are no signalized intersections in Nehalem Bay. Most intersections are treated with two-way or four-way stop-control intersection control. The intersection of 7th Street and H Street in Nehalem is a stop-controlled intersection with a red flashing beacon.

Posted Speed

The posted speed limits in Nehalem Bay range from 25 mph on most local and neighborhood roads, to 55 mph on segments of U.S. 101 outside of city limits. Additionally, 7th Street and U.S. 101 have speed limits of 35 mph and 30 mph, respectively, within Nehalem. **Figure 5** shows the posted speed limits of U.S. 101 in the region.

Figure 5. Posted Speed Limits

Access and Connectivity

The Oregon Transportation Planning Rule (TPR) defines "Access Management" as "...measures regulating access to streets, roads and highways from public roads and private driveways." The TPR requires that new connections to both arterials and state highways follow designated access management guidelines. Typically, existing access points can remain so long as the land use does not change.

In general, access management standards require more spacing for higher capacity roadways. However, the specific spacing value may vary by jurisdiction. The City of Manzanita's Ordinance No. 94-2 states that lots in commercial zones C-1 and LC may have 12.5 feet of driveway if the property is less than 100 feet in frontage width, while lots greater than 100 feet in frontage width may have 12.5 feet of driveway per 50 feet of frontage. In all other zones, the same rules apply with a differentiating frontage width of 50 feet (instead of 100 feet).

The Oregon Highway Plan (OHP) includes access management spacing standards for ODOT highways, most recently amended in 2005. U.S. 101 is under ODOT management and must follow OHP standards. The OHP access management spacing standards as applied to U.S. 101 are shown in Table 1**Table 7**. The highway classification of U.S. 101 (statewide highway) can be found in Appendix D of the OHP.

Table 7: OHP Access Spacing Standards

Roadway	Speed Limit	Spacing Standard (rural)	Spacing Standard (urban)
U.S. 101	55 or higher	1320 feet	1320 feet
	50	1100 feet	1100 feet
	40 & 45	990 feet	800 feet
	30 & 35	770 feet	500 feet
	25 & lower	550 feet	350 feet

Segments of U.S. 101 do not meet the OHP's spacing standards within the city limits of Manzanita, Nehalem, and Wheeler.

Bridges

There are seven bridges along U.S. 101 through Nehalem Bay. Of these bridges:

- Five of these bridges are 40 feet or less and two are long (lengths of 321 feet and 1,062 feet).
- Two of the bridges on U.S. 101 have low sufficiency ratings (26 for both). The sufficiency rating is a tool to determine the structural condition and functionality of a bridge. Bridges with a rating under 50 could be eligible for federal funding for replacement or rehabilitation.

Figure 6 shows all of the bridges in Nehalem Bay and denotes their sufficiency ratings.

Figure 6. Sufficiency Ratings of Bridges

Figure 6

Sufficiency Ratings of Bridges

Parking

In Manzanita, parking is prohibited on public streets except in areas specifically marked for public parking, according to ordinance No. 11-03. Laneda Avenue has striped on-street parking along the commercial core, and Ocean Road has gravel shoulders where visitors often park. All permitted on-street parking is free and without time restrictions. There are no off-street public parking lots near beach access points in Manzanita; the only free public lot is on 5th Street at the Manzanita bus stop with approximately 20 parking stalls. There are a few small public bike parking racks located along Laneda Avenue.

In Nehalem, free on-street parking is available on U.S. 101 and Tohls Street. There are a few small off-street lots available to customers of local businesses and a large open parking lot on the northwest corner of U.S. 101 and 7th Street. There is also public parking in the open lot behind City Hall. There are no time restrictions on these parking spaces.

Wheeler has free on-street parking on U.S. 101 in the commercial core and along Rorvik and Gregory Streets. There is also an off-street public parking lot with approximately 25 parking stalls and access to the boat launch. A few businesses along U. S. 101 have small parking lots available to their customers.

Transit

NW Connector

Public transportation in the region is provided by NW Connector. The NW Connector Route 3 runs daily Northbound and Southbound through Nehalem Bay, with a frequency between two and three hours. The route has a total of five scheduled stops through Nehalem Bay (**Figure 7)**:

- Wheeler Stop #157 (Rinehart Clinic)
- Wheeler Stop #189 (U.S. 101 & Rector Street)
- Wheeler Stop #190 (U.S. 101 & Hemlock Street)Nehalem Stop #155 (8th Street & Tohls Avenue)
- Manzanita Stop #148 (5th Street S)

Stop #189 in Wheeler and the stops in Nehalem and Manzanita have transit shelters for riders, benches, and schedule information. The Rinehart Clinic stop in Wheeler is in front of the health clinic which has shelter and a bench, while the stop at Hemlock Street has only a bench and no signage stating that it is a bus stop. Riders may also flag the bus anywhere along the route where it is safe to do so. Route 3 extends to the Tillamook Transit Center Northbound and Midtown Cannon Beach Southbound; fares are zone-based and range from $1.50 to $4.50.

Oregon Coast Scenic Railroad

The Oregon Coast Scenic Railroad is a heritage railroad that operates seasonally between Rockaway Beach and Garibaldi, with special trips to Wheeler. Tickets are round-trip and can be booked in advance. The Wheeler depot is located at U.S. 101 & Rector Street, East of Waterfront Park.

Figure 7. Existing Transit

Figure 7

Existing Transit

Bicycle System

Most roadways in Nehalem Bay are low speed local and residential roadways that are unmarked for bicycles. One marked bicycle facility exists in Manzanita, where there is a striped bicycle lane on the east side of Carmel Avenue between Laneda Avenue and Horizon Lane.

There are no marked bicycle facilities connecting Manzanita, Nehalem, and Wheeler. U.S. 101 is designated as the Oregon Coast Bike Route; however, the bicycle facility is a paved shoulder with a minimum width of 3 feet, and a maximum width of 8 feet. The facility condition is classified as fair on the shoulder and shared lane facilities through Nehalem and Wheeler. There are no signalized crossings of U.S. 101, which can make crossing U.S. 101 difficult when traffic is heavy. **Figure 8** shows the bicycle network in Nehalem Bay.

Figure 8. Bicycle Network

Figure 8

Bicycle Network

Pedestrian System

Pedestrian facilities are present around retail and active storefront developments in Nehalem Bay. Pedestrian facilities include sidewalks, crosswalks, and curb ramps, however there are gaps in pedestrian infrastructure along main roads. There are three marked crossings of U.S. 101 in Nehalem, two in Wheeler, and none in Manzanita. While most residential streets in each of the cities lack sidewalks, they may not be needed, given each these streets' narrow, low speed and low volume character, which makes it fairly comfortable for pedestrians to share the roadway with other users. Sidewalks and marked crossings may be needed on higher speed and higher volume facilities and/or on those with a history of pedestrian collisions.

Manzanita has seven marked crossings of Laneda Avenue between U.S. 101 and Ocean Road. Laneda Avenue has sidewalks on one side from U.S. 101 to Division Street and on both sides from Division Street to Ocean Road. A short segment of U.S. 101 between Manzanita Avenue and Laneda Avenue has a sidewalk on one side, and the facility is in good condition. The rest of the streets in Manzanita, including Ocean Road, do not have sidewalks.

Nehalem has sidewalks on one side of U.S. 101 from 9th Street to 8th Street and on both sides from 8th Street to 7th Street to just south of Tohls Street. These facilities are all classified as fair condition. There are four marked crossings of U.S. 101 in Nehalem at 9th Street, 7th Street, and Tohls Street. Nehalem Elementary School is the only public school in Nehalem Bay, located at the intersection of 7th Street and Northfork Road. There are no pedestrian facilities in the vicinity of Nehalem Elementary School.

Wheeler has sidewalks on one side of U.S. 101 from Hemlock Street to Rector Street, on two sides from Rector Street to Gregory Street, and on one side from Gregory Street to Gamble Street. These facilities are all classified as fair condition. There are also sidewalks on sections of Gregory Street and Rorvik Street. There are two marked crossings of U.S. 101 in Wheeler, one at Rorvik Street and one at Rector Street.

There are no pedestrian facilities connecting the cities of Manzanita, Nehalem, and Wheeler. **Figure 9** shows the pedestrian network in Nehalem Bay.

Figure 9. Pedestrian Network

Figure 9

Pedestrian Network

Aviation

There are no commercial airports within the city limits. The Nehalem Bay State Airport, which is located within the Nehalem Bay State Park, is a publicly owned airport open to general private aviation. The airport features one paved runway that is 2,350 feet long and offers fly-in camping.

Marine

Nehalem Bay and the Nehalem River are designated as part of the National Waterway Networks by the U.S. Army Corps of Engineers as far inland as the westernmost edge of Lazarus Island. They are also designated as a Tillamook County Water Trail, which is a waterway connected through signs, maps, and access points to provide a recreational and educational experience for non-motorized recreational users. There are many private and public docks, marinas, and boat launches in Nehalem Bay. Public docks and boat launches include the Tillamook County Boat Launch off U.S. 101 between Nehalem and Wheeler, the Nehalem Bay State Park Boat Launch in Manzanita, the Waterfront Park Dock in Wheeler, and the H Street and Tohls Street Docks in Nehalem.

Rail

A segment of the 46-mile rail line travels parallel to U.S.101 south of the intersection of U.S.101 and OR 53 and is under lease from the Port of Tillamook Bay Railroad (POTB). There are three at-grade rail crossings in Wheeler, which are stop-controlled eastbound towards U.S.101 and yield-controlled westbound away from U.S.101.

Pipeline

There are no pipelines within the study area.

Environmental and Cultural Resources

While not a direct component of the transportation system, riparian habitat, wetlands, and flood zones are important local and regional resources that can affect or be affected by the transportation system. Nehalem experiences annual flooding that affects the commercial zone and sometimes closes the intersection of U.S. 101 and 7th Street.

The location of these sensitive areas may affect the transportation projects that can be built and may limit connectivity in certain areas. Identifying these sensitive areas helps to avoid and limit adverse impacts when developing TSP projects and programs. This is a planning-level assessment and more detailed study may be needed during project development. Locations identified by this study are shown in **Figure 10**.

Figure 10. Environmental Resources

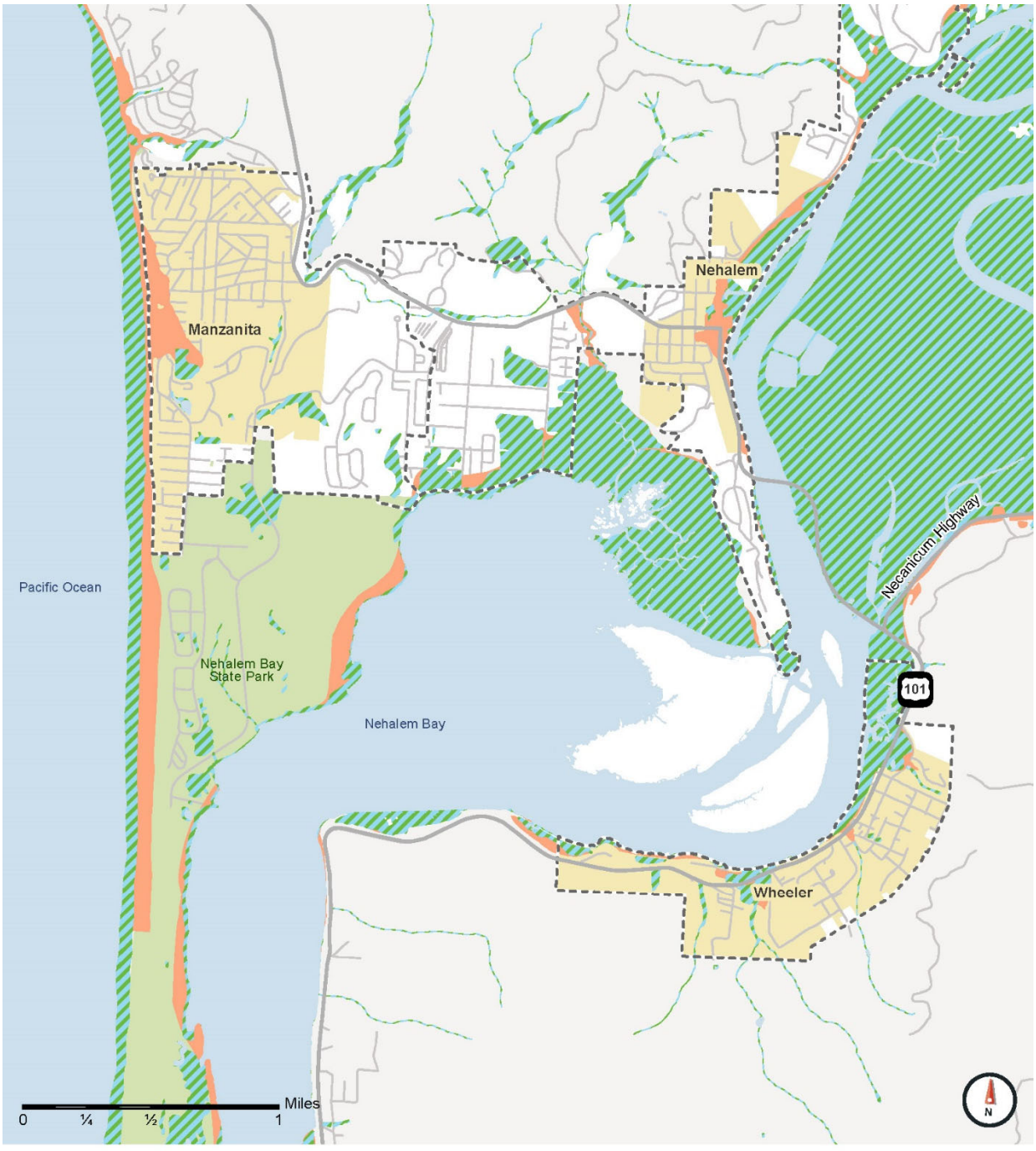


Figure 10

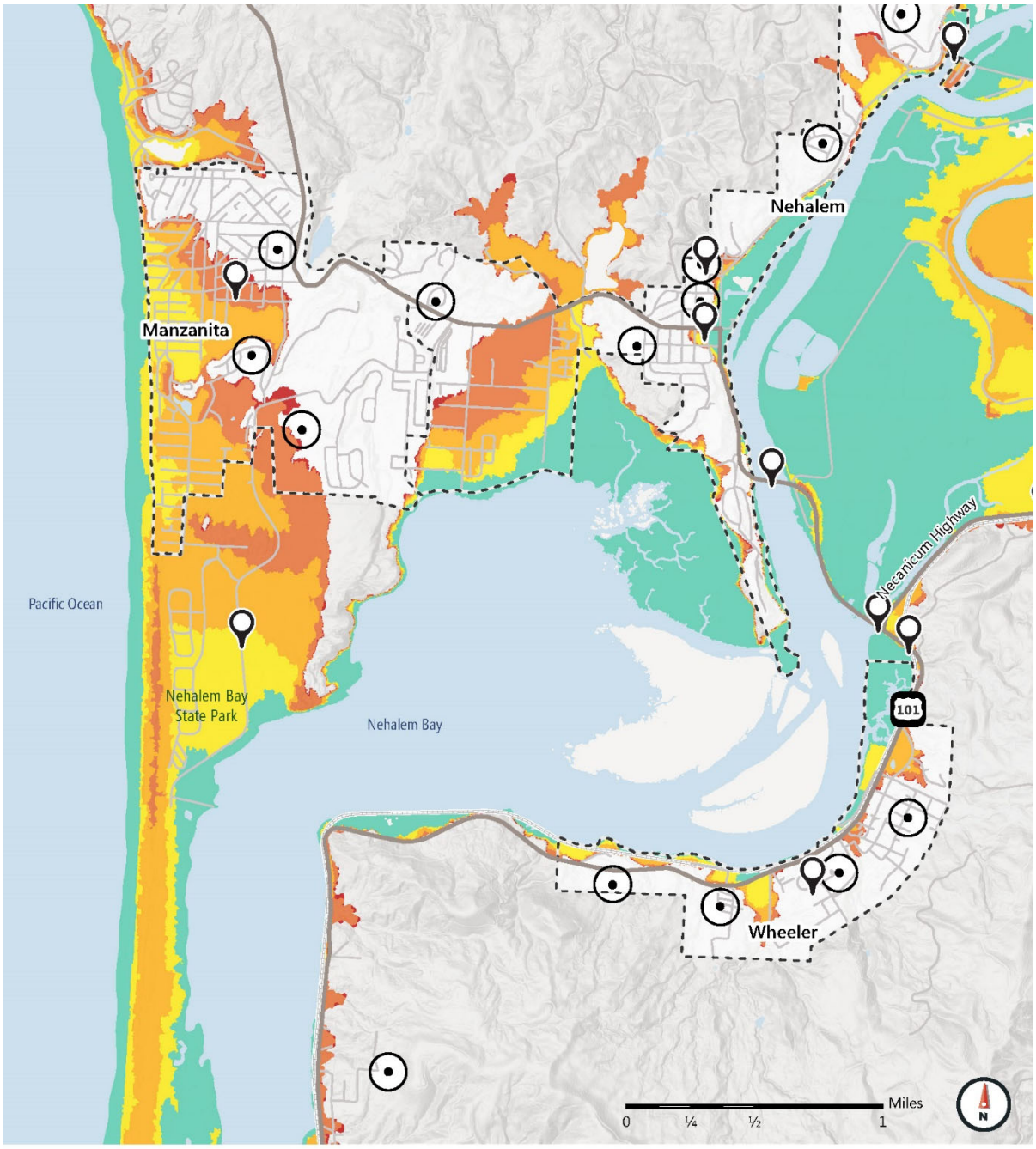
Environmental Resources

Tsunami and Hazard Evacuation

According to the Oregon Department of Geology and Mineral Industries (DOGAMI), the Nehalem Bay area is at risk for tsunamis caused by both the Cascadia Subduction Zone (CSZ) and the Alaska-Aleutian Subduction Zone (AASZ). The smallest CSZ tsunami is projected to inundate 2.3 percent of the Nehalem Bay area, with the City of Manzanita falling outside of the inundation zone. The largest CSZ tsunami is projected to inundate 48.6 percent of the Nehalem Bay area, with a greater proportion of Manzanita falling within the inundation zone than Nehalem and Wheeler. A map of the CSZ's inundation zone in Nehalem Bay is shown in **Figure 11.** Tsunamis in Nehalem Bay caused by the AASZ are significantly smaller, with the largest possible tsunami inundating less than 1 percent of the Nehalem Bay area. The City of Manzanita does not fall in the AASZ inundation zone while Nehalem and Wheeler do.

There are fifteen assembly locations within the UGB study area in the event of a tsunami and hazard evacuation. Six are located in the Wheeler UGB, six in the Nehalem UGB, and three in the Manzanita UGB. There are no vertical evacuation shelters constructed or under construction in Nehalem Bay. Wheeler is especially vulnerable to a CSZ event when considering access, with U.S. 101 northbound and southbound out of Wheeler falling within the inundation zone of a small CSZ tsunami. In a large CSZ tsunami, the segment of U.S. 101 between the Alder Creek bridge and Rex Champ Field also falls within the inundation zone.

Figure 11. Tsunami Inundation Zones



Statewide Tsunami Inundation Scenario
- Small
- Medium
- Large
- Extra Large
- Extra Extra Large

- Critical Facility*
- Assembly Area
- Urban Growth Boundary (2019)

* As defined by DOGAMI, includes facilities such as schools, medical facilities, and bridges.

Figure 11

Tsunami Inundation Zones

Operations and Safety

The following section describes how Nehalem Bay's transportation network performs today, in terms of traffic operations, collisions, as well as conditions for biking and walking. These analyses estimate the demand on the network and how well the existing system serves the residents of Nehalem Bay.

Traffic

The evaluation of existing traffic conditions focuses on volumes along U.S. 101 and intersection operations at U.S. 101 / 7th Street in Nehalem and U.S. 101 / Hemlock Street in Wheeler. Results from this analysis will provide a baseline against which the 2040 operations can be compared.

Average Daily Volumes

ODOT keeps an inventory of the annual average daily volume (AADT) along U.S. 101 and a few of the connection roadways in Nehalem Bay, as shown in **Figure 12.** The figure shows that the highest volumes are between Manzanita and Nehalem, and from Nehalem to the Tillamook County Boat Launch.

Segment Operations Methodology

A total of seven roadway segments were analyzed using the volume for the 30th highest hour volume (30HV). The AADT volume provided by ODOT was converted to the 30HV using the methodology outlined in Section 5.7 of the Analysis Procedures Manual (APM) and the Automatic Traffic Recorder (ATR) Trend Summary from the nearest location in the Traffic Volume Tables (TVT). The 30HV was then used to calculate the volume to capacity (v/c) ratio for the seven segments analyzed.

The v/c ratio is a mathematical calculation of the amount of capacity that is used at the intersection at a point in time. A v/c ratio of 1.0 indicates that the intersection or segment is "at capacity." As the v/c ratio approaches 1.0, it is typically an indication of increased congestion. For signalized intersections, the average v/c for all approaches is reported. For unsignalized intersections, the movement with the highest v/c is used.

The OHP establishes v/c mobility targets for highways throughout the state, with a v/c target of 0.8 to 0.85[2] for U.S. 101 within the UGB and 0.70 outside the UGB. These are, however, targets rather than standards and the OHP acknowledges that in some cases it may be impractical to meet these targets. As shown in **Table 8,** all segments currently have a v/c ratio significantly below the targets defined in the OHP. Detailed calculations can be found in Appendix A.

[2] The v/c targets cited for the segments of U.S. 101 through Nehalem Bay are based on the Oregon Highway Plan Table 6 *Volume To Capacity Ratio Targets Outside Metro*. These segments are classified as Freight Routes on a Statewide Highway Non-MPO, with different targets identified based on posted speed <= 35 mph, >35 and < 45 mph, or >=45 mph.

Table 8: Roadway Segment 30th HV V/C

ID	Segment	v/c target[1]	v/c[2]
1	US 101 north of Laneda Avenue	0.80	0.31
2	US 101 at west city limits of Nehalem	0.80	0.42
3	US 101 west of 7th Street	0.85	0.39
4	US 101 north of Tohls Street	0.85	0.39
5	US 101 north of Necanicum Highway	0.70	0.35
6	US 101 north of Hemlock Street	0.80	0.32
7	US 101 north of Rector Street	0.85	0.30

[1] v/c targets taken from the Oregon Highway Plan Table 6 based on highway category and posted speed.
[2] v/c calculated using HCS for a two-lane highway and reported for the peak direction.

Intersection Operations Methodology

Intersection operations analysis was conducted at two key intersections in Nehalem Bay: U.S. 101/7th Street (Nehalem) and U.S. 101/Hemlock Street (Wheeler). To understand transportation needs that exist today, the baseline year was determined to be 2020 pre-COVID. To develop the 2020 pre-COVID baseline, volumes at U.S. 101/Hemlock Street (Wheeler) were counted in January 2020 and volumes at US 101/7th Street (Nehalem) were counted in March 2021. As the March 2021 count was conducted during COVID conditions, the turning movement distribution was taken from this count and applied to the link-level volumes described in the section above. Per ODOT's APM, the evaluation period for this analysis was the weekday 30HV. To calculate the 30HV, the PM peak hour volume was multiplied by seasonal factors from ODOT's Seasonal Trend Table per the ODOT recommended methodology. Seasonal factors and calculations can be found in Appendix B.

Level of Service and Queueing

Level of service (LOS) is a standard method for characterizing delay at an intersection. For signalized and all-way stop controlled (AWSC) intersections, the LOS is based on the average delay for all approaches. For two-way stop controlled (TWSC) intersections, the movement with the highest delay is used.

Table 9 summarizes the LOS and delay thresholds specified in the 6th Edition Highway Capacity Manual (HCM), which is a standard methodology for measuring intersection performance.

Table 9: Level of Service Definitions for Unsignalized Intersections

Level of Service	Description	Unsignalized Intersection Delay (seconds/vehicle)
A	Free-flowing Conditions	0-10
B	Stable Flow (slight delays)	>10-15
C	Stable Flow (acceptable delays)	>15-25
D	Approaching Unstable Flow (tolerable delay)	>25-35
E	Unstable Flow (intolerable delay)	>35-50
F	Forced Flow (congested and queues fail to clear)	>50

Source: 6th Edition Highway Capacity Manual (HCM)

SIDRA was used to evaluate operations at the U.S. 101/7th Street intersection as it has a non-standard control with a flashing red signal that controls all movements, except eastbound right turns, which are an uncontrolled movement. Synchro 11 was used to evaluate the US 101/Hemlock Street intersection. The modeled network reflects conditions on the ground today, including intersection geometry, vehicle volumes and pedestrian/bicycle volumes. Corridors that show high existing delay or queuing will be examined in greater detail in the future conditions assessment and may require a refined analysis as potential solutions are evaluated. There is no intersection level of service or delay standard in Nehalem Bay.

As shown in **Table 10**, both intersections operate at LOS C and have v/c ratios well below the mobility targets identified in the OHP. Queueing was also evaluated as part of the intersection analysis. No movements were found to exceed available storage or have queues that would impact traffic flow. It is important to note that, during peak seasonal travel, driver unfamiliarity with the configuration at the U.S. 101/7th Street intersection has been reported to cause an increase in congestion, specifically for eastbound vehicles turning right. Detailed calculations can be found in Appendix A.

Table 10: Intersection Operations

ID	Intersection	Delay (seconds)/LOS	Minor Street v/c	Major Street v/c
1	US 101/7th Street (Nehalem)	17/C[1]	0.38[1]	0.27
2	US 101/Hemlock Street (Wheeler)	17/C	0.03	0.0[1]

[1] Metric reported for the leg with the highest delay and v/c due to non-standard configuration
[2] Synchro software does not report v/c since major street is uncontrolled

Figure 12. Annual Average Daily Traffic (AADT)

Figure 12

Annual Average Daily Traffic

Figure 13. Existing V/C Ratio and LOS

Figure 13

Existing V/C Ratio and LOS

Safety

The collision data and analysis discussed here is derived from the most recent available ODOT crash data for all facilities in the region, collected between the years of 2014 and 2018. There were 78 collisions recorded for the area within the UGBs and on the stretch of U.S. 101 between Nehalem and Wheeler. **Table 11** compares crash data from the 78 collisions in the study area to statewide crash data for the same time period. Based on the comparison, collisions related to speeding or driving too fast for the conditions are overrepresented in Nehalem Bay compared to the rest of the state. All collision data can be found in Appendix C.

Table 11: Comparison of Regional Collisions by Attribute

Crash Attribute	Nehalem Bay	Oregon Statewide
Intersection	41%	38%
Speeding/Too fast for conditions	16%	5%
Motorcycle	0%	2%
Pedestrian	0%	2%
Bicyclist	1%	2%

Note: Shaded cells indicate rates for Nehalem Bay that are above the statewide average.

There were no fatal collisions and one severe injury collision in Nehalem Bay between 2014 and 2018. The severe injury collision occurred on U.S. 101 just outside the Manzanita city limits but inside the UGB. It was attributed to improper driving and alcohol was involved, and the vehicle hit a fixed object. Additionally, one collision involving a bicyclist was observed during the study period.

Of the recorded collisions, roughly a quarter (24%) occurred within the city limits of Nehalem. About 13 percent of collisions occurred in Manzanita[3] and 10 percent occurred Wheeler. All other reported collisions (53%) occurred in unincorporated areas.The intersection of U.S. 101 and Laneda Avenue was under construction in 2017 which could have affected the collision information for Manzanita for this time period.

Most of the reported collisions (67%) occurred on U.S.101.Other notable locations with concentrations of collisions include Laneda Avenue (6% of total collisions) and Necarney City Road (5% of total collisions). Almost a third (30%) of all collisions occurred between the hours of 4pm and 7pm, and collisions were observed to occur more frequently during the summer season.

In Manzanita, of the 10 collisions in the City limits (excluding U.S. 101), four were turning-related and three were sideswipes. Of the nineteen collisions in Nehalem, ten were turning-related (t-bone)

[3] The intersection of U.S. 101 and Laneda Avenue was under construction in 2017 which could have affected the collision information for Manzanita for this time period.

collisions, and five were rear-end collisions. Three occurred at the intersection of U.S. 101 and 7th Avenue. Wheeler had eight collisions in the City limits. Of these, three were turning movement-related and two were collisions with fixed objects.

Locations of collisions and their severity are shown in **Figure 14**.

ODOT Safety Priority Index System

A Safety Priority Index System (SPIS) identifies and ranks intersections and roadway segments that are most likely to benefit from crash reduction countermeasures. Typically, an SPIS considers linear crash data along roadways and excludes side-street crashes at intersections. Three years of crash data are analyzed to yield SPIS scores that range between 0 (least severe) and 100 (most severe) based on crash frequency, crash rate, and crash severity. ODOT publishes a statewide SPIS and a SPIS for each region, which includes all ODOT-owned roadways and highways. There are no intersections or roadway segments in the study area that are listed in the ODOT top 15% SPIS sites for 2019.

Figure 14. Collision Severity

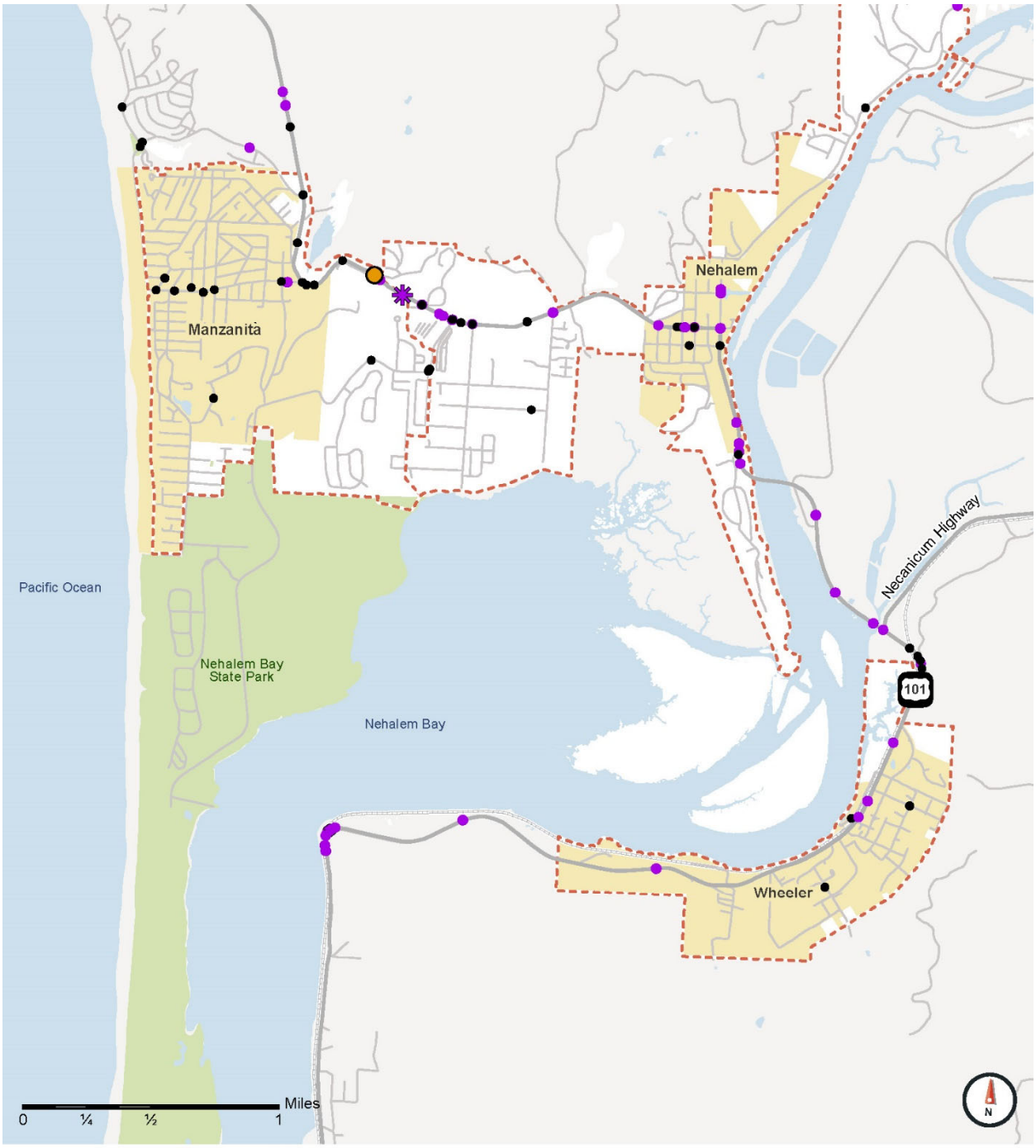


Figure 14

Collision Severity

Bicycle Standards and Level of Traffic Stress

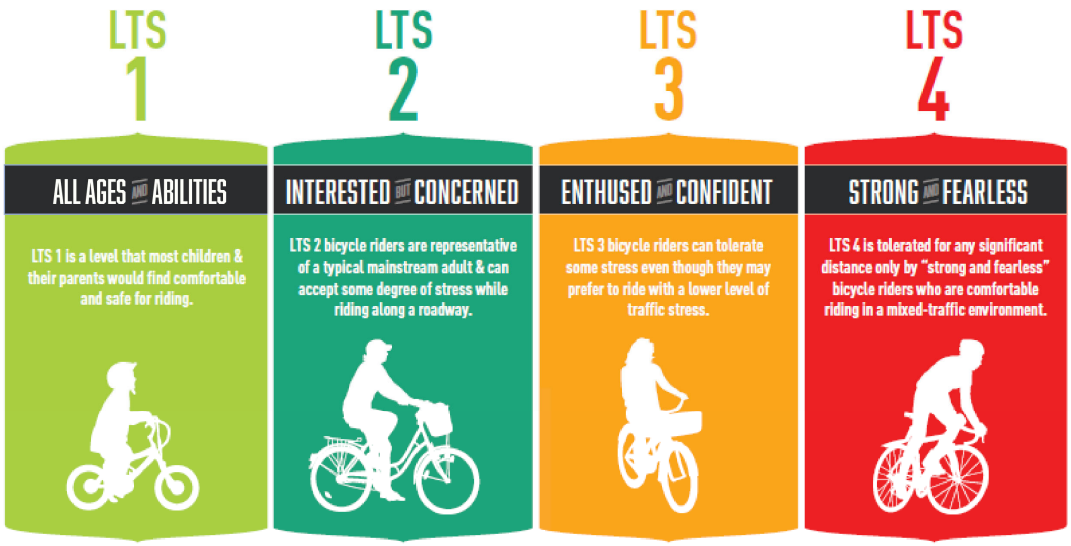
Bicycle Standards and Gaps

U.S. 101 is the most direct bicycle connection between the Nehalem Bay communities; however, most of the route does not meet ODOT standards for bicycle accommodation. The Statewide Active Transportation Needs Inventory[4] identified where there are gaps in the sidewalk and bicycle networks and where existing facilities do not meet ODOT's minimum standard of six-foot wide bike lanes, eight-foot wide buffered bike lanes, or eight-foot wide shoulders depending on the highway characteristics[5]. **Figure 16.** identifies locations with gaps and substandard facilities. Only a portion of U.S. 101 between Nehalem and Necanicum Highway currently meets the standard.

Bicycle Level of Traffic Stress

Bicycle level of traffic stress (BLTS) is a measure of how comfortable it is to bike on a given facility. It ranges from BLTS 1, a facility that is comfortable for riders of all ages and abilities, to BLTS 4, facilities that are only used by "strong and fearless" riders. **Figure** shows the bicycle level of traffic stress categories.

Figure 16.. Bicycle Level of Traffic Stress (BLTS) Categories



Source: Fehr & Peers, 2021.

As shown in **Figure 15,** U.S. 101 offers varying levels of comfort for bicyclists. West of Nehalem and both east and west of Wheeler 's commercial core, it is a BLTS 4 facility. These sections have higher speeds, higher traffic volumes, and no separate bicycle facilities. Within Nehalem, U.S. 101 offers

[4] https://www.oregon.gov/odot/RPTD/Pages/Statewide-Active-Transportation-Needs-Inventory.aspx
[5] See Table 13-1 of the ODOT Highway Design Manual

friendlier facilities, as it is mostly BLTS 3 with a short stretch of BLTS 2 between 8th Street and 10th Street where speeds are lower and there are wide shoulders for bicyclists to use. It is also BLTS 3 in Wheeler from Hemlock Street to Dubois Street, another segment that has lower posted traffic speeds.

Figure 15. Bicycle Gaps and Substandard Facilities

Figure 16

Bicycle Gaps and Substandard Facilities

Figure 15. Bicycle Level of Traffic Stress

Figure 17

Bicycle Level of Traffic Stress

Source: ODOT Active Transportation Network Inventory

Pedestrian Network Gaps

Sidewalks and marked crossings are generally present within the commercial core of each city. However, there are few sidewalks outside of the commercial cores, including along U.S. 101 between the cities which lacks pedestrian facilities altogether. **Figure 16** shows where U.S. 101 has pedestrian gaps or does not meet ODOT standards of six-to-eight foot wide buffered sidewalks or eight-foot wide conventional sidewalks or shoulders per the ODOT Highway Design Manual.

Figure 16. Pedestrian Network Gaps

Figure 18

Pedestrian Network Gaps

Summary of Existing Deficiencies

U.S. 101

U.S. 101 is the most direct connection between all three cities in Nehalem Bay. It is responsible for moving residents, visitors, and goods to and from the communities and also carries significant traffic passing through the region. It performs well in achieving its primary objective: carrying vehicles. Existing traffic operations indicate that U.S. 101 has sufficient capacity and operates well below ODOT's v/c targets within the study area.

The majority of the traffic collisions from 2014 to 2018 within Nehalem Bay occurred on U.S. 101, and while there were no fatal collisions in that timeframe there was one suspected severe injury collision and one bicycle collision. Additionally, speeding related collisions are over-represented in Nehalem Bay compared to the state of Oregon.

While U.S. 101 is the designated pedestrian and bicycle connection between Manzanita, Nehalem, and Wheeler, it lacks dedicated bicycle facilities throughout the study area and only has sidewalks through downtown Nehalem and downtown Wheeler. Due to the high volume and speed of vehicle traffic, this lack of separation from vehicles makes the route uncomfortable for people walking and bicycling.

Manzanita

Manzanita does not have U.S. 101 traffic through its commercial core but still has high vehicle volumes on Laneda Avenue, which also caters to pedestrians, bicyclists, and on-street parking. There have been several collisions along Laneda Avenue in the last five years, including one at its intersection with U.S. 101, and the most common collision types were turning related and sideswipes. Parking has been identified by City staff as a concern, especially during the busy summer months when visitors want to access the shopping on Laneda Avenue and the beach access points on Ocean Road.

Laneda Avenue has sidewalks and low vehicle speeds, making for a generally comfortable walking and biking environment. There is also one bicycle lane in Manzanita along Carmel Avenue from Laneda Avenue to Nehalem Bay State Park. However, outside of these two streets there are no dedicated bicycle facilities or sidewalks in Manzanita, and few connections between Manzanita city limits and the UGB area to the east that encompasses a large number of homes. There are also no dedicated facilities for walking and biking connecting Manzanita and Nehalem, so visitors and residents must drive or walk or bike along roadway shoulders to travel between the cities.

Nehalem

U.S. 101 bisects Nehalem and runs through the commercial core. The intersection of U.S. 101 and 7th Street in the center of the City has had ongoing operational issues that the City would like to address. While the intersection has sufficient capacity and generally operates at LOS C, its non-standard

configuration causes congestion for vehicles traveling eastbound and turning right on U.S. 101. This issue is particularly pronounced in the summer and during holiday weekends, given the number of unfamiliar drivers. There were a high number of recorded collisions along U.S. 101 through Nehalem, with three at the intersection of U.S. 101 and 7th Avenue. The most common collision types in Nehalem are turning-related or angle collisions and rear ends.

There are no designated bicycle facilities in Nehalem, and the sidewalks only span a short section of U.S. 101. There are also no sidewalks or marked crossings in the vicinity of Nehalem Elementary School. There are no direct pedestrian facilities connecting Nehalem with either Manzanita or Wheeler, which makes residents dependent on cars to travel between the cities. The City also contends with occasional flooding that affects businesses, homes, and transportation facilities.

Wheeler

Wheeler's commercial core is on the south side of U.S. 101 while the waterfront, boat launch, and additional businesses are located on the north side. There are sidewalks on one side of U.S. 101 from Hemlock Street to Gamble Street, and on both sides between Rector Street and Gregory Street. There are no dedicated bicycle facilities in Wheeler.

The intersection of Hemlock Street and U.S. 101 operates at LOS C, with a v/c ratio below the state's mobility standards. The most common collision types in Wheeler from 2014-2018 were turning movement and fixed object collisions. There are no direct pedestrian facilities connecting Wheeler with either Manzanita or Nehalem, which makes residents dependent on cars to travel between the cities.

Appendix A: LOS Calculations

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	0	0	2	0	10	2	323	8	14	304	0
Future Vol, veh/h	2	0	0	2	0	10	2	323	8	14	304	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	100	0	0	0	8	0	29	10	0
Mvmt Flow	2	0	0	2	0	12	2	380	9	16	358	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	785	783	358	779	779	385	358	0	0	389	0	0
Stage 1	390	390	-	389	389	-	-	-	-	-	-	-
Stage 2	395	393	-	390	390	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	8.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	4.4	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	313	328	691	220	330	667	1212	-	-	1037	-	-
Stage 1	638	611	-	477	612	-	-	-	-	-	-	-
Stage 2	634	609	-	477	611	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	303	321	691	216	323	667	1212	-	-	1037	-	-
Mov Cap-2 Maneuver	303	321	-	216	323	-	-	-	-	-	-	-
Stage 1	637	599	-	476	611	-	-	-	-	-	-	-
Stage 2	622	608	-	468	599	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17	12.5	0	0.4
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1212	-	-	303	495	1037	-	-
HCM Lane V/C Ratio	0.002	-	-	0.008	0.029	0.016	-	-
HCM Control Delay (s)	8	0	-	17	12.5	8.5	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

MOVEMENT SUMMARY

Site: 1 [7th_101]

New Site
Site Category: (None)
Stop (All-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: U.S. 101												
3	L2	396	4.0	0.271	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	28.0
8	T1	37	0.0	0.271	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	28.0
18	R2	4	5.0	0.271	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	28.1
Approach		437	3.7	0.271	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	28.0
East: H Street												
1	L2	3	3.0	0.037	16.0	LOS C	0.1	3.1	0.93	1.22	1.97	23.0
6	T1	6	3.0	0.037	16.0	LOS C	0.1	3.1	0.93	1.22	1.97	23.1
16	R2	1	3.0	0.037	16.0	LOS C	0.1	3.1	0.93	1.22	1.97	23.2
Approach		11	3.0	0.037	16.0	LOS C	0.1	3.1	0.93	1.22	1.97	23.1
North: 7th Street												
7	L2	3	0.0	0.346	16.9	LOS C	1.4	39.5	0.93	1.37	2.43	22.8
4	T1	39	25.0	0.346	16.9	LOS C	1.4	39.5	0.93	1.37	2.43	22.7
14	R2	95	12.0	0.346	16.9	LOS C	1.4	39.5	0.93	1.37	2.43	22.9
Approach		137	15.4	0.346	16.9	LOS C	1.4	39.5	0.93	1.37	2.43	22.8
West: U.S. 101												
5	L2	96	10.0	0.378	13.2	LOS B	1.6	43.6	0.99	1.45	2.56	23.7
2	T1	3	0.0	0.378	13.2	LOS B	1.6	43.6	0.99	1.45	2.56	23.8
12	R2	424	3.0	0.294	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	28.1
Approach		523	4.3	0.378	2.5	LOS A	1.6	43.6	0.19	0.27	0.48	27.1
All Vehicles		1106	5.4	0.378	3.5	LOS A	1.6	43.6	0.21	0.31	0.55	26.8

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).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: N:\Projects\2020Projects\PT20-0049_NehalemBayTSP\Analysis\Task4_ExistingFutureConditions\SIDRA\7th_101.sip8

HCS7 Two-Lane Highway Report

Project Information

Analyst	Fehr & Peers	Date	June 2021
Agency	ODOT	Analysis Year	2021
Jurisdiction	Region 2	Time Period Analyzed	30th Hour
Project Description	Nehalem Bay TSP Existing Conditions	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1840
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	40	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	521	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.1
Speed Slope Coefficient	2.96246	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.46414	PF Power Coefficient	0.70569
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	43.0

Vehicle Results

Average Speed, mi/h	43.0	Percent Followers, %	60.3
Segment Travel Time, minutes	0.49	Followers Density, followers/mi/ln	7.3
Vehicle LOS	C		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	521	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.94	Bicycle Effective Speed Factor	4.17
Bicycle LOS	F		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	7300
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	40	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	709	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.1
Speed Slope Coefficient	3.02271	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37932	PF Power Coefficient	0.71194
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	11.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	42.6

Vehicle Results

Average Speed, mi/h	42.6	Percent Followers, %	66.1
Segment Travel Time, minutes	1.95	Followers Density, followers/mi/ln	11.0
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	709	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.10	Bicycle Effective Speed Factor	4.17
Bicycle LOS	F		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1420
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	30	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	665	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	33.7
Speed Slope Coefficient	2.33720	Speed Power Coefficient	0.41674

PF Slope Coefficient	-1.48321	PF Power Coefficient	0.65177
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	31.9

Vehicle Results

Average Speed, mi/h	31.9	Percent Followers, %	67.9
Segment Travel Time, minutes	0.51	Followers Density, followers/mi/ln	14.2
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	665	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.05	Bicycle Effective Speed Factor	3.39
Bicycle LOS	F		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	355
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	30	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	663	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	33.7
Speed Slope Coefficient	2.33529	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.48979	PF Power Coefficient	0.65001
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	31.9

Vehicle Results

Average Speed, mi/h	31.9	Percent Followers, %	68.0
Segment Travel Time, minutes	0.13	Followers Density, followers/mi/ln	14.2
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	663	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.05	Bicycle Effective Speed Factor	3.39
Bicycle LOS	F		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	6860
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	587	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.35

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	62.2
Speed Slope Coefficient	3.94583	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.27082	PF Power Coefficient	0.76401
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	59.3

Vehicle Results

Average Speed, mi/h	59.3	Percent Followers, %	57.1
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	5.7
Vehicle LOS	C		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	587	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.81	Bicycle Effective Speed Factor	4.79
Bicycle LOS	F		

Segment 6

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3480
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	543	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.8
Speed Slope Coefficient	3.29420	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38534	PF Power Coefficient	0.73565
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.5

Vehicle Results

Average Speed, mi/h	48.5	Percent Followers, %	58.7
Segment Travel Time, minutes	0.82	Followers Density, followers/mi/ln	6.6
Vehicle LOS	C		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	543	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.29	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1360
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	25	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	509	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	28.0
Speed Slope Coefficient	2.02712	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.44792	PF Power Coefficient	0.61940
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	11.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1360	-	-	26.6

Vehicle Results

Average Speed, mi/h	26.6	Percent Followers, %	61.5
Segment Travel Time, minutes	0.58	Followers Density, followers/mi/ln	11.8
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	509	Bicycle Effective Width, ft	24
Bicycle LOS Score	4.89	Bicycle Effective Speed Factor	2.61
Bicycle LOS	E		

Appendix B: Intersection Counts and Volume Calculations

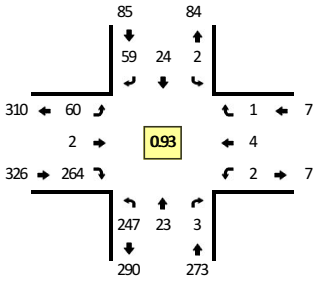
Type of peak hour being reported: Intersection Peak

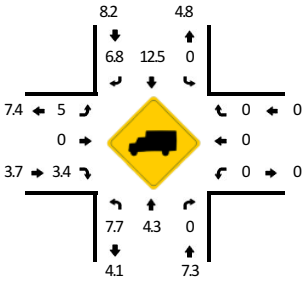
Method for determining peak hour: Total Entering Volume

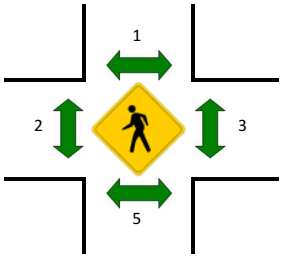
LOCATION: 7th St/US 101 -- US 101/H St
CITY/STATE: Nehalem, OR

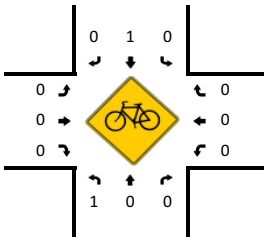
QC JOB #: 15383401
DATE: Thu, Mar 11 2021

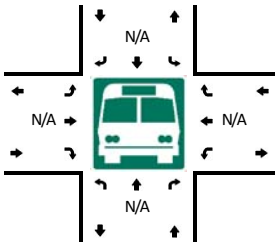
Peak-Hour: 3:15 PM -- 4:15 PM
Peak 15-Min: 3:15 PM -- 3:30 PM

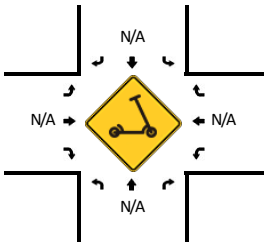












5-Min Count Period Beginning At	7th St/US 101 (Northbound)				7th St/US 101 (Southbound)				US 101/H St (Eastbound)				US 101/H St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	17	1	0	0	0	1	2	0	2	2	19	0	0	0	0	0	44	
3:05 PM	5	0	0	0	0	7	2	0	2	1	28	0	0	0	0	0	45	
3:10 PM	12	0	0	0	0	2	2	0	2	0	25	0	0	0	0	0	43	
3:15 PM	19	1	0	0	0	1	5	0	6	0	21	0	0	0	0	0	53	
3:20 PM	31	0	0	0	1	1	5	0	4	0	21	0	1	0	0	0	64	
3:25 PM	28	2	1	0	0	2	7	0	9	2	14	0	0	3	0	0	68	
3:30 PM	17	1	1	0	0	1	5	0	3	0	16	0	1	0	0	0	45	
3:35 PM	18	2	0	0	0	1	6	0	5	0	25	0	0	0	0	0	57	
3:40 PM	10	5	1	0	1	3	1	0	3	0	31	0	0	0	1	0	56	
3:45 PM	28	2	0	0	0	0	11	0	4	0	18	0	0	1	0	0	64	
3:50 PM	18	4	0	0	0	3	2	0	8	0	28	0	0	0	0	0	63	
3:55 PM	20	0	0	0	0	5	4	0	0	0	28	0	0	0	0	0	57	659
4:00 PM	21	1	0	0	0	2	7	0	7	0	19	0	0	0	0	0	57	672
4:05 PM	19	2	0	0	0	4	4	0	4	0	14	0	0	0	0	0	47	674
4:10 PM	18	3	0	0	0	1	2	0	7	0	29	0	0	0	0	0	60	691
4:15 PM	20	1	0	0	0	1	4	0	9	0	18	0	0	0	0	0	53	691
4:20 PM	19	3	0	0	1	0	5	0	6	2	21	0	0	0	0	0	57	684
4:25 PM	24	3	0	0	0	1	3	0	1	0	17	0	0	2	0	0	51	667
4:30 PM	13	2	0	0	0	4	1	0	6	1	15	0	0	1	0	0	43	665
4:35 PM	12	1	0	0	0	2	5	0	3	0	11	0	0	0	1	0	35	643
4:40 PM	19	4	1	0	0	3	3	0	5	0	15	0	0	0	0	0	50	637
4:45 PM	22	4	0	0	1	1	1	0	6	0	17	0	0	1	0	0	53	626
4:50 PM	24	2	0	0	0	3	6	0	3	0	8	0	0	0	1	0	47	610
4:55 PM	21	4	0	0	0	3	10	0	3	0	15	0	0	0	0	0	56	609
5:00 PM	29	1	0	0	0	1	6	0	4	0	19	0	0	0	0	0	60	612
5:05 PM	9	4	0	1	0	3	4	0	4	0	16	0	0	0	0	0	41	606
5:10 PM	14	2	0	0	0	8	3	0	5	1	14	0	0	0	0	0	47	593
5:15 PM	11	1	0	0	0	3	9	0	6	0	18	0	1	0	0	0	49	589
5:20 PM	14	2	0	0	1	1	8	0	8	0	19	0	0	0	0	0	53	585
5:25 PM	15	5	0	0	0	2	7	0	1	0	20	0	0	0	0	0	50	584
5:30 PM	19	2	0	0	0	5	4	0	5	0	14	0	0	0	0	0	49	590
5:35 PM	14	0	0	0	0	2	2	0	4	0	12	0	0	0	1	0	35	590
5:40 PM	16	0	0	0	0	0	4	0	4	0	10	0	0	0	0	0	34	574
5:45 PM	8	1	0	0	0	3	2	0	3	0	13	0	0	0	0	0	30	551
5:50 PM	13	2	0	0	0	0	4	0	5	0	13	0	0	0	0	0	37	541
5:55 PM	24	0	0	0	1	1	1	0	3	0	12	0	0	0	1	0	43	528

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	312	12	4	0	4	16	68	0	76	8	224	0	4	12	0	0	740
Heavy Trucks	12	0	0		0	4	8		8	0	12		0	0	0		44
Buses																	
Pedestrians		8				0				0				0			8
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 3/17/2021 11:23 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

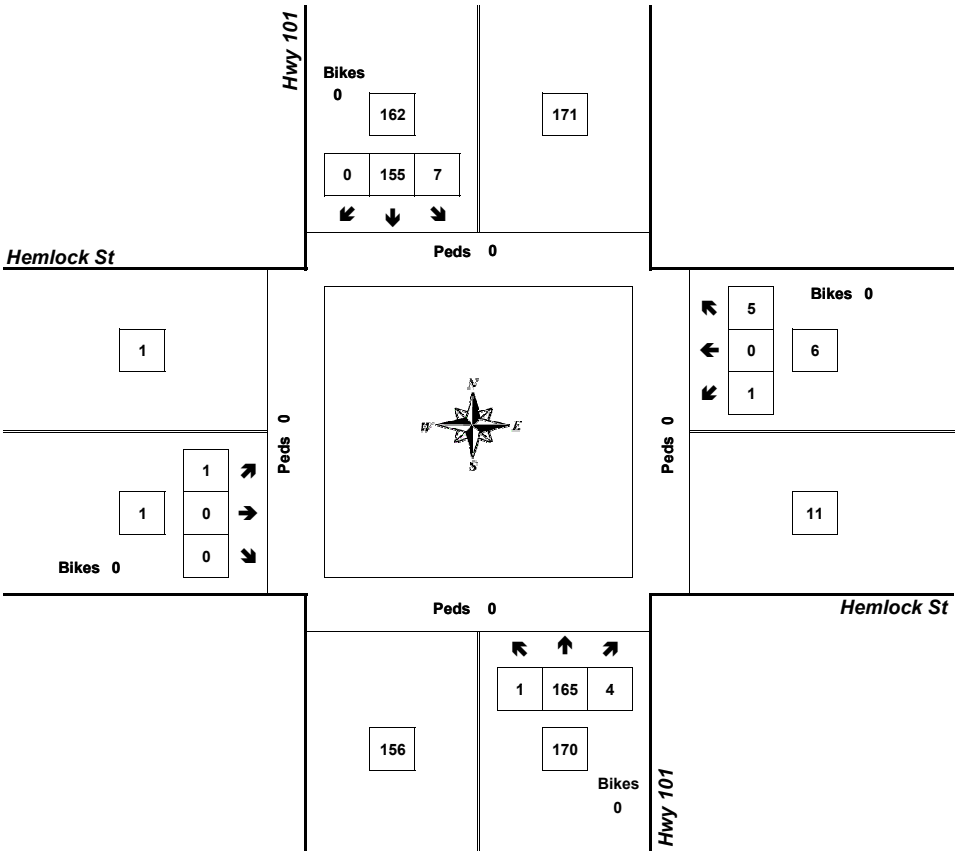
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

Hwy 101 & Hemlock St

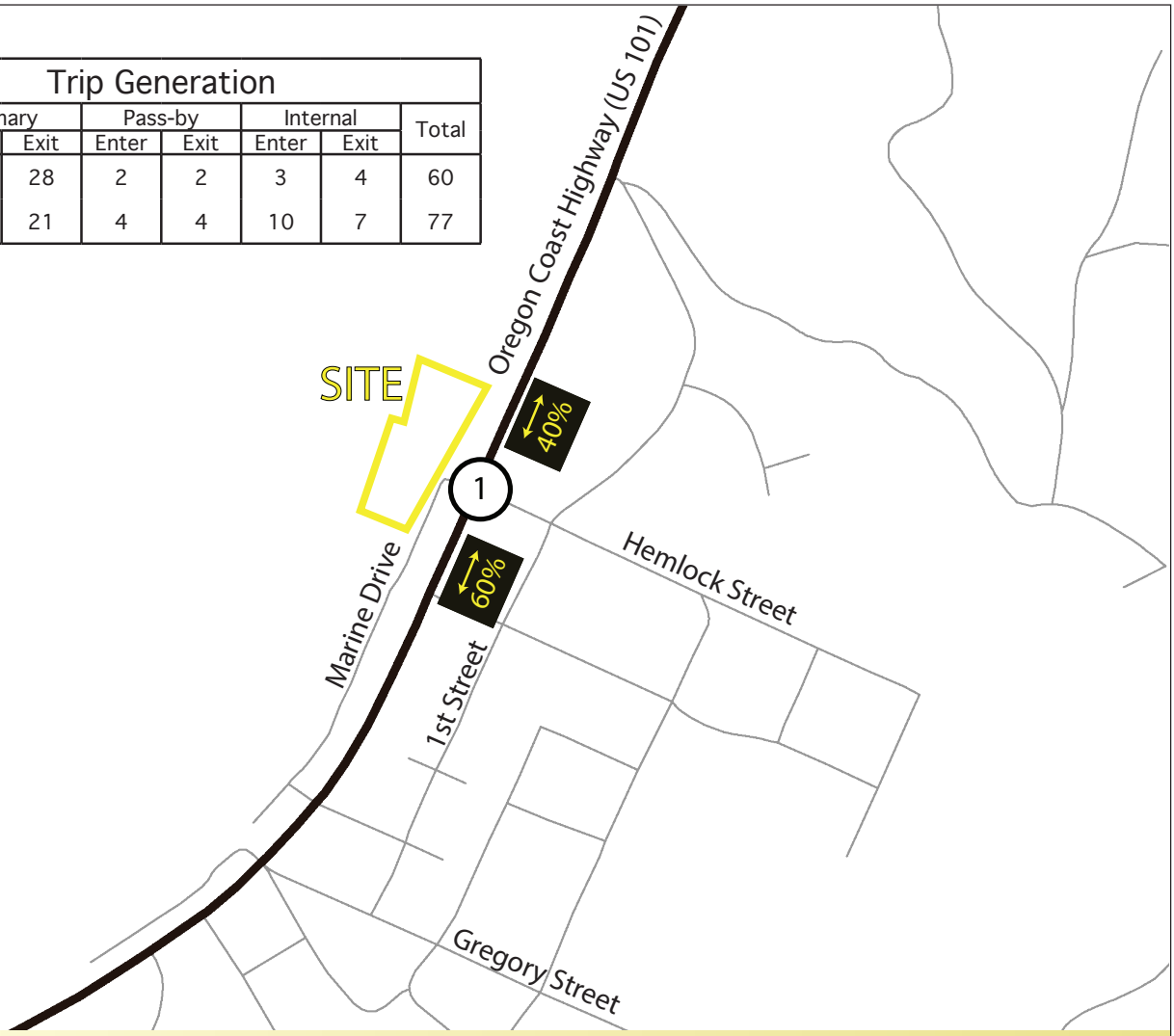
3:20 PM to 4:20 PM
Tuesday, February 04, 2020



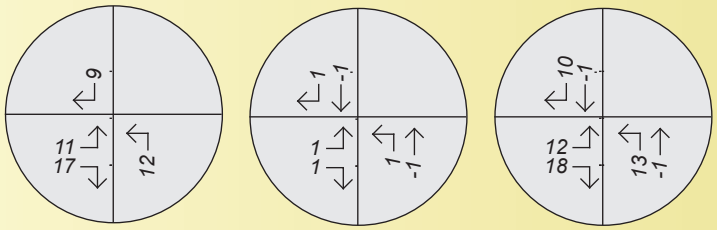
Approach	PHF	HV%	Volume
EB	0.25	0.0%	1
WB	0.50	16.7%	6
NB	0.79	8.2%	170
SB	0.83	11.1%	162
Intersection	0.85	9.7%	339

Count Period: 3:00 PM to 6:00 PM

Trip Generation							
Peak	Primary		Pass-by		Internal		Total
	Enter	Exit	Enter	Exit	Enter	Exit	
AM	21	28	2	2	3	4	60
PM	31	21	4	4	10	7	77

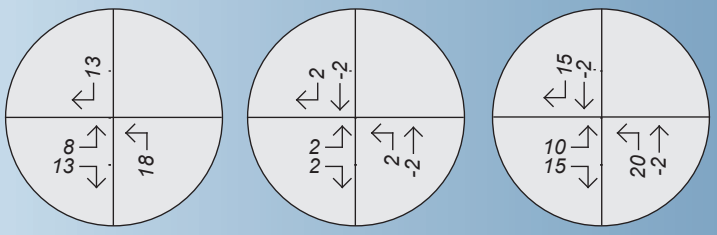


Morning peak hour



Primary Trips Passby Trips Total External Trips

Evening peak hour



Primary Trips Passby Trips Total External Trips

Figure 2

SiteTrip Distribution

N

Not to Scale

PM peak hour volume conversion to 30 HV volume for Existing traffic analysis

2019 ODOT Seasonal Trend Table

Trend	1-Jan	15-Jan	1-Feb	15-Feb	1-Mar	15-Mar	1-Apr	15-Apr	1-May	15-May	1-Jun	15-Jun	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov	1-Dec	15-Dec	Seasonal Trend Peak Period Factor
Coastal Destination Route	1.3445	1.3248	1.4108	1.4968	1.2858	1.0747	1.0911	1.1076	1.0274	0.9473	0.8941	0.8409	0.782	0.7231	0.7218	0.7205	0.8016	0.8827	0.9669	1.0511	1.1133	1.1754	1.248	1.3206	0.7205

PM Individual Peak Hour (raw)

							1	2	3	4	5	6	7	8	9	10	11	12	
Intersection	ID	Year	Month	Day (1 or 15)	PHF	Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
US 101 x Hemlock St	1	2020	2	1	0.85	15:20	1	165	4	7	155	0	1	0	0	1	0	5	339
US 101 x 7th St	2	2020	3	15	0.93	15:15	247	23	3	2	24	59	60	2	264	2	4	1	691

30HV (2020)

							1	2	3	4	5	6	7	8	9	10	11	12	
Intersection	ID	Annual Growth	Year for Seasonal	Count Date Seasonal Factor	Seasonal Factor		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
US 101 x Hemlock St	1	0.00%	2020	1.41	1.96		2	323	8	14	304	0	2	0	0	2	0	10	664
US 101 x 7th St	2	0.00%	2020	1.07	1.49		368	34	4	3	36	88	89	3	394	3	6	1	1031

Appendix C: Collision Records

FID	Shape	AGY_STNO	ALCHL_INVL	CITY_SECT_	CITY_SECT1	CMPSS_DIR_	CMPSS_DIR1	CNTY_ID	CNTY_NM	COLLIS_TYP	COLLIS_T_1	CRASH_CAUS	CRASH_CA_1	CRASH_CA_2	CRASH_CA_3	CRASH_CA_4	CRASH_CA_5	CRASH_DAY_	CRASH_DT	CRASH_EVNT
990	Point	2301	0	150	Nehalem	7	W	29	Tillamook	1	Angle	10	Other improper driving					26	4/26/2014	101
4127	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					7	2/7/2014	124
5687	Point	503	0	0		5	S	29	Tillamook	-	Backing	10	Other improper driving					3	8/3/2014	92
8048	Point		0	0		9	CN	29	Tillamook	6	Turning movement	6	Improper overtaking					16	6/16/2014	
11014	Point		0	0		0	UN	29	Tillamook	6	Turning movement	2	Did not yield right-of-way					4	8/4/2014	
11564	Point		0	0		1	N	29	Tillamook	3	Rear-End	29	Failed to avoid vehicle ahead					18	6/18/2014	
11837	Point		1	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	10	Other improper driving					20	3/20/2014	62
18106	Point	1001	0	150	Nehalem	3	E	29	Tillamook	3	Rear-End	1	Too fast for conditions (not exceed posted speed)					6	2/6/2014	40
19076	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					9	5/9/2014	124
25335	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					5	8/5/2014	79
34786	Point	1601	0	232	Wheeler	2	NE	29	Tillamook	3	Rear-End	7	Followed too closely	32	Careless Dri		27 Inattentior	11	4/11/2014	
36969	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	8	Made improper turn					9	5/9/2014	62
39101	Point	1401	0	129	Manzanita	3	E	29	Tillamook	5	Sideswipe - Overtaking	10	Other improper driving					9	5/9/2014	40
42018	Point	405	0	129	Manzanita	7	W	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					3	5/3/2014	97
42739	Point		1	0		0	UN	29	Tillamook	3	Rear-End	10	Other improper driving					12	7/12/2014	
45377	Point	102	0	129	Manzanita	0	UN	29	Tillamook	&	Miscellaneous	12	Other (not improper driving)					5	7/5/2014	35
46904	Point	1401	0	129	Manzanita	9	CN	29	Tillamook	6	Turning movement	2	Did not yield right-of-way					11	9/11/2014	
15021	Point	504	0	0		0	UN	29	Tillamook	6	Turning movement	6	Improper overtaking					20	7/20/2015	128
17806	Point	1001	0	150	Nehalem	1	N	29	Tillamook	7	Parking Maneuver	33	Reckless Driving (per PAR)	1	Too fast for		8 Made impı	14	7/14/2015	13
22290	Point	1401	0	129	Manzanita	3	E	29	Tillamook	3	Rear-End	17	Physical illness					29	9/29/2015	
23353	Point	1001	0	150	Nehalem	7	W	29	Tillamook	9	Fixed Object or Other Object	32	Careless Driving (per PAR)					21	4/21/2015	128
23702	Point		0	0		3	E	29	Tillamook	9	Fixed Object or Other Object	33	Reckless Driving (per PAR)	31	Speed Racir			28	8/28/2015	53
30363	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					27	11/27/2015	22
33400	Point		0	0		9	CN	29	Tillamook	4	Sideswipe - Meeting	27	Inattention					11	9/11/2015	128
42074	Point	1601	0	232	Wheeler	7	W	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					26	11/26/2015	79
44327	Point	2201	0	232	Wheeler	9	CN	29	Tillamook	1	Angle	3	Passed stop sign or red flasher					16	12/16/2015	
45866	Point		0	0		9	CN	29	Tillamook	3	Rear-End	29	Failed to avoid vehicle ahead					1	7/1/2015	
46380	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	16	Driver drowsy/fatigued/sleepy					11	11/11/2015	79
51261	Point		0	0		0	UN	29	Tillamook	4	Sideswipe - Meeting	5	Drove left of center on two-way road; straddling					12	7/12/2015	
7483	Point	1601	0	232	Wheeler	2	NE	29	Tillamook	6	Turning movement	8	Made improper turn					30	7/30/2016	92
11996	Point	801	0	150	Nehalem	5	S	29	Tillamook	9	Fixed Object or Other Object	32	Careless Driving (per PAR)	16	Driver drow		30 Driving in (	16	5/16/2016	61
12090	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					6	12/6/2016	128
12856	Point	1001	0	150	Nehalem	9	CN	29	Tillamook	1	Angle	2	Did not yield right-of-way					5	12/5/2016	
32954	Point	583	0	0		7	W	29	Tillamook	3	Rear-End	29	Failed to avoid vehicle ahead					9	4/9/2016	
34022	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	10	Other improper driving					1	12/1/2016	53
36553	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					6	12/6/2016	124
39155	Point	1401	0	129	Manzanita	2	NE	29	Tillamook	6	Turning movement	8	Made improper turn					19	8/19/2016	
39437	Point	101	0	150	Nehalem	9	CN	29	Tillamook	6	Turning movement	2	Did not yield right-of-way					3	8/3/2016	83
40761	Point		0	0		0	UN	29	Tillamook	4	Sideswipe - Meeting	11	Mechanical defect					21	7/21/2016	
50153	Point	201	0	150	Nehalem	1	N	29	Tillamook	6	Turning movement	2	Did not yield right-of-way	8	Made impro			19	9/19/2016	
50432	Point	801	0	150	Nehalem	0	UN	29	Tillamook	6	Turning movement	8	Made improper turn					23	12/23/2016	
50974	Point	1601	0	232	Wheeler	6	SW	29	Tillamook	9	Fixed Object or Other Object	32	Careless Driving (per PAR)					27	1/27/2016	69
51186	Point	1001	0	150	Nehalem	9	CN	29	Tillamook	6	Turning movement	8	Made improper turn					27	5/27/2016	
54292	Point		0	0		1	N	29	Tillamook	3	Rear-End	29	Failed to avoid vehicle ahead					19	5/19/2016	
2503	Point	1101	0	129	Manzanita	9	CN	29	Tillamook	6	Turning Movement	2	Did not yield right-of-way					2	11/2/2018	
2849	Point	103	0	129	Manzanita	5	S	29	Tillamook	6	Turning Movement	8	Made improper turn					30	6/30/2018	128
3601	Point	1001	0	150	Nehalem	9	CN	29	Tillamook	1	Angle	2	Did not yield right-of-way					4	7/4/2018	
4329	Point		0	0		9	CN	29	Tillamook	6	Turning Movement	2	Did not yield right-of-way					19	1/19/2018	
4951	Point	201	1	150	Nehalem	7	W	29	Tillamook	6	Turning Movement	33	Reckless Driving (per PAR)	8	Made impro	1	Too fast fo	16	10/16/2018	
9135	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					14	9/14/2018	79
9677	Point		0	0		0	UN	29	Tillamook	4	Sideswipe - Meeting	32	Careless Driving (per PAR)	5	Drove left o	16	Driver drov	17	11/17/2018	
12581	Point		1	0		5	S	29	Tillamook	9	Fixed Object or Other Object	8	Made improper turn					19	7/19/2018	53
17410	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					26	7/26/2018	22
19475	Point		0	0		9	CN	29	Tillamook	6	Turning Movement	2	Did not yield right-of-way					21	11/21/2018	
21489	Point	1401	0	129	Manzanita	7	W	29	Tillamook	5	Sideswipe - Overtaking	10	Other improper driving					13	2/13/2018	
23960	Point	1001	0	150	Nehalem	9	CN	29	Tillamook	6	Turning Movement	3	Passed stop sign or red flasher					27	8/27/2018	
27221	Point	1001	0	150	Nehalem	7	W	29	Tillamook	3	Rear-End	22	Inadequate or no brakes	29	Failed to av			28	12/28/2018	
27663	Point	1001	0	150	Nehalem	9	CN	29	Tillamook	6	Turning Movement	2	Did not yield right-of-way					19	10/19/2018	92
31885	Point	801	0	150	Nehalem	1	N	29	Tillamook	9	Fixed Object or Other Object	27	Inattention					27	6/27/2018	43
32790	Point	8002	0	129	Manzanita	1	N	29	Tillamook	5	Sideswipe - Overtaking	10	Other improper driving					12	9/12/2018	
35090	Point	801	0	150	Nehalem	1	N	29	Tillamook	9	Fixed Object or Other Object	1	Too fast for conditions (not exceed posted speed)					10	12/10/2018	53
40328	Point		0	0		0	UN	29	Tillamook	6	Turning Movement	2	Did not yield right-of-way					2	10/2/2018	
40476	Point		0	0		0	UN	29	Tillamook	9	Fixed Object or Other Object	16	Driver drowsy/fatigued/sleepy					11	5/11/2018	79
40639	Point		0	0		0	UN	29	Tillamook	3	Rear-End	29	Failed to avoid vehicle ahead					25	5/25/2018	
46526	Point		0	0		9	CN	29	Tillamook	6	Turning Movement	40	View obscured	2	Did not yiel			22	7/22/2018	
118098	Point	102	-1			1	N	29	Tillamook	9	Fixed Object or Other Object	32	Careless Driving (per PAR)					4	4/4/2017	79
118600	Point	153	-1			3	E	29	Tillamook	2	Head-On	10	Other improper driving					20	5/20/2017	93
123124	Point	236	0			0	UN	29	Tillamook	3	Rear-End	32	Careless Driving (per PAR)	8	Made improper turn			18	7/18/2017	
123535	Point	248	0			0	UN	29	Tillamook	6	Turning movement	2	Did not yield right-of-way	40	View obscured			22	7/22/2017	
126958	Point	238	0	150	Nehalem	1	N	29	Tillamook	3	Rear-End	29	Failed to avoid vehicle ahead					18	7/18/2017	
131094	Point	434	0	150	Nehalem	7	W	29	Tillamook	3	Rear-End	29	Failed to avoid vehicle ahead					30	11/30/2017	
142958	Point	197	0			9	CN	29	Tillamook	6	Turning movement	8	Made improper turn					23	6/23/2017	
149584	Point	90	0	232	Wheeler	8	NW	29	Tillamook	6	Turning movement	8	Made improper turn					22	3/22/2017	
150408	Point	362	0	232	Wheeler	2	NE	29	Tillamook	6	Turning movement	8	Made improper turn					8	10/8/2017	
150543	Point	383	0	232	Wheeler	1	N	29	Tillamook	8	Non-collision	10	Other improper driving					21	10/21/2017	20
156973	Point	270	0			5	S	29	Tillamook	9	Fixed Object or Other Object	22	Inadequate or no brakes					31	7/31/2017	62
164622	Point	350	0			7	W	29	Tillamook	8	Non-collision	1	Too fast for conditions (not exceed posted speed)	32	Careless Driving (per PAR)			25	9/25/2017	21
168369	Point	378	0			0	UN	29	Tillamook	3	Rear-End	27	Inattention	29	Failed to avoid vehicle ahead			19	10/19/2017	

CRASH_EV_1	CRASH_EV_2	CRASH_EV_3	CRASH_EV_4	CRASH_EV_5	CRASH_HIT_	CRASH_HR_L	CRASH_HR_N	CRASH_ID	CRASH_MON_	CRASH_SPEE	CRASH_SVRT	CRASH_SV_1	CRASH_TYP_	CRASH_TYP1	CRASH_WK_D	CRASH_YR_N	DIST_ID
Non-fixed object, other or unknown type					1	02:00 AM to 02:59 AM	2	1547742	4	0	5	Property Damage Only	2	Parked motor vehicle	7	2014	1
Sliding or swerving due to wet, icy, slippery or loose surface (not gravel)	78	Low or hig		10	Overturne	06:00 PM to 06:59 PM	18	1552996	2	1	5	Property Damage Only	8	Fixed Object	6	2014	1
Other (phantom) non-contact vehicle					0	06:00 PM to 06:59 PM	18	1568010	8	0	5	Property Damage Only	A	Entering at angle - one vehicle stopped	1	2014	1
					0	10:00 AM to 10:59 AM	10	1561921	6	0	5	Property Damage Only	D	From same direction - one turn, one straight	2	2014	1
					0	01:00 PM to 01:59 PM	13	1568015	8	0	5	Property Damage Only	H	From opposite direction-one left turn,one straight	2	2014	1
					0	04:00 PM to 04:59 PM	16	1561927	6	0	4	Non-Fatal Injury	E	From same direction - one stopped	4	2014	1
Tree, stump or shrubs					0	02:00 AM to 02:59 AM	2	1556780	3	0	4	Non-Fatal Injury	8	Fixed Object	5	2014	1
Curb (also narrow sidewalks on bridges)	13	Vehicle for			0	11:00 AM to 11:59 AM	11	1553023	2	1	4	Non-Fatal Injury	2	Parked motor vehicle	5	2014	1
Sliding or swerving due to wet, icy, slippery or loose surface (not gravel)	43	Guard rail			0	07:00 PM to 07:59 PM	19	1556984	5	1	5	Property Damage Only	8	Fixed Object	6	2014	1
Cut slope or ditch embankment	10	Overturne			0	08:00 PM to 08:59 PM	20	1568023	8	1	5	Property Damage Only	8	Fixed Object	3	2014	1
					0	06:00 PM to 06:59 PM	18	1556915	4	0	4	Non-Fatal Injury	E	From same direction - one stopped	6	2014	1
Tree, stump or shrubs					0	03:00 PM to 03:59 PM	15	1561564	5	0	5	Property Damage Only	8	Fixed Object	6	2014	1
Curb (also narrow sidewalks on bridges)	91	Building or			0	06:00 PM to 06:59 PM	18	1561599	5	0	5	Property Damage Only	2	Parked motor vehicle	6	2014	1
Gravel in roadway					0	12:00 AM (Midnight) to 12	0	1561610	5	1	5	Property Damage Only	9	Other object	7	2014	1
					0	01:00 AM to 01:59 AM	1	1567408	7	0	4	Non-Fatal Injury	2	Parked motor vehicle	7	2014	1
Deer or elk, wapiti					0	04:00 PM to 04:59 PM	16	1581827	7	0	5	Property Damage Only	7	Animal	7	2014	1
					0	05:00 PM to 05:59 PM	17	1574292	9	0	5	Property Damage Only	B	Entering at angle - all others	5	2014	1
Curve present at crash location					0	01:00 PM to 01:59 PM	13	1650917	7	0	5	Property Damage Only	D	From same direction - one turn, one straight	2	2015	1
Vehicle forced by impact into another vehicle, pedalcyclist or pedestrian	57	Stop or yie		91	Building or	12:00 PM (Noon) to 12:59	12	1650983	7	1	5	Property Damage Only	B	Entering at angle - all others	3	2015	1
					0	10:00 AM to 10:59 AM	10	1629644	9	0	4	Non-Fatal Injury	F	From same direction-all others, including parking	3	2015	1
Curve present at crash location	60	Delineator		79	Cut slope c	12:00 AM (Midnight) to 12	0	1604315	4	0	4	Non-Fatal Injury	8	Fixed Object	3	2015	1
Pole – power or telephone	121	Fence		10	Overturne	07:00 AM to 07:59 AM	7	1651397	8	1	5	Property Damage Only	8	Fixed Object	6	2015	1
Trailer connection broke	20	Jackknife;			0	08:00 AM to 08:59 AM	8	1652326	11	1	5	Property Damage Only	9	Other object	6	2015	1
Curve present at crash location	79	Cut slope c			0	10:00 AM to 10:59 AM	10	1651579	9	0	5	Property Damage Only	G	From opposite direction - both going straight	6	2015	1
Cut slope or ditch embankment	10	Overturne			0	09:00 AM to 09:59 AM	9	1629009	11	1	4	Non-Fatal Injury	8	Fixed Object	5	2015	1
					1	05:00 PM to 05:59 PM	17	1652468	12	0	5	Property Damage Only	B	Entering at angle - all others	4	2015	1
					0	03:00 PM to 03:59 PM	15	1650659	7	0	5	Property Damage Only	E	From same direction - one stopped	4	2015	1
Cut slope or ditch embankment					0	11:00 AM to 11:59 AM	11	1652265	11	0	5	Property Damage Only	8	Fixed Object	4	2015	1
					0	10:00 AM to 10:59 AM	10	1615348	7	0	4	Non-Fatal Injury	G	From opposite direction - both going straight	1	2015	1
Other (phantom) non-contact vehicle					0	04:00 PM to 04:59 PM	16	1680086	7	0	4	Non-Fatal Injury	F	From same direction-all others, including parking	7	2016	1
Mailbox	43	Guard rail		10	Overturne	06:00 PM to 06:59 PM	18	1679289	5	1	4	Non-Fatal Injury	8	Fixed Object	2	2016	1
Curve present at crash location	62	Tree, stum			0	09:00 AM to 09:59 AM	9	1712158	12	1	5	Property Damage Only	8	Fixed Object	3	2016	1
					0	12:00 PM (Noon) to 12:59	12	1711867	12	0	5	Property Damage Only	B	Entering at angle - all others	2	2016	1
					0	02:00 PM to 02:59 PM	14	1706759	4	0	5	Property Damage Only	E	From same direction - one stopped	7	2016	1
Pole – power or telephone					0	05:00 PM to 05:59 PM	17	1711734	12	0	5	Property Damage Only	8	Fixed Object	5	2016	1
Sliding or swerving due to wet, icy, slippery or loose surface (not gravel)	46	Bridge raili		128	Curve pres	07:00 AM to 07:59 AM	7	1711893	12	1	5	Property Damage Only	8	Fixed Object	3	2016	1
					0	12:00 PM (Noon) to 12:59	12	1709787	8	0	5	Property Damage Only	A	Entering at angle - one vehicle stopped	6	2016	1
Vegetation obscured view					0	12:00 PM (Noon) to 12:59	12	1708958	8	0	5	Property Damage Only	A	Entering at angle - one vehicle stopped	4	2016	1
					0	11:00 AM to 11:59 AM	11	1679978	7	0	4	Non-Fatal Injury	G	From opposite direction - both going straight	5	2016	1
					0	04:00 PM to 04:59 PM	16	1680932	9	0	4	Non-Fatal Injury	F	From same direction-all others, including parking	2	2016	1
					0	12:00 PM (Noon) to 12:59	12	1681592	12	0	4	Non-Fatal Injury	D	From same direction - one turn, one straight	6	2016	1
Equipment working in/off road					0	05:00 PM to 05:59 PM	17	1706001	1	0	5	Property Damage Only	9	Other object	4	2016	1
					0	01:00 PM to 01:59 PM	13	1681641	5	0	4	Non-Fatal Injury	F	From same direction-all others, including parking	6	2016	1
					0	12:00 PM (Noon) to 12:59	12	1679365	5	0	4	Non-Fatal Injury	E	From same direction - one stopped	5	2016	1
					0	04:00 PM to 04:59 PM	16	1822248	11	0	5	Property Damage Only	B	Entering at angle - all others	6	2018	1
Curve present at crash location					0	02:00 PM to 02:59 PM	14	1819753	6	0	5	Property Damage Only	2	Parked motor vehicle	7	2018	1
					0	02:00 PM to 02:59 PM	14	1793197	7	0	4	Non-Fatal Injury	B	Entering at angle - all others	4	2018	1
					0	04:00 PM to 04:59 PM	16	1776881	1	0	4	Non-Fatal Injury	H	From opposite direction-one left turn,one straight	6	2018	1
					0	06:00 PM to 06:59 PM	18	1800154	10	1	4	Non-Fatal Injury	B	Entering at angle - all others	3	2018	1
Cut slope or ditch embankment					0	11:00 AM to 11:59 AM	11	1816576	9	1	5	Property Damage Only	8	Fixed object	6	2018	1
					0	05:00 PM to 05:59 PM	17	1801247	11	0	4	Non-Fatal Injury	G	From opposite direction - both going straight	7	2018	1
Pole – power or telephone					0	09:00 PM to 09:59 PM	21	1793293	7	0	4	Non-Fatal Injury	8	Fixed object	5	2018	1
Trailer connection broke	43	Guard rail			0	12:00 PM (Noon) to 12:59 PM	12	1793391	7	1	4	Non-Fatal Injury	8	Fixed object	5	2018	1
					0	11:00 AM to 11:59 AM	11	1801274	11	0	4	Non-Fatal Injury	B	Entering at angle - all others	4	2018	1
					0	05:00 PM to 05:59 PM	17	1805730	2	0	5	Property Damage Only	2	Parked motor vehicle	3	2018	1
					0	12:00 PM (Noon) to 12:59 PM	12	1795424	8	0	4	Non-Fatal Injury	B	Entering at angle - all others	2	2018	1
					0	10:00 AM to 10:59 AM	10	1817002	12	0	5	Property Damage Only	E	From same direction - one stopped	6	2018	1
Other (phantom) non-contact vehicle					0	08:00 AM to 08:59 AM	8	1800182	10	0	4	Non-Fatal Injury	A	Entering at angle - one vehicle stopped	6	2018	1
Guard rail (not metal median barrier)					0	06:00 AM to 06:59 AM	6	1790339	6	0	4	Non-Fatal Injury	8	Fixed object	4	2018	1
					0	11:00 AM to 11:59 AM	11	1820921	9	0	5	Property Damage Only	2	Parked motor vehicle	4	2018	1
Pole – power or telephone	62	Tree, stum		86	Vehicle im	08:00 AM to 08:59 AM	8	1801618	12	1	4	Non-Fatal Injury	8	Fixed object	2	2018	1
					0	07:00 PM to 07:59 PM	19	1799977	10	0	4	Non-Fatal Injury	B	Entering at angle - all others	3	2018	1
Cut slope or ditch embankment	62	Tree, stum		86	Vehicle im	03:00 AM to 03:59 AM	3	1785798	5	0	4	Non-Fatal Injury	8	Fixed object	6	2018	1
					0	02:00 PM to 02:59 PM	14	1785977	5	0	4	Non-Fatal Injury	E	From same direction - one stopped	6	2018	1
					0	05:00 PM to 05:59 PM	17	1793375	7	0	4	Non-Fatal Injury	B	Entering at angle - all others	1	2018	1
Cut slope or ditch embankment					0	07:00 PM to 07:59 PM	19	1773747	4	0	5	Property Damage Only	8	Fixed Object	3	2017	1
Cell phone (on PAR or driver in use)					0	09:00 PM to 09:59 PM	21	1773952	5	0	5	Property Damage Only	2	Parked motor vehicle	7	2017	1
					0	05:00 PM to 05:59 PM	17	1746660	7	0	4	Non-Fatal Injury	E	From same direction - one stopped	3	2017	1
					0	04:00 PM to 04:59 PM	16	1746695	7	0	4	Non-Fatal Injury	6	Pedalcyclist	7	2017	1
					0	06:00 PM to 06:59 PM	18	1774318	7	0	5	Property Damage Only	C	From same direction - both going straight	3	2017	1
					0	01:00 PM to 01:59 PM	13	1774694	11	0	5	Property Damage Only	C	From same direction - both going straight	5	2017	1
					0	06:00 PM to 06:59 PM	18	1737503	6	0	4	Non-Fatal Injury	F	From same direction-all others, including parking	6	2017	1
					0	01:00 PM to 01:59 PM	13	1773704	3	0	5	Property Damage Only	B	Entering at angle - all others	4	2017	1
					0	04:00 PM to 04:59 PM	16	1774999	10	0	5	Property Damage Only	A	Entering at angle - one vehicle stopped	1	2017	1
Jackknife; trailer or towed vehicle struck towing vehicle	85	Wind Gust			0	07:00 PM to 07:59 PM	19	1746523	10	0	4	Non-Fatal Injury	&	Overturned	7	2017	1
Tree, stump or shrubs					0	08:00 AM to 08:59 AM	8	1774481	7	0	5	Property Damage Only	8	Fixed Object	2	2017	1
Trailer or towed vehicle overturned					0	02:00 PM to 02:59 PM	14	1774992	9	-1	5	Property Damage Only	&	Overturned	2	2017	1
					0	10:00 AM to 10:59 AM	10	1746894	10	0	4	Non-Fatal Injury	C	From same direction - both going straight	5	2017	1

DRUG_IN VLV	DRVWY_ REL_	EFFECTV_ DT	FC_CD	FC_DESC	FROM_IS ECT	GIS_PRC_DT	HIGHEST_ IN	HIGHEST__1	HWY_CO MPNT	HWY_COMP_1	HWY_MED_NM	HWY_NO	HWY_SFX _NO	IMPCT_L OC_	INVSTG_ AGY	INVSTG_A_1	ISECT_AG Y_	ISECT_RE CR	ISECT_RE L_	ISECT_SE Q_	ISECT_ST_F	ISECT_TY P_	ISECT_TY P1	LAT_DD	LAT_DEG _NO
0	0	2014	9	RURAL LOC	100	8/21/2019	5	No Apparent Injury/PDO Crash (O)							7	2	County Police	8009		0	1	9TH ST			45.71664	45
0	0	2014	2	RURAL PRI	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	1	State Police -			0	0			45.69937	45
0	1	2014	8	RURAL MII	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)							5	2	County Police			0	0		3	3-LEG	45.71752	45
0	0	2014	2	RURAL PRI	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		1	5	On Scene - No			0	0		3	3-LEG	45.72424	45
0	0	2014	2	RURAL PRI	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		3	3	City Police - R			0	0				45.71914	45
0	0	2014	7	RURAL MA	0	8/21/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	NECANICUM	46		6	5	On Scene - No			0	0		3	3-LEG	45.70102	45
1	0	2014	2	RURAL PRI	0	8/21/2019	2	Suspected Serious Injury (A)		0	Mainline State I	OREGON COAST	9		1	2	County Police			0	0				45.71985	45
0	0	2014	2	RURAL PRI	0	8/21/2019	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		5	0	Not Investiga	8010		0	1	10TH ST			45.71765	45
0	0	2014	2	RURAL PRI	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	5	On Scene - No			0	0				45.71759	45
0	0	2014	2	RURAL PRI	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	1	State Police -			0	0				45.69893	45
1	0	2014	2	RURAL PRI	0	8/21/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		3	3	City Police - R	2101		0	1	RECTOR ST			45.69132	45
0	0	2014	2	RURAL PRI	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		5	3	City Police - R			0	0				45.7183	45
0	0	2014	7	RURAL MA	85	8/21/2019	5	No Apparent Injury/PDO Crash (O)							8	3	City Police - R	402		0	1	CARMEL AVE			45.71849	45
0	0	2014	7	RURAL MA	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)							6	2	County Police	1501		0	1	MANZANITA AVE	1	CROSS	45.71928	45
0	0	2014	2	RURAL PRI	0	8/21/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		5	1	State Police -			0	0				45.70302	45
0	0	2014	2	RURAL PRI	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		3	5	On Scene - No	1401		0	1	LANEDA AVE			45.71668	45
0	0	2014	7	RURAL MA	0	8/21/2019	5	No Apparent Injury/PDO Crash (O)							3	0	Not Investiga	8003		0	1	3RD ST	1	CROSS	45.71849	45
0	0	2015	7	RURAL MA	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)							2	2	County Police			0	0				45.73049	45
0	0	2015	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	2	County Police	8009		0	1	9TH ST	1	CROSS	45.71766	45
0	0	2015	7	RURAL MA	100	8/20/2019	4	Possible Injury Crash (C)							8	3	City Police - R	405		0	1	CLASSIC ST			45.71927	45
0	0	2015	2	RURAL PRI	0	8/20/2019	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		6	2	County Police	8012		0	1	12TH ST	3	3-LEG	45.71769	45
0	0	2015	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	1	State Police -			0	0		3	3-LEG	45.71733	45
0	0	2015	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		4	3	City Police - R			0	0				45.71916	45
0	0	2015	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		3	2	County Police			0	0		3	3-LEG	45.69963	45
0	0	2015	2	RURAL PRI	0	8/20/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		6	1	State Police -	2001		0	1	PENNSYLVANIA AVE			45.68702	45
0	0	2015	9	RURAL LOC	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)							4	2	County Police	8003		0	1	3RD ST	1	CROSS	45.69115	45
0	0	2015	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		4	0	Not Investiga			0	0		3	3-LEG	45.71061	45
0	0	2015	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		1	1	State Police -			0	0				45.72151	45
0	0	2015	2	RURAL PRI	0	8/20/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		4	3	City Police - R			0	0				45.71985	45
0	0	2016	2	RURAL PRI	0	8/20/2019	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		3	3	City Police - R	2101		0	1	RECTOR ST			45.6904	45
0	0	2016	2	RURAL PRI	0	8/20/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		6	2	County Police	102		0	1	NEHALEM POINT RD			45.71121	45
0	0	2016	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	5	On Scene - No			0	0		3	3-LEG	45.69963	45
0	0	2016	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		2	0	Not Investiga	8009		0	1	9TH ST	1	CROSS	45.71766	45
0	0	2016	7	RURAL MA	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)							6	0	Not Investiga			0	0		3	3-LEG	45.71926	45
0	0	2016	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		1	0	Not Investiga			0	0				45.7174	45
0	0	2016	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		1	0	Not Investiga			0	0				45.70006	45
0	0	2016	7	RURAL MA	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)							6	5	On Scene - No	8004		0	1	4TH ST	1	CROSS	45.71865	45
0	0	2016	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		2	5	On Scene - No	8010		0	1	10TH ST	1	CROSS	45.71765	45
0	0	2016	7	RURAL MA	25	8/20/2019	3	Suspected Minor Injury Crash (B)							3	3	City Police - R	8007		0	1	7TH ST			45.71987	45
0	0	2016	2	RURAL PRI	0	8/20/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		4	1	State Police -	102		0	1	NEHALEM POINT RD			45.71076	45
0	0	2016	2	RURAL PRI	0	8/20/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		4	1	State Police -	2001		0	1	PENNSYLVANIA AVE			45.68702	45
0	0	2016	2	RURAL PRI	0	8/20/2019	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		3	3	City Police - R	8007		0	1	7TH ST	1	CROSS	45.71769	45
0	0	2016	7	RURAL MA	0	8/20/2019	4	Possible Injury Crash (C)		0	Mainline State I	NECANICUM	46		6	0	Not Investiga			0	0		3	3-LEG	45.70102	45
0	0	2018	9	RURAL LOC	0	6/30/2020	5	No Apparent Injury/PDO Crash (O)							3	5	On Scene - No	8001		0	1	N 1ST ST	3	3-LEG	45.71919	45
0	0	2018	9	RURAL LOC	275	6/30/2020	5	No Apparent Injury/PDO Crash (O)							8	0	Not Investiga	105		0	1	UPLAND DR			45.71253	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		2	1	State Police -	8007		0	1	7TH ST	1	CROSS	45.71769	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		1	1	State Police -			0	0		3	3-LEG	45.71733	45
0	0	2018	7	RURAL MA	0	6/30/2020	4	Possible Injury Crash (C)							5	2	County Police	8007		0	1	7TH ST	3	3-LEG	45.71967	45
0	0	2018	2	RURAL PRI	0	6/30/2020	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	5	On Scene - No			0	0				45.72061	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		6	1	State Police -			0	0				45.71959	45
0	0	2018	2	RURAL PRI	0	6/30/2020	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		5	1	State Police -			0	0		3	3-LEG	45.71752	45
0	0	2018	2	RURAL PRI	0	6/30/2020	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		6	1	State Police -			0	0				45.70736	45
0	0	2018	2	RURAL PRI	0	6/30/2020	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		3	1	State Police -			0	0		3	3-LEG	45.71733	45
0	0	2018	7	RURAL MA	25	6/30/2020	5	No Apparent Injury/PDO Crash (O)							5	0	Not Investiga	8001		0	1	1ST ST			45.71848	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		1	2	County Police	8007		0	1	7TH ST	1	CROSS	45.71769	45
0	0	2018	2	RURAL PRI	0	6/30/2020	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	2	County Police	8010		0	1	10TH ST	1	CROSS	45.71766	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		3	3	City Police - R	8009		0	1	9TH ST	1	CROSS	45.71766	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		6	1	State Police -	102		0	1	NEHALEM POINT RD			45.71122	45
0	0	2018	9	RURAL LOC	50	6/30/2020	5	No Apparent Injury/PDO Crash (O)							5	0	Not Investiga	1401		0	1	LANEDA AVE			45.7187	45
0	0	2018	2	RURAL PRI	0	6/30/2020	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		6	1	State Police -	102		0	1	NEHALEM POINT RD			45.7124	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		4	0	Not Investiga			0	0				45.7183	45
0	0	2018	2	RURAL PRI	0	6/30/2020	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		6	2	County Police			0	0				45.69923	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		4	0	Not Investiga			0	0				45.71771	45
0	0	2018	2	RURAL PRI	0	6/30/2020	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		3	1	State Police -			0	0		3	3-LEG	45.71819	45
0	0	2017	8	RURAL MII	1	6/25/2019	5	No Apparent Injury/PDO Crash (O)							7	1	State Police -	529		0	1	THE PROMENADE			45.71469	45
0	0	2017	9	RURAL LOC	25	6/25/2019	5	No Apparent Injury/PDO Crash (O)							2	2	County Police	535		0	1	BAYSIDE GARDENS RD			45.71262	45
0	0	2017	2	RURAL PRINCIPAL ART		6/25/2019	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		4	2	County Police - Report received			0					45.70138	45
0	0	2017	2	RURAL PRINCIPAL ART		6/25/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		3	1	State Police - Report received.			0					45.71882	45
0	0	2017	2	RURAL PRINCIPAL ART		6/25/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		6	5	On Scene - No	2301		0	1	TOHLS ST	1	CROSS	45.71669	45
0	0	2017	2	RURAL PRINCIPAL ART		6/25/2019	5	No Apparent Injury/PDO Crash (O)		0	Mainline State I	OREGON COAST	9		4	5	On Scene - No	8010		0	1	10TH ST			45.71765	45
0	0	2017	2	RURAL PRINCIPAL ART		6/25/2019	3	Suspected Minor Injury Crash (B)		0	Mainline State I	OREGON COAST	9		1	5	On Scene - No report received			0			3	3-LEG	45.70102	45
0	0	2017	9	RURAL LOC	190	6/25/2019	5	No Apparent Injury/PDO Crash (O)							8	3	City Police - R	8003		0	1	3RD ST			45.68635	45
0	-1	2017	9	RURAL LOC	0	6/25/2019	5	No Apparent Injury/PDO Crash (O)							1	0	Not Investiga	2101		0	1	RECTOR ST	3	3-LEG	45.69032	45
0	0	2017	2	RURAL PRINCIPAL ART		6/25/2019	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		3	1	State Police -	103		0	1	MARINE DR			45.69467	45
0	0	2017	8	RURAL MII	0	6/25/2019	5	No Apparent Injury/PDO Crash (O)							5	5	On Scene - No	529		0	1	THE PROMENADE	3	3-LEG	45.71458	45
0	0	2017	8	RURAL MII	9	6/25/2019	5	No Apparent Injury/PDO Crash (O)							2	3	City Police - R	546		0	1	CLIPPER CT			45.71506	45
0	0	2017	2	RURAL PRINCIPAL ART		6/25/2019	4	Possible Injury Crash (C)		0	Mainline State I	OREGON COAST	9		3	1	State Police - Report received.			0					45.71783	45

LAT_MINUTE	LAT_SEC_NO	LGT_COND_C	LGT_COND_L	LN_QTY	LONGTD_DD	LONGTD_DEG	LONGTD_MIN	LONGTD_SEC	LRS_VAL	MEDN_TY P_C	MEDN_TY P_L	MJ_INVL V_F	MLGE_TY P_C	MLGE_TY P_L	MP_NO	NHS_FLG	OFF_RD WY_F	POP_RNG _CD	POP_RNG _ME	POST_SPEED	RDWY_NO	RD_CHAR _CD	RD_CHAR_LO	RD_CNTL _CD	RD_CNTL _ME	RD_CON_NO	RD_SURF _CO	RD_SURF _ME	RECRE_RD_N	REG_ID	RNDABT_FLG	
42	59.88884	2	Darkness -	2	-123.897	-123	53	47.84978		0	No median		0		0	0	1	0	1 to 500			2	Driveway or Alley	7	RURAL CIT		2	Wet			2	0
41	57.73247	3	Darkness -	2	-123.877	-123	52	36.92813	00090010(	0	No median		0	Regular Mi	46.67	1	1			55	1	5	Curve (horizontal curve)	5	RURAL HW		3	Snow			2	0
43	3.07	1	Daylight	0	-123.916	-123	54	56.95					0		0	0	0			0		1	Intersection	6	RURAL COI		1	Dry			2	0
43	27.26306	1	Daylight	0	-123.928	-123	55	41.87244	00090010(				0	Regular Mi	42.83	1	0			40	1	1	Intersection	5	RURAL HW		2	Wet			2	0
43	8.89	1	Daylight	2	-123.928	-123	55	39.66	00090010(	0	No median		0	Regular Mi	43.2	1	0			40	1	2	Driveway or Alley	5	RURAL HW		1	Dry			2	0
42	3.684096	1	Daylight	0	-123.88	-123	52	48.03722	00460010(				0	Regular Mi	19.03	0	0			55	1	1	Intersection	5	RURAL HW		1	Dry			2	0
43	11.46436	3	Darkness -	2	-123.922	-123	55	20.05457	00090010(	0	No median		0	Regular Mi	43.52	1	1			40	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
43	3.555228	1	Daylight	2	-123.897	-123	53	49.42604	00090010(	0	No median		0	Regular Mi	44.85	1	1	0	1 to 500	30	1	3	Straight Roadway	5	RURAL HW		3	Snow			2	0
43	3.324648	1	Daylight	2	-123.91	-123	54	35.2638	00090010(	0	No median		0	Regular Mi	44.18	1	1			40	1	3	Straight Roadway	5	RURAL HW		4	Ice			2	0
41	56.15	5	Dusk (Twili	2	-123.877	-123	52	36.3	00090010(	0	No median		0	Regular Mi	46.7	1	1			55	1	6	Open access or turnout	5	RURAL HW		1	Dry			2	0
41	28.74466	1	Daylight	2	-123.881	-123	52	50.53508	00090010(	0	No median		0	Regular Mi	47.25	1	0	0	1 to 500	25	1	3	Straight Roadway	5	RURAL HW		1	Dry			2	0
43	5.862576	1	Daylight	2	-123.918	-123	55	5.957328	00090010(	0	No median		0	Regular Mi	43.75	1	1			40	1	2	Driveway or Alley	5	RURAL HW		2	Wet			2	0
43	6.552048	1	Daylight	2	-123.938	-123	56	18.03998		0	No median		0		0	0	1	1	501 to 1,0(	20		3	Straight Roadway	7	RURAL CIT		2	Wet			2	0
43	9.396156	2	Darkness -	0	-123.93	-123	55	46.97098					0		0	0	0	1	501 to 1,0(	0		1	Intersection	7	RURAL CIT		2	Wet			2	0
42	10.87	3	Darkness -	2	-123.884	-123	53	2.51	00090010(	0	No median		0	Regular Mi	46.25	1	1			55	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
43	0.06	1	Daylight	2	-123.932	-123	55	54.58	00090010(	0	No median		0	Regular Mi	999.99	1	0	1	501 to 1,0(		1	3	Straight Roadway	5	RURAL HW		1	Dry			2	0
43	6.58	1	Daylight	0	-123.936	-123	56	9.7					0		0	0	0	1	501 to 1,0(	0		1	Intersection	7	RURAL CIT		1	Dry			2	0
43	49.77	1	Daylight	2	-123.883	-123	52	59.57		0	No median		0		0.98	0	0			45		2	Driveway or Alley	6	RURAL COI		1	Dry			2	0
43	3.58	1	Daylight	0	-123.896	-123	53	46.53	00090010(				0	Regular Mi	44.89	1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HW		1	Dry			2	0
43	9.36	1	Daylight	2	-123.929	-123	55	45.4		0	No median		0		0	0	1	1	501 to 1,0(	25		7	Grade (vertical curve)	7	RURAL CIT		1	Dry			2	0
43	3.7	3	Darkness -	0	-123.899	-123	53	57.05	00090010(				0	Regular Mi	44.75	1	1	0	1 to 500	30	1	1	Intersection	5	RURAL HW		1	Dry			2	0
43	2.4	1	Daylight	0	-123.914	-123	54	51.06	00090010(				0	Regular Mi	43.96	1	1			40	1	1	Intersection	5	RURAL HW		2	Wet			2	0
43	8.98	4	Dawn (Twi	2	-123.927	-123	55	37.47	00090010(	0	No median		0	Regular Mi	43.23	1	0			40	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
41	58.67	1	Daylight	0	-123.877	-123	52	37.71	00090010(				0	Regular Mi	46.65	1	0			55	1	1	Intersection	5	RURAL HW		1	Dry			2	0
41	13.27	1	Daylight	2	-123.898	-123	53	51.16	00090010(	0	No median		0	Regular Mi	48.23	1	1	0	1 to 500	55	1	7	Grade (vertical curve)	5	RURAL HW		4	Ice			2	0
41	28.14	2	Darkness -	0	-123.877	-123	52	38.3					0		0	0	0	0	1 to 500	25		1	Intersection	7	RURAL CIT		2	Wet			2	0
42	38.21	1	Daylight	0	-123.892	-123	53	32.16	00090010(				0	Regular Mi	45.48	1	0			30	1	1	Intersection	5	RURAL HW		1	Dry			2	0
43	17.42	1	Daylight	2	-123.929	-123	55	42.95	00090010(	0	No median		0	Regular Mi	43.02	1	1			40	1	3	Straight Roadway	5	RURAL HW		1	Dry			2	0
43	11.46	1	Daylight	2	-123.922	-123	55	20.05	00090010(	0	No median		0	Regular Mi	43.52	1	0			40	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
41	25.43	1	Daylight	2	-123.881	-123	52	52.89	00090010(	0	No median		0	Regular Mi	47.32	1	0	0	1 to 500	25	1	2	Driveway or Alley	5	RURAL HW		1	Dry			2	0
42	40.37	1	Daylight	2	-123.892	-123	53	32.24	00090010(	0	No median		0	Regular Mi	45.44	1	1	0	1 to 500	30	1	3	Straight Roadway	5	RURAL HW		1	Dry			2	0
41	58.67	1	Daylight	0	-123.877	-123	52	37.71	00090010(				0	Regular Mi	46.65	1	1			55	1	1	Intersection	5	RURAL HW		4	Ice			2	0
43	3.58	1	Daylight	0	-123.896	-123	53	46.53	00090010(				0	Regular Mi	44.89	1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HW		2	Wet			2	0
43	9.34	1	Daylight	0	-123.928	-123	55	40.98					0		0	0	0					1	Intersection	6	RURAL COI		1	Dry			2	0
43	2.64	3	Darkness -	2	-123.915	-123	54	54.46	00090010(	0	No median		0	Regular Mi	43.92	1	1			40	1	5	Curve (horizontal curve)	5	RURAL HW		2	Wet			2	0
42	0.23	3	Darkness -	2	-123.878	-123	52	40.19	00090010(	0	No median		0	Regular Mi	46.61	1	1			55	1	8	Bridge Structure	5	RURAL HW		4	Ice			2	0
43	7.15	1	Daylight	0	-123.935	-123	56	6.36					0		0	0	0	1	501 to 1,0(			1	Intersection	7	RURAL CIT		1	Dry			2	0
43	3.55	1	Daylight	0	-123.897	-123	53	50.15	00090010(				0	Regular Mi	44.84	1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HW		1	Dry			2	0
42	36.27	1	Daylight	2	-123.892	-123	53	31.59	00090010(	0	No median		0	Regular Mi	45.52	1	0			55	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
42	38.75	1	Daylight	2	-123.892	-123	53	32.17	00090010(	0	No median		0	Regular Mi	45.47	1	0	0	1 to 500	30	1	3	Straight Roadway	5	RURAL HW		2	Wet			2	0
41	13.27	5	Dusk (Twili	2	-123.898	-123	53	51.16	00090010(	0	No median		0	Regular Mi	48.23	1	0	0	1 to 500	55	1	7	Grade (vertical curve)	5	RURAL HW		2	Wet			2	0
43	3.68	1	Daylight	0	-123.894	-123	53	39.07	000900100S00				0	Regular Mi	45.06	-1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HWY SYSTEM		1	Dry			2	0
42	3.68	1	Daylight	0	-123.88	-123	52	48.04	00460010(				0	Regular Mi	19.03	0	0			55	1	1	Intersection	5	RURAL HW		1	Dry			2	0
43	9.08	1	Daylight	0	-123.939	-123	56	21					0		0	0	0	1	501 to 1,0(			1	Intersection	7	RURAL CIT		1	Dry			2	0
42	45.11	1	Daylight	2	-123.935	-123	56	5.31		0	No median		0		0	0	0	1	501 to 1,0(			2	Driveway or Alley	7	RURAL CIT		1	Dry			2	0
43	3.68	1	Daylight	0	-123.894	-123	53	39.07	00090010(				0	Regular Mi	44.98	1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HW		1	Dry			2	0
43	2.39	1	Daylight	0	-123.914	-123	54	51.06	00090010(				0	Regular Mi	43.96	1	0			40	1	1	Intersection	5	RURAL HW		2	Wet			2	0
43	10.82	5	Dusk (Twili	0	-123.894	-123	53	39.35					0		0	0	0	0	1 to 500	25		1	Intersection	7	RURAL CIT		1	Dry			2	0
43	14.19	1	Daylight	2	-123.925	-123	55	29.53	00090010(	0	No median		0	Regular Mi	43.38	1	1			40	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
43	10.52	3	Darkness -	2	-123.922	-123	55	18.34	00090010(	0	No median		0	Regular Mi	43.55	1	1			40	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
43	3.07	5	Dusk (Twili	0	-123.916	-123	54	56.95	00090010(				0	Regular Mi	43.89	1	1			40	1	1	Intersection	5	RURAL HW		1	Dry			2	0
42	26.49	1	Daylight	2	-123.886	-123	53	9.03	00090010(	0	No median		0	Regular Mi	45.93	1	1			55	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
43	2.4	1	Daylight	0	-123.914	-123	54	51.07	00090010(				0	Regular Mi	43.96	1	0			40	1	1	Intersection	5	RURAL HW		2	Wet			2	0
43	6.53	5	Dusk (Twili	2	-123.94	-123	56	23.35		0	No median		0		0	0	1	1	501 to 1,0(			3	Straight Roadway	7	RURAL CIT		1	Dry			2	0
43	3.68	1	Daylight	0	-123.894	-123	53	39.07	00090010(				0	Regular Mi	44.98	1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HW		1	Dry			2	0
43	3.56	1	Daylight	0	-123.897	-123	53	50.17	00090010(				0	Regular Mi	44.84	1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HW		2	Wet			2	0
43	3.58	1	Daylight	0	-123.896	-123	53	46.53	00090010(				0	Regular Mi	44.89	1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HW		1	Dry			2	0
42	40.39	4	Dawn (Twi	2	-123.892	-123	53	32.25	00090010(	0	No median		0	Regular Mi	45.44	1	1	0	1 to 500	30	1	5	Curve (horizontal curve)	5	RURAL HW		1	Dry			2	0
43	7.31	1	Daylight	2	-123.937	-123	56	13.14		0	No median		0		0	0	1	1	501 to 1,0(			3	Straight Roadway	7	RURAL CIT		1	Dry			2	0
42	44.63	1	Daylight	2	-123.893	-123	53	33.15	00090010(	0	No median		0	Regular Mi	45.36	1	1	0	1 to 500	30	1	3	Straight Roadway	5	RURAL HW		1	Dry			2	0
43	5.87	3	Darkness -	2	-123.918	-123	55	5.96	00090010(	0	No median		0	Regular Mi	43.75	1	0			40	1	2	Driveway or Alley	5	RURAL HW		1	Dry			2	0
41	57.22	3	Darkness -	2	-123.877	-123	52	36.68	00090010(	0	No median		0	Regular Mi	46.68	1	1			55	1	5	Curve (horizontal curve)	5	RURAL HW		2	Wet			2	0
43	3.75	1	Daylight	2	-123.917	-123	54	59.6	00090010(	0	No median		0	Regular Mi	43.85	1	0			40	1	2	Driveway or Alley	5	RURAL HW		1	Dry			2	0
43	5.49	1	Daylight	0	-123.908	-123	54	27.82	00090010(				0	Regular Mi	44.29	1	0			40	1	1	Intersection	5	RURAL HW		1	Dry			2	0
42	52.89	2	Darkness -	2	-123.917	-123	55	2.95		0	No median				0	-1						3	Straight Roadway	6	RURAL COUNTY ROAD		2	Wet			2	0
42	45.42	2	Darkness -	2	-123.909	-123	54	32.84		0	No median				0	-1				25		3	Straight Roadway	6	RURAL COUNTY ROAD		1	Dry			2	0
42	4.96	1	Daylight	2	-123.881	-123	52	51.1	00090010(	0	No median		0	Regular Mi	46.45	-1	0			55	1	3	Straight Roadway	5	RURAL HWY SYSTEM		1	Dry			2	0
43	7.76	1	Daylight	2	-123.92	-123	55	11.69	00090010(	0	No median		0	Regular Mi	43.66	-1	0			40	1	2	Driveway or Alley	5	RURAL HWY SYSTEM		1	Dry			2	0
43	0.1	1	Daylight		-123.894	-123	53	39	000900100S00				0	Regular Mi	45.06	-1	0	0	1 to 500	30	1	1	Intersection	5	RURAL HWY SYSTEM		1	Dry			2	0
43	3.53	1	Daylight	2	-123.898	-123	53	51.57	00090010(	0	No median		0	Regular Mi	44.82	-1	0	0	1 to 500	30	1	3	Straight Roadway	5	RURAL HWY SYSTEM		2	Wet			2	0
42	3.68	1	Daylight		-123.88	-123	52	48.04	000900100S00				0	Regular Mi	46.5	-1	0			55	1	1	Intersection	5	RURAL HWY SYSTEM		1	Dry			2	0
41	10.86	1	Daylight	2	-123.884	-123	53	1.81		0	No median					0	0	0	1 to 500			2	Driveway or Alley	7	RURAL CITY STREET		2	Wet			2	0
41	25.14	1	Daylight		-123.882	-123	52	54.99								0	0	0	1 to 500			1	Intersection	7	RURAL CITY STREET		1	Dry			2	0
41	40.81	3	Darkness -	2	-123.879	-123	52	43.71	00090010(	0	No median		0	Regular Mi	47	-1	0	0	1 to 500	45	1	3	Straight Roadway	5	RURAL HWY SYSTEM		2	Wet			2	0
42	52.47	1	Daylight		-123.918	-123	55	3.26								0	-1					1	Intersection	6	RURAL COUNTY ROAD		1	Dry			2	0
42	54.2	1	Daylight	2	-123.922	-123	55	19.96		0	No median					0	-1					5	Curve (horizontal curve)	6	RURAL COUNTY ROAD		1	Dry			2	0
43	4.18	1	Daylight	2	-123.917	-123	55	0.86	00090010(	0	No median		0	Regular Mi	43.83	-1	0			40	1	3	Straight Roadway	5	RURAL HWY SYSTEM		2	Wet			2	0

RTE_ID	RTE_NM	RTE_TYP_CD	SCHL_ZONE_	SEG_MRK_ID	SEG_PT_LRS	SER_NO	SPECL_JRSD	SPECL_JR_1	ST_FULL_NM	TOT_FATAL_	TOT_INJ_CN	TAG_KSI	TOT_INJ_LV	TOT_INJ_1	TOT_INJ_2	TOT_OCCUP_	TOT_PEDCYC	TOT_PEDC_1	TOT_PEDC_2	TOT_PED_CN	TOT_PED_FA	TOT_PED_IN	TOT_PER_IN	TOT_SFTY_E	TOT_SFTY_1	TOT_SFTY_2	TOT_UNINJD	TOT_UNIN_1	TOT_UNKNWN	TOT_UNKN_1
				0 52_29003	153.07	86			TOHLS ST	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	1	0	1	0	2	0	0
101	US 101	US		0 293_1905	110.68	37				0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	3	0	0	3	0	0
				52_29002	0	217			NECARNEY CITY RD	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	3	0	0	3	0	0
101	US 101	US		293_1818	3580.4	137				0	0	0	0	0	0	0	5	0	0	0	0	0	0	5	0	2	3	1	5	0	0
101	US 101	US		0 293_1705	105.457	220				0	0	0	0	0	0	0	5	0	0	0	0	0	0	5	0	4	1	0	5	0	0
53	OR 53	OR		293_1042	5424.27	139				0	1	1	0	1	0	2	0	0	0	0	0	0	0	2	0	1	1	0	1	0	0
101	US 101	US		0 293_1705	1791.95	62				0	1	1	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
101	US 101	US		293_1677	51.459	47			H ST	0	1	1	0	0	1	4	0	0	0	0	0	0	0	4	0	2	2	0	3	0	0
101	US 101	US		293_1830	1145.94	90191				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
101	US 101	US		0 293_1905	277.336	223				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0
101	US 101	US		0 293_1342	267.717	76			OREGON COAST HY	0	2	1	0	1	1	4	0	0	0	0	0	0	0	4	1	3	0	0	2	0	0
101	US 101	US		0 293_1830	1049.6	97				0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	2	0	0
				0 52_29001	567.589	100			LANEDA AVE	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	2	0	0
				52_29002	2804.65	102			CLASSIC ST	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0
101	US 101	US		293_1228	1366.27	176				0	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
				0	0	164			OREGON COAST HY	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	2	0	2	0	0
				52_29000	0	269			LANEDA AVE	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	1	1	0	2	0	0
				52_29002	5732.83	215			NORTH FORK NEHLM RD	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	1	1	0	2	0	0
101	US 101	US		293_1819	0	219			H ST	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0	5	0	0	5	0	0
				0 52_29000	2916.19	310			LANEDA AVE	0	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
101	US 101	US		293_1995	0	99			H ST	0	2	1	0	0	2	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0
101	US 101	US		0 293_1830	0	286				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0
101	US 101	US		293_1705	263.464	399				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0
101	US 101	US		0 293_4839	896.908	302				0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	4	0	0	4	0	0
101	US 101	US		0 293_9496	1524.12	395			OREGON COAST HY	0	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
				0 52_29003	0	421			SPRUCE ST	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	1	1	0	2	0	0
101	US 101	US		293_1706	1696.83	176				0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	3	0	0	3	0	0
101	US 101	US		293_1342	1007.06	383				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0
101	US 101	US		293_1705	1791.95	197				0	1	1	0	1	0	2	0	0	0	0	0	0	0	2	0	2	0	0	1	0	0
101	US 101	US		0 293_1342	642.946	219			OREGON COAST HY	0	1	1	0	0	1	2	0	0	0	0	0	0	0	2	0	2	0	0	1	0	0
101	US 101	US		293_1706	1477.98	123			RIVERSIDE DR	0	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
101	US 101	US		293_4839	896.908	448				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
101	US 101	US		293_1819	0	440			H ST	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	1	1	0	2	0	0
				52_29000	3229.94	93			LANEDA AV(MANZANITA)	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	2	1	0	3	0	0
101	US 101	US		293_1895	182.066	433				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
101	US 101	US		293_4839	657.748	446				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
				52_29003	1403.15	266			LANEDA AVE	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	3	1	0	4	0	0
101	US 101	US		293_1677	0	229			A ST	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	1	1	0	2	0	0
101	US 101	US		0 293_1633	201.052	198				0	1	1	0	0	1	2	0	0	0	0	0	0	0	2	0	2	0	0	1	0	0
				0 52_29000	796.373	321			B ST	0	1	1	0	1	0	6	0	0	0	0	0	0	0	6	0	6	0	1	5	0	0
101	US 101	US		0 293_1706	1642.1	471			RIVERSIDE DR	0	2	1	0	1	1	2	0	0	0	0	0	0	0	2	0	1	1	0	0	0	0
101	US 101	US		293_9496	1524.12	29			OREGON COAST HY	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0
101	US 101	US		0 293_1342	265.691	129			H ST	0	1	1	0	0	1	2	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0
53	OR 53	OR		293_1042	5424.27	238				0	1	1	0	0	1	2	0	0	0	0	0	0	0	2	0	1	1	0	1	0	0
				52_29000	0	381			IDAHO AVE	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	1	1	0	2	0	0
				52_29002	0	197			LAKEVIEW DR	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
101	US 101	US		0 293_1342	0	206			H ST	0	2	1	0	0	2	4	0	0	0	0	0	0	0	4	0	4	0	0	2	0	0
101	US 101	US		0 293_1830	0	9				0	1	1	0	0	1	4	0	0	0	0	0	0	0	4	0	4	0	0	3	0	0
				0 52_29000	0	357			B ST	0	1	1	0	0	1	2	0	0	0	0	0	0	0	2	0	2	0	0	1	0	0
101	US 101	US		293_1705	0	317				0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0
101	US 101	US		0 293_1830	0	395				0	3	1	0	0	3	4	0	0	0	0	0	0	0	4	0	4	0	0	1	0	0
101	US 101	US		0 293_1830	0	227				0	1	1	0	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
101	US 101	US		0 293_9471	0	242				0	3	1	0	3	0	5	0	0	0	0	0	0	0	5	0	5	0	0	2	0	0
101	US 101	US		0 293_1830	0	401				0	1	1	0	1	0	2	0	0	0	0	0	0	0	2	0	2	0	0	1	0	0
				52_29002	0	29			LANEDA AVE	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
101	US 101	US		0 293_1342	0	294			H ST	0	1	1	0	0	1	2	0	0	0	0	0	0	0	2	0	2	0	0	1	0	0
101	US 101	US		0 293_1226	0	454			H ST	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	2	0	0
101	US 101	US		0 293_1677	0	361			H ST	0	1	1	0	0	1	2	0	0	0	0	0	0	0	2	0	2	0	0	1	0	0
101	US 101	US		0 293_1706	0	195			RIVERSIDE DR	0	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
				52_29001	0	90311			2ND ST	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
101	US 101	US		0 293_1706	0	451			RIVERSIDE DR	0	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
101	US 101	US		293_1830	0	341				0	1	1	0	0	1	2	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0
101	US 101	US		293_1905	0	130				0	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
101	US 101	US		293_1830	0	145				0	2	1	0	0	2	3	0	0	0	0	0	0	0	3	0	3	0	0	1	0	0
101	US 101	US		0 293_1830	0	236				0	1	1	0	0	1	3	0	0	0	0	0	0	0	3	0	3	0	0	2	0	0
				0 52_29002	7385.979	503			NECARNEY CITY RD	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0
				52_29002	1738.338	537			FERN WY	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0
101	US 101	US		0 293_1228	2378.328					0	0	0	0	2	2	4	0	0	0	0	0	0	0	4	4	0	0	2	0	0	0
101	US 101	US		0 293_1830	600.0073					0	0	0	1	0	1	2	1	0	1	0	0	0	0	3	3	0	0	2	0	0	0
101	US 101	US		293_1706	362.6328	801			RIVERSIDE DR	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0
101	US 101	US		293_1226	150.8409	1001			H ST	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	3	0	1	4	0	0	0
101	US 101	US		293_1228	2631.311					0	0	0	1	0	1	3	0	0	0	0	0	0	0	3	2	0	1	2	0	0	0
				52_29003	806.8622	2103			ROWE ST	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2	0	0	2	0	0	0
				52_29002	0	103			MARINE DR	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5	4	0	1	5	0	0	0
101	US 101	US		0 293_1342	372.2245	1601			OREGON COAST HY	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
				52_29002	7338.139	503			NECARNEY CITY RD	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2	0	0	2	0	0	0
				0 52_29002	5772.833	503			NECARNEY CITY RD	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0
101	US 101	US		0 293_1830	1449.689					0	0	0	0	3	3	6	0	0	0	0	0	0	0	6	6	0	0	3	0	0	0

TOT_UNKN_2	TOT_VHCL_C	TRAF_CNTL_	TRAF_CNTL1	TRAF_CNT_1	TURNG_LEG_	UNLOCT_FLG	URB_AREA_C	URB_AREA_L	WRK_ZONE_I	WTHR_COND_	WTHR_COND1
0	2	0	No control	1	0	0	0		0	3	Rain
0	1	9	Curve Sign	1	0	0	0		0	6	Snow
0	2	0	No control	1	0	0	0			1	Clear
0	2	4	Stop Sign	1	0	0	0			3	Rain
0	2	0	No control	1	0	0	0		0	1	Clear
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	1	99	Unknown or not definite	1	0	0	0		0	1	Clear
0	3	99	Unknown or not definite	1	0	0	0			6	Snow
0	1	99	Unknown or not definite	1	0	0	0			4	Sleet
0	1	9	Curve Sign	1	0	0	0		0	1	Clear
0	2	0	No control	1	0	0	0		0	1	Clear
0	1	0	No control	1	0	0	0		0	3	Rain
0	2	0	No control	1	0	0	0		0	3	Rain
0	1	4	Stop Sign	1	0	0	0		1	3	Rain
0	2	9	Curve Sign	1	0	0	0			2	Cloudy
0	1	99	Unknown or not definite	1	0	1	0			1	Clear
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	2	0	No control	0	0	0	0			1	Clear
0	3	4	Stop Sign	1	0	0	0			1	Clear
0	2	0	No control	1	0	0	0		0	1	Clear
0	1	0	No control	1	0	0	0			1	Clear
0	1	4	Stop Sign	1	0	0	0		0	3	Rain
0	1	0	No control	1	0	0	0		1	1	Clear
0	2	4	Stop Sign	1	0	0	0		0	1	Clear
0	1	99	Unknown or not definite	1	0	0	0		0	0	Unknown
0	2	4	Stop Sign	1	0	0	0		0	3	Rain
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	1	0	No control	1	0	0	0		1	1	Clear
0	2	0	No control	1	0	0	0			1	Clear
0	2	0	No control	1	0	0	0		0	1	Clear
0	1	0	No control	1	0	0	0			1	Clear
0	1	4	Stop Sign	1	0	0	0			0	Unknown
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	1	99	Unknown or not definite	1	0	0	0			3	Rain
0	1	99	Unknown or not definite	1	0	0	0			0	Unknown
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	2	0	No control	1	0	0	0		0	1	Clear
0	2	0	No control	1	0	0	0		0	2	Cloudy
0	1	11	Police Officer, Flagman - School Patrol	1	0	0	0		1	3	Rain
0	2	23	Right Turn Green Arrow, Lane Markings, or Signal	1	0	0	0		0	1	Clear
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	2	0	No control	1	0	0	0			1	Clear
0	2	99	Unknown or not definite	1	0	0	0			1	Clear
0	2	4	Stop Sign	1	0	0	0		0	2	Cloudy
0	2	4	Stop Sign	1	0	0	0		0	3	Rain
0	2	4	Stop Sign	1	0	0	0		0	1	Clear
0	1	99	Unknown or not definite	1	0	0	0			1	Clear
0	2	0	No control	1	0	0	0		0	1	Clear
0	1	4	Stop Sign	1	0	0	0		0	1	Clear
0	2	0	No control	1	0	0	0		0	1	Clear
0	2	4	Stop Sign	1	0	0	0		0	3	Rain
0	2	99	Unknown or not definite	1	0	0	0			1	Clear
0	2	2	Flashing Beacon - Red (Stop)	1	0	0	0		0	1	Clear
0	2	99	Unknown or not definite	1	0	0	0		0	3	Rain
0	2	4	Stop Sign	1	0	0	0		0	1	Clear
0	1	0	No control	1	0	0	0		0	1	Clear
0	2	99	Unknown or not definite	1	0	0	0			1	Clear
0	1	99	Unknown or not definite	1	0	0	0		0	1	Clear
0	2	99	Unknown or not definite	1	0	0	0			1	Clear
0	1	0	No control	1	0	0	0			3	Rain
0	2	4	Stop Sign	1	0	0	0			1	Clear
0	2	4	Stop Sign	1	0	0	0		0	1	Clear
0	1	99	Unknown or not definite	-1		0			0	2	Cloudy
0	2	99	Unknown or not definite	-1		0				1	Clear
0	2	0	No control	-1		0			0	1	Clear
0	1	99	Unknown or not definite	-1		0			0	1	Clear
0	2	99	Unknown or not definite	-1	0	0				1	Clear
0	2	99	Unknown or not definite	-1		0				3	Rain
0	2	4	Stop Sign	-1	0	0				1	Clear
0	2	99	Unknown or not definite	-1		0				3	Rain
0	2	0	No control	-1	0	0				1	Clear
0	1	99	Unknown or not definite	-1		0			0	2	Cloudy
0	1	99	Unknown or not definite	-1	0	0				1	Clear
0	1	99	Unknown or not definite	-1		0			0	2	Cloudy
0	2	99	Unknown or not definite	-1		0			0	3	Rain

Nehalem Bay TSP

TECHNICAL MEMO 6 | FUTURE TRAFFIC FORECAST METHODOLOGY & RESULTS

FEHR PEERS

Technical Memo #6

Future Traffic Forecast Methodology and Results
September 21, 2021 – FINAL

Prepared by Fehr & Peers

Introduction

This memorandum documents the increase in traffic expected to occur in the Nehalem Bay region between now and 2040 and the existing transportation system's ability to accommodate the expected growth. This memorandum outlines the following:

- Expected land use growth in the region
- Expected population growth in the cities and the county
- Expected transportation growth from planned projects and regional travel along Highway 101
- The methods used to calculate 2040 traffic volumes on Highway 101 and at the intersections of Highway 101 / Hemlock Street in Wheeler and Highway 101 / 7th Avenue in Nehalem
- Analysis results for roadway segments and intersections in 2040

Land Use Growth

In recent years, the demand for housing has increased in all three cities. This trend is expected to continue over the next 20 years with all three cities expecting housing development to continue within their respective Urban Growth Boundaries (UGB).

Manzanita

The City of Manzanita is already experiencing infill development within the City Core, which is expected to continue. The City also anticipates that approximately 300 new homes will be built on currently vacant land east of Classic Street within the next eight years, though the development has not been approved as of September 2021.

Nehalem

The City of Nehalem is also experiencing an increase in residential development. However, this development is primarily occurring in Bayside Gardens, located outside city limits but within the UGB. Further development is anticipated within Hilltop Estates, Riverview Meadows, and Nehalem Point.

The City recently received an application for a Mixed-Use-Development at the corner of 7th Street and H Street. This development would include 3,370 square feet of commercial space and eight apartment units. Due to the concern of a new traffic generator adjacent to the 7th Street/Highway 101 intersection, traffic from this development has been accounted for in the 2040 traffic forecasts and proximity of the development to the intersection will be considered in development of the project list.

Wheeler

Due to the build out in Manzanita and Nehalem, Wheeler is also experiencing an increase in demand for housing. While there are no planned housing developments at this time, there is a proposed Mixed-Use Development on the Wheeler waterfront. The Mixed-Use Development on the Wheeler waterfront that will include the construction of 28 cottages, a 30-room hotel, and a two-story commercial building (consisting of 4 employee housing units, 2,153 square feet of restaurant space, 2,124 square feet of retail space, and 2,630 square feet of storage space). While the project is projected to add 49 net new morning peak hour trips, 52 net new evening peak hour trips, and 584 net new average weekday trips to the intersection of Highway 101 and Hemlock Street in 2023, there are no recommended changes to the intersection configuration based on the Transportation Impact Analysis conducted for the project (March 2020). The trip generation estimated for the site will be included in the 2040 future year traffic analysis for the TSP.

It is expected that Rhinehart Clinic, currently located at 2nd Street/Rowe Street, will relocate to the southern end of the City on the south side of Highway 101.

Currently, there are no expected changes to the UGB for any of the three cities.

Population Growth

The Population Research Center at Portland State University publishes historical population trends and estimated future population growth for cities and counties throughout the state. The most recent estimates, published in 2017 forecast growth from 2017 to 2067.

Historically, Tillamook County's population grew an average of 0.4 percent per year between 2000-2010. However, it is predicted that the County's population will grow at a slightly faster pace through 2035 and will increase by more than 2,800 people. Manzanita, Nehalem, and Wheeler all saw higher growth from 2000-2010 than the County average and are predicted to grow at the same or at faster rate than the County through 2035, as shown in **Table 1**.

Table 1. Historical and Forecasted Population Growth in Nehalem Bay

Jurisdiction	Historical				Forecast			
	2000	2010	AAGR[1] (2000-2010)	2017	2035	2067	AAGR[1] (2017-2035)	AAGR[1] (2035-2067)
Tillamook County	24,262	25,250	0.4%	26,071	28,879	32,747	0.6%	0.4%
Manzanita UGB	712	827	1.5%	884	1,156	1,567	1.5%	1.0%
Nehalem UGB	873	1,120	2.5%	1,240	1,566	2,010	1.3%	0.8%

Wheeler UGB	391	420	0.7%	408	474	539	0.8%	0.4%

Source: U.S. Census Bureau, 2000 and 2010 Censuses; Forecast by Population Research Center, Portland State University
[1]Average Annual Growth Rate (AAGR)

Transportation Growth

Prior planning documents including the Tillamook County TSP, Manzanita Trail Master Plan, Manzanita and Nehalem Downtown Transportation Plans, Wheeler TSP, and Wheeler Waterfront Development Plan identified transportation improvements in each of the three communities that would be needed to meet the needs of the cities. At this time, there are no funds allocated to previously identified improvements in any of the cities; therefore, no transportation improvements within the cities were accounted for in the development of 2040 traffic forecasts and future needs. ODOT has two improvement projects planned for U.S. 101 through Nehalem Bay from their 2021-2024 Statewide Transportation Improvements Program (STIP). These projects are:

- Install chevrons and updated curve warning signs & advisory speed plaques at various locations to improve safety. (mp 0 – mp 167.51)
- Rehabilitate and replace culverts to ensure they are functioning properly. (mp 37.11 – mp 102.78)

Traffic Volumes

Base year (2019) Traffic Volumes

The base year AADT on Highway 101, Highway 53, 7th Avenue in Nehalem, and Laneda Avenue in Manzanita was provided by ODOT from the Highway Economic Requirements System (HERS) database. This segment level data was supplemented by PM (3:00pm-6:00pm) intersection traffic counts at Highway 101 / Hemlock Street in Wheeler (January 2020) and Highway 101 / 7th Avenue in Nehalem (March 2021). Base year traffic volumes and intersection operations can be found in *Technical Memorandum #5: Existing Conditions.* To account for seasonal variations in traffic, a seasonal factor was applied to base year traffic data and an additional factor was applied to counts collected in 2021 to account for changes in travel resulting from the COVID-19 pandemic.

Future year (2040) Traffic Volumes

To develop future 2040 traffic volumes for both segment and intersection analysis, the growth rates on Highway 101 were used to grow the existing traffic volumes. Future year (2039) AADT on Highway 101 was provided by ODOT from the Future Volume Tables (FVT). The HERS data available for each segment included:

- The K-factor, which is the ratio of the 30th highest hour volume (30HV) to the AADT
- The directional factor, which is the percentage of the two-way volume that is flowing in the peak direction
- The number of travel and turn lanes on each segment

The average annual growth rate from 2018 to 2039 was calculated from the FVT AADT. This growth rate was then used to grow the base year ADT to 2040. The 2040 AADT was multiplied by the K-factor to calculate the 30HV along each segment, and the directional factor was then used to calculate the 30HV in the peak direction. This volume was then used in the future traffic analysis to calculate future year volume to capacity ratio along Highway 101 in Nehalem Bay. Calculations for future growth are included in **Appendix A.**

As shown in **Table 2,** the volumes on Highway 101 are expected to grow between 0.1 and 1.4 percent from 2018 to 2039.

Table 2. Forecasted AADT and Growth on Highway 101 through Nehalem Bay

MP	Description	2018	2039	Total Growth	Annual Growth Rate
43.08	0.02 mile north of Manzanita Avenue	5,200	6,700	1,500	1.4%
43.20	0.02 mile south of Laneda Avenue	6,600	9,900	3,300	2.5%
43.98	0.02 mile east of Bayside Gardens Lane	7,100	7,300	200	0.1%
44.73	At west city limits of Nehalem	7,100	7,300	200	0.1%
44.96	0.02 mile west of 7th Street	6,600	6,900	300	0.2%
45.00	0.02 mile south of "H" Street	8,300	9,200	900	0.5%
45.53	At south city limits of Nehalem	6,000	6,200	200	0.2%
46.48	0.02 mile north of Necanicum Highway (OR53)	5,800	6,400	600	0.5%
46.52	0.02 mile south of Necanicum Highway (OR53)	5,500	5,700	200	0.2%
47.08	At the north city limits of Wheeler	5,300	5,500	200	0.2%
47.32	0.02 mile north of Rector Street	5,500	5,700	200	0.2%
47.36	0.02 mile south of Rector Street	5,300	5,400	100	0.1%
43.08	0.02 mile north of Manzanita Avenue	5,200	6,700	1,500	1.4%

Source: Highway Future Volume Table, 2019

To forecast future traffic volumes at the intersections of Highway 101 / Hemlock Street in Wheeler and Highway 101 / 7th Avenue in Nehalem, the base year turning movement volumes were multiplied by the annual Highway 101 growth percentages for the applicable segment of

Highway 101 location shown in **Table 2**. This annual growth rate was multiplied by the 20 years of expected growth. Lastly, growth expected from the developments documented above in Nehalem and Wheeler were added to the 2040 forecasts. The 2040 intersection forecasts were then analyzed using SIDRA and Synchro to evaluate the existing network's ability to accommodate expected growth. The analysis results are documented below and will be used to identify future transportation needs, which will be documented in *Technical Memorandum #7: Future Transportation Conditions and Needs.*

Traffic Analysis Assumptions and Results

Technical analysis for the future year followed ODOT's guidance as outlined in the APM for evaluating roadway segment delay and analyzing intersection operations using Highway Capacity Software Version 7 (HCS 7), Synchro 11,and SIDRA traffic analysis software. Volume-to-capacity (v/c) ratio is reported for both roadway segments and intersections as described below.

Roadway Segment Operations

For the study roadway segments the v/c ratio during the 2040 30th HV was calculated using HCS 7 for a two-lane highway. Inputs for this analysis will include:

- Lane width
- Shoulder Width
- Heavy Vehicle Percentage
- Access Density
- Speed
- Peak Direction Volume

The v/c ratio for the peak direction will be reported as part of this analysis for future conditions.

Roadway Segment Results

As shown in **Table 3,** all segments will continue to have a v/c ratio significantly below the targets defined in the Oregon Highway Plan (OHP). Detailed calculations are provided in **Appendix B**.

Table 3: Roadway Segment 30th HV V/C in 2040

ID	Segment	v/c target[1]	v/c[2]
1	US 101 north of Laneda Avenue	0.80	0.37
2	US 101 at west city limits of Nehalem	0.80	0.40
3	US 101 west of 7th Street	0.85	0.38
4	US 101 north of Tohls Street	0.85	0.51
5	US 101 north of Necanicum Highway	0.70	0.35
6	US 101 north of Hemlock Street	0.80	0.30
7	US 101 north of Rector Street	0.85	0.32

[1] v/c targets taken from the Oregon Highway Plan Table 6 based on highway category and posted speed.
[2] v/c calculated using HCS for a two-lane highway and reported for the peak direction.

Intersection Operations

Synchro 11 traffic analysis software was used to analyze queueing at the intersection of Highway 101 and Hemlock Street in Wheeler. To analyze the Highway 101/ 7th Street intersection in Nehalem, SIDRA was used. SIDRA was selected for the 7th Street intersection through coordination with ODOT due to the non-standard intersection control at the intersection. The intersection is an all-way stop controlled (AWSC) intersection with free movements for all northbound vehicles and vehicles making the eastbound right-turn. The calibration parameters available in SIDRA allow for a more accurate analysis that reflects additional delay created by the high percentage of drivers that are visitors to the area and therefore unfamiliar with the unique intersection control.

Synchro and SIDRA use intersection geometry, traffic control, and multimodal volumes to estimate how an intersection is operating. The analysis for this study used the default Synchro/SIDRA settings outlined in Appendix 12/13A of the APM and ODOT's published Synchro templates. Roadway geometry, including lane configurations, turn pocket lengths, and lane widths, will be determined through the most recent aerial imagery.

This software employs Highway Capacity Manual (HCM) methodologies to calculate and report a number of measures of effectiveness (MOEs) for intersection operations, among them level of service, delay, queuing, and volume to capacity ratio. For this analysis, HCM 6th Edition reports will be used to report v/c, LOS, delay, and 95th percentile queues.

Level of Service and Delay

Level of service (LOS) is a standard method for characterizing delay at an intersection. For signalized and all-way stop controlled (AWSC) intersections, the LOS is based on the average

delay for all approaches. For two-way stop controlled (TWSC) intersections, the approach with the highest delay is used.

Volume to Capacity Ratio

The v/c ratio is the total vehicle volume travelling through a roadway segment during a defined period divided by the capacity of the roadway segment. This is a common measure for the level of congestion on a roadway, with a v/c ratio of 0 indicating no congestion, and a v/c ratio of 1 indicating maximum congestion.

Queuing

Queuing is an estimate of the physical length of the waiting line of vehicles from the stop line of the intersection. 95th percentile queue will be reported for the study intersections meaning that over the course of the peak hour, there is only a five percent probability that this queue length would be exceeded.

Intersection Operations Results

As shown in **Table 4,** both intersections are forecast to operate at LOS C in 2040 and the v/c ratios will remain below the mobility targets in the OHP. Queueing was also evaluated as part of the intersection analysis. No movements were found to exceed available storage or have queues that would impact traffic flow. It is important to note that, during peak seasonal travel, driver unfamiliarity with the configuration at the U.S. 101/7th Street intersection has been reported to cause an increase in congestion, specifically for eastbound vehicles turning right. This is expected to continue, and delay associated with unfamiliar drivers is likely to increase as regional traffic on Highway 101 increases in the future.

Detailed LOS calculations are provided in **Appendix A**.

Table 4: Intersection Operations in 2040

ID	Intersection	Intersection Delay (seconds) /LOS	Approach	V/C	Critical Movement
1	Highway 101 /7th Street (Nehalem)	18/C	Northbound	0.31	0.24 (EBR)
			Eastbound	0.43	
			Southbound	0.41	
			Westbound	0.11	
2	Highway 101/Hemlock Street (Wheeler)	22/C	Northbound	0.23	0.23 (NBT)
			Eastbound	0.15	
			Southbound	0.21	
			Westbound	0.10	

Multi-Modal Analysis

Bicycle Level of Traffic Stress (BLTS)

ODOT has recently conducted a BLTS analysis for roadway segments, and as a part of the recent update to the Statewide Active Transportation Needs Inventory, bicycle gaps and deficiencies were identified across the entire state. These findings were discussed in the existing conditions memo and any future projects that may change the bicycle facilities or gaps described in existing conditions will be noted in the future analysis.

Pedestrian Analysis

As a part of the recent update to the Statewide Active Transportation Needs Inventory, pedestrian gaps and deficiencies were identified across the entire state. These findings were discussed in the existing conditions memo and any future projects that may change the pedestrian facilities or gaps described in existing conditions will be noted in the future analysis.

Appendix A: 2040 Volume Calculations

PM Individual Peak Hour (2020)

Intersection	1 NBL	2 NBT	3 NBR	4 SBL	5 SBT	6 SBR	7 EBL	8 EBT	9 EBR	10 WBL	11 WBT	12 WBR	Total
US 101 x Hemlock St	1	165	4	7	155	0	1	0	0	1	0	5	339
US 101 x 7th St	247	23	3	2	24	59	60	2	264	2	4	1	691

Annual Growth Rate

Intersection	1 NBL	2 NBT	3 NBR	4 SBL	5 SBT	6 SBR	7 EBL	8 EBT	9 EBR	10 WBL	11 WBT	12 WBR	20 year growth rate
US 101 x Hemlock St	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	4%
US 101 x 7th St	0.005	0.005	0.005	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	4% - 10%

PM Individual Peak Hour (2040)

Intersection	1 NBL	2 NBT	3 NBR	4 SBL	5 SBT	6 SBR	7 EBL	8 EBT	9 EBR	10 WBL	11 WBT	12 WBR	Total
US 101 x Hemlock St	1.04	171.6	4.16	7.28	161.2	0	1.04	0	0	1.04	0	5.2	353
US 101 x 7th St	271.7	25.3	3.3	2.08	24.96	61.36	62.4	2.08	274.56	2.08	4.16	1.04	735

TIA Project Volumes to Add (PM peak, not converting to 30HV)

Intersection	1 NBL	2 NBT	3 NBR	4 SBL	5 SBT	6 SBR	7 EBL	8 EBT	9 EBR	10 WBL	11 WBT	12 WBR	Total
US 101 x Hemlock St	20	-2	0	0	-2	15	10	0	15	0	0	0	56
US 101 x 7th St	0	0	5	3	0	0	0	3	0	3	6	2	23

30HV (2040) + Project

Intersection	1 NBL	2 NBT	3 NBR	4 SBL	5 SBT	6 SBR	7 EBL	8 EBT	9 EBR	10 WBL	11 WBT	12 WBR	Total
US 101 x Hemlock St	22	334	8	14	314	15	12	0	15	2	0	10	746
US 101 x 7th St	405	38	10	7	37	92	93	7	410	6	12	3	1120

Rounded up to nearest 10

Intersection	1 NBL	2 NBT	3 NBR	4 SBL	5 SBT	6 SBR	7 EBL	8 EBT	9 EBR	10 WBL	11 WBT	12 WBR	Total
US 101 x Hemlock St	30	340	10	20	320	20	20	0	20	10	0	10	800
US 101 x 7th St	410	40	10	10	40	100	100	10	410	10	20	10	1170

2040 30th HV Segement Volume Calculations										
Segment	Existing					Future - 2040				
	ADT	30th Hour	DHV	Opposing	D/C	ADT	30th Hour	DHV	Opposing	D/C
1 US 101 north of Laneda	5,300	870	470	400	0.29	6,800	1,110	600	510	0.37
2 US 101 east of Tohl	7,200	1,180	640	540	0.40	7,310	1,200	650	550	0.41
3 US 101 west of 7th Street	6,800	1,110	600	510	0.37	6,920	1,130	620	510	0.38
4 US 101 south of 7th Street	8,400	1,380	750	630	0.46	9,250	1,510	820	690	0.51
5 US 101 north of Necanicum Highway	5,900	970	530	440	0.33	6,430	1,050	570	480	0.35
6 US 101 north of Hemlock	5,400	890	490	400	0.30	5,510	900	490	410	0.30
7 US 101 south of Hemlock	5,200	850	460	390	0.28	5,710	940	510	430	0.31

Appendix B: LOS Calculations

HCS7 Two-Lane Highway Report

Project Information

Analyst	Fehr & Peers	Date	June 2021
Agency	ODOT	Analysis Year	2021
Jurisdiction	Region 2	Time Period Analyzed	30th Hour
Project Description	Nehalem Bay TSP Existing Conditions	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1840
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	40	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	632	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.1
Speed Slope Coefficient	2.96246	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.46414	PF Power Coefficient	0.70569
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1840	-	-	42.8

Vehicle Results

Average Speed, mi/h	42.8	Percent Followers, %	65.3
Segment Travel Time, minutes	0.49	Followers Density, followers/mi/ln	9.6
Vehicle LOS	C		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	632	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.04	Bicycle Effective Speed Factor	4.17
Bicycle LOS	F		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	7300
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	40	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	684	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.1
Speed Slope Coefficient	3.02271	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37932	PF Power Coefficient	0.71194
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	10.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	42.7

Vehicle Results

Average Speed, mi/h	42.7	Percent Followers, %	65.1
Segment Travel Time, minutes	1.94	Followers Density, followers/mi/ln	10.4
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	684	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.08	Bicycle Effective Speed Factor	4.17
Bicycle LOS	F		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1420
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	30	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	653	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.38

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	33.7
Speed Slope Coefficient	2.33720	Speed Power Coefficient	0.41674

PF Slope Coefficient	-1.48321	PF Power Coefficient	0.65177
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	13.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	31.9

Vehicle Results

Average Speed, mi/h	31.9	Percent Followers, %	67.5
Segment Travel Time, minutes	0.51	Followers Density, followers/mi/ln	13.8
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	653	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.04	Bicycle Effective Speed Factor	3.39
Bicycle LOS	F		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	355
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	30	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	863	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.51

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	33.7
Speed Slope Coefficient	2.33529	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.48979	PF Power Coefficient	0.65001
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	20.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	31.6

Vehicle Results

Average Speed, mi/h	31.6	Percent Followers, %	74.2
Segment Travel Time, minutes	0.13	Followers Density, followers/mi/ln	20.3
Vehicle LOS	E		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	863	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.18	Bicycle Effective Speed Factor	3.39
Bicycle LOS	F		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	6860
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	600	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.35

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	62.2
Speed Slope Coefficient	3.94583	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.27082	PF Power Coefficient	0.76401
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	59.2

Vehicle Results

Average Speed, mi/h	59.2	Percent Followers, %	57.7
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	5.8
Vehicle LOS	C		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	600	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.83	Bicycle Effective Speed Factor	4.79
Bicycle LOS	F		

Segment 6

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3480
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	516	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.8
Speed Slope Coefficient	3.29420	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38534	PF Power Coefficient	0.73565
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.5

Vehicle Results

Average Speed, mi/h	48.5	Percent Followers, %	57.3
Segment Travel Time, minutes	0.82	Followers Density, followers/mi/ln	6.1
Vehicle LOS	C		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	516	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.27	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1360
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	25	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	537	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.95	Total Trucks, %	15.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	28.0
Speed Slope Coefficient	2.02712	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.44792	PF Power Coefficient	0.61940
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	12.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1360	-	-	26.6

Vehicle Results

Average Speed, mi/h	26.6	Percent Followers, %	62.7
Segment Travel Time, minutes	0.58	Followers Density, followers/mi/ln	12.7
Vehicle LOS	D		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	537	Bicycle Effective Width, ft	24
Bicycle LOS Score	4.92	Bicycle Effective Speed Factor	2.61
Bicycle LOS	E		

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	2	20	10	2	10	30	340	10	20	320	20
Future Vol, veh/h	20	2	20	10	2	10	30	340	10	20	320	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	100	0	0	0	8	0	29	10	0
Mvmt Flow	24	2	24	12	2	12	35	400	12	24	376	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	919	918	388	925	924	406	400	0	0	412	0	0
Stage 1	436	436	-	476	476	-	-	-	-	-	-	-
Stage 2	483	482	-	449	448	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	8.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	4.4	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	254	274	665	170	271	649	1170	-	-	1016	-	-
Stage 1	603	583	-	422	560	-	-	-	-	-	-	-
Stage 2	569	557	-	439	576	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	235	255	665	154	253	649	1170	-	-	1016	-	-
Mov Cap-2 Maneuver	235	255	-	154	253	-	-	-	-	-	-	-
Stage 1	579	566	-	406	538	-	-	-	-	-	-	-
Stage 2	535	535	-	409	559	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.3	21.1	0.6	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1170	-	-	341	249	1016	-	-
HCM Lane V/C Ratio	0.03	-	-	0.145	0.104	0.023	-	-
HCM Control Delay (s)	8.2	0	-	17.3	21.1	8.6	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.3	0.1	-	-

MOVEMENT SUMMARY

Site: 1 [7th_101 (Site Folder: General)]

New Site
Site Category: (None)
Stop (All-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: U.S. 101														
3	L2	410	4.0	441	4.0	0.307	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	28.0
8	T1	40	0.0	43	0.0	0.307	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	28.0
18	R2	10	5.0	11	5.0	0.307	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	28.0
Approach		460	3.7	495	3.7	0.307	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	28.0
East: H Street														
1	L2	10	3.0	11	3.0	0.114	17.3	LOS C	0.4	10.0	0.94	1.26	2.07	22.7
6	T1	10	3.0	11	3.0	0.114	17.3	LOS C	0.4	10.0	0.94	1.26	2.07	22.8
16	R2	10	3.0	11	3.0	0.114	17.3	LOS C	0.4	10.0	0.94	1.26	2.07	22.9
Approach		30	3.0	32	3.0	0.114	17.3	LOS C	0.4	10.0	0.94	1.26	2.07	22.8
North: 7th Street														
7	L2	10	0.0	11	0.0	0.408	18.2	LOS C	1.8	49.4	0.94	1.43	2.59	22.5
4	T1	40	25.0	43	25.0	0.408	18.2	LOS C	1.8	49.4	0.94	1.43	2.59	22.5
14	R2	100	12.0	108	12.0	0.408	18.2	LOS C	1.8	49.4	0.94	1.43	2.59	22.6
Approach		150	14.7	161	14.7	0.408	18.2	LOS C	1.8	49.4	0.94	1.43	2.59	22.5
West: U.S. 101														
5	L2	100	10.0	108	10.0	0.431	14.7	LOS B	1.9	52.0	1.00	1.49	2.69	23.3
2	T1	10	0.0	11	0.0	0.431	14.7	LOS B	1.9	52.0	1.00	1.49	2.69	23.4
12	R2	410	3.0	441	3.0	0.306	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	28.0
Approach		520	4.3	559	4.3	0.431	3.2	LOS A	1.9	52.0	0.21	0.31	0.57	26.9
All Vehicles		1160	5.4	1247	5.4	0.431	4.3	LOS A	1.9	52.0	0.24	0.36	0.64	26.5

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.

Nehalem Bay TSP

TECHNICAL MEMO 7 | FUTURE TRANSPORTATION CONDITIONS & NEEDS

FEHR PEERS

Technical Memo #7

Future Transportation Conditions & Needs
December 12, 2021 – FINAL

Prepared by Fehr & Peers

Introduction

This technical memorandum (TM) documents the future conditions and anticipated needs of the transportation system in the Nehalem Bay region in 2040. The future conditions and needs presented in this memorandum are based on the technical analysis presented in *TM #5: Existing Conditions* and *TM #6: Future Traffic Forecasts*. This memorandum documents how the system would be expected to operate with only funded improvements in place if growth continues to occur within the region.

To align the outcomes of the Transportation System Plan (TSP) with the vision for each City and the region, the needs described below were identified based on the goals documented in *TM #4: Goals, Objectives, and Evaluation Criteria.* By using the goals as a starting point to identify needs and deficiencies in the current system, it will ensure that the list of solutions identified not only addresses deficiencies but also moves the region towards a transportation system that provides safe connections for all users and balances the needs of residents with regional travel.

Nehalem Bay in 2040

Analysis of future transportation conditions in Nehalem Bay depends on the forecasted growth in the region. As land use and the population grows, additional pressure will be put on the transportation network to accommodate this new growth. The pattern of growth can also change transportation patterns and the need for new infrastructure – for example, a new housing development in an otherwise undeveloped area might prompt the need for additional roads, sidewalks, or bicycle facilities that aren't necessary under current conditions. Based on a review of the State Transportation Improvement Program and local Capital Improvement Programs (CIPs), there are no funded transportation projects in the Nehalem Bay Region.

Expected Growth

As documented in *TM #6: Future Traffic Forecasts*, all three cities are expected to grow faster than the average for Tillamook County between now and 2040. While local population growth will contribute to an increase in demand, regional growth will contribute to growth on U.S. 101, a part of the transportation system in the region. Between now and 2040, the Oregon Department of Transportation (ODOT) expects traffic volume on U.S. 101 to grow by between 0.1 and 1.4 percent per year.

Future conditions and needs resulting from continued growth are identified by mode in the following sections.

Roadway

Future conditions and needs for the roadway system are focused on addressing locations where future growth will exceed available capacity or result in poor operations and locations where a safety concern has been identified.

Traffic forecasts

Average traffic volumes on U.S. 101 through the study area are expect to grow between 0.1 and 1.4 percent from 2018 to 2039. This growth roughly coincides with expected population growth in Nehalem Bay, which ranges from 0.8% in Wheeler to 1.5% in Manzanita between 2017 and 2035. The least amount of growth on U.S. 101 is expected at the west city limits of Nehalem, while the most amount of growth is expected 0.02 miles north of Manzanita Avenue. However, traffic volumes during peak tourist seasons may grow at a higher rate than the average expected traffic growth on U.S. 101 through the study area.

LOS and V/C

None of the roadway segments in the study area exceed the v/c targets as set by the Oregon Highway Plan. U.S. 101 north of Tohls Street had the highest v/c ratio of all roadway segments in the study area with a v/c ratio of 0.51. The v/c ratio target for this roadway segment is 0.85. Therefore, existing roadway segments are expected to have adequate capacity for future traffic growth.

The two intersections analyzed in this study, U.S. 101 and 7th Street (Nehalem) and U.S. 101 and Hemlock Street (Wheeler), are expected to operate at LOS C in 2040. These intersections are expected to perform worse during peak tourist seasons due to increased delay associated with unfamiliar drivers and an increase in pedestrian activity.

ODOT Blueprint for Urban Design

The Blueprint for Urban Design (BUD), published by ODOT in 2020, is a document meant to supplement the ODOT Highway Design Manual (HDM) for state system projects in urban contexts. Therefore, the BUD is relevant to segments of U.S. 101 within the city limits of Manzanita, Nehalem, and Wheeler.

Design guidance from the BUD varies by surrounding land-use contexts and roadway function. **Table 1** summarizes existing BUD contexts for different roadway segments of U.S. 101 through the study area.

Table 1. BUD Contexts for Roadway Segments of U.S. 101

Segment	BUD Context	Defining Roadway and Land-Use Characteristics	Highest Priority Modes
Nehalem Road to Pacific Heights Road	Commercial Corridor	• Two-lanes, 40 mph speed limit • Commerical, industrial, and institutional uses • Medium to large setbacks • Off-street parking • Large blocks, not well defined	Motorist Freight Transit
Pacific Heights Road to 10th Street	Suburban Fringe	• Two- to three-lanes, 40 mph speed limit • Varied, interspersed development • Varied setbacks • Varied parking types • Large blocks, no well defined	Motorist Freight
10th Street to Nehalem Point Drive	Rural Community	• Two-lanes, 25 mph speed limit • Residential, commercial, institutional, and parks uses • Shallow setbacks • Parallel on-street parking • Small to medium blocks	Bicyclist Pedestrian
Nehalem Point Drive to Hemlock Drive	N/A	• Roadway segment is not in an urban context	N/A
Hemlock Drive to Gregory Street	Rural Community	• Two-lanes, 25 mph speed limit • Residential, commercial, institutional, and parks uses • Shallow setbacks • Angled on-street parking • Small to medium blocks	Bicyclist Pedestrian

A complete urban context matrix can be found in Table 2-2 in the BUD. While the BUD provides design recommendations based on a roadway's defined context, there is still design flexibility from both the BUD and HDM based on project specific land-uses, community-based needs, and safety considerations. Additionally, the BUD does not recommend changing facility speed limits given that ODOT has clear policy guidance related to posted speed selection. However, the following is generally expected along corridors with the following BUD contexts:

Commercial Corridor:

- Balanced access for bicycles, pedestrians, motor vehicles, freight, and transit
- Vehicle speeds between 30 and 35 mph
- Medians to facilitate access (e.g. center turn lanes)
- Bicycle and pedestrian facilities to be separated from travel lanes by a buffer

Suburban Fringe:

- Design should consider the expected future context of the roadway
- Vehicle speeds between 35 and 40 mph
- Bicycle and pedestrian facilities to be separated from travel lanes by a buffer

Rural Community:

- Designed to accommodate a wide variety of modes
- Vehicle speeds between 25 and 35 mph
- Gateway intersections or other streetscaping to inform drivers that they are entering a town center
- Frequent pedestrian crossings
- Bicycle and pedestrian facilities to reflect the needs of the community

Needs

Based on the expected growth in traffic along U.S. 101 through the study area, there is no need identified to increase capacity along U.S. 101. While demand may not exceed capacity at the U.S. 101 and 7th Street intersection in the future, the unique configuration resulting in an increase in delay, specifically during times when regional travel is high, and safety concerns at this intersection, results in the identification of improvements at this intersection as a need. Improvements at this intersection should address two specific needs:

- **Creating a more standard intersection control.** Delay at this intersection is a result of unfamiliar drivers yielding or stopping on free movements (all northbound movements and the eastbound right-turn).
- **Improving safety for pedestrians crossing at the intersection.** There are a high number of pedestrians crossing the south leg of the intersection, which conflict with all the free movements at the intersection.

Segments of U.S. 101 do not meet the Oregon Highway Plan's spacing standards within the city limits of Manzanita, Nehalem, and Wheeler. Future projects should seek opportunities to reduce driveway densities along those roadway segments.

Additionally, two bridges along U.S. 101 between Manzanita and Nehalem have low sufficiency ratings and are eligible for federal funding. Federal funding may be used for replacement or rehabilitation of these bridges.

Safety

Crash data from 2014 to 2018 was analyzed to identify locations where safety improvements may be needed. Based on the crash data, crashes attributed to speeding and at intersections occur at a higher rate than the statewide average. **Figure 1** through **Figure 4** on the following pages summarize crash profiles and specific needs within each of the three Cities and surrounding areas within the Urban Growth Boundary (UGB). As shown on the figures, U.S. 101 is the facility in the region with the highest number of crashes according to ODOT crash records. Many of these crashes can be attributed to high vehicle speeds in poor weather conditions.

Needs

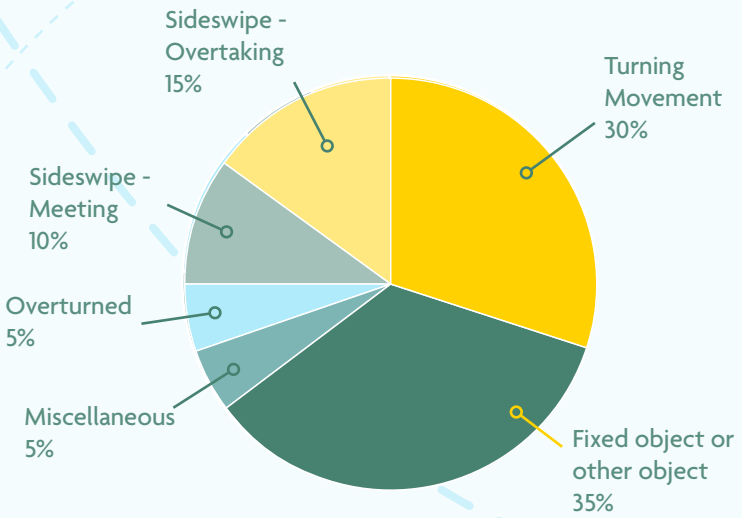
Improvements needed to address safety issues within the region include:

- Enhanced curve delineation
- Traffic calming to lower vehicle speeds
- High visibility crosswalks to improve visibility at marked crossings
- Sidewalk improvements to address existing deficiencies and ensure that facilities are consistent with the Americans with Disabilities Act (ADA) standards

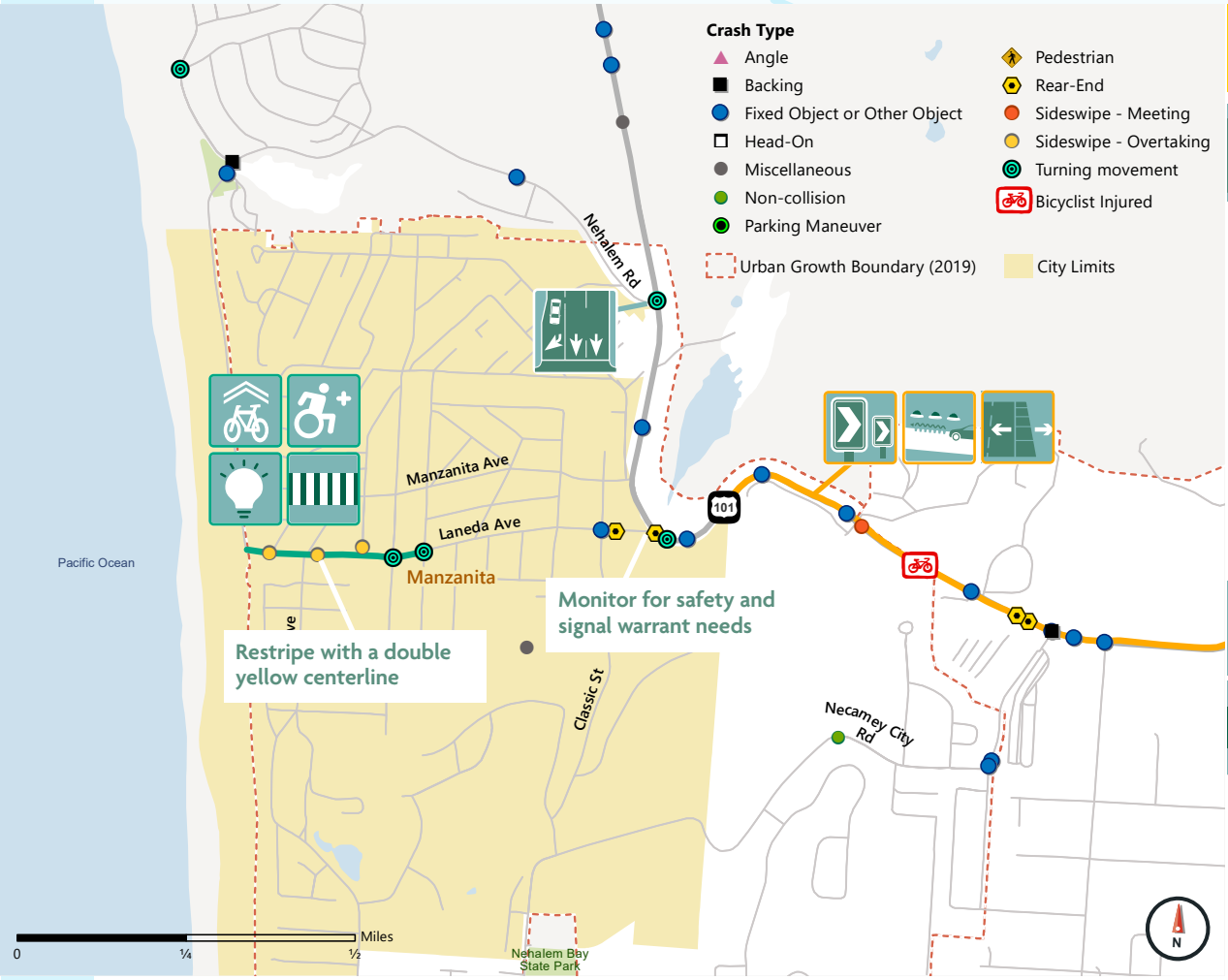
Manzanita
Crash Countermeasures

Manzanita Nehalem Wheeler
Nehalem Bay TSP

Crash Profile



- ***One collision*** with a ***bicyclist*** on US 101 east of Manzanita.
- Most common cause of crashes: ***Too fast for conditions, improper driving, and did not yield right of way***
- ***43%*** of crashes occurred at an ***intersection or driveway*** and ***26%*** at a ***horizontal curve***



Countermeasures

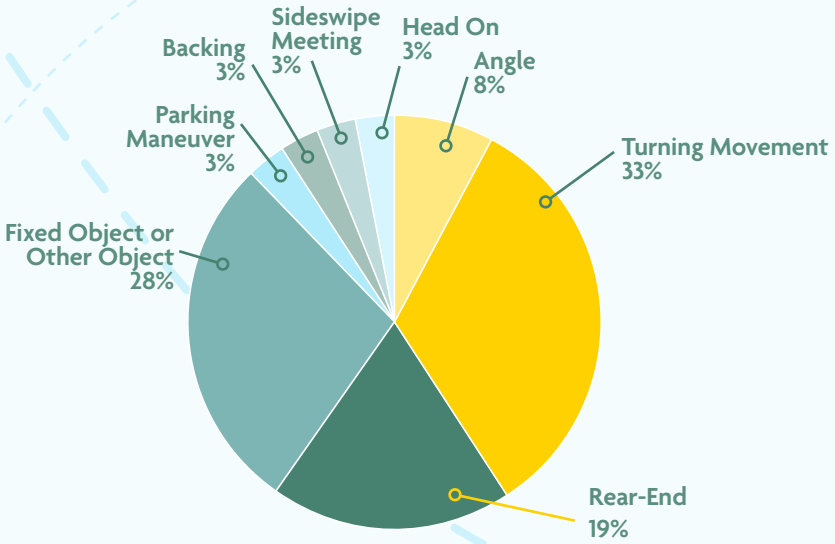
- Widen paved shoulder where less than 5 ft.
- Add rumble strips Install safety edge
- Enhanced curve delineation - pavement markings, delineators, or chevrons
- Add southbound right turn pocket
- Add pedestrian scale lighting
- High visibility crosswalks
- ADA improvements to standards
- Bike sharrows

Further study is needed before installation of any countermeasures indicated here. These are general recommendations only.

Nehalem
Crash Countermeasures

Nehalem Bay TSP — Nehalem, Manzanita, Wheeler

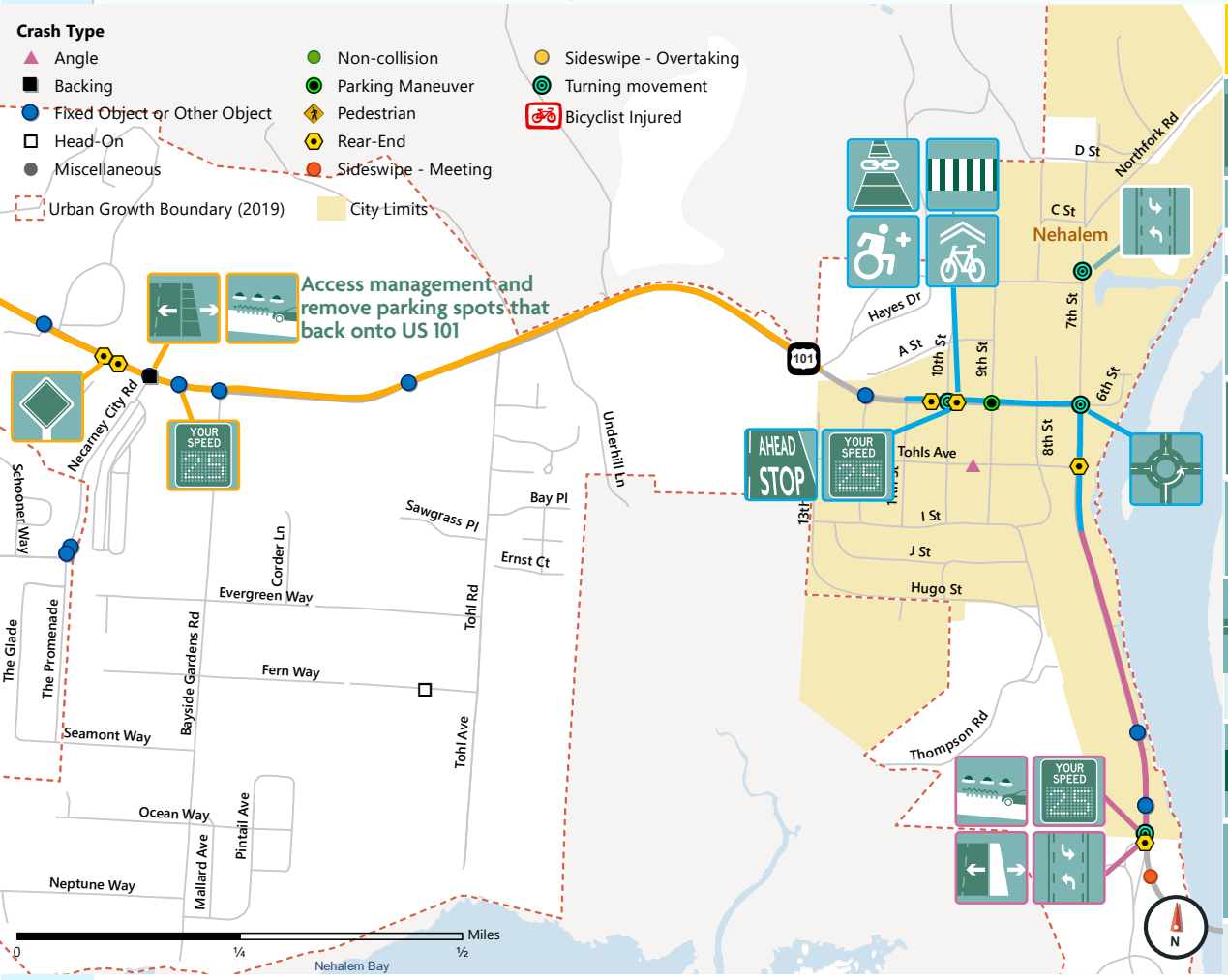
Crash Profile



Most common cause of crashes: ***did not yield right-of-way.***

63% of crashes in the city limits and ***73%*** outside city limits occurred at an intersection or driveway.

Most common crash intersections are ***10th Street, 9th Street, and 7th Street.***



Countermeasures

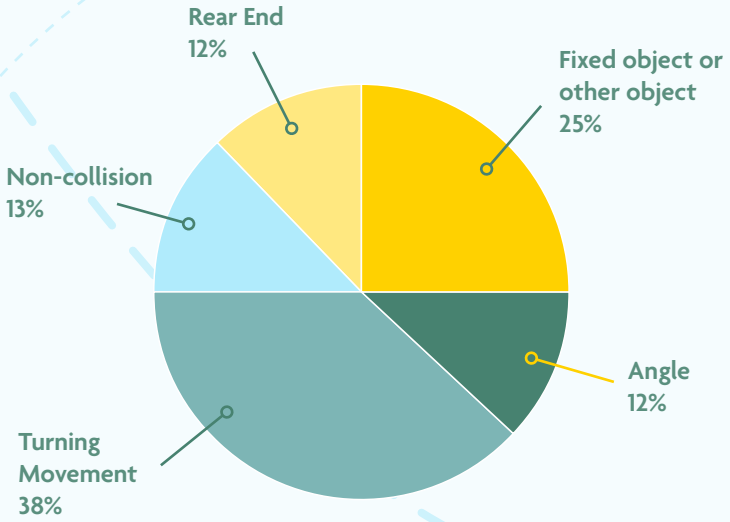
- Widen paved shoulder
- Add rumble strips
  Install a Safety Edge
- Flashing beacons at intersection approaches
- Stop Ahead or SLOW markings
- Add two-way left turn lane
- Change intersection control (roundabout, all way stop, signal)
- High visibility crosswalk
- Identify locations for speed feedback sign
- Speed Study
- ADA improvements to standards
- Bike sharrows
- Complete sidewalk gaps
- Painted shoulders

Further study is needed before installation of any countermeasures indicated here. These are general recommendations only.

Wheeler
Crash Countermeasures

Nehalem Bay TSP — Nehalem, Manzanita, Wheeler

Crash Profile



Two turning crashes occurred near the intersection of US 101 and Rector Street.

Three crashes were due to ***improper turning,*** the most common crash cause.

Countermeasures

- Identify locations for speed feedback signs
- Add pedestrian scale lighting
- High visibility crosswalks

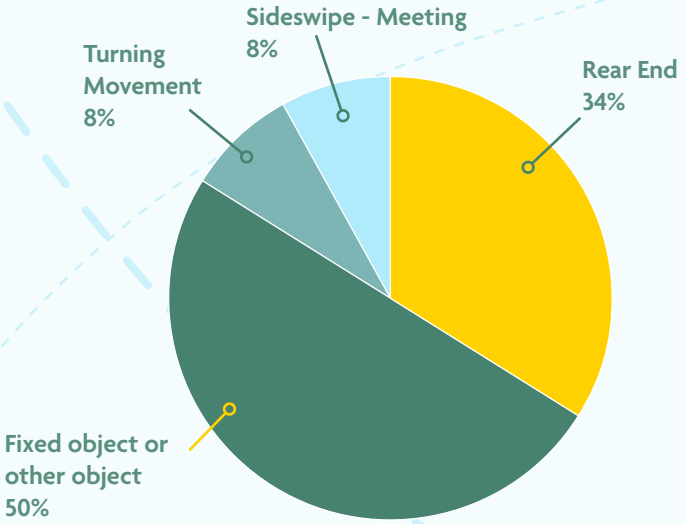
Monitor the intersection of US 101 and Rector St. for the need for an all-way stop

Further study is needed before installation of any countermeasures indicated here. These are general recommendations only.

Regional Nehalem Bay Crash Countermeasures

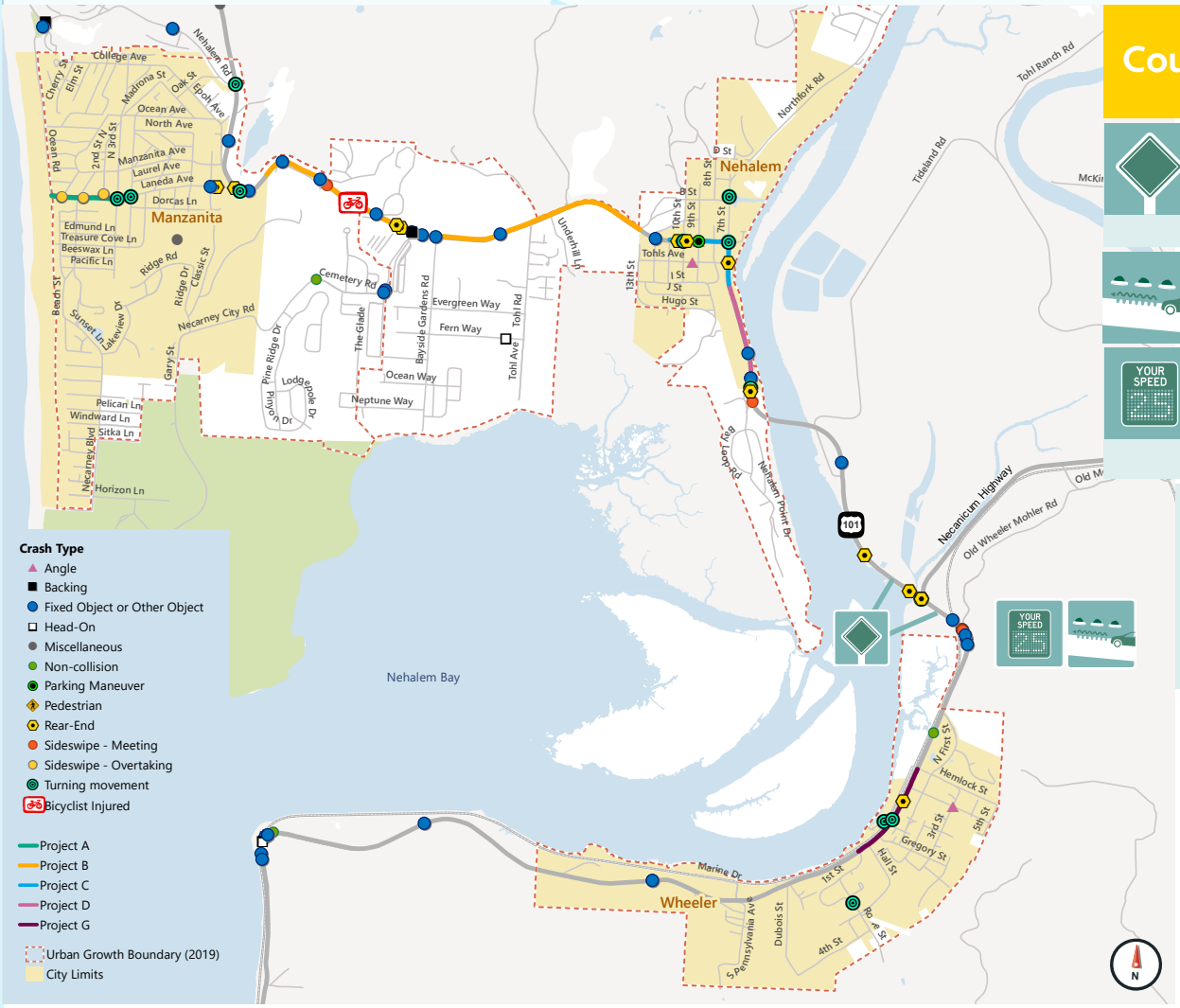
Nehalem Bay TSP — Manzanita, Nehalem, Wheeler

Crash Profile



Five crashes on this stretch of US 101 involved drivers ***driving too fast*** for the conditions

Four crashes occurred near the junction with OR 53 and ***five*** occurred on the curve south of the junction.



Countermeasures

- Provide additional advanced signage for junction
- Rumble Strips and extend the guardrail
- Install dynamic speed feedback sign for curves
- Review existing pockets at the SR 53 & US 101 intersection and improve to MUTCD standards

Further study is needed before installation of any countermeasures indicated here. These are general recommendations only.

Transit Needs

Transit in the region is provided by NW Connector Route 3, which runs daily Northbound and Southbound through Nehalem Bay. Frequency ranges between two and three hours with five scheduled stops through Nehalem Bay. Increased service for Route 3 should be considered to increase the utility of this regional transit connection. Additionally, a circulator shuttle between the communities of Manzanita, Nehalem, and Wheeler should be considered to compliment service from Route 3.

Bicycle Needs

The only marked bicycle facility in Nehalem Bay exists in Manzanita as a striped bicycle lane on the east side of Carmel Avenue between Laneda Avenue and Horizon Lane. More pavement markings or signage indicating bicycle routes are needed to help facilitate both local and tourist bicycle activity. Additionally, bicycle markings and signage help alert drivers of the potential for bicyclists on the roadway, increasing safety and comfort for roadway users.

U.S. 101 is the only direct roadway connecting the communities of Manzanita, Nehalem, and Wheeler. The bicycle facilities along U.S. 101 between these communities consists of paved shoulders. Consistent and marked bicycle facilities are suggested to improve bicycle connectivity between communities.

U.S. 101 through the city limits of Manzanita, Nehalem, and Wheeler is also difficult to cross for bicyclists when traffic is heavy. Traffic calming treatments within city limits are needed to increase bicycle connectivity across U.S. 101.

Pedestrian Needs

While pedestrian facilities are present and adequate around retail and active storefront developments in Nehalem Bay, gaps in pedestrian infrastructure exist along main roads. Infrastructure gaps should be prioritized to increase connectivity for pedestrians throughout the region. Additionally, U.S. 101 through the city limits of Manzanita, Nehalem, and Wheeler are difficult to cross for pedestrians. Marked crosswalks and traffic calming treatments within city limits are needed to increase pedestrian connectivity across U.S. 101.

To facilitate safe walking conditions for school children, pedestrian facilities should be constructed in the vicinity of Nehalem Elementary School. There are currently no pedestrian facilities in this area.

Air, Marine, Rail, Pipeline Needs

No future needs were identified for air, marine, rail, or pipeline infrastructure in the Nehalem Bay Region.

Tsunami and Hazard Evacuation Needs

The Emergency Volunteer Corps of Nehalem Bay (EVCNB) has developed a Tsunami Inundation Zone Map, which includes recommended evacuation routes. Over the coming years, the region should continue to look for opportunities to integrate emergency preparedness in regional coordination and identify ways to increase the number of transportation routes that may be accessible in the event of an emergency through Intelligent Transportation Systems (ITS).

Nehalem Bay TSP

TECHNICAL MEMO 8 | TRANSPORTATION SOLUTIONS

FEHR PEERS

Technical Memo #8

Transportation Solutions
November 18, 2022 - FINAL

Prepared by Fehr & Peers

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

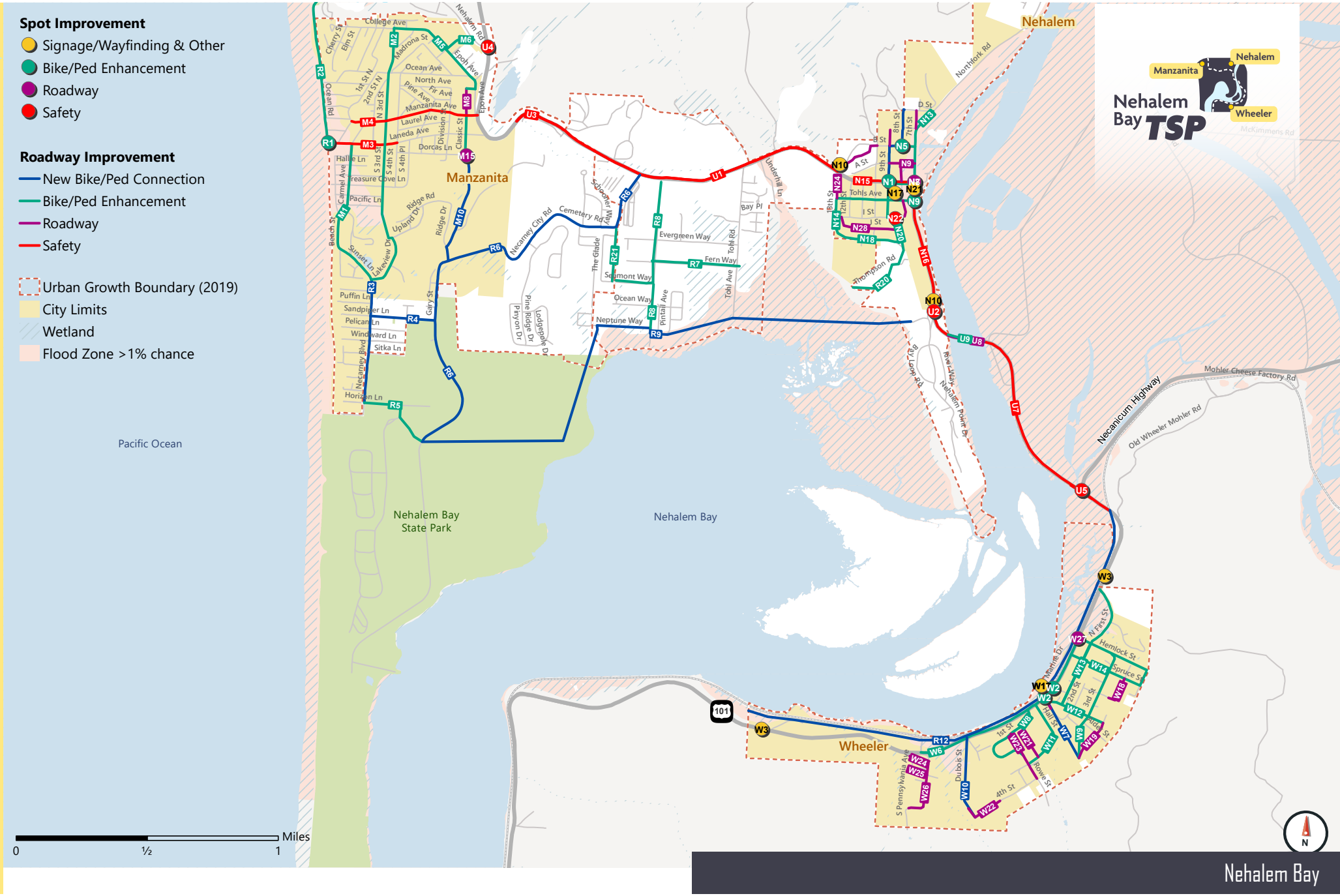
- A connection for people walking and biking between the three cities that is not located on U.S. 101
- Changes to U.S. 101 that will alert drivers that they are driving through downtown in Nehalem and Wheeler resulting in lower speeds

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
Pacific Ocean
Nehalem Bay State Park
Nehalem Bay
Manzanita
Nehalem
Wheeler
Miles
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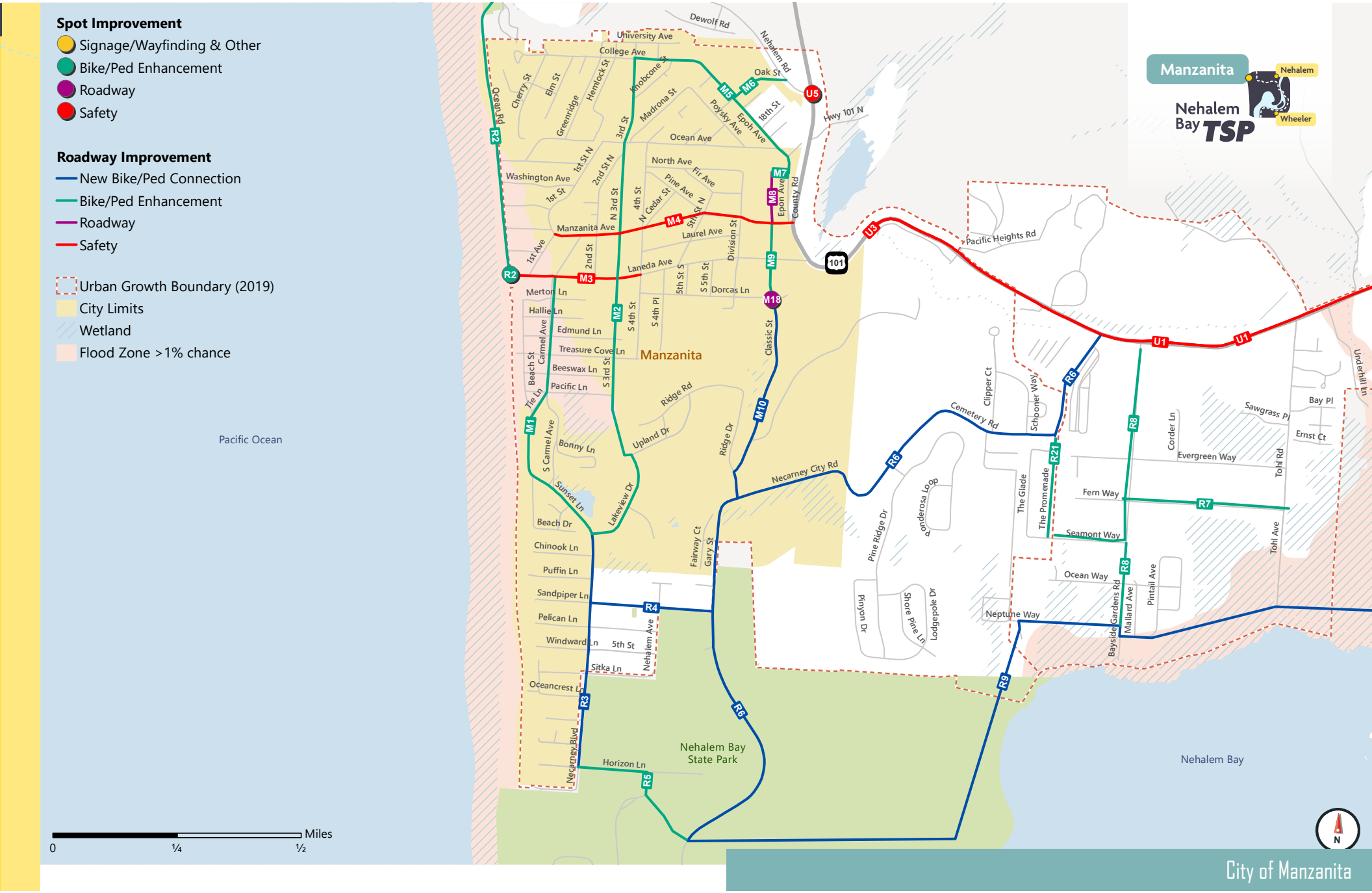
Nehalem Bay

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*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Miles
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Manzanita
Nehalem Bay State Park
Nehalem Bay
Dewolf Rd
University Ave
College Ave
Oak St
Nehalem Rd
Hwy 101 N
Ocean Rd
Cherry St
Elm St
Greenridge
Hemlock St
Knobcone St
Madrona St
Poyasky Ave
Epoh Ave
18th St
3rd St
Ocean Ave
North Ave
Fir Ave
Washington Ave
1st St N
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Pine Ave
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N 3rd St
4th St
5th St N
Manzanita Ave
Laurel Ave
Division St
County Rd
Pacific Heights Rd
1st Ave
2nd St
Laneda Ave
5th St S
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Dorcas Ln
Merton Ln
Hallie Ln
Edmund Ln
Treasure Cove Ln
Beeswax Ln
Pacific Ln
Tie Ln
Beach St
Camel Ave
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Classic St
Ridge Rd
Upland Dr
Ridge Dr
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Bonny Ln
Sunset Ln
Lakeview Dr
Beach Dr
Chinook Ln
Puffin Ln
Sandpiper Ln
Pelican Ln
Windward Ln
5th St
Nehalem Ave
Sitka Ln
Oceancrest Ln
Necarney Blvd
Horizon Ln
Fairway Ct
Gary St
Necarney City Rd
Cemetery Rd
Clipper Ct
Schooner Way
Pine Ridge Dr
Ponderosa Loop
The Glade
The Promenade
Pinyon Dr
Shore Pine Ln
Lodgepole Dr
Neptune Way
Ocean Way
Seamont Way
Fern Way
Evergreen Way
Corder Ln
Tohl Rd
Tohl Ave
Sawgrass Pl
Ernst Ct
Bay Pl
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Gardens Rd
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M3
M4
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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:

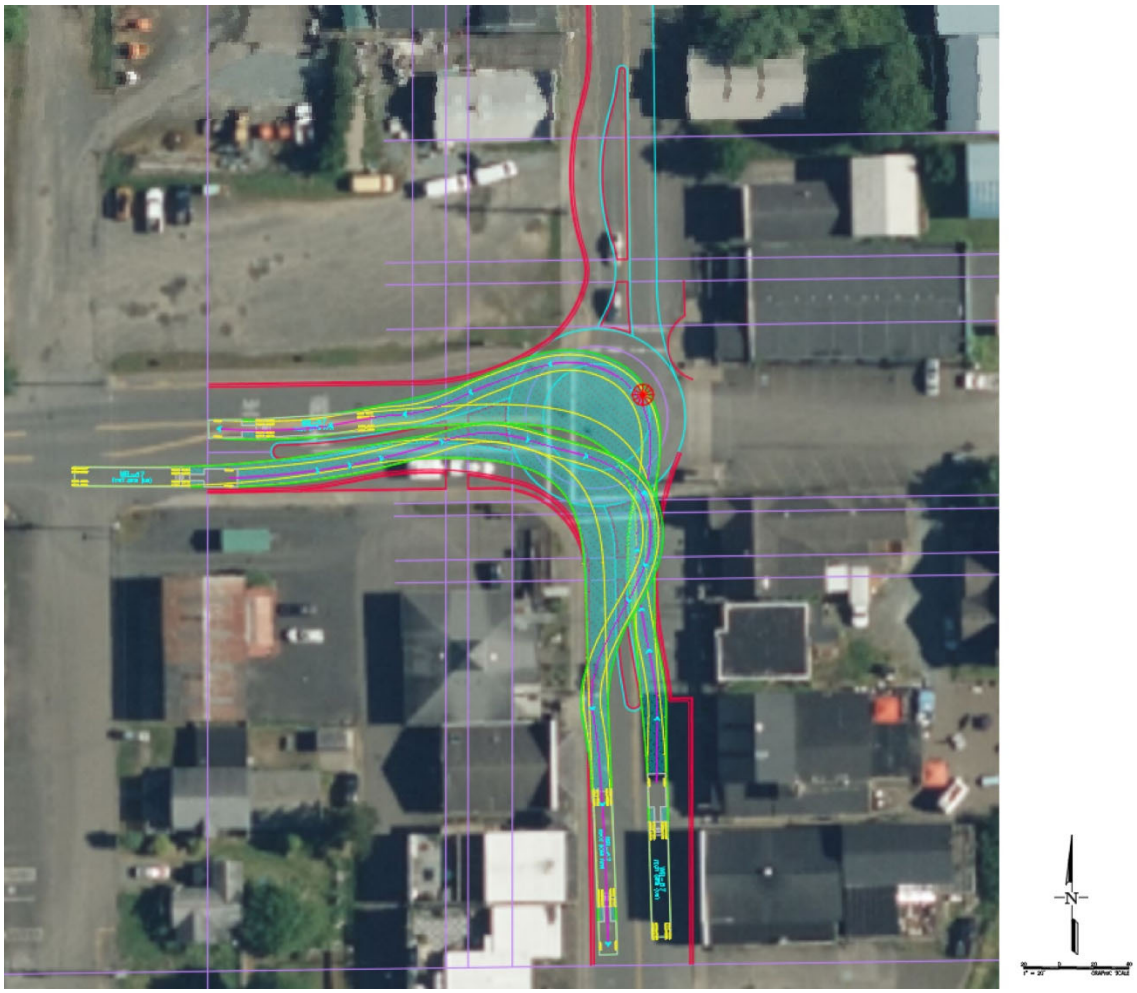
- Crashes that have occurred at the intersection between 2014 and 2018 involved a vehicle turning. Roundabouts reduce the number of conflict points between vehicles when compared to a standard intersection, which may lower the number of crashes that occur involving a vehicle turning.
- While roundabouts 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.

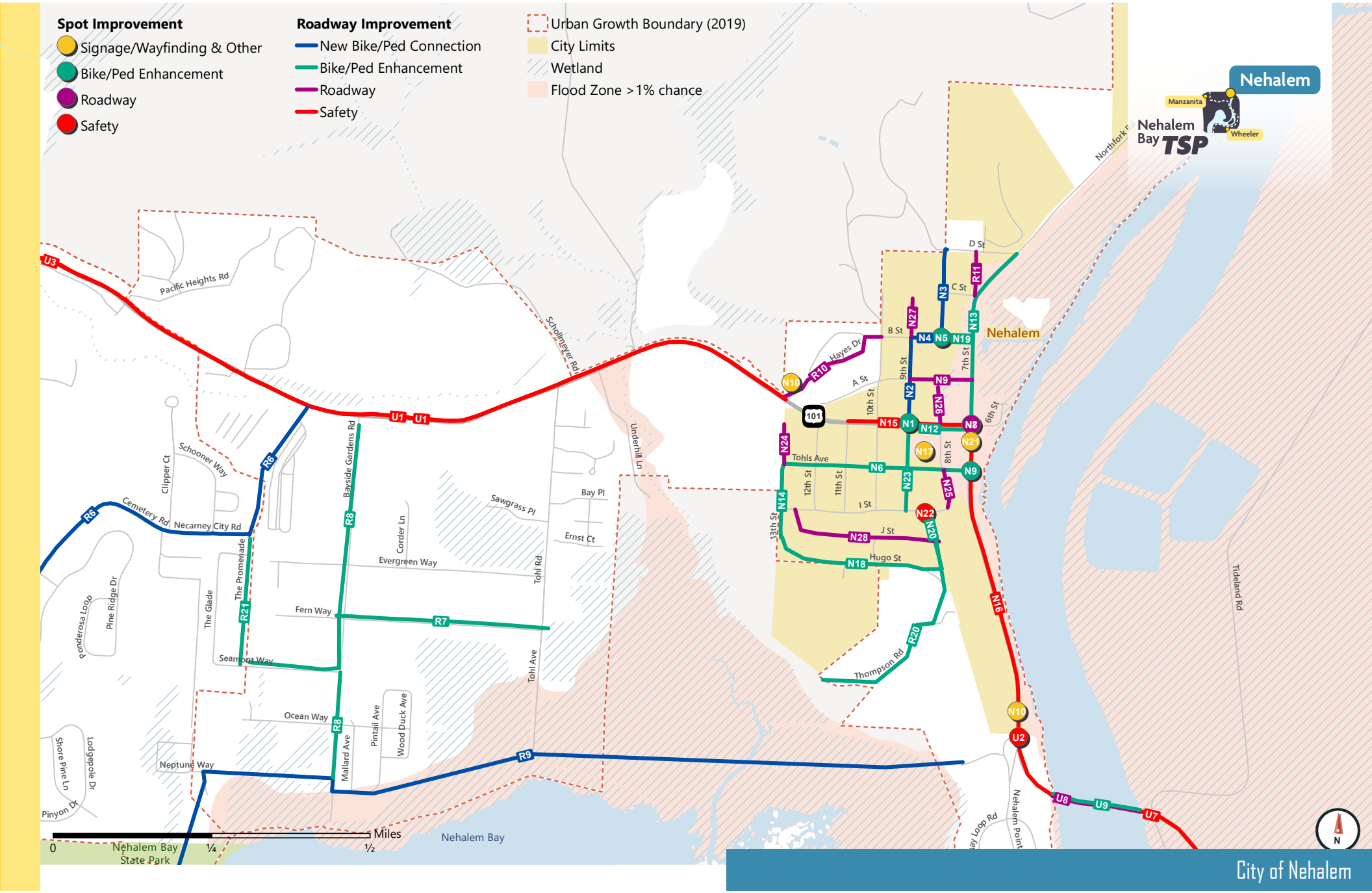
Conceptual Mini-Roundabout (80' Diameter)

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
Nehalem
Manzanita
Wheeler
Nehalem Bay TSP
Nehalem
Pacific Heights Rd
Scholfield Rd
Northfork Rd
D St
C St
B St
A St
Hayes Dr
9th St
10th St
7th St
6th St
8th St
Tohls Ave
12th St
11th St
13th St
I St
J St
Hugo St
Thompson Rd
Underhill Ln
Bay Pl
Sawgrass Pl
Ernst Ct
Corder Ln
Tohl Rd
Tohl Ave
Evergreen Way
Fern Way
Seamont Way
Ocean Way
Neptune Way
Pintail Ave
Wood Duck Ave
Mallard Ave
Bayside Gardens Rd
Schooner Way
Clipper Ct
Cemetery Rd
Necarney City Rd
The Promenade
The Glade
Pine Ridge Dr
Ponderosa Loop
Shore Pine Ln
Lodgepole Dr
Pinyon Dr
Tideland Rd
Nehalem Point Rd
Nehalem Bay Loop Rd
Nehalem Bay
Nehalem Bay State Park
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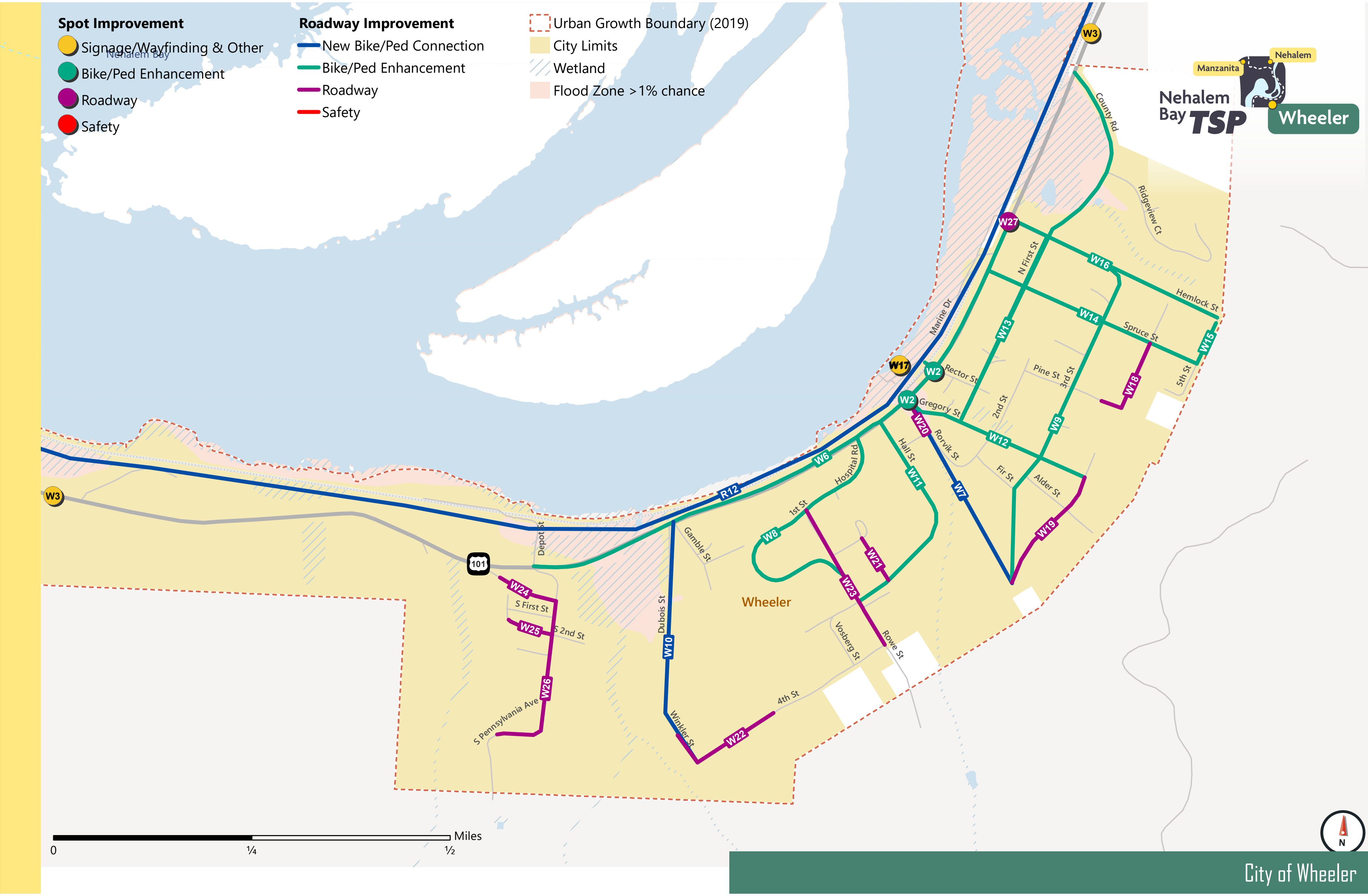
City of Nehalem

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 Thols 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 Thols 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
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Urban Growth Boundary (2019)
City Limits
Wetland
Flood Zone >1% chance
Nehalem Bay
Nehalem Bay TSP
Manzanita
Nehalem
Wheeler
W3
W27
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County Rd
Ridgeview Ct
N First St
Hemlock St
Marine Dr
Spruce St
Rector St
Pine St
3rd St
5th St
Gregory St
2nd St
Rorvik St
Hall St
Hospital Rd
Fir St
Alder St
1st St
Depot St
Gamble St
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S 2nd St
Dubois St
Vosberg St
Rowe St
4th St
S Pennsylvania Ave
Winkler St
101
Miles
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City of Wheeler

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 Ditcher 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

City of Manzanita 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	Location with one or more fatal/severe injury crashes and/or bike/ped crashes in the past 5 years.
		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 guideance or other regional planning efforts.	4	Project would provide improvements to US 101 consistent with ODOT design guideance 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 roadyway.
		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	Location with one or more fatal/severe injury crashes and/or bike/ped crashes in the past 5 years.
		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 guideance or other regional planning efforts.	4	Project would provide improvements to US 101 consistent with ODOT design guideance 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.
		0	Project does not provide any of the above.
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 travlers to natural areas and/or parks.	4	Project provides improved wayfinding signange for non-auto users connecting to local destinations.
		0	Project does not provide any of the above.

City of Wheeler 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	Location with one or more fatal/severe injury crashes and/or bike/ped crashes in the past 5 years.
		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 guideance or other regional planning efforts.	4	Project would provide improvements to US 101 consistent with ODOT design guideance 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 [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
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.

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 [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
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.

Appendix C: Preliminary Signal Warrant Evaluation

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

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	70	Percent of standard warrants 100	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.

Analysis Procedures Manual

Nehalem Bay TSP

TECHNICAL MEMO 9 | FINANCE PROGRAM

FEHR & PEERS

Technical Memo #9

Finance Program
December 5, 2022 – FINAL

Prepared by Fehr & Peers

Introduction

This memorandum presents the transportation funding that is expected to be available for each of the Cities over the next 20 years based on historical budget data. This memorandum also documents potential funding sources, including grants, that the cities may be able to apply for to fund design and construction of specific projects identified in the Transportation System Plan (TSP).

20-Year Financial Forecasts

The 20-year financial forecast for each City is documented below. As each City relies primarily on local funding for improvements and maintenance of the City's transportation system, the information below is based on budget data from recent years.

Manzanita

Historically, revenue for the City's Road Fund has come from franchise and utility agreements, street permit fees, grants, transfers from the general fund, and the motor vehicle tax. Based on data from fiscal year (FY) 2019/2020 and 2020/2021, the City has also had a carryover balance that would be available for future expenditures. **Table 1** presents the annual revenues, expenditures and the 20-year forecast for transportation related funds.

Table 1. Manzanita 20-Year Financial Forecast

Line Items	Actuals		Average	20-Year Forecast
	FY 19/20	FY 20/21		
Revenues				
Franchise & Utility Agreements	$ 83,617	$ 89,140	$ 86,379	$ 1,727,570
Street Permit Fees	$ 2,000	$ 4,300	$ 3,150	$ 63,000
Motor Vehicle Tax	$ 41,076	$ 46,404	$ 43,740	$ 874,800
Grants	$ 5,919	$ 40,478	$ 23,199	$ 463,970
Earned Interest	$ 5,376	$ 2,336	$ 3,856	$ 77,120
Total	**$137,988**	**$182,658**	**$160,323**	**$3,206,460**
Expenditures				
Personnel Services	$ 82,504	$ 63,409	$ 72,957	$ 1,459,130
Materials & Services	$ 28,895	$ 44,527	$ 36,711	$ 734,220

Table 1. Manzanita 20-Year Financial Forecast

Line Items	Actuals		Average	20-Year Forecast
	FY 19/20	FY 20/21		
Transfers to Other Funds	$ 9,200	$ 9,200	$ 9,200	$ 184,000
Total	**$120,599**	**$117,136**	**$118,868**	**$2,377,350**
Potentially Available Funds (Revenues-Expenditures)			**$ 41,456**	**$ 829,110**

As shown in **Table 1**, Manzanita is expected to have approximately $40,000 available for transportation improvements annually and $830,000 available over the next 20 years.

The 20-year forecast assumes that revenues and expenditures will not substantially change over the next 20 years. For purposes of this forecast, the beginning fund balance was not considered under revenues, and one-time costs (capital outlay) were not included under expenditures. Based on the City's proposed 2022/2023 budget, the city is budgeting approximately $600,000 for street repair/improvement under Capital Outlay. Many of the identified solutions for Manzanita could be incorporated in street repair/improvement projects. As funds are available, the City should explore opportunities to pair street repair with projects identified through the TSP process that enhance streets for people walking and biking.

Nehalem

In Nehalem, Street Fund resources have historically come from transfers from other funds, the state motor vehicle tax, and franchise fees. **Table 2** presents the annual revenues, expenditures and the 20-year forecast for transportation related funds based on actual revenues and expenditures from FY 2019/2020 and FY 2020/2021.

Table 2. Nehalem 20-Year Financial Forecast

Line Items	Actuals		Average	20-Year Forecast
	FY 19/20	FY 20/21		
Revenues				
Franchise & Utility Agreements	$ 24,867	$ 25,759	$ 25,313	$ 506,260
Motor Vehicle Tax	$ 19,832	$ 20,339	$ 20,086	$ 401,710
Earned Interest	$ 1,173	$ 690	$ 932	$ 18,630
Transfers From Other Funds	$ 32,000	$ 28,000	$ 30,000	$ 600,000
Total	**$77,872**	**$74,788**	**$76,330**	**$1,526,600**

Table 2. Nehalem 20-Year Financial Forecast

Line Items	Actuals		Average	20-Year Forecast
	FY 19/20	FY 20/21		
Expenditures				
Personnel Services	$ 20,194	$ 21,953	$ 21,074	$ 421,470
Materials & Services	$ 7,597	$ 14,312	$ 10,955	$ 219,090
Utilities & Insurance	$ 15,282	$ 18,249	$ 16,766	$ 335,310
Total	**$43,073**	**$54,514**	**$48,794**	**$975,870**
Potentially Available Funds (Revenues-Expenditures)			**$27,537**	**$550,730**

As shown in **Table 2**, Nehalem is forecast to have approximately $30,000 available annually and $500,000 available of the next 20 years for transportation related projects, including maintenance and repairs if the City continues to transfer funds from the Timber Fund.

The 20-year forecast, shown in the table above, assumes that revenues and expenditures will not substantially change over the next 20 years. For purposes of this forecast, available cash on hand was not considered under revenues, and one-time costs (capital outlay) were not included under expenditures.

Wheeler

Based on historical data, resources for Wheeler's Street Fund have come from business licenses, 50 percent of franchise fees, grants, and the state motor vehicle tax. **Table 3** presents the annual revenues, expenditures and the 20-year forecast for transportation related funds based on actual revenues and expenditures from FY 2019/2020 and FY 2020/2021.

Table 3. Wheeler 20-Year Financial Forecast

Line Items	Actuals		Average	20-Year Forecast
	FY 19/20	FY 20/21		
Revenues				
City Business Licenses	$1,459	$1,442	$1,451	$29,010
Franchise Fees	$15,422	$15,902	$15,662	$313,240
Grants	$13,888	$94,406	$54,147	$1,082,940
Motor Vehicle Tax	$28,331	$28,778	$28,555	$571,090
Earned Interest	$1,421	$440	$931	$18,610

Table 3. Wheeler 20-Year Financial Forecast

Line Items	Actuals		Average	20-Year Forecast
	FY 19/20	FY 20/21		
Miscellaneous Income	$55	$50	$53	$1,050
Total	**$60,576**	**$141,018**	**$100,797**	**$2,015,940**
Expenditures				
Personnel Services	$24,538	$21,471	$23,005	$460,090
Materials & Services	$14,811	$18,211	$16,511	$330,220
Transfers to Other Funds	$5,000	$5,000	$5,000	$100,000
Total	**$44,349**	**$44,682**	**$44,516**	**$890,310**
Potentially Available Funds (Revenues-Expenditures)			**$56,282**	**$1,125,630**

As shown in **Table 3**, Wheeler is forecast to have approximately $56,000 available annually and $1.1M available of the next 20 years for transportation related projects, including maintenance and repairs.

The 20-year forecast, shown in the table above, assumes that revenues and expenditures will not substantially change over the next 20 years. For purposes of this forecast, available cash on hand was not considered under revenues, and one-time costs (capital outlay) were not included under expenditures.

Potential Funding Sources

This section documents options for local funding sources that each of the Cities could explore to increase funds in their Roads/Street Fund and grants that the Cities may be eligible for and that could be used to fund transportation related projects.

Local Funding Sources

System Development Charges

System Development Charges (SDCs) are charges that may be applied to new development within the City. Once in place, these charges may be used to increase the system capacity to accommodate new users. In Oregon, cities may charge SDCs for services including water, transportation, sewer, stormwater, and parks and recreation. If adopted, revenue from SDCs could be used to complete TSP projects that build new transportation facilities, including off-

street connections for people walking and biking. Current application of SDCs in Nehalem Bay are as follows:

- **Manzanita** – The City currently has SDCs for water, storm water, and parks but not for transportation. The City should consider updating its SDCs to include funding for transportation facilities.
- **Nehalem** – The City currently has SDCs for water. The City's 2022/2023 budget includes funds to complete an SDC study. This study should include evaluation of SDCs for transportation in addition to other services.
- **Wheeler** – The City currently has SDCs for water, storm water, and parks but not for transportation. The City should consider updating its SDCs to include funding for transportation facilities.

Local Gas Taxes

Another local option to supplement funding available for street projects is the local gas tax. At the local level, gas taxes are implemented by levying a business license tax on fuel dealers. This tax is set at a rate of cents per gallon of fuel sold by the dealer. HB 2001 requires that any proposed gas taxes or increases to existing taxes must be approved through a public vote. A review of current tax rates, available through ODOT, indicates that 35 cities currently have local gas taxes with rates ranging from $0.015 to $0.10 per gallon.

Urban Renewal Areas

Urban Renewal Areas (URAs) or Tax Increment Financing (TIF) have been used by communities across the state to fund transportation improvements. Creating a URA is a way to improve poorly developed or under-developed areas using a portion of the revenue generated by property taxes from properties in the URA.

Transportation Utility Fees

Transportation Utility Fees (TUFs) are monthly fees that are collected from residences and business as part of their water/sewer bills. These fees are applied based on the number of trips the land use is likely to generate. Most cities use these funds to supplement funds for road and sidewalk maintenance, but these funds can be used for one time capital improvements. Based on data gathered in 2011, 19 cities in Oregon have adopted this revenue source, the nearest to Nehalem Bay being Bay City. These are typically assessed as a flat fee for residential uses and either size of commercial space or in some cases, the number of trucks. In cities where TUFs are in place, this revenue contributes to between 15 and 20 percent of the revenue in the city's street fund.

Grants

In recent years, the Cities have received grant funding through ODOT to complete transportation improvements. It is expected that these will continue to be the primary way for each of the Cities to fund the projects identified through the TSP process. Grants that may be available to the cities are described in more detail below, along with a brief description of the types of projects that may be eligible.

Safe Routes to School (SRTS)

ODOT provides funding for SRTS projects, under two umbrellas – construction and education. For the 2023-2024 and 2025-2026 funding cycles, $30M in funding will be available with 87.5% of that allocated to competitive grants. Projects that are eligible for this funding source include projects that are:

- Within the public road right-of-way
- Within one-mile of a school
- At or within the funding request minimum and maximum
- Have adequate local match
- Have support of the school or school district
- Provide a safety benefit
- Included in or aligned with an existing plan
- Committed to outreach

Funds from this program are allocated through a competitive grant process that consists of two applications typically due in March and July.

As the only City with a school, only projects in Nehalem would be eligible for this grant. Projects most likely to receive funding through this program include the construction of sidewalks on key routes to school and crossing improvements at critical crossings.

Sidewalk Improvement Program (SWIP)

This program distributes State Pedestrian and Bicycle funds to construct projects that improve facilities for walking and biking. For the 2021-2024 State Transportation Improvement Program (STIP) a total of $22.2M was budgeted for allocation by the ODOT regions. Projects eligible for funding under this program are projects that are:

- Located on or along a state highway
- Located within the public road right-of-way
- Standalone projects or additions on to another project
- Improving conditions for people walking and biking through a safety or access improvement

- A bikeway, walkway, or crossing safety improvement
- Are not a pedestrian or bicycle improvement triggered by a larger project
- Not serving motor vehicles
- In the right-of-way, utility relocations, preliminary engineering, construction, inspection, or project close out phases
- Identified as a need in a plan or in the region's Active Transportation Needs Inventory and support implementation of Oregon Bicycle and Pedestrian Plan policies and priorities

Funds for this program are allocated on a rolling application basis as available. The Cities should coordinate with the Region 2 Pedestrian and Bicycle Program manager to identify opportunities to apply for funding through this program.

As projects that would be eligible for this must be located on Highway 101, sidewalk improvements through Nehalem and Wheeler are likely to be the most competitive TSP projects for this grant.

Great Streets

This program will leverage funding from the IIJA to improve state highways that run through communities. Funding under this program will be allocated towards state highways that are focused on moving traffic and that do not adequately address pedestrian and bicycle safety needs or support community and economic vitality. While specific criteria for this funding source have not yet been developed, it is expected that the projects identified in this study would be eligible for funding through this program. The Cities should continue to tracking funding opportunities as criteria and the application process are further defined.

As projects that would be eligible for this must be located on Highway 101, place making projects, bicycle improvements, and sidewalk improvements through Nehalem and Wheeler are likely to be the most competitive TSP projects for this funding source.

Oregon Community Paths

The Oregon Community Paths program is geared towards helping communities create and maintain connections through multiuse paths. Eligible projects to receiving funding under this grant include:

- Continuous paths made up of one or more connected segments that are primarily physically separated from the roadway
- Paths that connect two or more communities, with each community no more than 15 miles apart, or traverses a single large community with a path that is 10 miles or longer

- Paths that will serve as a connection point for people commuting between communities, or is a part of an officially designated walking and bicycling route
- Paths that are endorsed by elected bodies along path alignment

It is expected that $9.6M in funding will be available for the 2022-2024 funding cycle. Applications for this grant are on a two-year cycle with pre-applications due in the fall and applications accepted November through January. The proposed off-street bicycle and pedestrian connections between the three communities, including the Salmonberry Trail are likely to be competitive for this grant.

Statewide Transportation Improvement Program (STIP)

The Statewide Transportation Improvement Program or "STIP", is ODOT's capital improvement plan for state and federally funded projects. The STIP is developed by the Oregon Transportation Commission and ODOT in coordination with a wide range of stakeholders and the public. The STIP includes the following investment areas:

- Fix-it programs
- Enhance highway programs
- Safety programs
- Non-Highway programs
- Local government programs
- Other functions

Funding allocated by the STIP is typically directed to regionally important projects that will enhance safety and improve operations at the regional level. Projects that may be eligible for funding through the STIP include the safety projects on Highway 101 along with the intersection improvements at the Highway 101/7th Street intersection.

Recreational Trails Program

This federally funded program, which is administered by the Oregon Parks and Recreation Department, provides funds for local agencies to develop, improve, or expand motorized and non-motorized trails and their facilities. Eligible projects for these funds include:

- Construction of new trails
- Major rehabilitation of existing trails
- Development or improvement of trailhead or other support facilities
- Acquisition of land or easements for the purpose of trail development

- Safety and education projects

Typically, grant submittals for the annual awards are due in November with annual allocations of $1.6M. The proposed off-street bicycle and pedestrian connections between the three communities, including the Salmonberry Trail, are likely to be competitive for this grant.

Small City Allotment

The Small City Allotment program is an annual allocation of state funds to local transportation projects. Under this program, ODOT sets aside $5M for incorporated cities with a population of 5,000 or less. Funding received through this program may only be used on streets that are inadequate for the capacity they serve or are in a condition that creates a safety hazard for users. Funding under this program is limited to $250,000 per project and is awarded through a competitive process, with applications typically due in July.

All three Cities have a population below 5,000 and would be eligible for funding through this program. Funds received from this program could be used on TSP projects that would repair and enhance existing roadways within the three Cities.

Nehalem Bay TSP

TECHNICAL MEMO 10 | TRANSPORTATION STANDARDS

FEHR & PEERS

Technical Memo #10

Transportation Standards
March 3, 2023 – FINAL

Prepared by Fehr & Peers

Introduction

This technical memorandum documents the transportation system standards in Manzanita, Nehalem, and Wheeler that will be adopted as part of the Nehalem Bay Transportation System Plan (TSP). The standards documented in this memorandum include:

- Roadway functional classification system
- Access spacing standards
- Standard roadway cross-sections
- Bicycle and pedestrian networks
- Traffic impact analysis guidelines
- Mobility standards
- Evacuation routes
- Freight
- Intelligent Transportation System (ITS) guidelines
- Traffic calming guidelines

This memorandum begins with standards that apply to regional roadways, primarily U.S. 101, and standards that apply to all three communities. Those standards include roadway functional classification, access spacing standards and mobility standards on U.S. 101, evacuation routes, freight, and ITS guidelines. Traffic calming guidelines that could be applied to all three cities are also included in the regional section. This is followed by standards specific to each of the three cities including standard roadway cross-sections, bicycle and pedestrian networks, traffic impact analysis guidelines, and local mobility standards.

Regional

This section documents the regional standards that apply to U.S. 101 or are consistent for all three cities and the jurisdiction for each roadway in the study area, which is shown on **Figure 1**.

Roadway Functional Classification System

Functional classification is an important identifying metric for roadways. Roadways are assigned a functional classification to indicate purpose, design, and function. General descriptions of functional classes are as follows.

> **Principal arterials** carry the highest volume of traffic of any roadway type below grade-separated freeways and provide regional connections. Mobility is a priority on principal arterials and access control is important.
>
> **Arterials** are designed for higher volumes but carry fewer regional trips. These streets link major commercial, residential, industrial, and institutional areas.
>
> **Collectors** distribute trips between local streets and arterials. They serve as transition roadways between commercial and residential areas and provide a citywide circulation function. Collectors can be split into **Major** and **Minor** collectors, with major collectors generally having longer lengths, higher speed limits, higher traffic volumes, and more travel lanes than minor collectors. Major collectors offer more mobility and minor collectors offer more access.
>
> **Local streets** are the lowest functional classification. They provide circulation within residential neighborhoods, provide access to homes and properties, and serve a slower-moving mix of modes.

Figure 2 shows the functional class of all streets in the region while **Table 1** shows the jurisdiction and functional classification of roadways that are classified as collectors or higher.

Figure 1. Roadway Jurisdiction

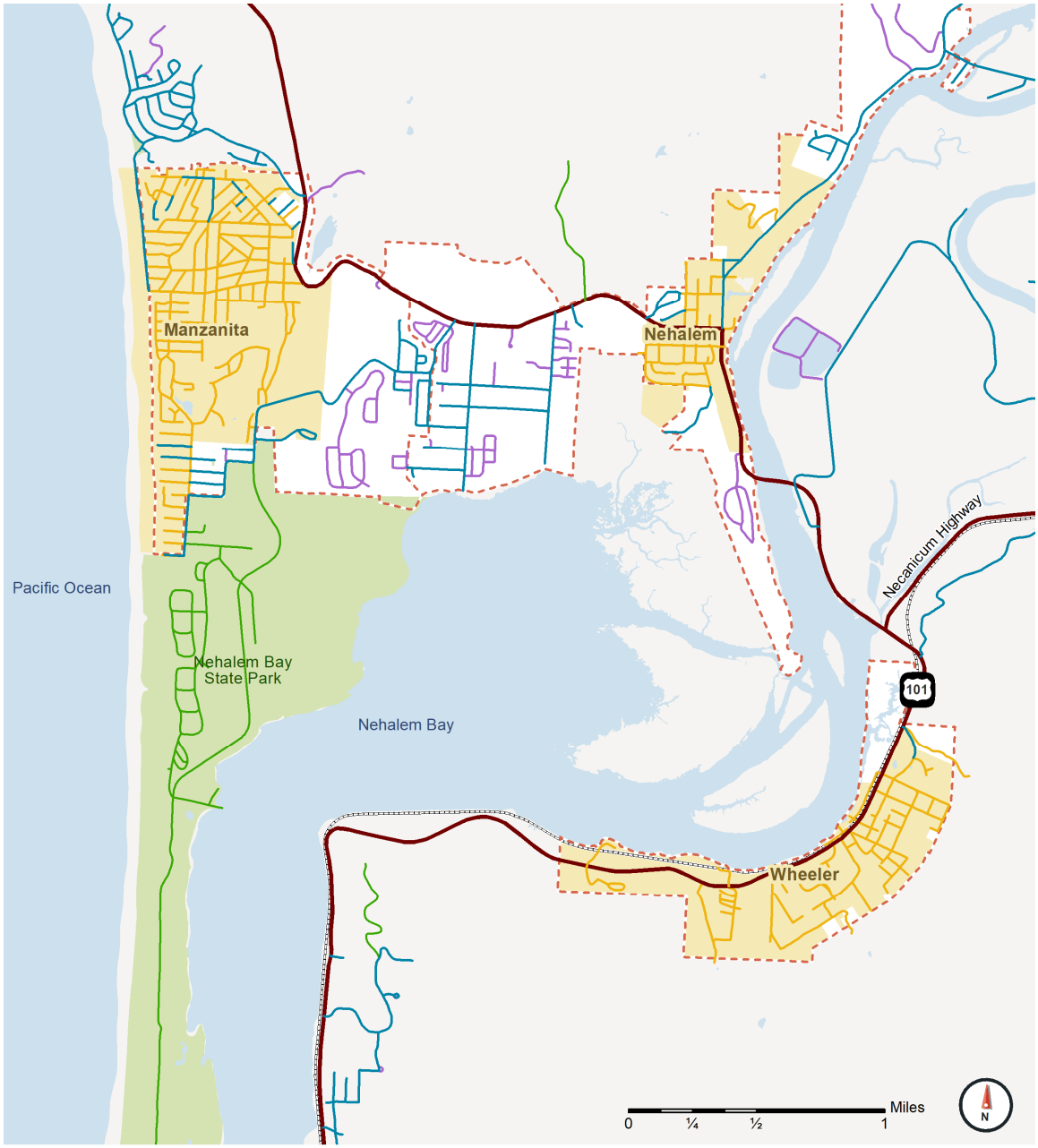


Figure 2. Roadway Functional Classification

Table 1: Roadway Jurisdiction and Functional Classification

Roadway	Location	Jurisdiction	Functional Classification
U.S. 101	Study Area	ODOT	Principal Arterial
Laneda Avenue	Manzanita	Tillamook County	Major Collector
7th Street / North Fork Road	Nehalem	Tillamook County	Major Collector
Necarney City Road	Nehalem UGB	Tillamook County	Minor Collector
Ocean Road	Manzanita	Tillamook County	Minor Collector
Nehalem Road	Manzanita	Tillamook County	Minor Collector
Sitka Lane	Manzanita UGB	Tillamook County	Minor Collector
Sandpiper Lane	Manzanita UGB	Tillamook County	Minor Collector
Gary Street	Manzanita UGB	Tillamook County	Minor Collector
Hemlock Street	Wheeler	Wheeler	Minor Collector
Gregory Street	Wheeler	Wheeler	Minor Collector
Hospital Road	Wheeler	Wheeler	Minor Collector
Dubois Street	Wheeler	Wheeler	Minor Collector

Access Spacing Standards

The Oregon Transportation Planning Rule (TPR) defines "Access Management" as "…measures regulating access to streets, roads and highways from public roads and private driveways." The TPR requires that new connections to both arterials and state highways follow designated access management guidelines. Typically, existing access points can remain so long as the land use does not change.

ODOT Standards

The Oregon Highway Plan (OHP) includes access management spacing standards for ODOT highways, most recently amended in 2005. U.S. 101 is under ODOT management and must follow OHP standards, shown in **Table 2**.

Table 2: OHP Access Spacing Standards

Roadway	Speed Limit	Spacing Standard (rural)	Spacing Standard (urban)
U.S. 101	55 or higher	1,320 feet	1,320 feet
	50	1,100 feet	1,100 feet
	40 & 45	990 feet	800 feet
	30 & 35	770 feet	500 feet
	25 & lower	550 feet	350 feet

Mobility Standards

For U.S. 101, mobility standards are documented in the OHP. The OHP establishes v/c mobility targets for highways throughout the state, with a v/c target of 0.8 to 0.85[1] for U.S. 101 within the UGB and 0.70 outside the UGB. These are, however, targets rather than standards and the OHP acknowledges that in some cases it may be impractical to meet these targets. Targets for U.S. 101 are shown in **Table 3**.

Table 3: U.S. 101 Mobility Targets

ID	Segment	v/c target[1]
1	US 101 north of Laneda Avenue	0.80
2	US 101 at west city limits of Nehalem	0.80
3	US 101 west of 7th Street	0.85
4	US 101 north of Tohls Street	0.85
5	US 101 north of Necanicum Highway	0.70
6	US 101 north of Hemlock Street	0.80
7	US 101 north of Rector Street	0.85

[1] v/c targets taken from the Oregon Highway Plan Table 6 based on highway category and posted speed.

ODOT Design Guidance

As a state highway, all improvements on ODOT are subject to ODOT approval and must be designed in compliance with the standards documented in the Highway Design Manual (HDM).

One way to ensure that the appropriate design criteria are applied is completion of an Urban Design Concurrence (UDC) Document. A UDC is a form that is used to determine project context, define design criteria, and document design decisions. As defining the correct project

[1] The v/c targets cited for the segments of U.S. 101 through Nehalem Bay are based on the Oregon Highway Plan Table 6 *Volume To Capacity Ratio Targets Outside Metro*. These segments are classified as Freight Routes on a Statewide Highway Non-MPO, with different targets identified based on posted speed <= 35 mph, >35 and < 45 mph, or >=45 mph.

context is a key component of the design process, this should be completed by the local agency in partnership with ODOT.

Should the cities desire to install traffic control devices on U.S. 101, that must also be completed in accordance with ODOT guidelines and requirements. Under Oregon Administrative Rule (OAR) 734-020-0410, approval of installation of traffic control on state highways is delegated to the state traffic-roadway engineer. This can be achieved through completion and submittal of a State Traffic-Roadway Engineer Approval Request (STRE). Table 100.0-A in the ODOT Traffic Manual lists the devices and features that require STRE approval.

Traffic Calming Guidelines

This section presents a variety of tools that could be used by each of the three cities to slow vehicle speeds and create a more comfortable environment for people walking and riding bicycles. Potential strategies, presented in **Table 4**, were identified as generally low-cost tools that could be deployed on most streets in the Nehalem Bay region. It is important to note, that any traffic calming on U.S. 101 would require approval by ODOT prior to implementation.

Table 4: Traffic Calming Toolbox

Traffic Calming Strategy		Description	Principal Arterial	Major Collector	Minor Collector	Local
Speed Feedback Sign	 Photo Source: Sacramento County Transportation	Speed feedback signs measure each approaching vehicle's speed. Real-time speeds are relayed to drivers and flash when speeds exceed the limit. Speed feedback signs are typically mounted on or near speed limit signs and are most common in school zones.	√	√	√	
Vertical Devices		Vertical deflection devices use variations in pavement height and alternative paving materials to physically reduce travel speeds. These devices are designed for travel speeds over the device of approximately 15 to 20 MPH depending on the device. The vertical deflection devices in the toolbox include: • Speed Lump/Cushion • Speed Hump • Speed Table • Raised Crosswalk			√	√

Table 4: Traffic Calming Toolbox

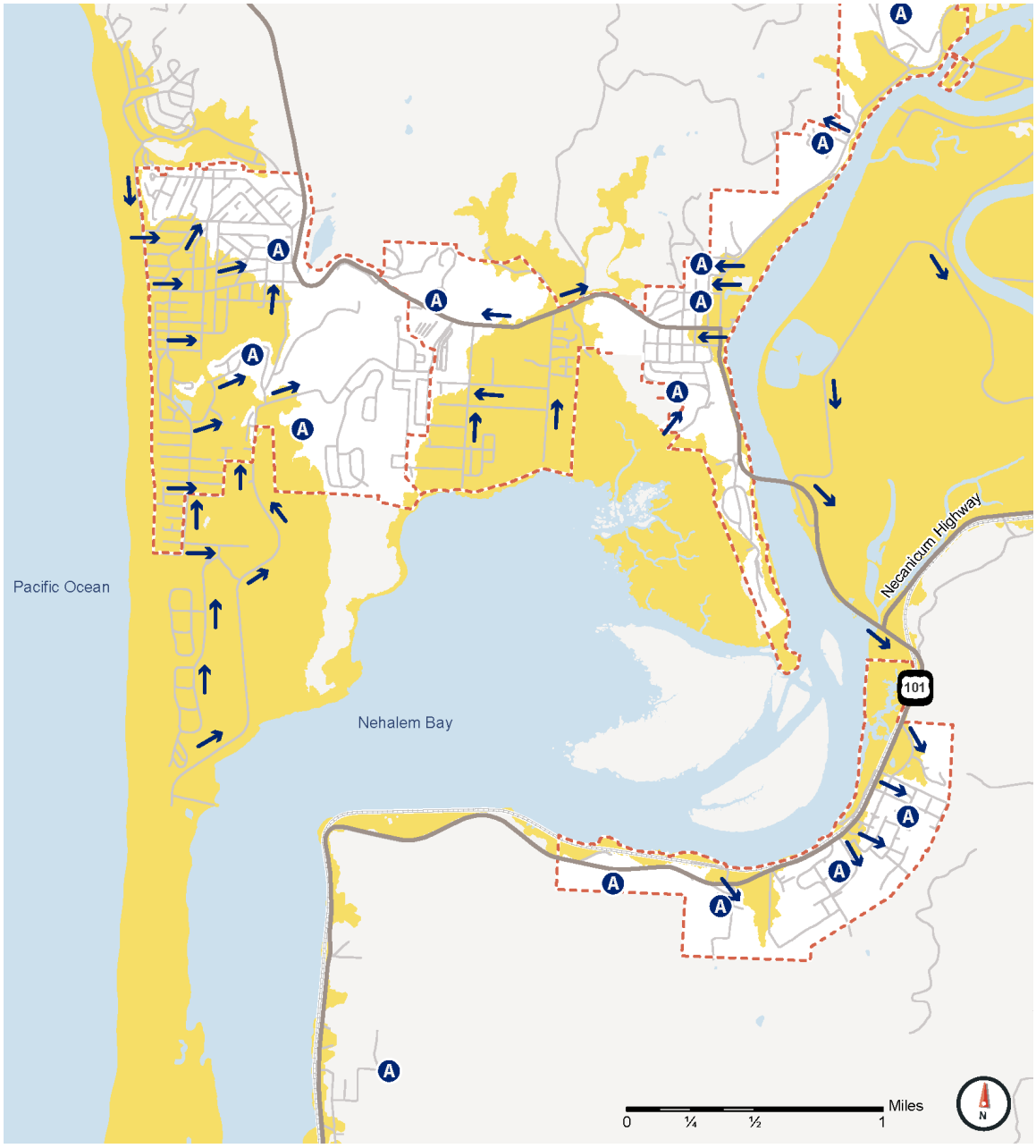
Traffic Calming Strategy		Description	Principal Arterial	Major Collector	Minor Collector	Local
Hardened Centerlines/Rubber Speed Bumps	 Photo Source: Quartz, qz.com	Hardened centerlines are bollards that prevent left-turners from crossing the centerlines to make a turn. Pedestrian islands can also accomplish the same goal if they are placed strategically, with the added benefit of being more durable and providing refuge for walkers.		√	√	√
Narrowing Devices		Narrowing devices use raised islands, curb extensions, and other treatments to narrow the travel way. They are not as effective as vertical or horizontal devices but can still provide traffic calming. The narrowing devices in the toolbox include: • Bulb-Out/Curb Extension • Two-Lane Choker • Median Without Horizontal Deflection/Pedestrian Refuge Island • Street Trees	√	√	√	√

Evacuation & Lifeline Routes

Given the proximity of the three cities to the Pacific Ocean, Nehalem Bay, and the Nehalem River, the Oregon Office of Emergency Management has identified evacuation routes within each of the cities. These routes, which connect people from evacuation zones to designated assembly areas in the event of a tsunami, are shown on **Figure 3** below. **Attachment A** includes detailed maps of the evacuation routes for each City.

ODOT has also identified lifeline routes in the Nehalem Bay area. Lifeline routes were identified as a specific list of highways and bridges recommended to comprise the seismic lifeline system and were categorized using a three tier-system to help prioritize seismic retrofits on State-owned highways and bridges. The only lifeline route in the region is U.S. 101, which is designated as a Tier 2 route from Tillamook to Nehalem and a Tier 3 route from Nehalem to Seaside.

Figure 3. Evacuation Routes



Freight Routes

Freight movement is essential to bring goods to residents and to move products throughout the region. U.S. 101 is designated by the FHWA as part of the National Highway System (NHS), which is defined as roads that are important to the nation's economy, defense, and mobility. The highway is the only designated freight route in Nehalem Bay, and must balance the needs of residents, visitors, and the movement of goods. It is also classified by ODOT as a Reduction Review Route, which are facilities that require review during any planning, project development, development review and maintenance for any potential reduction in vehicle-carrying capacity as stated in Oregon Revised Statue (ORS) 366.215. These routes may not have any permanent reduction in the vehicle-carrying capacity unless required for safety or access considerations or through a local exemption.

ITS Guidelines

Through the application of Intelligent Transportation System (ITS) technologies, agencies are equipped with the tools to optimize the existing transportation system, improving safety and mobility without costly infrastructure improvements such as adding capacity. The use of ITS allows agencies to better manage the system using real-time data to respond to incidents such as crashes or flooding that disrupt the transportation system.

With no traffic signals in the Nehalem Bay Region, the ability to use ITS to manage traffic flow through enhanced traffic signal operations or other common ITS strategies are limited; however, traveler information strategies could be used to alert regional travelers to changes in travel patterns or weather events that may impact travel in the region.

Strategies that should be considered in Nehalem Bay, in coordination with ODOT and Tillamook County include:

- Road Weather Information Systems
- Traffic Cameras
- Roadside Traveler Information
- Trip Planning
- Multi-Agency Operations and Coordination Planning in partnership with ODOT and Tillamook County

Manzanita

This section documents the transportation standards and proposed updates for roadways under the jurisdiction of Manzanita.

Roadway Functional Classification System

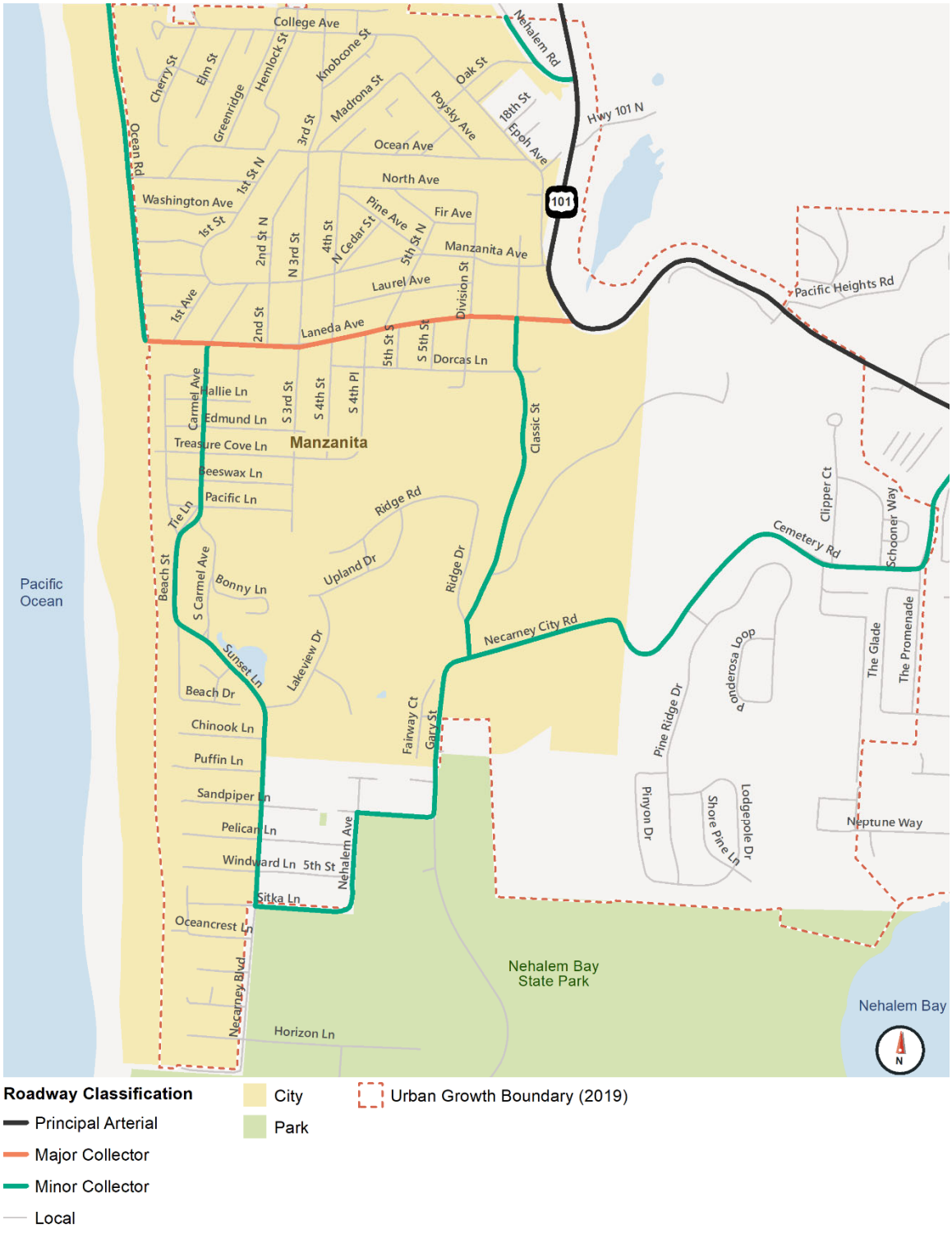
As shown on **Figure 4** and defined in Error! Reference source not found.**,** there are four roadway classifications in the City of Manzanita.

Table 5. Manzanita Roadway Standards by Functional Class

Functional Class	Pedestrian Realm	Transition Realm			Travelway Realm		
	Sidewalk	Bicycle Facilities	Buffer Zone	Minimum On-Street Parking Width	Number of Travel Lanes	Minimum Lane Width	Median/ Center Turn Lane
Principal Arterial[1]	5 to 8 feet	6 feet	3 to 5 feet	None	2	11 to 12 feet	12 to 13 feet
Major Collector	10 feet	None	None	8 feet	2	11 feet	None
Minor Collector	12 feet		2 feet	None	2	11 feet	None
Local[2,3]	None	Advisory Bike Lanes or Sharrows	None	None	1	22 feet	None

1. As the only Principal Arterial in Nehalem is U.S. 101, which is under the jurisdiction of ODOT, values presented above are consistent with recommendations for a Suburban Fringe roadway with a Tier 1 Bikeway based on guidance in the ODOT HDM. Widths shown provide a range of options based on local context consistent with the HDM.
2. While local roadways only require one lane, the width would allow for two-way travel.
3. The Manzanita Bicycle Network Map (Figure 6) identifies the appropriate bicycle facilities for local roadways.

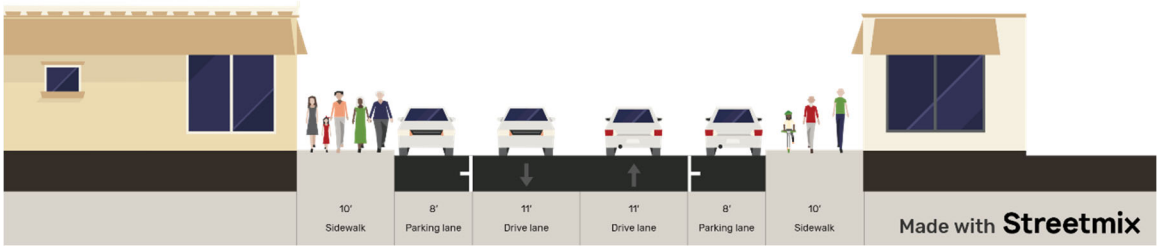
Figure 4. Manzanita Roadway Functional Classification



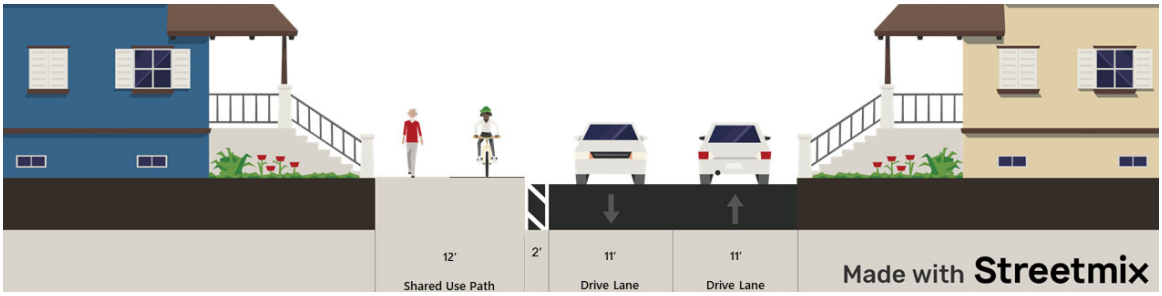
Standard Roadway Cross-Sections

This section presents the standard roadway cross-sections for the three functional classes within the City of Manzanita.

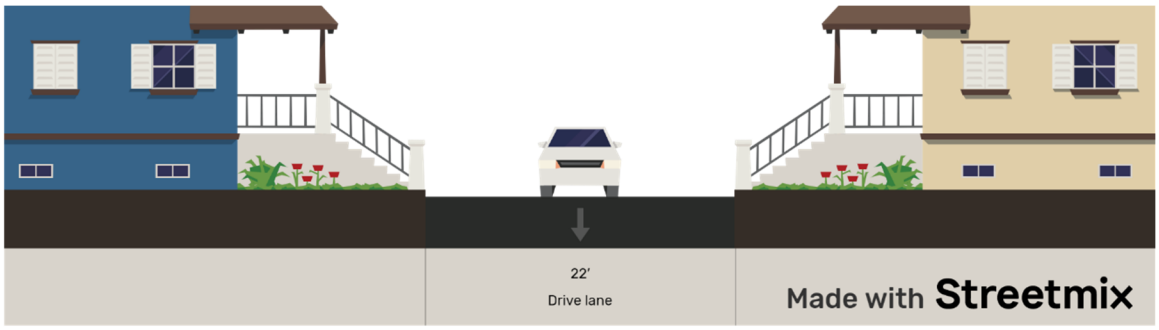
Manzanita Major Collector Cross-Sections



Manzanita Minor Collector Cross-Section



Manzanita Local Road Cross-Section



Access & Spacing Standards

To balance the need for access with safety for all travelers and improve connections for people walking and biking, it is recommended that the City adopt updated access and spacing standards that would apply to new roadways or developing properties to the extent that it is practical, as determined by City staff. As access and spacing standards for U.S. 101 are

documented in the section above, these standards would only apply to streets designated as collectors or local streets.

Table 6: Manzanita Access & Spacing Standards

Functional Class	Maximum Block Length	Minimum Block Length	Minimum Driveway Spacing	Minimum Intersection Set Back
Major Collector	1,000 feet	200 feet	100 feet	150 feet
Minor Collector	1,000 feet	150 feet	75 feet	75 feet
Local	1,000 feet	125 feet	None	25 feet

Bicycle & Pedestrian Networks

This section documents the planned networks for people walking and bicycling within the city of Manzanita, including facility types and standards for the pedestrian and bicycle networks.

Pedestrian Facilities

Within Manzanita, there are two key streets where sidewalks are needed to connect people to key destinations: Laneda Avenue and Ocean Avenue, as shown on **Figure 5**, below.

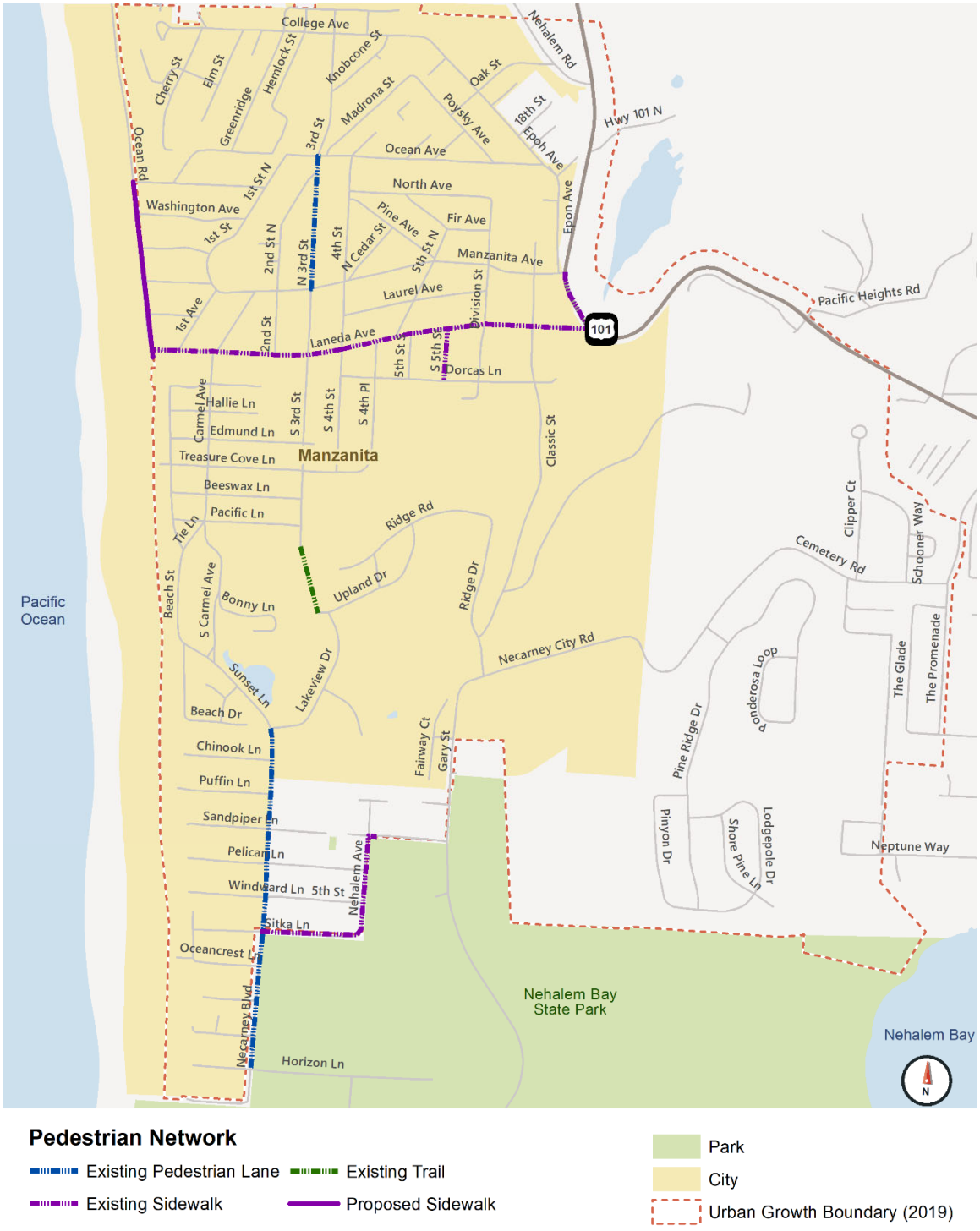
Laneda Avenue is a key pedestrian corridor connecting people from the commercial core to the beach, while Ocean Avenue provides access to the beach. Given the high pedestrian volumes on these key routes, it is recommended that, when feasible, 10 feet of pedestrian throughway be provided. Where space allows, additional space should be provided for frontage (up to four feet) for a total maximum of 14 feet. Where space is constrained, the additional buffer may be eliminated as shown in the Major Collector Cross-Section above, as the on-street parking lane provides separation for the pedestrian realm and the travelway realm.

The American with Disabilities Act (ADA) requires that transportation facilities accommodate the needs of people with varying abilities. By building a pedestrian network that meets the needs of people with varying abilities improves accessibility and results in a high-quality system for all users. To achieve this, the City of Manzanita should incorporate the following features when building new sidewalks or improving existing sidewalks:

- Ensure that sidewalks are free of obstructions. While objects up to 27 inches above the ground can be detected by a white cane, objects between 27 and 80 inches in the pedestrian circulation area may cause injury to blind and low vision users. If objects must protrude into the pedestrian circulation area, detectable delineation to warn users should be provided.

- Provide yellow detectable warning surfaces at curb ramps, railroad crossings, and transit stops.
- Design sidewalks to include firm and level surfaces, adequate clear width, and limited cross-slope.
- Provide an accessible sloped entrance and exit to transition to and from the walkway where the facility begins and ends.

Figure 5. Manzanita Pedestrian Network

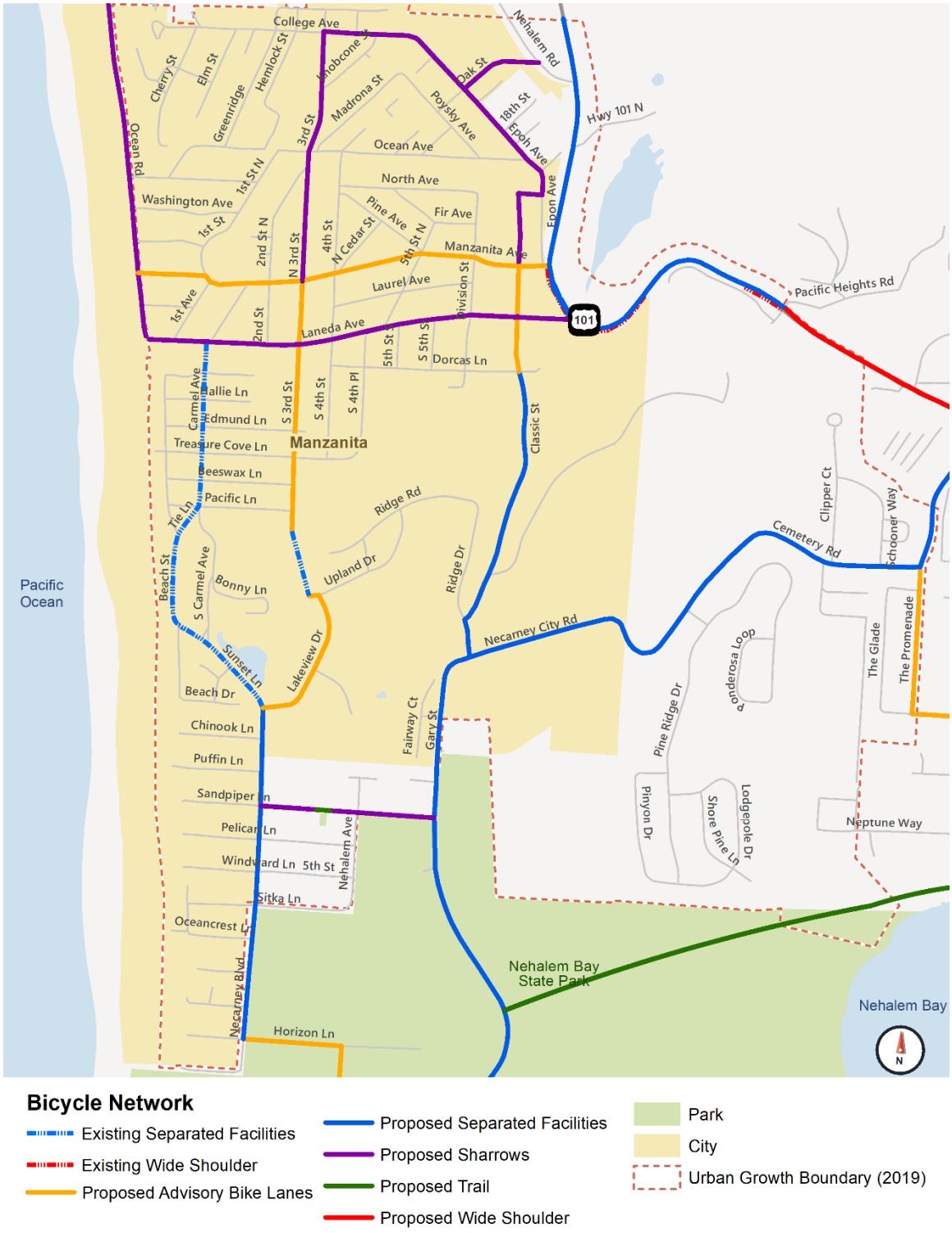


Bicycle Facilities

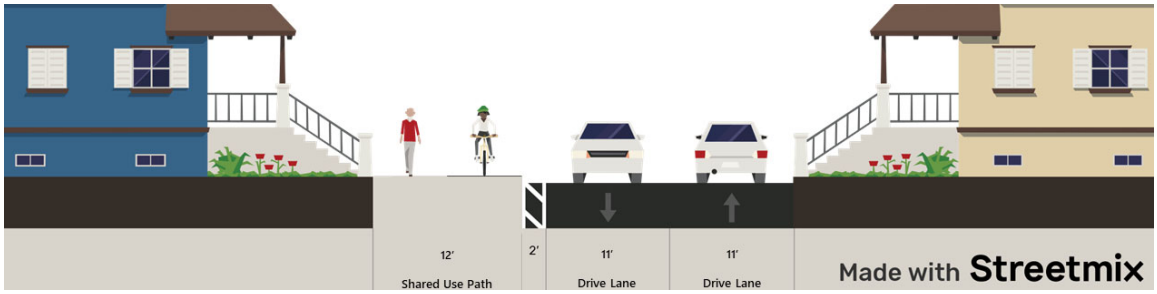
The bicycle network within the City of Manzanita relies on four types of facilities:

- **Separated Bike Lane:** Separated Bike Lanes are part of the street that is designated for bicycle travel, and in some cases pedestrian travel, which are separated from vehicles by a street buffer that contains a vertical element (e.g curb, parking, or bollards).
- **Sharrows:** These are quiet slow streets that prioritize bicycles and automobiles. The shared lane marking (sharrows) indicate that bicycles and automobiles should share the lanes and are typically used when there is a sidewalk or other space allocated for people walking and to complete the bicycle network.
- **Advisory Bike Lanes:** These are quiet slow streets that prioritize bicycles and pedestrians. A shoulder, available for use by bicyclists and pedestrians, is delineated by striping allowing for vehicles to use the shoulder when no pedestrians or bicyclists are present to pass oncoming vehicles.
- **Trails:** Trails, which are typically constructed using a soft-surface and used for recreational travel provide a space for people walking and bicyclists. Trails have dedicated right-of-way and connect people between regional destinations. While trails may parallel a roadway, they may also create a new connection for people walking and bicycling.

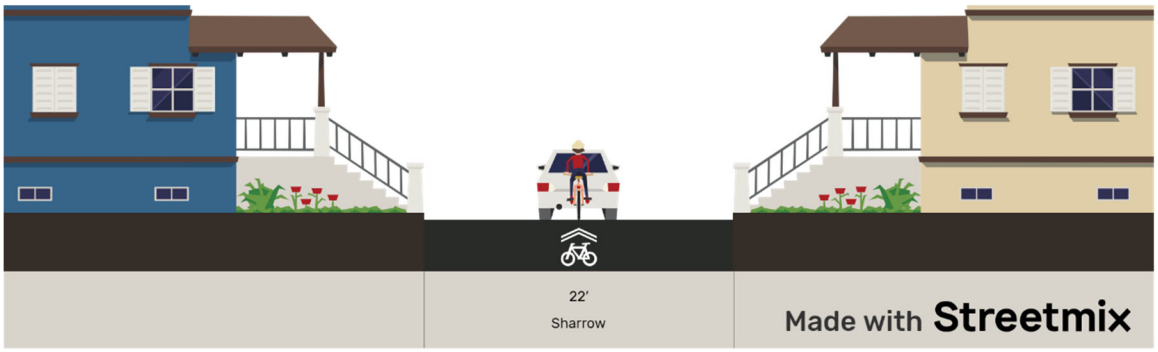
Figure 6. Manzanita Bicycle Network



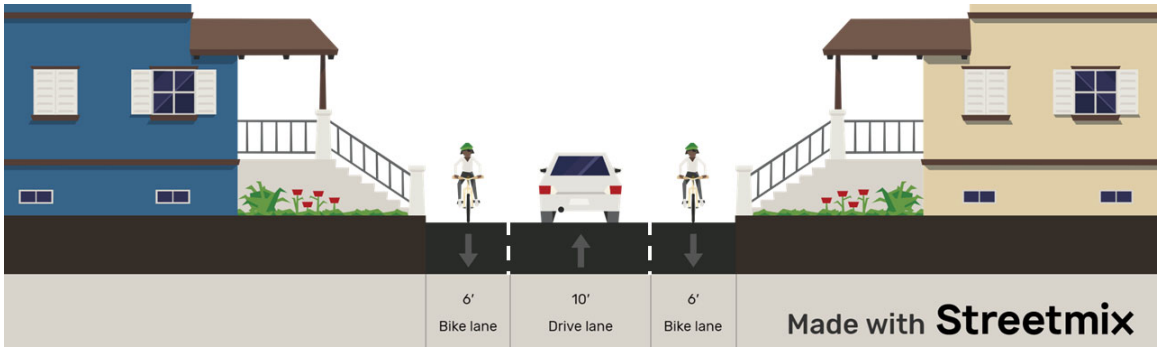
Manzanita Separated Bicycle Facility Cross-Section



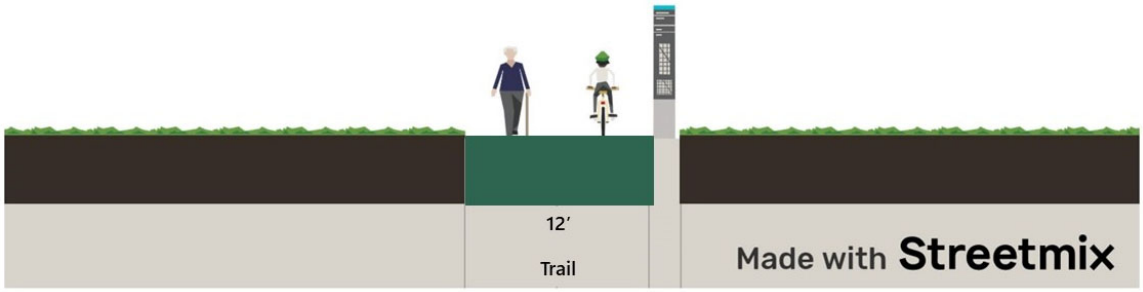
Manzanita Sharrow Cross-Section



Manzanita Advisory Bike Lane Cross-Section



Manzanita Trail Cross-Section



Traffic Impact Analysis Guidelines

The City or other road authority with jurisdiction may require a Traffic Impact Analysis (TIA) as part of an application for development, a change in use, or a change in access. A TIA shall be required where a change of use or a development would involve one or more of the following:

1. A change in zoning or a plan amendment designation;
2. Operational or safety concerns documented in writing by a road authority;
3. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more;
4. An increase in peak hour volume of a particular movement to and from a street or highway by 20 percent or more;
5. An increase in the use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day;
6. Existing or proposed approaches or access connections that do not meet minimum spacing or sight distance requirements or are located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, creating a safety hazard;
7. A change in internal traffic patterns that may cause safety concerns; or
8. A TIA required by ODOT pursuant to OAR 734-051.

A professional engineer registered by the State of Oregon, in accordance with the requirements of the road authority, shall prepare the Traffic Impact Analysis.

Mobility Standards

The City of Manzanita does not currently have any adopted mobility standards. It is recommended that the City consider adopting mobility standards for vehicles. As the City does not have any signalized intersections, mobility targets that rely on both volume-to-capacity ratio (v/c) and intersection level of service (LOS) are recommended.

The v/c ratio is a mathematical calculation of the amount of capacity that is used at the intersection at a point in time. A v/c ratio of 1.0 indicates that the intersection is "at capacity." As the v/c ratio approaches 1.0, it is typically an indication of increased congestion. For signalized intersections, the average v/c for all approaches is reported. For unsignalized intersections, the movement with the highest v/c is used.

Level of service (LOS) is a standard method for characterizing delay at an intersection. For all-way stop controlled (AWSC) intersections, the LOS is based on the average delay for all approaches. For two-way stop controlled (TWSC) intersections, the movement with the highest delay is used.

The following mobility standards are recommended for intersections within the City of Manzanita:

- All-Way Stop or Yield Control – LOS D and v/c ≤ 0.90, reported for the worse approach
- Two-Way Stop – LOS E and v/c ≤ 0.95, reported for the worst major/worst minor approach

Nehalem

This section documents the transportation standards and proposed updates for roadways under the jurisdiction of Nehalem.

Roadway Functional Classification System

Figure 7 shows the roadway classification system in the City of Nehalem, while Error! Reference source not found. defines each roadway functional class.

Within Nehalem, U.S. 101 is designated as a Special Transportation Area (STA). STAs, first created as part of Policy 1B in the OHP and later adopted in the ODOT HDM, designate districts of compact development located on a state-owned roadway where local access outweighs the considerations for highway mobility. State-owned roadways with an STA designation should facilitate mobility for people walking, bicycling, and taking transit to connect to local destinations in addition to serving regional through-trips.

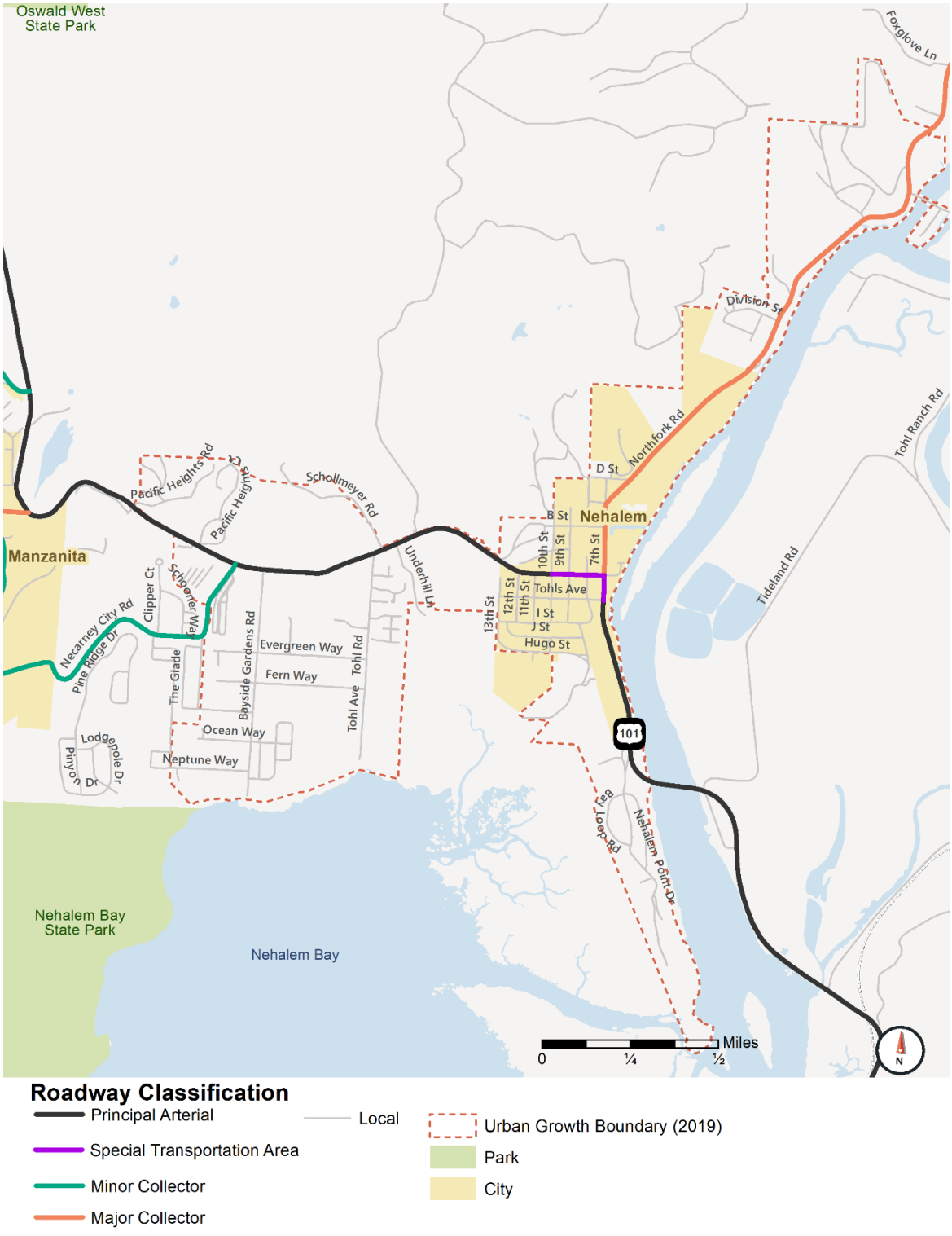
When determining the needs that must be met by a specific road, relying on the surrounding land use context results in a context-sensitive approach to determining the appropriate cross-section and facilities that should be incorporated in a specific roadway. Based on the six urban contexts, with the term urban applying to any area within an UGA, the area surrounding U.S. 101 in Nehalem is identified as Rural Community. This land use context was used to identify the appropriate elements and dimensions for U.S. 101, identified as a Principal Arterial, within Nehalem. The recommended elements and dimensions are shown in Error! Reference source not found..

Table 7. Nehalem Roadway Standards by Functional Class

Functional Class	Pedestrian Realm	Transition Realm			Travelway Realm		
	Sidewalk	Bicycle Facilities	Buffer Zone	Minimum On-Street Parking Width	Number of Travel Lanes	Minimum Lane Width	Median/ Center Turn Lane
Principal Arterial[1]	5 to 9 feet	5 to 6 feet	2 to 4 feet	8 feet	2	11 to 12 feet	11 to 12 feet
Major Collector	6 feet	6 feet	2 feet	None	2	12 feet	None
Local[2,3]	None	Advisory Bike Lanes or Sharrows	None	None	1	22 feet	None

4. As the only Principal Arterial in Nehalem is U.S. 101, which is under the jurisdiction of ODOT, values presented above are consistent with recommendations for a Rural Community roadway with a Tier 1 Bikeway based on guidance in the ODOT HDM. Widths shown provide a range of options based on local context consistent with the HDM.
5. While local roadways only require one lane, the width would allow for two-way travel.
6. The Nehalem Bicycle Network Map (Figure 9) identifies the appropriate bicycle facilities for local roadways.

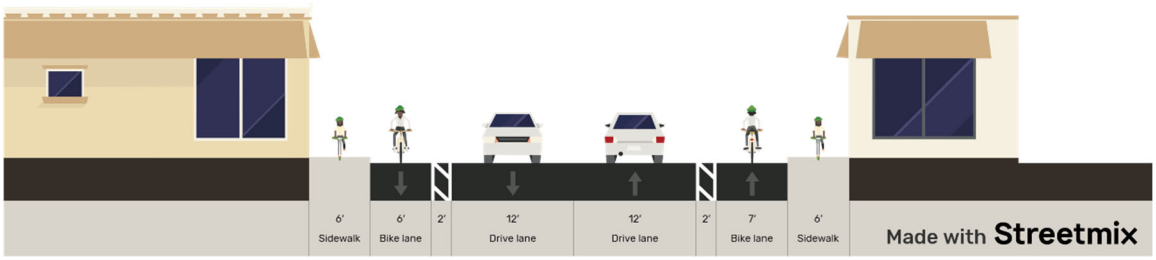
Figure 7. Nehalem Roadway Functional Classification



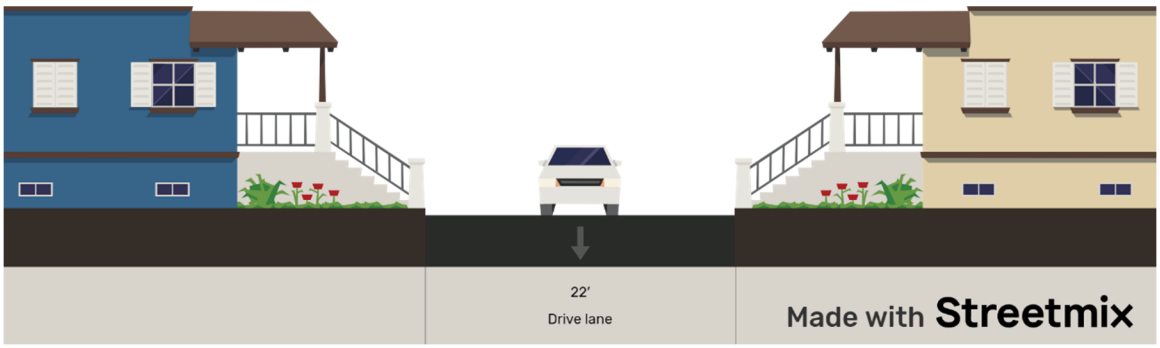
Standard Roadway Cross-Sections

This section presents the standard roadway cross-sections for the two functional classes within the City of Nehalem.

Nehalem Major Collector Cross-Section



Nehalem Local Roadway Cross-Section



Access Spacing Standards

To balance the need for access with safety for all travelers and improve connections for people walking and biking, it is recommended that the City adopt updated access and spacing standards that would apply to new roadways or developing properties to the extent that it is practical, as determined by City staff. As access and spacing standards for U.S. 101 are documented in the section above, these standards would only apply to streets designated as collectors or local streets.

Table 8: Nehalem Access & Spacing Standards

Functional Class	Maximum Block Length	Minimum Block Length	Minimum Driveway Spacing	Minimum Intersection Set Back
Major Collector	1,000 feet	200 feet	100 feet	150 feet
Local	1,000 feet	125 feet	None	25 feet

Bicycle & Pedestrian Networks

This section documents the planned networks for people walking and bicycling within the city of Nehalem, including facility types and standards for the pedestrian and bicycle networks.

Pedestrian Facilities

Within Nehalem, there are two key streets where dedicated space for pedestrians are needed to connect people to key destinations: U.S. 101 and 9th Street, as shown on

The proposed cross-section for U.S. 101, including the appropriate pedestrian realm, is provided in the Standard Roadway Cross-Sections above. For local streets, the proposed cross-section is shown below.

The American with Disabilities Act (ADA) requires that transportation facilities accommodate the needs of people with varying abilities. By building a pedestrian network that meets the needs of people with varying abilities improves accessibility and results in a high-quality system for all users. To achieve this, the City of Nehalem should incorporate the following features when building new sidewalks or improving existing sidewalks:

- Ensure that sidewalks are free of obstructions. While objects up to 27 inches above the ground can be detected by a white cane, objects between 27 and 80 inches in the pedestrian circulation area may cause injury to blind and low vision users. If objects must protrude into the pedestrian circulation area, detectable delineation to warn users should be provided.
- Provide yellow detectable warning surfaces at curb ramps, railroad crossings, and transit stops.
- Design sidewalks to include firm and level surfaces, adequate clear width, and limited cross-slope.
- Provide an accessible sloped entrance and exit to transition to and from the walkway where the facility begins and ends.

, below.

U.S. 101 is a key pedestrian corridor connecting people to downtown Nehalem and the Nehalem River. 9th Street has been identified as a key pedestrian connection due to its direct connection from residential areas south of U.S. 101 to the Nehalem Grade School and safety issues related to the high numbers of pedestrians visiting Wanda's, the post-office, and Nehalem Lumber, all located at U.S. 101 and 9th Street.

The proposed cross-section for U.S. 101, including the appropriate pedestrian realm, is provided in the Standard Roadway Cross-Sections above. For local streets, the proposed cross-section is shown below.

The American with Disabilities Act (ADA) requires that transportation facilities accommodate the needs of people with varying abilities. By building a pedestrian network that meets the needs of people with varying abilities improves accessibility and results in a high-quality system for all users. To achieve this, the City of Nehalem should incorporate the following features when building new sidewalks or improving existing sidewalks:

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- Provide yellow detectable warning surfaces at curb ramps, railroad crossings, and transit stops.
- Design sidewalks to include firm and level surfaces, adequate clear width, and limited cross-slope.
- Provide an accessible sloped entrance and exit to transition to and from the walkway where the facility begins and ends.

Nehalem Local Road with Pedestrian Facility Cross-Section

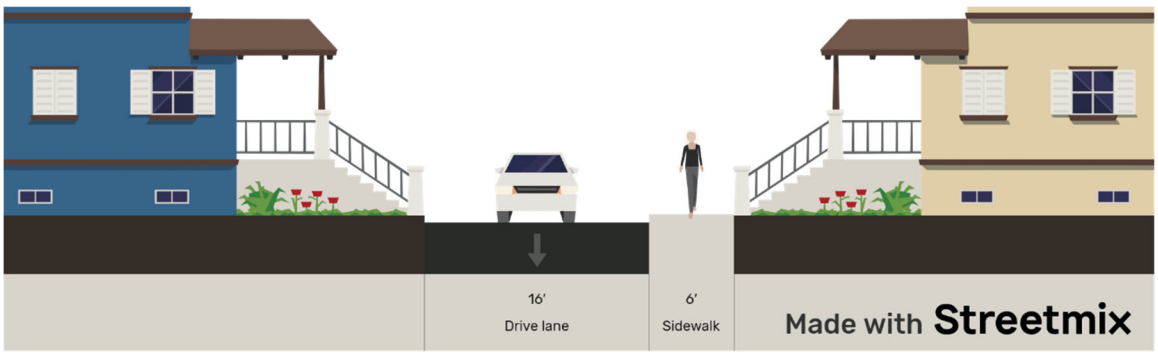


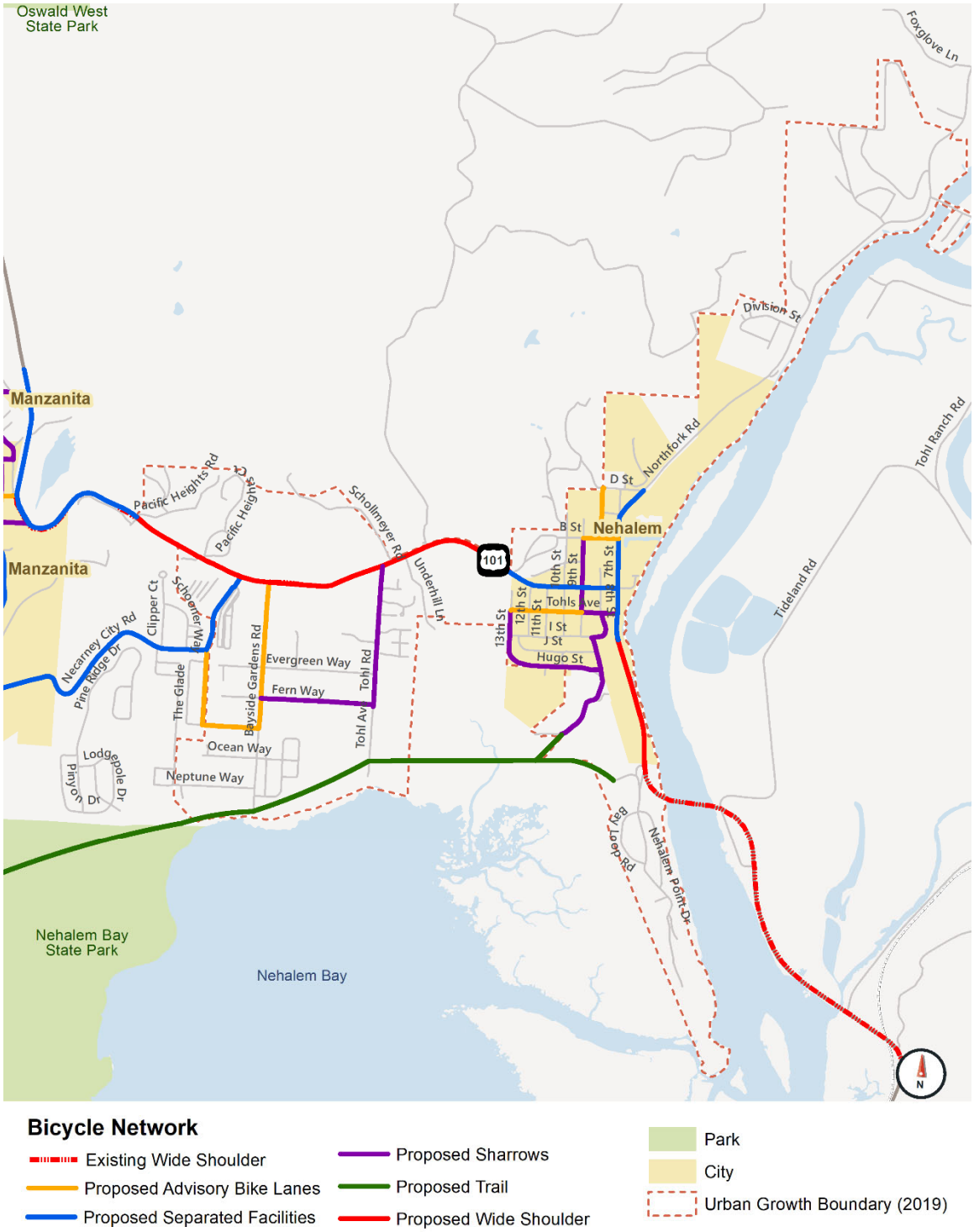
Figure 8. Nehalem Pedestrian Network

Bicycle Facilities

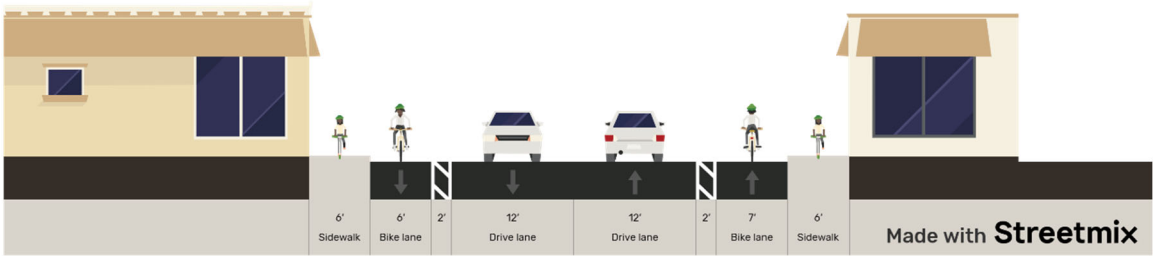
The bicycle network within the City of Nehalem relies on four types of facilities:

- **Separated Bike Lane:** Separated Bike Lanes are part of the street that is designated for bicycle travel, and in some cases pedestrian travel, which are separated from vehicles by a street buffer that contains a vertical element (e.g curb, parking, or bollards).
- **Sharrows:** These are quiet slow streets that prioritize bicycles and automobiles. The shared lane marking (sharrows) indicate that bicycles and automobiles should share the lanes and are typically used when there is a sidewalk or other space allocated for people walking and to complete the bicycle network.
- **Advisory Bike Lanes:** These are quiet slow streets that prioritize bicycles and pedestrians. A shoulder, available for use by bicyclists and pedestrians, is delineated by striping allowing for vehicles to use the shoulder when no pedestrians or bicyclists are present to pass oncoming vehicles.
- **Trails:** Trails, which are typically constructed using a soft-surface and used for recreational travel provide a space for people walking and bicyclists. Trails have dedicated right-of-way and connect people between regional destinations. While trails may parallel a roadway, they may also create a new connection for people walking and bicycling.

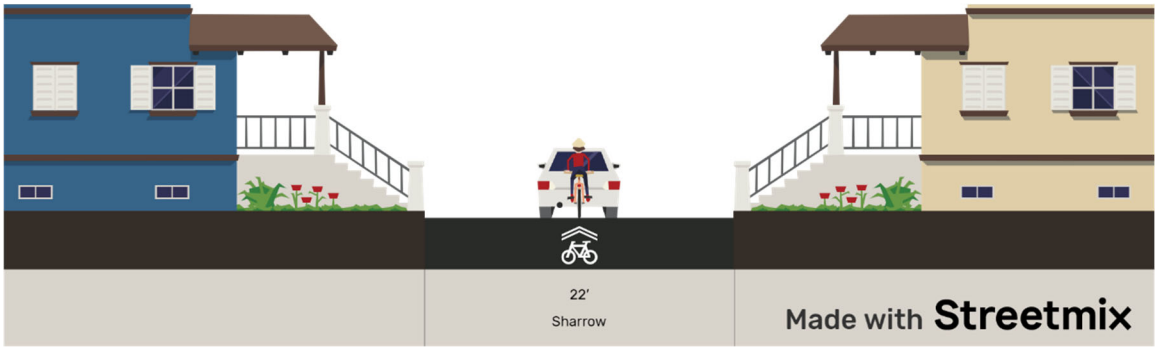
Figure 9. Nehalem Bicycle Network



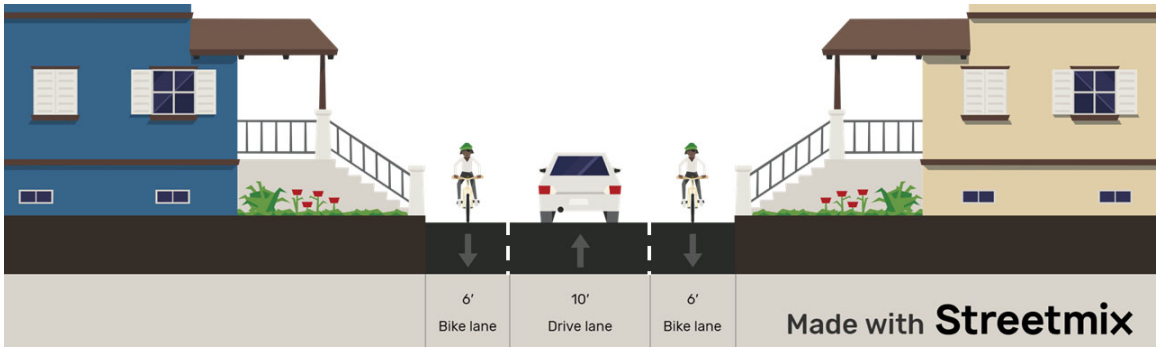
Nehalem Separated Bicycle Facility Cross-Section



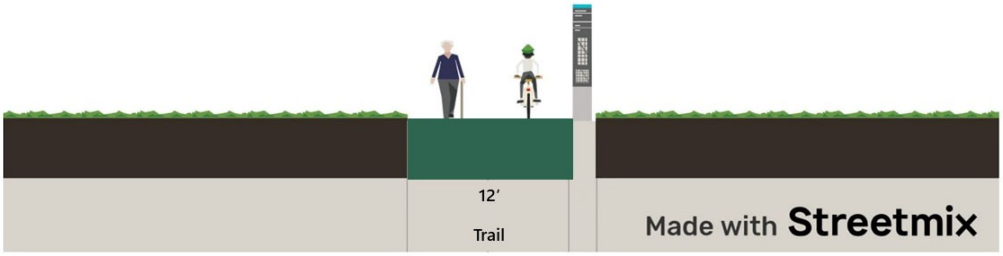
Nehalem Sharrow Cross-Section



Nehalem Advisory Bike Lane Cross-Section



Nehalem Trail Cross-Section



Traffic Impact Analysis Guidelines

The City or other road authority with jurisdiction may require a Traffic Impact Analysis (TIA) as part of an application for development, a change in use, or a change in access. A TIA shall be required where a change of use or a development would involve one or more of the following:

1. A change in zoning or a plan amendment designation;
2. Operational or safety concerns documented in writing by a road authority;
3. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more;
4. An increase in peak hour volume of a particular movement to and from a street or highway by 20 percent or more;
5. An increase in the use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day;
6. Existing or proposed approaches or access connections that do not meet minimum spacing or sight distance requirements or are located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, creating a safety hazard;
7. A change in internal traffic patterns that may cause safety concerns; or
8. A TIA required by ODOT pursuant to OAR 734-051.

A professional engineer registered by the State of Oregon, in accordance with the requirements of the road authority, shall prepare the Traffic Impact Analysis.

Mobility Standards

The City of Nehalem does not currently have any adopted mobility standards. It is recommended that the City consider adopting mobility standards for vehicles. As the City does not have any signalized intersections, mobility targets that rely on both volume-to-capacity ratio (v/c) and intersection level of service (LOS) are recommended.

The v/c ratio is a mathematical calculation of the amount of capacity that is used at the intersection at a point in time. A v/c ratio of 1.0 indicates that the intersection is "at capacity." As the v/c ratio approaches 1.0, it is typically an indication of increased congestion. For signalized intersections, the average v/c for all approaches is reported. For unsignalized intersections, the movement with the highest v/c is used.

Level of service (LOS) is a standard method for characterizing delay at an intersection. For all-way stop controlled (AWSC) intersections, the LOS is based on the average delay for all approaches. For two-way stop controlled (TWSC) intersections, the movement with the highest delay is used.

The following mobility standards are recommended for intersections within the City of Nehalem:

- All-Way Stop or Yield Control – LOS D and v/c ≤ 0.90, reported for the worse approach
- Two-Way Stop – LOS E and v/c ≤ 0.95, reported for the worst major/worst minor approach

Wheeler

This section documents the transportation standards and proposed updates for roadways under the jurisdiction of Wheeler.

Roadway Functional Classification System

Figure 10 shows the roadway classification system in the City of Nehalem, while Error! Reference source not found. defines each roadway functional class.

Within Wheeler, U.S. 101 is designated as a Special Transportation Area (STA). STAs, first created as part of Policy 1B in the OHP and later adopted in the ODOT HDM, designate districts of compact development located on a state-owned roadway where local access outweighs the considerations for highway mobility. State-owned roadways with an STA designation should facilitate mobility for people walking, bicycling, and taking transit to connect to local destinations in addition to serving regional through-trips.

When determining the needs that must be met by a specific road, relying on the surrounding land use context results in a context-sensitive approach to determining the appropriate cross-section and facilities that should be incorporated in a specific roadway. Based on the six urban contexts, with the term urban applying to any area within an UGA, the area surrounding U.S. 101 in Wheeler is identified as Rural Community. This land use context was used to identify the appropriate elements and dimensions for U.S. 101, identified as a Principal Arterial, within Nehalem. The recommended elements and dimensions are shown in Error! Reference source not found.. As the Salmonberry Trail, which is included in the TSP as a high-priority regional project, will ultimately provide a low-stress alternative for people bicycling through Wheeler, a Tier 2 facility is proposed on U.S. 101. Until the Salmonberry Trail is constructed, 1st Street, which parallels U.S. 101 from Hall Street to just south of the city limits, could be designated as a low-stress parallel route as it is a low-speed local street.

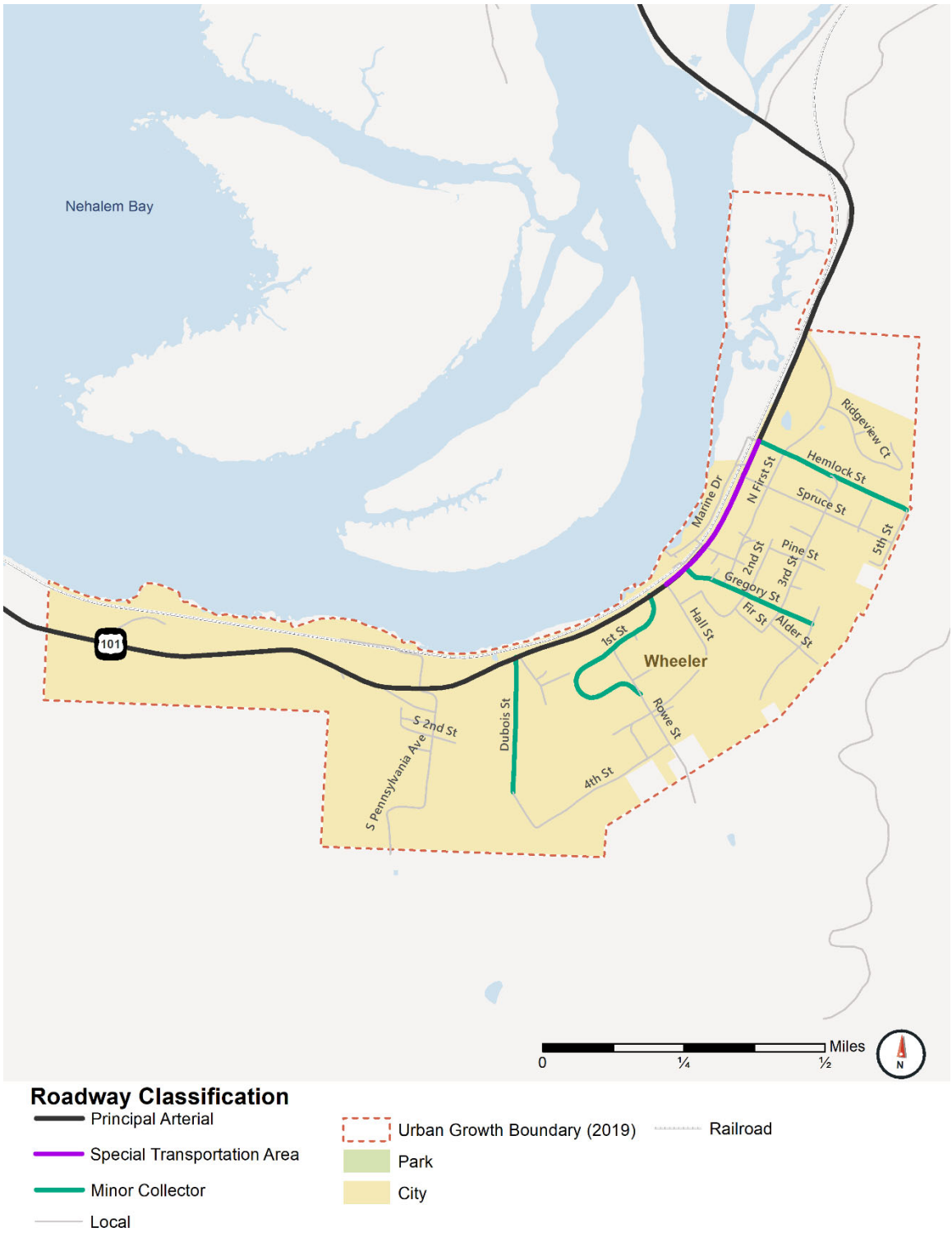
The TSP also proposes to add Private Streets to Wheeler's functional classifications. These streets would be a sub-class of Local Streets that provide connections to either specific properties or a small number of residences and could be built to provide minimal infrastructure, as long as emergency access standards are met. As these streets would not be maintained by the City, they are not addressed in the TSP.

Table 9: Wheeler Roadway Standards by Functional Class

Functional Class	Pedestrian Realm	Transition Realm			Travelway Realm		
	Sidewalk	Bicycle Facilities	Buffer Zone	Minimum On-Street Parking Width	Number of Travel Lanes	Minimum Lane Width	Median/ Center Turn Lane
Principal Arterial[1]	6 feet	6 feet	-	8 feet	2	11 to 12 feet	11 to 12 feet
Minor Collector[3]	6 feet	Sharrows or Advisory Bike Lanes	None	None	2	11 feet	None
Local[2,3]	None	None or Advisory Bike Lanes	None	None	1	22 feet	None

1. As the only Principal Arterial in Wheeler is U.S. 101, which is under the jurisdiction of ODOT, values presented above are consistent with recommendations for a Rural Community roadway based on guidance in the ODOT HDM. Widths shown provide a range of options based on local context consistent with the HDM. As 1st Street provides a low-stress alternative to U.S. 101 today and the planned Salmonberry Trail will provide an off-street alternative route, the cross-section recommendations above are consistent with a Tier 2 Bikeway.
2. While local roadways only require one lane, the width would allow for two-way travel.
3. The Wheeler Bicycle Network Map (Figure 12) identifies the appropriate bicycle facilities for Minor Collectors and Local roadways in the City.

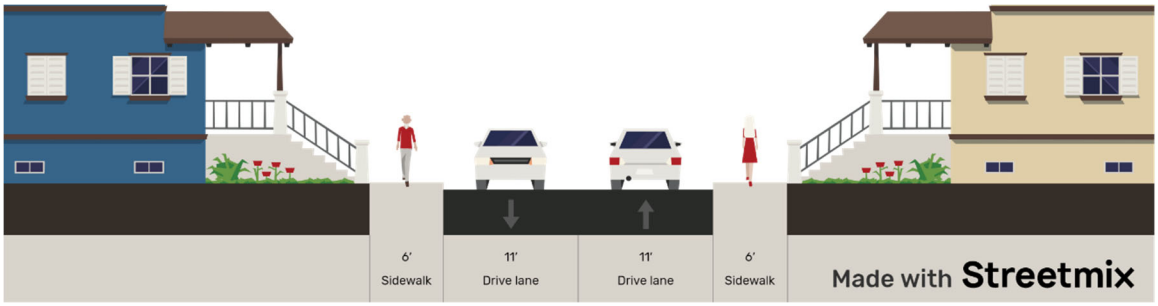
Figure 10. Wheeler Roadway Functional Classification



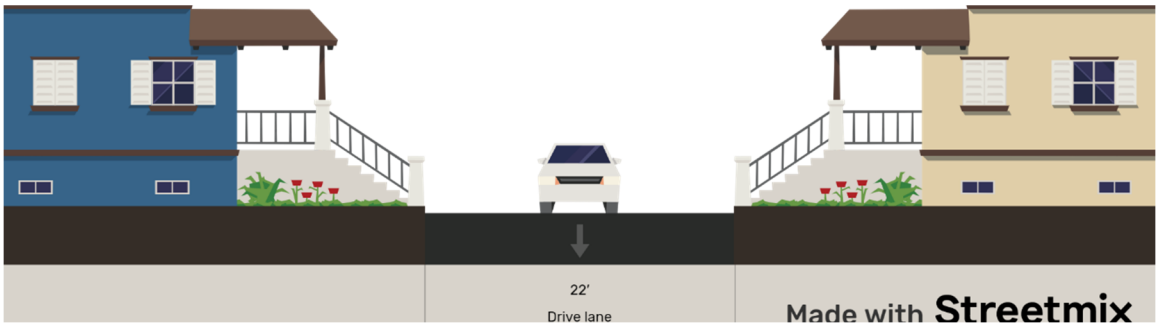
Standard Roadway Cross-Sections

This section presents the standard roadway cross-sections for the three functional classes within the City of Wheeler.

Wheeler Minor Collector Cross-Section



Wheeler Local Roadway Cross-Section



Access Spacing Standards

To balance the need for access with safety for all travelers and improve connections for people walking and biking, it is recommended that the City adopt updated access and spacing standards that would apply to new roadways or developing properties to the extent that it is practical, as determined by City staff. As access and spacing standards for U.S. 101 are documented in the section above, these standards would only apply to streets designated as minor collector or local streets within the City of Wheeler.

Table 10: Wheeler Access & Spacing Standards

Functional Class	Maximum Block Length	Minimum Block Length	Minimum Driveway Spacing	Minimum Intersection Set Back
Minor Collector	1,000 feet	200 feet	100 feet	150 feet
Local	1,000 feet	150 feet	None	75 feet

Bicycle & Pedestrian Networks

This section documents the planned networks for people walking and bicycling within the city of Wheeler, including facility types and standards for the pedestrian and bicycle networks.

Pedestrian Facilities

Within the City of Wheeler, U.S. 101 is identified as the primary connection for people walking. The proposed cross-section for U.S. 101, including the appropriate pedestrian realm, is provided in the Standard Roadway Cross-Sections above.

The American with Disabilities Act (ADA) requires that transportation facilities accommodate the needs of people with varying abilities. By building a pedestrian network that meets the needs of people with varying abilities improves accessibility and results in a high-quality system for all users. To achieve this, the City of Wheeler should incorporate the following features when building new sidewalks or improving existing sidewalks:

- Ensure that sidewalks are free of obstructions. While objects up to 27 inches above the ground can be detected by a white cane, objects between 27 and 80 inches in the pedestrian circulation area may cause injury to blind and low vision users. If objects must protrude into the pedestrian circulation area, detectable delineation to warn users should be provided.
- Provide yellow detectable warning surfaces at curb ramps, railroad crossings, and transit stops.
- Design sidewalks to include firm and level surfaces, adequate clear width, and limited cross-slope.
- Provide an accessible sloped entrance and exit to transition to and from the walkway where the facility begins and ends.

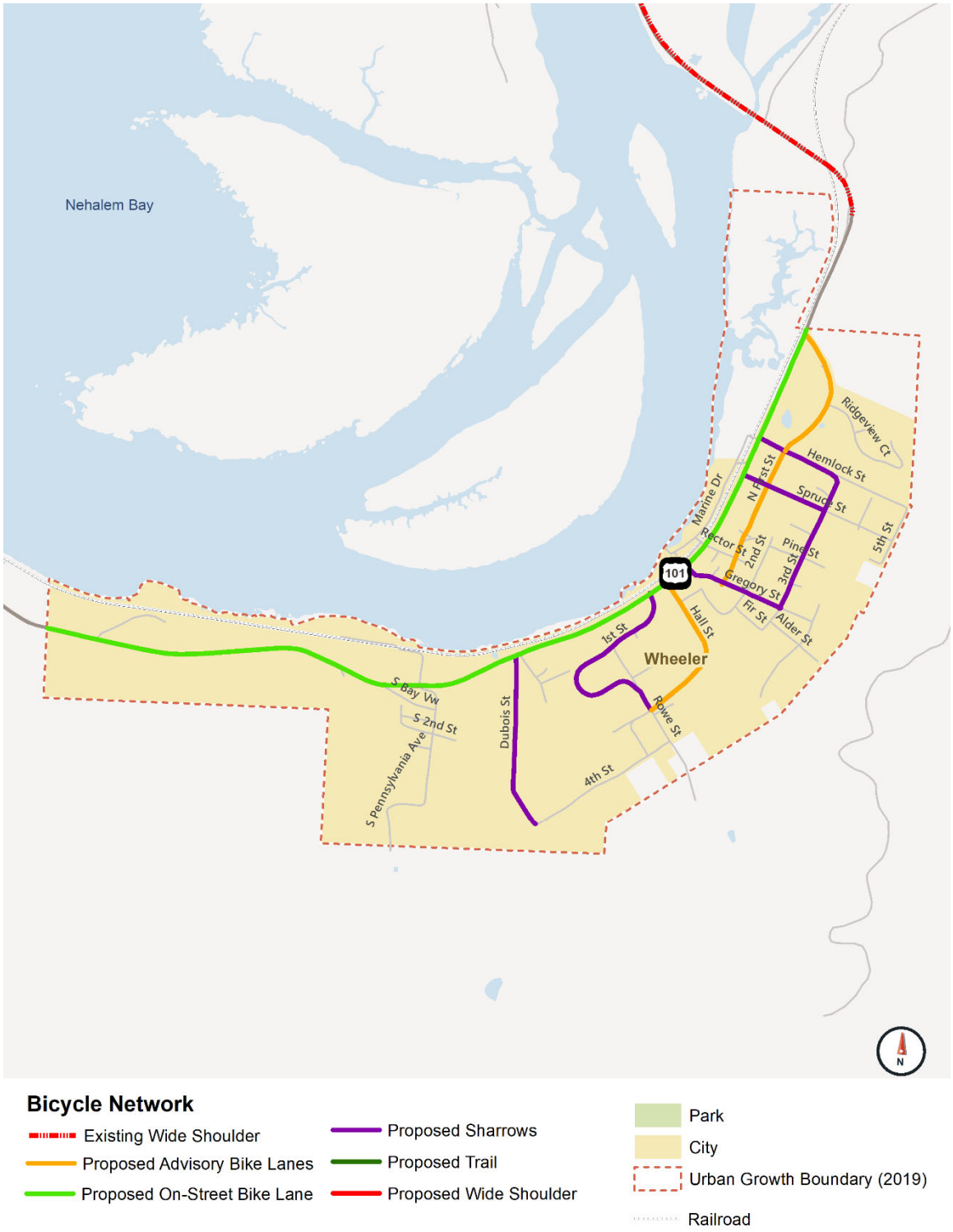
Figure 11. Wheeler Pedestrian Network

Bicycle Facilities

The bicycle network within the City of Wheeler relies on four types of facilities:

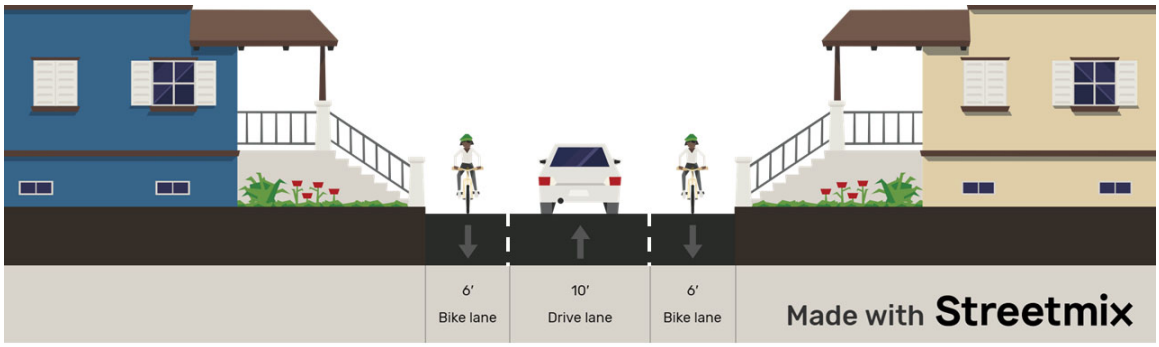
- **Sharrows:** These are quiet slow streets that prioritize bicycles and automobiles. The shared lane marking (sharrows) indicate that bicycles and automobiles should share the lanes and are typically used when there is a sidewalk or other space allocated for people walking and to complete the bicycle network.
- **On-Street Bike Lane:** On-Street Bike Lanes are part of the street that is designated for bicycle travel but are not separated from vehicles by a vertical street buffer.
- **Advisory Bike Lanes:** These are quiet slow streets that prioritize bicycles and pedestrians. A shoulder, available for use by bicyclists and pedestrians, is delineated by striping allowing for vehicles to use the shoulder when no pedestrians or bicyclists are present to pass oncoming vehicles.
- **Trails:** Trails, which are typically constructed using a soft-surface and used for recreational travel provide a space for people walking and bicyclists. Trails have dedicated right-of-way and connect people between regional destinations. While trails may parallel a roadway, they may also create a new connection for people walking and bicycling.

Figure 12. Wheeler Bicycle Network

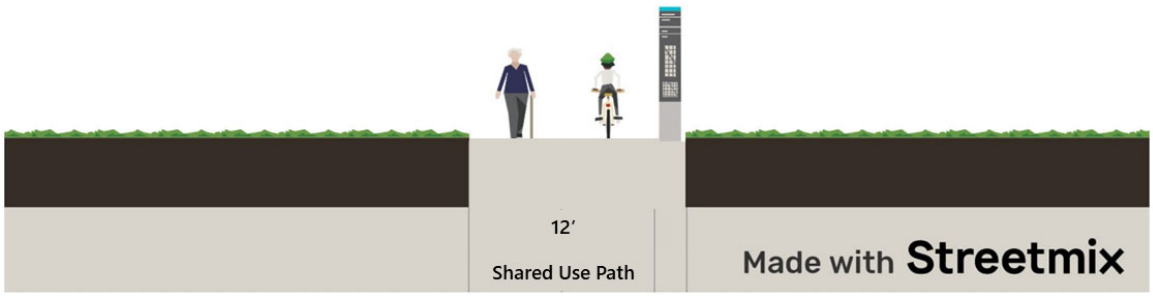


Wheeler Sharrow Cross-Section

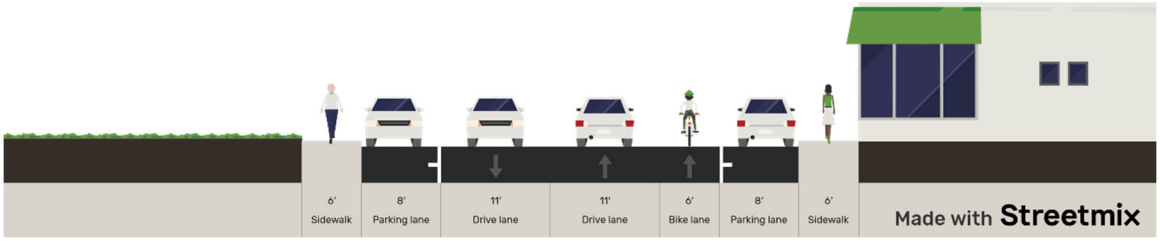
Wheeler Advisory Bike Lanes Cross-Section



Wheeler Shared Use Path Cross-Section



Wheeler On-Street Bike Lane Cross-Section



Traffic Impact Analysis Guidelines

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1. A change in zoning or a plan amendment designation;
2. Operational or safety concerns documented in writing by a road authority;
3. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more;
4. An increase in peak hour volume of a particular movement to and from a street or highway by 20 percent or more;
5. An increase in the use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day;
6. Existing or proposed approaches or access connections that do not meet minimum spacing or sight distance requirements or are located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, creating a safety hazard;
7. A change in internal traffic patterns that may cause safety concerns; or
8. A TIA required by ODOT pursuant to OAR 734-051.

A professional engineer registered by the State of Oregon, in accordance with the requirements of the road authority, shall prepare the Traffic Impact Analysis.

Mobility Standards

The City of Wheeler does not currently have any adopted mobility standards. It is recommended that the City consider adopting mobility standards for vehicles. As the City does not have any signalized intersections, mobility targets that rely on both volume-to-capacity ratio (v/c) and intersection level of service (LOS) are recommended.

The v/c ratio is a mathematical calculation of the amount of capacity that is used at the intersection at a point in time. A v/c ratio of 1.0 indicates that the intersection is "at capacity." As the v/c ratio approaches 1.0, it is typically an indication of increased congestion. For signalized intersections, the average v/c for all approaches is reported. For unsignalized intersections, the movement with the highest v/c is used.

Level of service (LOS) is a standard method for characterizing delay at an intersection. For all-way stop controlled (AWSC) intersections, the LOS is based on the average delay for all approaches. For two-way stop controlled (TWSC) intersections, the movement with the highest delay is used.

The following mobility standards are recommended for intersections within the City of Wheeler:

- All-Way Stop or Yield Control – LOS D and v/c ≤ 0.90, reported for the worse approach
- Two-Way Stop – LOS E and v/c ≤ 0.95, reported for the worst major/worst minor approach

Nehalem Bay TSP

TECHNICAL MEMO 11 | ALTERNATIVE MOBILITY TARGETS

FEHR PEERS

Technical Memo #11

Alternative Mobility Targets
December 19, 2022 – FINAL

Prepared by Fehr & Peers

Introduction

The Highway Mobility Policy, documented in the Oregon Highway Plan (OHP), establishes state highway and mobility targets that align with the objectives of the Oregon Transportation Plan (OTP) and other policies documented in the OHP.

The highway mobility targets, which measure vehicular mobility on state highways, are used to inform transportation system plans (TSPs), plan amendments and development review, and operations decisions. In the OHP, targets are set based on expectations for specific facility types, locations, and functional objectives.

If a community finds that meeting the mobility target as stated in the OHP is infeasible or impractical through the development of a TSP, the community may explore different target levels, methodologies and measures for assessing mobility, and consider adopting alternative mobility targets for the facility.

The remainder of this technical memorandum describes the current mobility targets on state highways within the study area and the need for alternative mobility targets.

Current Mobility Targets

The operational standards for state highways are based on volume to capacity (v/c) ratio targets. Because Nehalem Bay is located outside the Portland Metro, the applicable standards are identified in Table 6 of the OHP. The targets applicable to U.S. 101 within the Nehalem Bay study area are presented in **Table 1**.

Table 1: US 101 Mobility Targets

Highway Category	Posted Speed <=35 MPH	Posted Speed >35 MPH but <45 MPH	Posted Speed >= 45 MPH	Outside Urban Growth Boundary
Freight Route on a Statewide Highway	0.85	0.80	0.80	0.70

Source: OHP, Table 6

Conclusions

Operations analysis completed for existing conditions and the 20-year planning horizon did not identify any locations in the study area where the mobility targets in **Table 1** above would be exceeded. As such, alternative mobility targets were not evaluated or proposed as part of this TSP.

Nehalem Bay TSP

TECHNICAL MEMO 12 | IMPLEMENTING ORDINANCE

FEHR PEERS

memorandum

Date: December 23, 2022 (Revised March 8, 2023)

To: Project Management Team

From: Darci Rudzinski, Clinton "CJ" Doxsee, and Brandon Crawford, MIG | APG

Subject: Technical Memorandum #12: Nehalem Bay Transportation System Plan Implementing Ordinance

Introduction

This memorandum provides recommendations for the cities of Manzanita's, Nehalem's, and Wheeler's regulations to incorporate the goals, objectives, and improvements identified in the Nehalem Bay Transportation System Plan (TSP) update.

The TSP update planning process will comprehensively update each city's current TSP. The updated TSPs establish each city's goals and objectives for developing and improving the transportation system through the year 2040. The updated TSP will address transportation-related issues for areas within each jurisdiction's urban growth boundary (UGB).

Recommendations identified in this memorandum include updated policies in each jurisdictions' comprehensive plan and modifications in the development ordinances (zoning/development codes) that will implement TSP recommendations over time, through future development. The recommended amendments are intended to be consistent with and implement the updated TSPs , as well as the Oregon Transportation Planning Rule (OAR 660, Division 12, or "TPR").

Each city will need to amend its land use regulations to implement updated transportation standards and to achieve the TSP's goals and objectives. These are achieved through a variety of measures, including street classifications with corresponding design standards and access control measures; pedestrian and bicycle circulation design and connectivity provisions; minimum parking requirements; and regulations and procedures protecting the function and capacity of roadways.

Recommendations Overview

The following section summarizes recommendations for each city to assist with implementing their respective updated TSP, including updating comprehensive plan transportation policy and development requirements for each city.

Each city should consider the following adoption actions:

- Comprehensive Plan – Each city should have policies in its adopted plan that support the TSP transportation improvements and recommendations. Transportation policy statements are addressed in the comprehensive plans for Manzanita, Nehalem, and Wheeler. It is recommended that each city adopt new or updated transportation policies as part of the respective transportation elements in each comprehensive plan. This can be accomplished as an amendment to the adopted comprehensive plan document or through an update of its TSP, the transportation element of the comprehensive plan.
- Development Code/Ordinance – Each city includes a development code/ordinance that includes requirements to help further regional and local transportation policy objectives and implement the TSP recommendations. To assist each city in implementing the updated TSP, this memorandum summarizes code amendment recommendations.

The following sections provide more detail related to transportation policy and development code recommendations specific to each city.

Manzanita

Comprehensive Plan Recommendations

Transportation policy statements are reflected in the City of Manzanita's Comprehensive Plan. Updated policy statements recommended for Manzanita echo the goals and objectives developed for the TSP project early in the planning process. To achieve this, this memorandum recommends the following Comprehensive Plan amendment actions:

- Revise the Comprehensive Plan's Transportation and Public Facilities and Services elements to incorporate project goals and objectives.
- Adopt the Transportation System Plan by reference to serve as the transportation element of the Comprehensive Plan.

Comprehensive Plan

To ensure policy consistency, the Manzanita Comprehensive Plan should be updated to incorporate the TSP's goals and objectives. Transportation policies are addressed in the Comprehensive Plan's Transportation and Public Facilities and Services elements. These policies should be modified to incorporate the goals and objectives of the TSP.

Recommended Amendments

Recommended policy language that incorporates the TSP's goals and objectives is provided below. Recommended additions are shown using underline formatting and recommended deletions are shown using ~~strikeout~~ formatting.

> (LCDC GOAL 12)
>
> TRANSPORTATION
>
> POLICIES:
>
> Transportation planning in Manzanita includes cars and trucks, commercial buses, the senior citizen bus, bicycles and walking. The street system is described in the public facilities section of the plan. ~~In addition, improvements along Highway 101, Classic Street and Laneda Avenue are included in the adopted Downtown Transportation Plan, Section 4. (Amended by Ord. 03-05, passed July 9, 2003)~~ Additional policies concerning the transportation system are:

1. Efforts to reduce speeding on Laneda Avenue should be carried out by the city. This should take the form of maintaining a low speed (20 MPH), requesting that the City police and Tillamook County Sheriff's Department maintain a high level of enforcement and installing appropriate warning signs. (Amended by Ord.14-02; passed on April 9, 2014)

~~2. Sufficient pavement width should be included on all major streets or roads to accommodate bicycle traffic. Facilities such as bicycle racks should be considered in the city park and downtown area.~~

~~3. The city traffic management plan should be used as a guide for the installation of traffic signs, crosswalks, and other street improvements. The plan should be communicated to the county for their participation on county roads, and should be updated on a regular basis. . In addition, crosswalks and other improvements on Highway 101, Classic Street and Laneda Avenue are included in the adopted Downtown Transportation Plan, Section 4. (Amended by Ord. 03-05, passed July 9, 2003)~~

~~4.~~2. Crosswalks in the downtown commercial area should be a high priority for the city. Consideration should be given to the installation of planters or other landscaping devices in conjunction with the crosswalks.

~~5.~~3. The city and state shall cooperate to retain the airport at Nehalem Bay State Park. It is the position of the city that the airport should be surfaced, that "T-Hangers" should be installed, and that a caretaker should be stationed at the airport. It is the goal of the city that the facility be improved for existing traffic rather than expanded.

~~6.~~4. The city and state shall cooperate to limit the number of accesses onto U.S. Highway 101 to as few as possible. No new accesses shall be permitted north of Laneda, or in other locations where traffic visibility is limited.

~~7.~~5. The city will work with the Oregon Department of Transportation to coordinate plans and projects particularly through the Oregon Transportation Plan and the US Highway 101 Corridor Study. Specifically, the city wishes to have direct input into highway improvement plans on U.S. Highway lol in the vicinity of the city, and on future uses of the unused highway right-of-way.

~~8.~~6. The City discourages property owners from improving street rights-of-way with landscaping, driveways, walkways and similar projects, especially in the vicinity of water, sewer, and storm drainage lines. All parking required by the zoning ordinance must be useable by the property owners, generally not exceeding 10% grade from the street.

7. The city will support equitable access for underserved and vulnerable populations through compliance with ADA standards for new transportation infrastructure improvements and upgrades to existing infrastructure that does not meet ADA standards.

8. The city will support the development of planned regional bicycle and pedestrian trails, including the Salmonberry Trail, Oregon Coast Trail, and Tillamook County Water Trail.

9. The city will support streetscape improvements to improve downtown areas, including, but not limited to, improved landscaping pedestrian scale lighting, benches, bicycle racks, and street trees.

10. The city will support alternative travel modes that reduce vehicle travel between cities, including, but not limited to, regional shuttle services or water taxis.

11. The city should prioritize improvements to non-motorized routes that include pedestrian and bicycle facilities between Nehalem Bay communities.

12. The city should prioritize enhancing pedestrian and bicycle crossings on US 101 that connect businesses and recreational destinations with neighborhoods.

13. The city will support improvements that increase visibility of transportation users in constrained areas, such as hills and blind curves.

14. The city shall prioritize improvements that address known safety issues at locations with fatal or severe injury crashes, crashes involving bicyclists or pedestrian, and vehicles entering and exiting US 101.

15. The city will coordinate with ODOT to implement engineering and traffic calming strategies on US 101 to reduce vehicle speeds and are consistent with ODOT's Highway Design Manual and other local and regional planning efforts.

16. The city should maintain transportation infrastructure so that facilities can withstand extreme weather evens and aid in evacuation efforts.

17. The city will support improvements to traffic circulation and access for fire and emergency vehicles.

18. The city shall prioritize cost-effective transportation improvements.

19. The city should seek additional funding sources for transportation improvements, such as, but not limited to, grants, developer contributions, and transportation system charges.

20. The city should support partnerships that maximize the benefit and return on investment for associated costs when prioritizing transportation investments.

21. The city should support improvements that increase local vehicle circulation and encourage local traffic to use local roads.

22. The city should support non-motorized and transit connections from key destinations and the commercial core.

23. The city should prioritize bicycle and pedestrian facilities on arterials and collectors that enhance connections to local destinations.

24. The city should prioritize transportation and land use solutions that support all road-users in the downtown area and to/from residential areas to the downtown core and beach.

...

(LCDC Goal 11)

PUBLIC FACILITIES AND SERVICES

The demographic trends of North Tillamook County, and increasing costs of mandated regulations, encourages cooperation between communities relative to Public Facilities and Services.

STREET POLICIES

1. The cost of constructing streets in new subdivisions, planned developments, or in rights-of-way where no improved street exists shall be the responsibility of the developer or the adjacent property owners. The City shall share costs in the following way:

> A. On existing dedicated, but unimproved streets, which are arterials or feeders, the City will pay the difference in pavement width between the existing width and arterial or feeder width. On existing dedicated unimproved or underimproved residential streets, the abutting property owners shall pay all costs of the improvement.

B. Substantial improvement of existing street intersections shall be the responsibility of the City.

C. There shall be no city participation in bearing the cost of streets in subdivisions or planned developments. Owners wishing to build access to their property on unimproved rights-of-way must adhere to City Street Standards.

2. Asphaltic concrete pavement shall be required for all streets.

3. Storm drainage, as determined by the PWD, shall be required for all street improvements and construction.

4. Street right-of-way which cannot be improved due to steep topography, or other valid reason, should be used for other purposes, such as parks or open space, walking trails or greenbelts.

~~5. Street standards for the City of Manzanita are located in the Street Improvement Standards Ordinance and future improvements to intersections along US 101 are identified in the adopted Downtown Transportation Plan, Section 4. (Added by Ord. 03-05, passed July 9, 2003)~~

Transportation System Plan

The City of Manzanita does not have an adopted TSP that plans for the entire City..[1] The draft 2023 TSP is a comprehensive planning document for the entire City, inclusive of key improvements from the 2003 City of Manzanita Downtown Transportation Plan and should be adopted by reference. Once adopted, the 2023 TSP will serve as the transportation element of the Comprehensive Plan and provide the City with guidance on prioritizing and pursuing transportation improvements to support anticipated growth.

Code Update Recommendations

Code Update Summary

Table 1 summarizes Manzanita ordinance amendment recommendations and corresponding TPR references. Amendments to the following are intended to implement updated transportation standards and to be consistent with the TPR:

- Street Improvement Standards (Ord. #91-2)
- Zoning Ordinance (Ord. #95-4)

[1] City of Manzanita Downtown Transportation Plan (2003) addresses key transportation issues in the city center; improvements identified in that plan have been incorporated into the 2023 TSP.

- Subdivision Ordinance (Ord. #95-5)

Table 1: Manzanita Recommended Code Amendements

Reference Number	Ordinance Section	Proposed Amendments	Comments/TPR Citation
	Ordinance No. 91-2 Street Improvement Standards		
M.1	Section 3 Widths	Update street design standards and street classifications to be consistent with TSP recommendations.	Implements OAR 660-012-0045(2)(a) & 0045(7)
M.2	Section 3	Require bikeways and sidewalks along arterials and collectors.	Implements OAR 660-012-0045(3)(b)(B)
	Ordinance No. 95-4 Zoning		
M.3	Section 4.010	Update access and frontage width requirements per TSP recommendations. Add provisions for driveway, street, and intersection spacing standards.	Implements OAR 660-012-0045(2)(a)
M.4	Section 4.080	Add on-site bicycle and pedestrian access and circulation standards for parking areas over a certain size.	OAR 660-012-0045(3)(b)
M.5	Section 4.090	Add bicycle parking facility standards for all uses outlined in -0045(3)(a).	OAR 660-012-0045(3)(a)
M.6	Section 4.159 [New Section]	Create a new Section in the ZO for transportation impact studies (TIS). The section should include thresholds for requiring a TIS and include standards for study requirements, approval standards, and a process to allow the City to require mitigation of identified transportation impacts as a condition of approval.	OAR 660-012-0045(2)(b)
M.7	Section 4.160	Add on-site pedestrian access and circulation standards for multi-family and commercial	OAR 660-012-0045(3)(b), -

Reference Number	Ordinance Section	Proposed Amendments	Comments/TPR Citation
	[New Section]	development. Include provisions to ensure connectivity to transit stops that are on or near the site.	0045(3)(e), and -0045(6)
M.8	Section 5.030	Include additional transportation-related improvements as options for conditions of approval, including bike/ped or transit-related improvements.	OAR 660-012-0045(2)(e) and -0045(3)(c)
M.9	Section 6.090 [New Section]	Add a provision that establishes transportation facilities, services, and improvements as an outright permitted use for each zone that are not subject to land use review or approval.	OAR 660-012-0045(1)(a) & (b)
M.10	Section 9.060 [New Section]	Add a provision to Article 9 that ensures zoning map and ordinance amendments are consistent with the planned transportation system and planned facilities in the adopted TSP.	OAR 660-012-0045(2)(g) and -0060
M.11	Section 10.010	Add a notice requirement to transportation providers where proposed actions may impact facilities or that are specific to applications within the Airport Overlay zone and Noise Sensitive Areas.	OAR 660-012-0045(1)(c) and -0045(2)(e)
M.12	Section 11.050 [New Section]	Allow for consolidated review for transportation facilities and land use decisions.	OAR 660-012-0045(1)(c) & 0045(2)(d)
	Ordinance No. 95-5 Subdivisions		
M.13	Section 41.2	Modify minimum street frontage standards per TSP recommendations	OAR 660-012-0045(2)(a)
M.14	Section 42	Update block section to include exceptions to standards to account for situations in which physical/topographic conditions, existing buildings, and land tenure present barriers to street connectivity and block formation.	OAR 660-012-0045(3)(b)(E)

Recommended Amendments

Ordinance No. 91-2 Street Improvement Standards

M.1

[…]

Section 3. Widths

The table below identifies the general widths of arterial, collector and residential streets. ~~In addition, the adopted Downtown Transportation Plan Section 4 establishes recommended cross sections for the following streets:~~

- ~~Laneda Avenue (between Division Street and Ocean Avenue)~~
- ~~Laneda and Manzanita Avenues (between Division Street and US 101)~~
- ~~Classic Street (from Laneda Avenue north to North Avenue)~~
- ~~Classic Street Extension (from Laneda Avenue south to Ridge Drive/Necarney City Road)~~

	~~Right of way widths~~	~~Base widths~~	~~Gravel widths~~	~~Paving widths~~
~~Arterial~~	~~50 feet~~	~~28 feet~~	~~28 feet~~	~~24 feet~~
~~Collector~~	~~40 feet~~	~~26 feet~~	~~26 feet~~	~~22 feet~~
~~Residential~~	~~40 feet~~	~~24 feet~~	~~24 feet~~	~~20 feet~~

	Applicability	Right of Way	Travel Lanes	Min. Lane Width	Center Turn Lane	On-street Parking	Bike Facility	Sidewalk	Planter/ Buffer (one side)
Major Collector	See Map 6 in TSP	58 feet	2	11 feet	n/a	8 feet	n/a	10 feet	n/a
Minor Collector	See Map 6 in TSP	36 feet	2	10 feet	n/a	8 feet	12 feet[2] (one side)		2 feet
Local	See Map 6 in TSP	22 feet	1	22 feet	n/a	n/a	n/a	n/a	n/a
Local with Sharrows	See Map 12 in TSP	22 feet	1	22 feet	n/a	n/a	Sharrows	n/a	n/a
Local with Advisory Bike Lane	See Map 12 in TSP	22 feet	1	10 feet	n/a	n/a	6 feet Advisory Bike Lanes	n/a	n/a

[2] Bike facility and sidewalk part of a shared-use path on one side of the roadway.

M.2

Section 11. Pedestrian and Bicycle Improvements.

1. All collector street improvements must include sidewalks and bikeways constructed to City standards.

2. Public sidewalk improvements are required for all property development in the City of Manzanita.

3. Sidewalks may be deferred:

    a. At the discretion of the City where future road or utility improvements are planned and expected to be completed within 10-years.

    b. On property where a new dwelling is being constructed, there are no sidewalks existing on properties on either side, and no elevations or profiles have been established for future street or sidewalk improvements along the adjacent or the subject property's frontage.

4. Sidewalks shall be constructed within the street right-of-way. Sidewalk easements shall only be accepted where the City Engineer determines that full right-of-way acquisition is impractical.

5. Sidewalks shall connect to and align with existing sidewalks.

6. Sidewalks width and location, including placement of any landscape strip, shall comply with the requirements of the City Public Works Department and City Engineer.

7. Planter strips and the remaining right-of-way shall be landscaped and maintained as part of the front yard of abutting properties. Maintenance of sidewalks and planters shall be the continuing obligation of the abutting property owner.

8. Mid-block Sidewalks. The City may require mid-block sidewalks for long blocks or to provide access to schools, parks shopping centers, public transportation stops, or other community services.

Ordinance No. 95-4 Zoning

M.3

Section 4.010 Access.

1. Minimum frontage. Every lot shall abut a street, other than an alley, for at least 20 25 feet, except that lots created in the rear of street fronting lots (flag lots), shall have accesses with a length to width ratio of not greater than 3 to 1.

2. Block length and access spacing.

Functional Class	Maximum Block Length	Minimum Block Length	Minimum Driveway Spacing	Minimum Intersection Set Back
Arterial	1,000 feet	200 feet	100 feet	150 feet
Collector	1,000 feet	150 feet	75 feet	75 feet
Residential	1,000 feet	125 feet	None	25 feet

3. Access and Spacing for Highway 101. Access and spacing standards for Highway 101 within the City and arterials shall conform to the Oregon Highway Plan (OHP) access management spacing standards for highways, as indicated below.

Roadway	Speed Limit	Spacing Standard (rural)	Spacing Standard (urban)
U.S. 101	55 or higher	1,320 feet	1,320 feet
	50	1,100 feet	1,100 feet
	40 & 45	990 feet	800 feet
	30 & 35	770 feet	500 feet
	25 & lower	550 feet	350 feet

M.4

Section 4.080 Off-Street Parking and Off-Street Loading Requirements. At the time a new structure is erected or the use of an existing structure is changed or enlarged, off-street parking spaces, loading areas and access thereto shall be provided as set forth in this section unless greater requirements are otherwise established. If such facilities have been provided in connection with an existing use, they shall not be reduced below the requirements of this Ordinance.

[…]

17. Parking areas with five or more spaces must provide pedestrian access and circulation, in accordance with Section 4.160.

M.5

Section 4.090 Off Street Parking Requirements

[...]

USE	VEHICLE REQUIREMENTS	BICYCLE REQUIREMENTS
(a) Dwelling	Two spaces for each dwelling unit.	Two spaces per four dwelling units
(b) Dwelling on lots 5000 square feet or smaller in the C-1 or L-C zones	One space for the first dwelling, two spaces for each additional dwelling unit.	N/A
(c) Motel, hotel, or group cottages	One space for each unit of 400 square feet or less, if that unit has only one bedroom; One and ¼ spaces per unit for all other units; 2 spaces for a manger's unit.	Two spaces or one space per five vehicle spaces, whichever is greater.
(d) Hospital, nursing home, assisted living facility, or similar institution	One space for each 3 beds.	Two spaces or one space per ten vehicle spaces, whichever is greater.
(e) Church, club, or similar place of assembly	1 space for each 50 square feet of floor area used for assembly.	Two spaces or one space per ten vehicle spaces, whichever is greater.
(f) Retail, restaurant and library	One space for each 400 square feet of gross floor area.	Two spaces or one space per five vehicle spaces, whichever is greater.
(g) Service or retail shop, retail store handling bulky merchandise such as automobiles and furniture	One space for each 600 square feet of gross floor area.	Two spaces or one space per five vehicle spaces, whichever is greater.
(h) Bank, office, and medical clinic	One space for each 400 square feet of gross floor area.	Two spaces or one space per five vehicle spaces, whichever is greater.

M.6

Section 4.159 Transportation Impact Analysis

1. The City or other road authority with jurisdiction may require a TIA as part of an application for development, a change in use, or a change in access. A TIA shall be required where a change of use or a development would involve one or more of the following:

    a. A change in zoning or a plan amendment designation;

    b. Operational or safety concerns documented in writing by a road authority;

    c. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more;

    d. An increase in peak hour volume of a particular movement to and from a street or highway by 20 percent or more;

    e. An increase in the use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day;

    f. Existing or proposed approaches or access connections that do not meet minimum spacing or sight distance requirements or are located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, creating a safety hazard; or

    g. A TIA required by ODOT pursuant to OAR 734-051.

2. The TIA shall be prepared by a professional engineer with competence in traffic engineering, licensed in the State of Oregon.

3. The TIA shall be reviewed according to the following criteria:

    a. The analysis complies with the content requirements set forth by the City and/or other road authorities as appropriate;

    b. The study demonstrates that adequate transportation facilities exist to serve the proposed land use action or identifies mitigation measures that resolve identified traffic safety problems in a manner that is satisfactory to the road authority;

    c. For affected City facilities, the study demonstrates that the project meets mobility and other applicable performance standards established in the ZO and TSP, and includes identification of multi-modal solutions used to meet these standards, as needed; and

d. Proposed design and construction of transportation improvements are in accordance with the design standards and the access spacing standards specified in the ZO and TSP.

4. Conditions of Approval.

a. The City may deny, approve, or approve a proposal with conditions necessary to meet operational and safety standards; provide the necessary right-of-way for planned improvements; and require construction of improvements to ensure consistency with the future planned transportation system.

b. Construction of off-site improvements, including those related to bicycle and pedestrian facilities, may be required to mitigate impacts resulting from development that relate to capacity deficiencies and public safety; and/or to upgrade or construct public facilities to City standards.

c. Where the existing transportation system is shown to be impacted by the proposed use, improvements such as paving; curbing; installation of or contribution to traffic signals; and/or construction of sidewalks, bikeways, access ways, paths, or streets that serve the proposed use may be required.

d. Improvements required as a condition of development approval, when not voluntarily provided by the applicant, shall be roughly proportional to the impact of the development on transportation facilities. Findings in the development approval shall indicate how the required improvements directly relate to and are roughly proportional to the impact of development.

M.7

Section 4.160 Multifamily and Commercial Pedestrian Access and Circulation Siting.

Pedestrian access and circulation are required to provide for safe, reasonably direct, and convenient access for pedestrians.

1. A pedestrian walkway system shall extend throughout the development site and connect to any existing adjacent sidewalks, parking areas, or transit facilities, and to all future phases of the development, as applicable.

2. Walkways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas,

recreational areas, playgrounds, and public rights-of-way pursuant to the following standards:

a. The walkway is reasonably direct. A walkway is reasonably direct when it follows a route that does not deviate unnecessarily from a straight line, or it does not involve a significant amount of out-of-direction travel.

b. The walkway is designed primarily for pedestrian safety and convenience, meaning it is reasonably free from hazards and provides a reasonably smooth and consistent surface and direct route of travel between destinations. The City may require landscape buffering between walkways and adjacent parking lots or driveways to mitigate safety concerns.

c. The walkway network connects to all primary building entrances, consistent with the sidewalk design standards of Section 3 of Ordinance No. 91-2 (Street Improvement Standards) and, where required, Americans with Disabilities Act (ADA) requirements.

3. Where a walkway abuts a driveway or street it shall be raised six inches and curbed along the edge of the driveway or street. Alternatively, the [City decision-making body] may approve a walkway abutting a driveway at the same grade as the driveway if the walkway is physically separated from all vehicle-maneuvering areas. An example of such separation is a row of bollards (designed for use in parking areas) with adequate minimum spacing between them to prevent vehicles from entering the walkway.

4. Where a walkway crosses a parking area or driveway ("crosswalk"), it shall be clearly marked with contrasting paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrasting material). The crosswalk may be part of a speed table to improve driver-visibility of pedestrians.

5. Walkways/sidewalks shall be constructed of concrete, asphalt, brick or masonry pavers, or other durable surface, as approved by the City Engineer, and not less than five feet wide. Multi-use paths (i.e., designed for shared use by bicyclists and pedestrians) shall be concrete or asphalt and shall conform to the transportation standards of Section 3 of Ordinance No. 91-2 (Street Improvement Standards).

6. Walkway surfaces may be concrete, asphalt, brick or masonry pavers, or other City-approved durable surface meeting ADA requirements. Walkways shall be not less than four feet in width. The [City decision-making body] may also require six foot wide, or wider, concrete sidewalks in other developments where pedestrian traffic warrants walkways wider than four feet.

7. Multi-use pathways, where approved, shall be [10-12] feet wide and constructed of asphalt or concrete.

M.8

Section 5.030 Standards Governing Conditional Uses.

Section 5.031 In permitting a new conditional use or the alteration of an existing Conditional Use for uses other than a needed housing type, the Planning Commission may impose, in addition to those standards and requirements expressly specified by this Ordinance, additional conditions which the Planning Commission considers necessary to protect the best interest of the surrounding area to the City as a whole. These conditions may include but are not limited:

[…]

(j) Transportation improvements intended to minimize impacts and protect transportation facilities, corridors, or sites. Improvements may include mitigation measures identified in a transportation impact analysis, pursuant to 4.159.

(k) Transit facility or access improvements.

(l) Pedestrian and bicycle facility or access improvements.

M.9

Section 6.090 Transportation Improvements and Uses Permitted

Transportation facilities, services, and improvements consistent with the adopted Transportation System Plan are permitted outright in each Use Zone established under Article 3 of this Zoning Ordinance (Ordinance NO. 95-4). Transportation facilities, services, and improvements are not subject to land use review or approval procedures in the Zoning Ordinance (Ordinance NO. 95.-4) or Subdivision Ordinance (Ordinance NO. 95-5), including but not limited to Planned Unit Development (Section 4.136), Site Plan Approval (Section 4.137), Design Review (Section 4.150-158), Conditional Uses (Article 5), and Public Deliberations and Hearings (Article 10).

M.10

Section 9.060 Consistency with Planned Transportation Facilities

An amendment to the text of this Ordinance or to the zoning map must be consistent with planned facilities in the Transportation System Plan.

M.11

Section 10.010 Procedure for Mailed Notice

[...]

C. Mailed notice shall be sent to the Oregon Department of Transportation (ODOT) and any public agencies providing transportation facilities and services for the following:

1. Any public hearing on a legislative change to the zoning ordinance or land use/design review plans.

2. Any subdivision or partition plan.

3. Any proposal that affects transportation facilities or services that are owned or operated by ODOT or other public agency.

4. Any proposal within the Airport Overlay Zone (Section 3.095) or Noise Sensitive Areas.

~~C.~~ D. Addresses for a mailed notice required by this title shall be obtained from the county assessor's Real Property Tax records. The failure of a property owner to receive notice shall not invalidate an action if a good faith attempt was made to comply with the requirements of this title for notice.

~~D.~~ E. Mailed notice shall contain the information contained in subsection A of Section 10.030.

M. 12

Section 11.050 Consolidated Review for Transportation Facilities and Land Use Plans

Review and approval for land use plans that affect, include, or involve transportation facilities should be consolidated with any required review or approval processes for the transportation facilities.

Ordinance No. 95-5 Subdivisions

M.13

Section 41 - Building Sites

[…]

2. Access. Each lot and parcel shall abut upon a street other than an alley for a width of at least 20 ~~25~~ feet.

M.14

Section 42 - Blocks

The length, width and shape of blocks shall take into account the need for adequate lot size and street width, circulation patterns, street connectivity, existing lot configurations, existing buildings, and conformity with the topography of the site.

Nehalem

Comprehensive Plan Recommendations

Transportation policies are reflected in the City of Nehalem's Comprehensive Plan. Updated policy statements recommended for Nehalem echo the goals and objectives developed for the TSP project early in the planning process. To achieve this, this memorandum recommends the following Comprehensive Plan amendment actions.

- Revise the Comprehensive Plan's Transportation Goal to incorporate project goals and objectives.
- Adopt the Transportation System Plan by reference to serve as the transportation element of the Comprehensive Plan.

Comprehensive Plan

To ensure policy consistency, the Nehalem Comprehensive Plan should be updated to incorporate the TSP's goals and objectives. Transportation policies are addressed under the Transportation Goal. These policies should be modified to incorporate the goals and objectives of the TSP.

Recommended Amendments

Recommended policy language that incorporates the TSP's goals and objectives is provided below. Recommended additions are shown using underline formatting and recommended deletions are shown using ~~strikeout~~ formatting.

> **GOAL 12: TRANSPORTATION**
>
> Streets, roads, and highways have profound effects on land use. Many forms of development, for example, need to be easy to find, readily seen from a car, and convenient to reach by foot or automobile. A fundamental relationship in planning is land use affecting streets, and streets affecting land use. That relationship is a subject of importance in this chapter of the Comprehensive Plan. The City has addressed that subject by adopting the Nehalem ~~Downtown~~ Transportation System Plan.
>
> ~~The three cities of Nehalem, Manzanita and Wheeler may work together to develop a regional transportation system plan (TSP).~~
>
> The Plan's goals are:

➢ Improve mobility, safety and accessibility for all travel modes

➢ Improve pedestrian and bicycle circulation and facilities

➢ Provide for improvements that can be implemented and comply with applicable standards

Beyond Nehalem's limits lie the Salmonberry Trail to the east and the Oregon Coast Trail to the west. The Tillamook County Water Trail lies along the Nehalem River. Nehalem has the opportunity to become the 'connecting hub' between the Oregon Coast Trail and Salmonberry Trail. Nehalem has the potential to provide the linkage between these trails.

City Vision

Nehalem's infrastructure of water, sewer, storm drains, streets and parks is developed to good standards for a rural community, well-maintained and renewed as needed from well-funded and well-managed reserved funds.

State Requirements for Goal 12, Transportation:

The goal aims to provide "a safe, convenient, and economic transportation system." It asks for communities to address the needs of the "transportation disadvantaged."

City Goal

~~1.~~ To provide and encourage a safe, convenient and economic transportation system.

Objectives

The City shall support a safe, convenient, accessible and economic transportation system for all modes of transportation.

Policies

~~1. Street patterns shall minimize the need for cutting and filling.~~

~~2. The City may permit narrower street widths in steep slope areas consistent with traffic safety and emergency vehicle access.~~

~~3. The City shall accept private streets as public streets only after they have been improved to City standards.~~

~~4.~~1. The City, County, and the State Department of Transportation shall discourage new access points onto Highway 101.

a. Wherever possible, new residential development shall not have a direct access to Highway 101.

b. New commercial and multi-family uses should be clustered with access being provided by a consolidated access point, preferably not directly onto Highway 101.

~~5. Alternative uses of City rights-of-way should be considered where they are not needed as streets.~~

~~a. These uses may include trails, small parks or natural areas.~~

~~6. The City shall be notified prior to the installation of any underground utility in a City right- of-way.~~

~~a. The City will require reasonable efforts to improve or restore the road after construction.~~

~~7. The City supports efforts such as bus service, to provide transportation for people with limited transportation opportunity, and supports the Tillamook County Transit District to maintain bus stops and shelters as described in the Downtown Transportation Plan.~~

~~8. The City will work to incorporate (as resources allow) streetscape elements for pedestrian and bicycle friendly street design as illustrated in the Downtown Transportation Plan.~~

~~9.~~2. The City will encourage (as resources allow) an interpretive trail that provides access to the wetlands and river.

~~10. Street design standards are contained within the City's Subdivision Ordinance.~~

~~11. The City will work with ODOT to improve the design and safety of the U.S. 101/7th Street intersection.~~

~~12. The City will work with ODOT to provide pedestrian safety improvements and traffic calming measures and safe routes to school and encourage all types of transportation that limit greenhouse gas emissions.~~

~~13.~~3. The City recognizes the importance of and encourages a link between the Oregon Coast Trail and the Salmonberry Trail, and the Tillamook County Water Trail.

4. The City will support equitable access for underserved and vulnerable populations through compliance with ADA standards for new transportation infrastructure

improvements and upgrades to existing infrastructure that does not meet ADA standards.

5. The City will support the development of planned regional bicycle and pedestrian trails, including the Salmonberry Trail, Oregon Coast Trail, and Tillamook County Water Trail.

6. The City will support streetscape improvements to improve downtown areas, including, but not limited to, improved landscaping pedestrian scale lighting, benches, bicycle racks, and street trees.

7. The City will support alternative travel modes that reduce vehicle travel between cities, including, but not limited to, regional shuttle services or water taxis.

8. The City should prioritize improvements to non-motorized routes that include pedestrian and bicycle facilities between Nehalem Bay communities.

9. The City should prioritize enhancing pedestrian and bicycle crossings on US 101 that connect businesses and recreational destinations with neighborhoods.

10. The City should support improvements that increase visibility of transportation users in constrained areas, such as hills and blind curves.

11. The City shall prioritize improvements that address known safety issues at locations with fatal or severe injury crashes, crashes involving bicyclists or pedestrian, and vehicles entering and exiting US 101.

12. The City will coordinate with ODOT to implement engineering and traffic calming strategies on US 101 to reduce vehicle speeds and are consistent with ODOT's Highway Design Manual and other local and regional planning efforts.

13. The City should maintain transportation infrastructure so that facilities can withstand extreme weather evens and aid in evacuation efforts.

14. The City will support improvements to traffic circulation and access for fire and emergency vehicles.

15. The City shall prioritize cost-effective transportation improvements.

16. The City should seek additional funding sources for transportation improvements, such as, but not limited to, grants, developer contributions, and transportation system charges.

17. The City should support partnerships that maximize the benefit and return on investment for associated costs when prioritizing transportation investments.

18. The City should support improvements that improve safe access to schools and recreational centers.

19. The City will prioritize sidewalk improvements in the commercial core and improvements to existing sidewalks to meet ADA standards.

20. The City will prioritize improvements that provide non-motorized access to recreational areas.

21. The City should improve (as resources allow) wayfinding to direct visitors to recreational areas and water access points.

22. The City should support transportation improvements that encourage travel modes which will minimize environmental impacts.

Transportation System Plan

The City of Nehalem does not have an adopted TSP that plans for the entire City.[3] The draft 2023 TSP is a comprehensive planning document for the entire City, inclusive of key improvements from the 2003 City of Nehalem Downtown Transportation Plan and should be adopted by reference. By legislatively adopting the "plan" elements of the TSP, the City will have a policy framework on which to base compliance-related development requirements and to seek public financing for recommended improvements.

Code Update Recommendations

Code Update Summary

Table 2 summarizes Nehalem Code amendment recommendations and corresponding TPR regulations. Areas identified for amendments are based on TPR audit findings. The amendments are consistent with the format and proposed changes of the concurrent Code update project for the City of Nehalem.

We recommend amendments to the Land Usage Code – Title XV:

- Chapter 156 – Subdivisions
- Chapter 157 – Zoning

[3] City of Nehalem Downtown Transportation Plan (2003) addresses key transportation issues in the city center; improvements in that plan have been incorporated into the updated 2023 TSP

Table 2: Nehalem TSP Code Update Recommendations

Reference Number	Ordinance Section	Proposed Amendments	TPR Citation
	Chapter 156 Subdivisions		
N.1	Section 156.081(B)	Update right-of-way and pavement width per TSP recommendations.	OAR 660-012-0045(7)
N.2	Section 156.081(E)(1)	Expand dead-end street/cul-de-sac requirements to limit the use of and/or length cul-de-sacs and also require pedestrian access between the end of a cul-de-sac and adjoining development.	OAR 660-012-0045(3)(b)(C)
N.3	Section 156.084	Refine block standards to include exceptions in accordance with -0045(3)(b)(E)	OAR 660-012-0045(3)(b)(E)
N.4	Section 156.087	Add provisions for transit access improvements and include standards for bicycle and pedestrian access and connectivity to transit facilities.	OAR 660-012-0045(3)(b)
	Chapter 157 Zoning		
N.5	Section 157.202.01	Allow transportation improvements, services, and facilities in all zones, provided that the proposed improvements implement the TSP and/or can be shown to be consistent with adopted policy.	OAR 660-012-0045(1)(a) and OAR 660-012-0045(1)(b)
N.6	Section 157.268	Update lot frontage width standards in accordance with TSP recommendation. Add new provisions for minimum driveway, street, and intersection spacing standards.	OAR 660-012-0045(2)(a)
N.7	Section 157.278 OR 157.312 [New Section(s)]	Add on-site pedestrian and bicycle access and circulation standards for parking areas over a certain size, commercial uses, light industrial uses, and multifamily	OAR 660-012-0045(3)(b), -

Reference Number	Ordinance Section	Proposed Amendments	TPR Citation
		development. Location of standards in the Code may depend on potential creation of similar new sections (i.e., bike parking standards). Adopt transit access provisions and apply pedestrian and bicycle access standards to these provisions.	0045(3)(e), and -0045(6)
N.8	Section 157.346(C)	Add transportation improvements as conditions of approval, including bicycle and pedestrian improvements.	OAR 660-012-0045(2)(e) and -0045(3)(c)
N.9	Section 157.402.02[4]	Add Right-of-Way standards for each of the City's functional classifications.	OAR 660-012-0045(7)
N.10	Section 157.402.05	Add requirements for walkways/sidewalks for all street frontages and bikeways along arterials and collectors. Add improvement standards for pedestrian, bicycle, and transit facilities.	OAR 660-012-0045(3)(b)
N.11	Section 157.402.08	Add requirements for transportation impact studies (TIS). The section should include thresholds for requiring a TIS and include standards for study requirements, approval standards, and a process to allow the City to require mitigation of identified transportation impacts as a condition of approval.	OAR 660-012-0045(2)(b)
N.12	Section 157.403.06	Add bicycle parking facility standards for all uses outlined in -0045(3)(a). The bicycle parking standards will be included with	OAR 660-012-0045(3)(a)

[4] The TSP process will revisit adopted roadway cross-sections and design requirements, keeping in mind that the TPR requires that cities minimize pavement width and total right-of-way consistent with the operational needs of the facility. Standards should be made consistent between the updated TSP and Street Improvement Standards.

Reference Number	Ordinance Section	Proposed Amendments	TPR Citation
		updated off-street vehicle parking provisions.	
N.13	Section 157.418(A)	Add a provision to require notice to public agencies providing transportation facilities and services.	OAR 660-012-0045(2)(f)
N.14	Section 157.513.03	Add a provision that addresses plan amendment consistency with the planned transportation system and planned facilities in the adopted TSP.	OAR 660-012-0045(2)(g) and -0060
N.15	Section 157.525.01	Add a provision to the Application section to allow for consolidated review of land use decisions regarding transportation facilities or projects.	OAR 660-012-0045(1)(c) and -0045(2)(d)

Recommended Amendments

Chapter 156 Subdivisions

N.1

Section 156.081 Streets

[…]

(B) Minimum rights-of-way widths.

[…]

(4) Right-of-way classifications, as used herein, shall be construed to mean the following:

~~*Classification*~~	~~*Total ROW Width*~~	~~*Curb-to-Curb Pavement Width**~~	~~*Travel Lanes**~~	~~*Parking Lanes**~~	~~*Sidewalks**~~
~~Arterial~~	~~60'~~	~~40'~~	~~12'~~	~~8'~~	~~6'~~
~~Collector~~	~~50'~~	~~38'~~	~~11'~~	~~8'~~	~~6*~~
~~Driveway~~	~~10'~~	~~10'~~	~~10' **~~	–	-

~~Classification~~	~~Total ROW Width~~	~~Curb-to-Curb Pavement Width*~~	~~Travel Lanes*~~	~~Parking Lanes*~~	~~Sidewalks*~~
~~Private street, alley~~	~~20'~~	~~18'~~	~~9'~~	–	-
~~Residential~~	~~40'~~	~~32'~~	~~9'~~	~~7'~~	~~4'~~
	~~30'~~	~~25'~~	~~9'~~	~~7' **~~	~~4'~~
~~NOTES TO TABLE:~~ ~~* Widths listed are minimum amounts and are for each lane and/or side.~~ ~~** Width listed is for a single allowable lane.~~					

	Applicability	Right of Way	Travel Lanes	Min. Lane Width	Center Turn Lane	On-street Parking	Bike Facility	Sidewalk	Planter/ Buffer (one side)
Major Collector	See Map 6 in TSP	52 feet	2	12 feet	n/a	n/a	6 feet	6 feet	2 feet
Local	See Map 6 in TSP	22 feet	1	22 feet	n/a	n/a	n/a	n/a	n/a
Local with Sharrows	See Map 12 in TSP	22 feet	1	22 feet	n/a	n/a	Sharrow	n/a	n/a
Local with Advisory Bike Lanes	See Map 12 in TSP	22 feet	1	10 feet	n/a	n/a	6 feet Advisory Bike Lanes	n/a	n/a

N.2

Section 156.081 Streets

[...]

(E) Future street extensions

(1) Where necessary to give access to or permit a satisfactory future division of adjoining land, streets shall extend to the boundaries of the subdivision or partition if feasible and the resulting dead-end streets may be approved without a turn-around.

(2) Cul-de-sac and dead end streets are not permitted unless street continuation is precluded by one or more of the following barriers:

(a) Topography (steep slopes greater that 25%)

(b) Railroad right-of-way

(c) Highway right-of-way

(d) Pre-existing development patterns preclude street connections

(e) Regulated streams, wetlands, waterways, coastal resources, or other sensitive habitat

~~(2)~~(3) Reserve strips including street plugs may be required to preserve the objective of street extensions.

(4) Where cul-de-sacs and dead end streets are permitted, they should not exceed three hundred (300) feet in length, except in cases where physical barriers are present, as outlined in 156.081(E)(1)

(5) The cul-de-sac or dead end street shall provide, or not preclude the opportunity to later install, a pedestrian and bicycle access way between it and adjacent developable lands. Such access ways shall conform to Section 157.312 of the Land Usage Code – Title XV.

N.3

156.084 Standards for Subdivisions – Blocks and Traffic

Note, Technical Memo #3 and Proposed Code, *dated January 5, 2023 identifies the heading for this section as 157.404.04.*

~~(A) No block shall be more than 1,000 feet in length between street corner lines of rectilinear developments unless it is adjacent to an arterial street or unless the topography of the location of adjoining streets justified as exception.~~

~~(B) The recommended minimum length of blocks along an arterial street is 1,800 feet.~~

~~(C) A block shall have sufficient width to provide for two tiers of building sites unless topography or the location of adjoining streets justifies an exception. (Ord. 80-3, passed 04/12/2004)~~

(A) General. The length, width, and shape of blocks shall be designed with regard to providing adequate building sites for the use contemplated; consideration of needs for convenient access, circulation, control, and safety of street traffic - including pedestrian and bicyclist - and recognition of limitations and opportunities of topography.

(B) Sizes. Blocks shall not exceed 1,000 feet in between street lines with a preferred length of 500 feet. Exceptions are permitted for blocks adjacent to arterial streets, or if the previous development pattern or topographical conditions justify a greater length. The recommended minimum distance between collector street intersections with arterial streets is 1,800 feet.

(C) Traffic Circulation. The subdivision shall be laid out to provide safe, convenient, and direct vehicle, bicycle, and pedestrian access to nearby residential areas; neighborhood activity centers (e.g., schools and parks); shopping areas; and employment centers; and provide safe, convenient, and direct traffic circulation. At a minimum, "nearby" means the distance from the subdivision boundary – 1/4 mile for pedestrians and one mile for bicyclists.

(D) A block shall have sufficient width to provide for two tiers of building sites unless topography or the location of adjoining streets, railroads, existing development, or wetlands or waterbodies justifies an exception

(E) Connectivity. To achieve the objective in 156.084 (C) Traffic Circulation, the City shall require the following:

1. Stub-End Streets: Where the potential exists for additional residential development on adjacent property.

2. Accessways: Public accessways to provide a safe, efficient, and direct connection to cul-de-sac streets, to pass through oddly shaped or blocks longer than 600-feet, to provide for networks of public paths creating access to nearby residential areas, neighborhood activity centers (e.g., schools and parks); shopping areas; and employment centers.

(F) Collector and Arterial Connections. Accessway, bikeway, or sidewalk connections with adjoining arterial and collector streets shall be provided if any portion of the site's arterial or collector street frontage is over 600 feet from either a subdivision access street or other accessway. The placement of an accessway may be modified or eliminated if natural features (e.g., adverse topography, streams, wetlands) preclude such a connection.

(G) Streets. Street design shall comply with provisions in 157.403 as well as the requirements of the City Public Works Department and City Engineer.

N.4

Section 156.087 Improvement Requirements

Note, Technical Memo #3 and Proposed Code, *dated January 5, 2023 recommends including language in Section 157.404.*

Improvements are to be installed at the expense of the subdivider or partitioner and at the time of subdivision or partition.

[…]

(K) Bicycle improvements. Improvements for bicycle lanes and other bicycle facilities (signs, parking, etc.) shall be installed along collector or arterial streets.

(L) Transit access improvements. Improvements for bicycle and pedestrian access and connectivity shall be provided wherever a bus/transit stop is located on or adjacent to the subject property or subdivision.

Chapter 157 Zoning

N.5

Proposed language is based on recommended language from *Technical Memo #3 and Proposed New Code* dated August 5, 2022

Section 157.202.01 – All Zones

The following uses and activities are permitted in all zones identified in Article II:

(A) Surfaced travel lanes, curbs, gutters, drainage ditches, sidewalks, transit stops, landscaping, and related structures and facilities located within rights-of-ways controlled by a public agency.

(B) Expansion of public right-of-way and widening or adding improvements within the right-of-way, provided the right-of-way is not expanded to more width than prescribed for the street in the Public Facilities segment of the Comprehensive Plan.

N.6

Section 157.268 Access.

(A) Minimum frontage. Every lot shall abut a street, other than an alley, for at least 20 feet. (Ord. 80-2, passed 06/14/2010)

(B) Access and Spacing. Access and spacing standards for streets in Nehalem shall conform to the following access management spacing standards as indicated below.

Functional Class	Maximum Block Length	Minimum Block Length	Minimum Driveway Spacing	Minimum Intersection Set Back
Collector	1,000 feet	200 feet	100 feet	150 feet
Residential or Private Street	1,000 feet	125 feet	None	25 feet

(C) Access and Spacing for Highway 101 and Arterials. Access and spacing standards for Highway 101 within the City and arterials shall conform to the Oregon Highway Plan (OHP) access management spacing standards for highways, as indicated below.

Roadway	Speed Limit	Spacing Standard (rural)	Spacing Standard (urban)
U.S. 101	55 or higher	1,320 feet	1,320 feet
	50	1,100 feet	1,100 feet
	40 & 45	990 feet	800 feet
	30 & 35	770 feet	500 feet
	25 & lower	550 feet	350 feet

N.7

Section 157.278 [OR 157.312]

For commercial, multi-family, and light industrial development, and parking areas with five or more off-street spaces, pedestrian access and circulation is required to provide for safe, reasonably direct, and convenient access for pedestrians.

(A) A pedestrian walkway system shall extend throughout the development site and connect to any existing adjacent sidewalks, parking areas, or transit facilities, and to all future phases of the development, as applicable.

(B) Walkways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas, playgrounds, and public rights-of-way conforming to the following standards:

(C) The walkway is reasonably direct. A walkway is reasonably direct when it follows a route that does not deviate unnecessarily from a straight line or it does not involve a significant amount of out-of-direction travel.

(D) The walkway is designed primarily for pedestrian safety and convenience, meaning it is reasonably free from hazards and provides a reasonably smooth and consistent surface and direct route of travel between destinations. The City may require landscape buffering between walkways and adjacent parking lots or driveways to mitigate safety concerns.

(E) The walkway network connects to all primary building entrances, consistent with the building design standards of Chapter 3.2 and, where required, Americans with Disabilities Act (ADA) requirements.

(F) Where a walkway abuts a driveway or street it shall be raised six inches and curbed along the edge of the driveway or street. Alternatively, the City may approve a walkway abutting a driveway at the same grade as the driveway if the walkway is physically separated from all vehicle-maneuvering areas. An example of such separation is a row of bollards (designed for use in parking areas) with adequate minimum spacing between them to prevent vehicles from entering the walkway.

(G) Where a walkway crosses a parking area or driveway ("crosswalk"), it shall be clearly marked with contrasting paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrasting material). The crosswalk may be part of a speed table to improve driver-visibility of pedestrians.

(H) Walkways, including access ways required for subdivisions pursuant to Chapter 4.3, shall be constructed of concrete, asphalt, brick or masonry pavers, or other durable surface, as approved by the City Engineer, and not less than five feet wide. Multi-use paths (i.e., designed for shared use by bicyclists and pedestrians) shall be concrete or asphalt and shall conform to the transportation standards of Section 3.6.020.

(I) Walkway surfaces may be concrete, asphalt, brick or masonry pavers, or other City-approved durable surface meeting ADA requirements. Walkways shall be not less than four feet in width. The City may also require six foot wide, or wider, concrete sidewalks in other developments where pedestrian traffic warrants walkways wider than four feet.

(J) Multi-use pathways, where approved, shall be [10-12] feet wide and constructed of asphalt or concrete.

(K) Bicycle and pedestrian access and connectivity shall be provided wherever a bus/transit stop is located on or adjacent to the subject property or subdivision.

N.8

157.346 Authorization

[…]

(C) In granting a conditional use, the city may impose, in addition to those standards and requirements expressly specified in this chapter, any conditions which it considers necessary to protect adjacent uses and the resources of the site and adjacent areas. These conditions may include, but are not limited to:

[…]

10. Require improvements to transportation facilities, including improvements for pedestrian, bicycle, and transit facilities.

N.9

Proposed language is based on recommended language from *Technical Memo #3 and Proposed New Code* dated August 5, 2022.

Section 157.402.02. General Provisions

(A) General

1. The location, width and grade of streets shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety and to the proposed use of land to be served by the streets.

2. The street system shall assure an adequate traffic circulation system with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried considering the terrain.

3. Where location is not shown in a development plan, the arrangement of streets shall either:

(a) Provide for the continuation or appropriate projection of existing principal streets in surrounding areas; or

(b) Conform to a plan for the neighborhood adopted by the City to meet a particular situation where topographical or other conditions make continuance or conformance to existing streets impractical.

(B) Minimum rights-of-way widths.

1. Street rights-of-way and improvements shall be the widths and standards listed in the Minimum Right-of-Way Widths Table below.

2. The width of a required right-of-way shall be determined by the city based upon, but not limited to, the following factors:

(a) Street classification, if any, listed within the Comprehensive Plan, Transportation System Plan and/or this chapter;

(b) Anticipated traffic generation;

(c) On-street parking needs;

(d) Sidewalk and bikeway requirements based on anticipated level of use;

(e) Requirements for placement of utilities;

(f) Street lighting;

(g) Minimize drainage, slope, and sensitive lands impacts, as identified within Section 157.406 of this chapter;

(h) Safety and comfort for motorists, bicyclists and pedestrians;

(i) Access needs for emergency vehicles;

(j) Street furnishings (e.g., benches, lighting, bus shelters) when provided;

(k) Transition between different street widths (i.e., existing streets and new streets), as applicable; and

(l) Other relevant criteria.

~~Classification~~	~~Total ROW Width~~	~~Curb-to-Curb Pavement Width*~~	~~Travel Lanes*~~	~~Parking Lanes*~~	~~Sidewalks*~~
~~Arterial~~	~~60'~~	~~40'~~	~~12'~~	~~8'~~	~~6'~~
~~Collector~~	~~50'~~	~~38'~~	~~11'~~	~~8'~~	~~6*~~
~~Driveway~~	~~10'~~	~~10'~~	~~10' **~~	~~–~~	~~-~~
~~Private street, alley~~	~~20'~~	~~18'~~	~~9'~~	~~–~~	~~-~~
~~Residential~~	~~40'~~	~~32'~~	~~9'~~	~~7'~~	~~4'~~
	~~30'~~	~~25'~~	~~9'~~	~~7' **~~	~~4'~~

~~**NOTES TO TABLE:**~~

~~* Widths listed are minimum amounts and are for each lane and/or side.~~

~~** Width listed is for a single allowable lane.~~

	Applicability	Right of Way	Travel Lanes	Min. Lane Width	Center Turn Lane	On-street Parking	Bike Facility	Sidewalk	Planter/Buffer (one side)
Major Collector	See Map 6 in TSP		2	12 feet	n/a	n/a	6 feet	6 feet	2 feet
Local	See Map 6 in TSP		1	22 feet	n/a	n/a	n/a	n/a	n/a
Local with Sharrows	See Map 12 in TSP		1	22 feet	n/a	n/a	Sharrow	n/a	n/a
Local with Advisory Bike Lanes	See Map 12 in TSP		1	10 feet	n/a	n/a	6 feet Advisory Bike Lanes	n/a	n/a

N.10

Proposed language is based on recommended language from *Technical Memo #3 and Proposed New Code* dated August 5, 2022

157.402.05 Sidewalks and Bikeways

Public sidewalk improvements are required for all property development in the City of Nehalem.

(A). Sidewalks may be deferred:

1. At the discretion of the City where future road or utility improvements are planned and expected to be completed within 10-years.

2. On property where a new dwelling is being constructed, there are no sidewalks existing on properties on either side, and no elevations or profiles have been established for future street or sidewalk improvements along the adjacent or the subject property's frontage.

(B) Sidewalks shall be constructed within the street right-of-way. Sidewalk easements shall only be accepted where the City Engineer determines that full right-of-way acquisition is impractical.

(C) Sidewalks shall connect to and align with existing sidewalks. Sidewalks may transition to another alignment as part of the approval process.

(D) Sidewalks width and location, including placement of any landscape strip, shall comply with the requirements of the City Public Works Department and City Engineer.

(E) Planter strips and the remaining right-of-way shall be landscaped and maintained as part of the front yard of abutting properties. Maintenance of sidewalks and planters shall be the continuing obligation of the abutting property owner.

(F) Mid-block Sidewalks. The City may require mid-block sidewalks for long blocks or to provide access to schools, parks shopping centers, public transportation stops, or other community services.

(B) Bikeways. Bikeways are required along Arterial and Collector streets. Bikeways shall comply with the requirements of the City Public Works Department and City Engineer. Developments adjoining existing or proposed bikeways shall include provisions for connection and extension of such bikeways through dedication of easements or rights-of-way.

N.11

Proposed language is based on recommended language from *Technical Memo #3 and Proposed New Code* dated August 5, 2022

157.402.08 Traffic Impact Analysis

The purpose of this subsection is to coordinate the review of land use applications with roadway authorities and to implement Section 660-012-00452(e) of the state Transportation Planning Rule, which requires the City to adopt a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities. The following provisions also establish when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Analysis must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; the required contents of a Traffic Impact Analysis; and who is qualified to prepare the analysis.

(A) When a Traffic Impact Analysis is Required. The City or other road authority with jurisdiction may require a Traffic Impact Analysis (TIA) as part of an application for development, a change in use, or a change in access. A TIA shall be required where a change of use or a development would involve one or more of the following:

1. A change in zoning or a plan amendment designation;

2. Operational or safety concerns documented in writing by a road authority;

3. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more;

4. An increase in peak hour volume of a particular movement to and from a street or highway by 20 percent or more;

5. An increase in the use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day;

6. Existing or proposed approaches or access connections that do not meet minimum spacing or sight distance requirements or are located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, creating a safety hazard; or

7. A TIA required by ODOT pursuant to OAR 734-051.

(B) Traffic Impact Analysis Preparation. A professional engineer registered by the State of Oregon, in accordance with the requirements of the road authority, shall prepare the Traffic Impact Analysis.

(C) The TIA shall be reviewed according to the following criteria:

1. The analysis complies with the content requirements set forth by the City and/or other road authorities as appropriate;

2. The study demonstrates that adequate transportation facilities exist to serve the proposed land use action or identifies mitigation measures that resolve identified traffic safety problems in a manner that is satisfactory to the road authority;

3. For affected City facilities, the study demonstrates that the project meets mobility and other applicable performance standards established in the ZO and TSP, and includes identification of multi-modal solutions used to meet these standards, as needed; and

4. Proposed design and construction of transportation improvements are in accordance with the design standards and the access spacing standards specified in the ZO and TSP.

(D) Conditions of Approval.

1. The City may deny, approve, or approve a proposal with conditions necessary to meet operational and safety standards; provide the necessary right-of-way for planned improvements; and require construction of improvements to ensure consistency with the future planned transportation system.

2. Construction of off-site improvements, including those related to bicycle and pedestrian facilities, may be required to mitigate impacts resulting from development that relate to capacity deficiencies and public safety; and/or to upgrade or construct public facilities to City standards.

3. Where the existing transportation system is shown to be impacted by the proposed use, improvements such as paving; curbing; installation of or contribution to traffic signals; and/or construction of sidewalks, bikeways, access ways, paths, or streets that serve the proposed use may be required.

4. Improvements required as a condition of development approval, when not voluntarily provided by the applicant, shall be roughly proportional to the impact of the development on transportation facilities. Findings in the

development approval shall indicate how the required improvements directly relate to and are roughly proportional to the impact of development.

N.12

Proposed language is based on recommended language from *Technical Memo #3 and Proposed New Code* dated August 5, 2022

157.403.06 Vehicle Parking Standards

(E) Bicycle Spaces. When provided, bicycle parking development requirements

1. Space Size. Each bicycle parking space shall be a minimum of six feet long and two feet wide and be accessible by a minimum five-foot aisle.

2. Location. All bicycle parking shall be within 100 feet of a building entrance(s) and located within a well-lit area. Any long-term bicycle parking spaces shall be sheltered from precipitation.

(F) Parking Space Requirements. Unless otherwise modified by other provisions in this Code, the following parking space requirements shall apply:

	Land Use Activity	**Vehicle Spaces**	**Bicycle Spaces**	**Measurement**
1.	1 and 2 family dwellings	2 spaces per dwelling unit	0	None
2.	Multi-family dwellings (3 or more units)	Studio – 1 space 1 bedroom – 1.5 spaces/unit 2-bedroom – 1.75 spaces/unit 3+ bedroom – 2 spaces/unit	0.25	Per dwelling unit
3.	Hotel, motel, boarding house	1 space per guest room plus 1 space for the office	1	Per 20 guest rooms
4.	Club, lodge	Spaces sufficient to meet the combined minimum requirements of the uses being conducted, such as restaurant, auditorium, etc.	2	Per 20 vehicle spaces
5.	Hospital	2 spaces per bed	0.5	Per 5 beds
6.	Nursing home, assisted living	Greater of 1 space per three beds or 1 space per apartment unit	0.5	Per 5 beds

	Land Use Activity	Vehicle Spaces	Bicycle Spaces	Measurement
7.	Churches, auditorium, stadium, theater Chapel/mortuary	1 space per 4 seats, or, every 8 feet of bench length, or 36 sq. ft. of area w/o fixed seats	1	Per 20 vehicle spaces
8.	Preschool, kindergarten, elementary, junior high	Greater of 1.5 spaces per classroom or auditorium requirements in "7."	2	Per classroom
9.	High school	Greater of 1.5 spaces per classroom, plus one space per 10 students; or auditorium requirements in "7."	1	Per classroom
10.	Colleges, trade schools	Greater of 1.5 spaces per classroom, plus one space per 5 students, plus requirements for on-campus housing	1	Per classroom
11.	Bowling alley, miniature golf	Alley - 1 space per 100 sq. ft. Golf - 1 space per 4 holes	1	Per 20 vehicle spaces
12.	Retail store, except as provided in "13."	1 space per 350 sq. ft.	1	Per 20 vehicle spaces
13.	Service or repair shop, retail store handling exclusively bulky merchandise such as automobiles or furniture	Furniture, appliance - 1 space per 750 sq. ft. of gross floor area Auto and boat sales, nurseries, other bulk uses – 1 space per 1,000 sq. ft. of first 10,000 sq. ft. of gross land area; 1 space for each additional 5,000 sq. ft.	1	Per 30 vehicle spaces
14.	Public or private office building; bank; medical and dental clinic	General - 1 space per 500 sq. ft. of gross floor area, Medical - 1 space per 350 sq. ft. of gross floor area	1	Per 20 vehicle spaces
15.	Eating and drinking establishments	Lesser of 1 space per 4 seats, or, 1 space per 100 sq. ft. of gross leasable floor area	1	Per 20 vehicle spaces
16.	Industrial	Lesser of 1 space per two employees on largest shift or 1	1	Per 20 vehicle spaces

	Land Use Activity	Vehicle Spaces	Bicycle Spaces	Measurement
		space per 700 sq. ft. of gross floor area; plus, one space per company vehicle.		
17.	Warehousing	Greater of 1 space per two employees or 1 space per 1,000 sq. ft. of gross floor area; plus, one space per company vehicle.	1	Per 20 vehicle spaces
18.	Public utilities	1 space per two employees on largest shift (minimum 2 spaces); plus, one space per company vehicle.	1	Per 20 vehicle spaces

N.13

Section 157.418

(A) Notice by City Manager/Recorder to interested persons. Within 30 days of receipt of a complete application, including payment of the required fee in full, the City Manager/Recorder shall send by first class mail, a notice of the application to the following:

[...]

(7) Public agencies providing transportation facilities and services.

N.14

Proposed language is based on recommended language from *Technical Memo #3 and Proposed New Code* dated August 5, 2022

157.513.03 Decision Criteria

Amendments to the Comprehensive Plan or Development Ordinance text may be approved if the evidence can substantiate the following:

(A) There are no negative impacts of the proposed amendment on land use and development patterns within the city, as measured by:

1. Traffic generation and circulation patterns;

2. Demand for public facilities and services;

3. Economic activities;

4. Protection and use of natural resources;

5. Compliance of the proposal with existing adopted special ¬purpose plans or programs.

(B) A demonstrated need exists for the proposed amendment.

(C) The proposed amendment complies with all applicable Statewide Planning Goals and administrative rule requirements.

(D) The amendment is appropriate as measured by at least one of the following criteria:

1. It corrects identified error(s) in the provisions of the plan.

2. It represents a logical implementation of the plan.

3. It is mandated by changes in federal, state, or local law.

4. It is otherwise deemed by the City Council to be desirable, appropriate, and proper.

N.15

Proposed language is based on recommended language from *Technical Memo #3 and Proposed New Code* dated August 5, 2022

157.525.01 Multiple Applications

Applications for more than one land use action for the same property may, at the applicant's discretion, be heard or reviewed concurrently. Multiple land use requests involving different processing Types shall be heard and decided at the higher processing Type. For example, an application involving a Conditional Use (Type III) with an Adjustment (Type II) shall be reviewed and decided as a Type III request. A Final Decision, unless appealed, shall be granted for each request and each request is appealable individually.

(A) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors, and sites for their identified functions.

Wheeler

Comprehensive Plan Recommendations

Transportation policies are reflected in the City of Wheeler's Comprehensive Plan. Updated policy statements recommended for Wheeler echo the goals and objectives developed for the TSP project early in the planning process. To achieve this, this memorandum recommends the following Comprehensive Plan amendment actions:

- Revise the Comprehensive Plan's Transportation Goal to incorporate project goals and objectives.
- Adopt the Transportation System Plan by reference to serve as the transportation element of the Comprehensive Plan.

Comprehensive Plan

To ensure policy consistency, the Wheeler Comprehensive Plan should be updated to incorporate the TSP's goals and objectives. Transportation policies are addressed under Comprehensive Plan Goal 12. Generally, the policies seek to promote and maintain a safe multi-modal transportation system that provide options for all users. It seeks to limit additional access points on US 101. These policies should be modified to incorporate the goals and objectives of the TSP.

Recommended Amendments

Recommended policy language that incorporates the TSP's goals and objectives is provided below. Recommended additions are shown using underline formatting and recommended deletions are shown using ~~strikeout~~ formatting.

> THE CITY OF WHEELER, OREGON COMPREHENSIVE PLAN
>
> Statement of Goals and Policies
>
> INTRODUCTION:
>
> GOAL 12: TRANSPORTATION
>
> ~~The State of Oregon does not currently have a transportation plan. Without a state level plan the needed repairs and maintenance of roads is not addressed comprehensively and therefore falls to each county and city. The expense of such upkeep and development are often cost prohibitive to the City. As a result Wheeler~~

~~should create its own plan to address the needs of the community. The Vision clearly prioritized improving public safety by providing off-street bike and pedestrian trails and increasing an intercity trail system. These issues must be included in any long range planning the City undertakes to improve access to funding that is often limited and competitive.~~

GOAL: To provide and encourage a safe, convenient and economic transportation system.

POLICIES:

~~1. The City supports efforts to provide a broad range of transportation options for all users.~~

~~2. The City shall seek to maintain a multi-modal transportation system plan to provide and strengthen safe and efficient transportation connections between the highway, the community, the downtown, and the waterfront.~~

~~3. The City shall provide clear standards for highway and street construction projects.~~

~~4. Street developments shall be designed consistent with city standards to create a minimal need for cutting and filling.~~

~~5. The City shall maintain a street master plan.~~

~~6. Where the City determines that street standards cannot be met, the City Council may approve an alternative design if appropriate support is provided by a site investigation report and engineering recommendations.~~

~~7. The City shall be notified prior to the installation of any underground utility in a City right-of-way. The City will require the property owner and / or their agent(s) authorized by the City to be responsible for the cost of improving or restoring the road consistent with City standards.~~

~~8.~~1. Additional access points to US Highway 101 shall be discouraged including those within new residential developments. Access to commercial uses should be provided by a consolidated access point.

~~9. The City will participate in Transportation Studies within the Wheeler jurisdiction with the intention of providing safer and more efficient highway transportation through Wheeler.~~

~~10. The City of Wheeler 2006 Transportation System Plan is part of the Comprehensive Plan.~~

~~11. Future improvement plans should not preclude passenger rail services to Wheeler.~~

~~12. To enhance public safety and recreational opportunities the City supports the development of the planned regional multi-use bicycle and pedestrian Salmonberry Trail designed to pass through the City by utilizing the Port of Tillamook Bay rail right-of-way and/or by sharing portions of local vehicular streets or US Highway 101.~~

~~13. When transportation planning or development work is undertaken within the Wheeler jurisdiction, the Wheeler Planning Commission or another committee designated by the City Council shall be used by the Oregon Department of Transportation as its citizen involvement committee.~~

~~14. The Oregon Department of Transportation (ODOT) shall coordinate any Transportation Studies, Transportation System Plans, and highway improvements within the City jurisdiction with the City and the Port of Tillamook Bay Railroad to insure that their combined improvement plans are consistent with the criteria in Policy 15.~~

~~15. Transportation improvement plans shall address the following considerations:~~

~~a. The enhancement of pedestrian and vehicular access across Highway 101;~~

~~b. The maintenance or improvement of parking facilities along Highway 101;~~

~~c. The minimization of short-term disruptions which would adversely affect the business and residential areas of Wheeler;~~

~~d. The enhancement of the long range viability of the downtown and waterfront areas;~~

~~e. The minimization of noise and air pollution impacts on adjacent areas;~~

~~f. The provision of appropriate landscaping;~~

~~g. The protection of views across Nehalem Bay and surrounding area;~~

~~h. The enhancement of access to and along the waterfront; and~~

~~i. Opportunities to improve the safety of the coastal bike route including but not limited to such means as: constructing separate bike lanes, widening the highway shoulders, or diverting bike traffic.~~

2. The City will support equitable access for underserved and vulnerable populations through compliance with ADA standards for new transportation infrastructure improvements and upgrades to existing infrastructure that does not meet ADA standards.

3. The City will support the development of planned regional bicycle and pedestrian trails, including the Salmonberry Trail, Oregon Coast Trail, and Tillamook County Water Trail.

4. The City will support streetscape improvements to improve downtown areas, including, but not limited to, improved landscaping pedestrian scale lighting, benches, bicycle racks, and street trees.

5. The City will support alternative travel modes that reduce vehicle travel between cities, including, but not limited to, regional shuttle services or water taxis.

6. The City will prioritize improvements to non-motorized routes that include pedestrian and bicycle facilities between Nehalem Bay communities.

7. The City should prioritize enhancing pedestrian and bicycle crossings on US 101 that connect businesses and recreational destinations with neighborhoods.

8. The City will support improvements that increase visibility of transportation users in constrained areas, such as hills and blind curves.

9. The City shall prioritize improvements that address known safety issues at locations with fatal or severe injury crashes, crashes involving bicyclists or pedestrian, and vehicles entering and exiting US 101.

10. The City will coordinate with ODOT to implement engineering and traffic calming strategies on US 101 to reduce vehicle speeds and are consistent with ODOT's Highway Design Manual and other local and regional planning efforts.

11. The City should maintain transportation infrastructure so that facilities can withstand extreme weather evens and aid in evacuation efforts.

12. The City will support improvements to traffic circulation and access for fire and emergency vehicles.

13. The City shall prioritize cost-effective transportation improvements.

14. The City will prioritize building out sidewalks and crossings in the commercial core to support safer connections for residents and visitors that want to access key destinations.

15. The City should support, and provide where able, improvements such as but not limited to wayfinding, pedestrian scale signage, lighting, landscaping, and amenities to create a sense of place.

Transportation System Plan

It is recommended that the City adopt the updated TSP as a replacement to the TSP that was adopted in 2001. By legislatively adopting the "plan" elements of the TSP, the City will have a policy framework on which to base compliance-related development requirements and to seek public financing for recommended improvements. The TSP should be adopted by reference as the transportation element of the Comprehensive Plan.

Code Update Recommendations

Code Update Summary

Table 3 summarizes Wheeler Code amendment recommendations and corresponding TPR references. Amendments to the code are intended to implement updated transportation standards and to be consistent with the TPR. In addition, the amendments are consistent with the format and proposed changes of the concurrent Code update project for the City of Nehalem where noted.

Table 3: Wheeler TSP Code Update Recommendations

Reference Number	Ordinance Section	Proposed Amendments	Comments/TPR Citation
W.1	4.02.02(B)	Update pavement and right-of-way width standards in accordance with TSP recommendations.	OAR660-012-0045(7)
W.2	Section 4.02.05	Add requirements for walkways/sidewalks for all street frontages and bikeways along arterials and collectors.	OAR660-012-0045(3)(b)
W.3	Section 4.02.08	Modify the section for traffic impact analysis (TIA) to include authority to apply conditions of approval.	OAR 660-012-0045(2)(b)

Reference Number	Ordinance Section	Proposed Amendments	Comments/TPR Citation
W.4	Section 4.03.07	Add pedestrian and bicycle access and circulation requirements for commercial, multi-family, and light industrial uses where the parking areas exceed a certain size or number of spaces.	OAR660-012-0045(3)(b)
W.5	Section 5.12.03	Add criteria to ensure that amendments are consistent with adopted TSP policies and planned transportation facilities.	OAR660-012-0045(2)(g) and -0060
W.6	Section 5.508.05	Add criteria that commercial, light industrial, and multifamily uses comply with the pedestrian and bicycle access circulation requirements in Section 4.03.07. Add provisions for transit access improvements and include standards for bicycle and pedestrian access and connectivity to transit facilities.	OAR660-012-0045(3)(b), -0045(3)(e), and -0045(6)
W.7	Section 5.508.07	Add or amend provisions for additional transportation improvements as conditions of approval, including improvements that facilitate bicycle and pedestrian travel.	OAR660-012-0045(2)(e), -0045(3)(c), and -0045(7)

Recommended Amendments

Proposed language is based on recommended language from Wheeler Development Code – 2021 Planning Commission Draft memorandum dated November 5, 2021. Recommendations are in addition to or further modify language proposed in the memorandum.

W.1

Section 4.02.02(B) Minimum rights-of-way widths.

~~*Minimum Right-of-Way Widths*~~					
~~*Classification*~~	~~*Total ROW Width*~~	~~*Curb-to-Curb Pavement Width**~~	~~*Travel Lanes**~~	~~*Parking Lanes**~~	~~*Sidewalks**~~
~~Arterial~~	~~60'~~	~~40'~~	~~12'~~	~~8'~~	~~6'~~

~~Minimum Right-of-Way Widths~~					
~~Classification~~	~~Total ROW Width~~	~~Curb-to-Curb Pavement Width*~~	~~Travel Lanes*~~	~~Parking Lanes*~~	~~Sidewalks*~~
~~Collector~~	~~50'~~	~~38'~~	~~11'~~	~~8'~~	~~6*~~
~~Driveway~~	~~10'~~	~~10'~~	~~10' **~~	~~–~~	~~-~~
~~Private street, alley~~	~~20'~~	~~18'~~	~~9'~~	~~–~~	~~-~~
~~Residential~~ Minor	~~40'~~	~~32'~~	~~9'~~	~~7'~~	~~4'~~
	~~30'~~	~~25'~~	~~9'~~	~~7' **~~	~~4'~~

~~**NOTES TO TABLE:**~~

~~* Widths listed are minimum amounts and are for each lane and/or side.~~

~~** Width listed is for a single allowable lane.~~

~~***~~ ~~As the only arterial in Wheeler is U.S. 101, which is under the jurisdiction of ODOT, values presented above are consistent with recommendation in the Blueprint for Urban Design (BUD).~~

	Applicability	Right of Way	Travel Lanes	Min. Lane Width	Center Turn Lane	On-street Parking	Bike Facility	Sidewalk	Planter/Buffer (one side)
Minor Collector	See Map 6 in TSP	34 feet	2	11 feet	n/a	n/a	n/a	6 feet	n/a
Minor Collector with Sharrows	See Map 6 in TSP	34 feet	2	11 feet	n/a	n/a	Sharrows	6 feet	n/a
Local	See Map 6 in TSP	22 feet	1	22 feet	n/a	n/a	n/a	n/a	n/a
Local with Sharrows	See Map 12 in TSP	22 feet	1	22 feet	n/a	n/a	Sharrow	n/a	n/a
Local with Advisory Bike Lanes	See Map 12 in TSP	22 feet	1	10 feet	n/a	n/a	6 feet Advisory Bike Lanes	n/a	

W.2

Section 4.02.05 Sidewalks

Public sidewalk improvements are required for all property development in the City of Wheeler.

[…]

(G) Improvements. Any improvements along arterial or collector streets must include sidewalk. Pedestrian access must be provided for wherever transit facilities or a transit stop is located,

W.3

Section 4.02.08 Traffic Impact Analysis

The purpose of this subsection is to coordinate the review of land use applications with roadway authorities and to implement Section 660-012-00452(e) of the state Transportation Planning Rule, which requires the City to adopt a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities. The following provisions also establish when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Analysis must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; the required contents of a Traffic Impact Analysis; and who is qualified to prepare the analysis.

(A) When a Traffic Impact Analysis is Required. The City or other road authority with jurisdiction may require a Traffic Impact Analysis (TIA) as part of an application for development, a change in use, or a change in access. A TIA shall be required where a change of use or a development would involve one or more of the following:

1. A change in zoning or a plan amendment designation;
2. Operational or safety concerns documented in writing by a road authority;
3. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more;
4. An increase in peak hour volume of a particular movement to and from a street or highway by 20 percent or more;
5. An increase in the use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day;
6. Existing or proposed approaches or access connections that do not meet minimum spacing or sight distance requirements or are located where vehicles entering or leaving the property are restricted, or such vehicles are likely to

queue or hesitate at an approach or access connection, creating a safety hazard; or

7. A TIA required by ODOT pursuant to OAR 734-051.

(B) Traffic Impact Analysis Preparation. A professional engineer registered by the State of Oregon, in accordance with the requirements of the road authority, shall prepare the Traffic Impact Analysis.

(C) The TIA shall be reviewed according to the following criteria:

1. The analysis complies with the content requirements set forth by the City and/or other road authorities as appropriate;

2. The study demonstrates that adequate transportation facilities exist to serve the proposed land use action or identifies mitigation measures that resolve identified traffic safety problems in a manner that is satisfactory to the road authority;

3. For affected City facilities, the study demonstrates that the project meets mobility and other applicable performance standards established in the TSP, and includes identification of multi-modal solutions used to meet these standards, as needed; and

4. Proposed design and construction of transportation improvements are in accordance with the design standards and the access spacing standards specified in this ordinance and the TSP.

(D) Conditions of Approval.

1. The City may deny, approve, or approve a proposal with conditions necessary to meet operational and safety standards; provide the necessary right-of-way for planned improvements; and require construction of improvements to ensure consistency with the future planned transportation system.

2. Construction of off-site improvements, including those related to bicycle and pedestrian facilities, may be required to mitigate impacts resulting from development that relate to capacity deficiencies and public safety; and/or to upgrade or construct public facilities to City standards.

3. Where the existing transportation system is shown to be impacted by the proposed use, improvements such as paving; curbing; installation of or

contribution to traffic signals; and/or construction of sidewalks, bikeways, access ways, paths, or streets that serve the proposed use may be required.

4. Improvements required as a condition of development approval, when not voluntarily provided by the applicant, shall be roughly proportional to the impact of the development on transportation facilities. Findings in the development approval shall indicate how the required improvements directly relate to and are roughly proportional to the impact of development.

W.4

4.03.08 Access and Circulation

For commercial, multi-family, and light industrial development that are required to include parking for more than five vehicles shall provide pedestrian access and circulation as follows:

(A) A pedestrian walkway system shall extend throughout the development site and connect to any existing adjacent sidewalks, parking areas, or transit facilities, and to all future phases of the development, as applicable.

(B) Walkways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas, playgrounds, and public rights-of-way conforming to the following standards:

1. The walkway is reasonably direct. A walkway is reasonably direct when it follows a route that does not deviate unnecessarily from a straight line, or it does not involve a significant amount of out-of-direction travel.

2. The walkway is designed primarily for pedestrian safety and convenience, meaning it is reasonably free from hazards and provides a reasonably smooth and consistent surface and direct route of travel between destinations. The [City decision-making body] may require landscape buffering between walkways and adjacent parking lots or driveways to mitigate safety concerns.

3. The walkway network connects to all primary building entrances and, where required, Americans with Disabilities Act (ADA) requirements.

(C) Where a walkway abuts a driveway or street it shall be raised six inches and curbed along the edge of the driveway or street. Alternatively, the [City decision-making body] may approve a walkway abutting a driveway at the same grade as the driveway if the

walkway is physically separated from all vehicle-maneuvering areas. An example of such separation is a row of bollards (designed for use in parking areas) with adequate minimum spacing between them to prevent vehicles from entering the walkway.

(D) Where a walkway crosses a parking area or driveway ("crosswalk"), it shall be clearly marked with contrasting paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrasting material). The crosswalk may be part of a speed table to improve driver-visibility of pedestrians.

(E) Walkways and sidewalks shall be constructed of concrete, asphalt, brick or masonry pavers, or other durable surface, as approved by the City Engineer, and not less than five feet wide. Multi-use paths (i.e., designed for shared use by bicyclists and pedestrians) shall be concrete or asphalt.

(F) Walkway surfaces may be concrete, asphalt, brick or masonry pavers, or other City-approved durable surface meeting ADA requirements. Walkways shall be not less than four feet in width. The [City decision-making body] may also require six foot wide, or wider, concrete sidewalks in other developments where pedestrian traffic warrants walkways wider than four feet.

(G) Multi-use pathways, where approved, shall be [10-12] feet wide and constructed of asphalt or concrete.

W.5

Section 5.12.03 Decision Criteria

Amendments to the Comprehensive Plan or Development Ordinance text shall be approved if the evidence can substantiate the following:

[…]

(E) The amendment is consistent with the adopted Transportation System Plan policies and goals and planned transportation facilities.

W.6

Section 5.508.05 Decision Criteria

[…]

(G) In addition, new commercial and multi-family building must comply with the following:

[…]

12. The access and circulation requirements Section 4.03.08.

(I) Bicycle and pedestrian access and connectivity shall be provided wherever a bus/transit stop is located on or adjacent to the subject property or subdivision.

W.7

Section 5.508.07 Conditions of Approval

In approving a Site Design Review, the City may impose such conditions as it deems appropriate to ensure that the intent of this Section is carried out.

These may include providing bicycle and/or pedestrian improvements, including but not limited to sidewalk repair or installation, bicycle lanes or paths, on-site bicycle/pedestrian access and circulation, or multi-use trails or paths.