

2017 Gearhart Transportation System Plan: Volume 2



August 2017

Gearhart

Transportation System Plan

Prepared for:

City of Gearhart

Oregon Department of Transportation

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Volume 2 Contents

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.

Glossary	Section A
Memo 1: Plan Review	Section B
Memo 2: Funding for Transportation System Improvements	Section C
Memo 3: Facility Standards	Section D
Memo 4: Transportation System Conditions, Deficiencies and Needs	Section E
Memo 5: Transportation System Investments	Section F
Memo 6: Cost and Prioritization of Proposed Investments	Section G
Memo 7: Plan and Development Code Amendments	Section H
Stakeholder Outreach Memo	Section I
Public Involvement Summary	Section J
Traffic Impact Analysis Guidelines	Section K

Section A

Glossary

Glossary

- **Access Management:** Access management is a broad set of techniques that balance the need to provide for efficient, safe, and timely travel with the ability to allow access to individual destinations. Measures may include but are not limited to restrictions on the type and amount of access to roadways, and use of physical controls such as signals and channelization including raised medians, to reduce impacts of approach road traffic on the main facility.
- **Alternative Modes:** Transportation alternatives other than single-occupant automobiles such as rail, transit, bicycles and walking.
- **Aspirational Projects:** Projects that are not reasonably likely to be funded during the 20-year planning horizon, but do address an identified problem and are supported by the city and ODOT.
- **Capacity:** The maximum number of vehicles or individuals that can traverse a given segment of a transportation facility with prevailing roadway and traffic conditions.
- **Collector Streets:** These streets connect many parts of the city and often serve traffic traveling to and from principal arterials. These roadways provide greater accessibility to neighborhoods, connect to major activity generators, and provide efficient through movement for local traffic.
- **Constrained Projects:** Constrained projects are those projects that the city and ODOT believe are reasonably likely to be funded during the 20-year planning horizon based on the constrained funding threshold established through city and ODOT funding analysis.
- **Level of Service (LOS):** LOS is a “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay is excessive and demand exceeds capacity, typically resulting in long queues and delays.
- **Local Streets:** These streets provide more direct access to residences without serving through travel. These roadways are often lined with homes and are designed to serve lower volumes of traffic.
- **Mobility Targets:** The level of congestion the corresponding jurisdiction has defined as acceptable. Mobility targets are in the form of LOS or v/c ratios.
- **Multi-Modal:** Involving several modes of transportation including bus, rail, bicycle, motor vehicle, etc.
- **Oregon Highway Plan (OHP):** The document that establishes long range policies and investment strategies for the state highway system in Oregon.
- **Peak Period or Peak Hour:** The period of the day with the highest number of travelers. This is normally between 4-6 p.m. on weekdays.
- **Principal Arterial Streets:** These are state roadways. These roadways serve the highest volume of motor vehicle traffic and are primarily used for longer distance regional trips.
- **Project Advisory Committee (PAC):** A committee comprised of local residents, business representatives, and agency technical staff that reviewed and commented on each memorandum and met with the project team at key stages during the project. This group helped the project team find agreement on project issues and alternatives.

- **Right-Of-Way (ROW):** A general term denoting publicly-owned land or property upon which public facilities and infrastructure is placed.
- **Safety Priority Index System (SPIS):** An indexing system used by Oregon Department of Transportation to prioritize safety improvements based on crash frequency and severity on state facilities.
- **Shared-Use Path:** Off-street route (typically recreationally focused) that can be used by several transportation modes, including bicycles, pedestrians and other non-motorized modes (i.e. skateboards, roller blades, etc.).
- **Transportation Demand Management (TDM):** A policy tool as well as any action that removes single occupant vehicle trips from the roadway network during peak travel demand periods.
- **Transportation Impact Analysis (TIA):** A study that evaluates the potential impacts a project may have on the transportation system, and determines mitigations required to meet transportation standards. These are necessary for projects to be approved (e.g., proposed developments, roadway extensions, zone changes).
- **Transportation System Management (TSM):** Management strategies such as signal improvements, traffic signal coordination, traffic calming, access management, local street connectivity, and intelligent transportation systems.
- **Transportation System Management and Operations (TSMO):** Strategies and policies that work towards improving mobility through cost-effective methods, and can be categorized as transportation system management or transportation demand management.
- **Transportation System Plan (TSP):** Is a comprehensive plan that is developed to provide a coordinated, seamless integration of continuity between modes at the local level as well as integration with the regional transportation system.
- **Urban Growth Boundary (UGB):** The regional boundary that encompasses zoning designations in an urban area.
- **Volume-to-capacity (v/c) ratio:** A v/c ratio is a decimal representation (between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. The ratio is the peak hour traffic volume divided by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. A ratio approaching 1.00 indicates increased congestion and reduced performance.

Section A

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Section B

Memo I: Plan Review

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.



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MEMORANDUM #1

DATE: February 8, 2016

TO: Gearhart TSP Project Management Team

FROM: Carl Springer, PE, PTP; Kevin Chewuk, PTP; Charles Tso, DKS Associates

SUBJECT: Plan Review

P14180-006

This memorandum summarizes planning documents, policies, and regulations that are applicable to the Gearhart Transportation System Plan (TSP) (see Appendix A for a complete list). The City does not have a TSP today. The new TSP will be developed based on information obtained from system analysis and stakeholder input to address transportation needs through the year 2040. The TSP is required to comply and coordinate with the plans, policies, and regulations described in this document.

Key Issues Identified From Background Plans

The City has a variety of transportation-related issues that should be addressed to better serve existing and future residents and visitors, including the following:

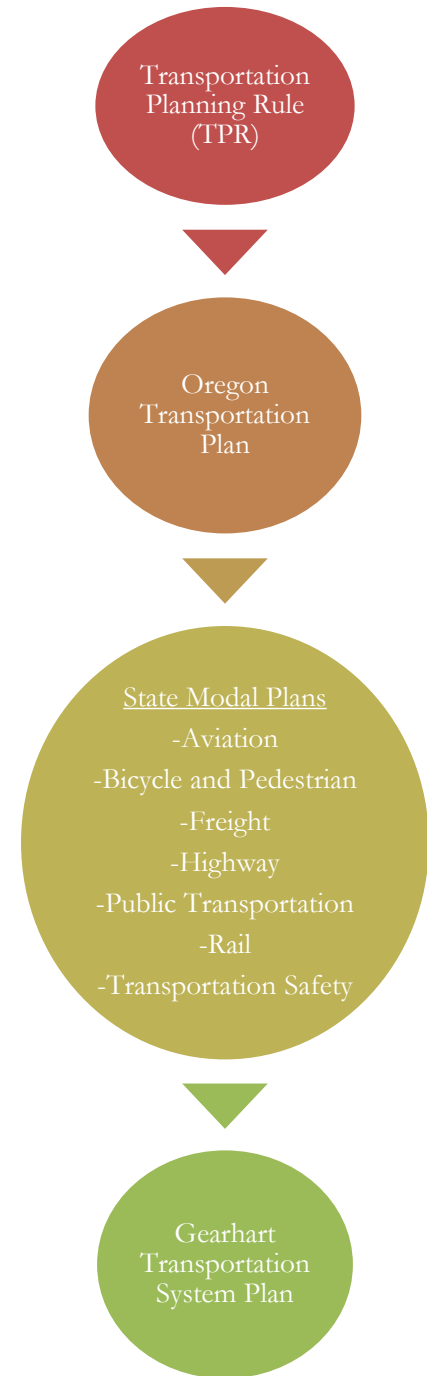
- Limited street connectivity and inconsistent design standards.
- Limited provisions for pedestrians, cyclists, and transit along and across Highway 101.
- A need for enhanced tsunami evacuation routes for vehicles and pedestrians.
- A need for development of a local walking and biking network to provide connections to destinations in Gearhart and recreational opportunities for pedestrians and cyclists.
- A lack of pedestrian and bicycle facilities to provide safe routes to Gearhart Elementary School and connections to Broadway Middle School and Seaside High School in Seaside.
- A need for improved transit service and better coordination with the Sunset Empire Transportation District for the provision of transit services in Gearhart.
- Lack of provisions to comply with the Oregon TPR in the City's zoning and development code.
- Special summer traffic impacts, in the city on the highway
- A prioritized list of transportation improvements

Transportation System Planning in Oregon

Transportation System Planning in Oregon is required by state law as one of the 19 statewide planning goals¹ (Goal 12 – Transportation). The Transportation Planning Rule (TPR), OAR 660-012², defines how to implement State Planning Goal 12. Specifically, the TPR directs the State to prepare a TSP, referred to as the Oregon Transportation Plan (OTP); Metropolitan Planning Organizations (MPOs) to prepare a Regional Transportation Plan (RTP) that is consistent with the OTP; and Counties and Cities to prepare local TSPs that are consistent with the OTP and RTP.

The TPR requires each local government to amend its land use regulations to implement the TSP. 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. This policy is achieved through a variety of measures, including access control measures, standards to protect future operations of roads, and expanded notice requirements and coordinated review procedures for land use applications. Measures also include a process to apply conditions of approval to development proposals, and 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.

The TPR requires TSPs to integrate comprehensive land use planning with transportation planning and to promote systems that serve statewide, regional and local transportation needs. State transportation requirements aim to improve community livability by encouraging land use patterns and transportation systems that make it more convenient and efficient for people to walk, bicycle, use transit and drive less to meet their daily needs.



¹ Statewide Planning Goals: <http://www.oregon.gov/LCD/goals.shtml>

² Transportation Planning Rule: http://arcweb.sos.state.or.us/rules/OARS_600/OAR_660/660_012.html

What this means for the Gearhart TSP: Requirements in TPR Sections -0020 and -0035 will direct the development and final contents of the TSP. Requirements in Sections -0045 and -0060 will direct potential amendments to the City's Land Development Code during the implementation stage of the TSP process. These potential amendments will be addressed in detail in the regulatory review in Technical Memorandum #7 (Task 6.1).

As the guiding document for local TSPs, the Oregon Transportation Plan (OTP) establishes goals, policies, strategies and initiatives that address the core challenges and opportunities facing transportation in Oregon. The goals and policies are further implemented by various topic plans, including the Aviation System Plan, Bicycle and Pedestrian Plan, Freight Plan, Highway Plan, Public Transportation Plan, Rail Plan and the Transportation Safety Action Plan.

Each of the OTP's seven goals is defined by more specific policies and strategies:

OTP Goal 1, Mobility and Accessibility, aims to enhance Oregon's quality of life and economic vitality by providing a balanced, efficient, cost-effective and integrated multimodal transportation system that ensures appropriate access to all areas of the state, the nation and the world, with connectivity among modes and places.

- **Policy 1.1: Development of an Integrated Multimodal System.** It is the policy of the State of Oregon to plan and develop a balanced, integrated transportation system with modal choices for the movement of people and goods.
 - **Strategy 1.1.1:** Plan and develop a multimodal transportation system that increases the efficient movement of people and goods for commerce and production of goods and services that is coordinated with regional and local plans. Require regional and local transportation plans to address existing and future centers of economic activity, routes and modes connecting passenger facilities and freight facilities, intermodal facilities and industrial land, and major intercity and intra-city transportation corridors and supporting transportation networks.
 - **Strategy 1.1.2:** Promote the growth of intercity bus, truck, rail, air, pipeline and marine services to link all areas of the state with national and international transportation facilities and services. Increase the frequency of intercity services to provide travel options.
 - **Strategy 1.1.4:** In developing transportation plans to respond to transportation needs, use the most cost-effective modes and solutions over the long term, considering changing conditions and based on the following:
 - Managing the existing transportation system effectively.
 - Improving the efficiency and operational capacity of existing transportation infrastructure and facilities by making minor improvements to the existing system.
 - Adding capacity to the existing transportation system.
 - Adding new facilities to the transportation system.
- **Policy 1.2: Equity, Efficiency and Travel Choices.** It is the policy of the State of Oregon to promote a transportation system with multiple travel choices that are easy to use, reliable, cost-effective and accessible to all potential users, including the transportation disadvantaged.

- **Strategy 1.2.1:** Develop and promote inter and intra-city public transportation.
- **Strategy 1.2.2:** Better integrate, locate, and design passenger and freight multimodal transportation facilities and connections to expedite travel and provide travel options. Locate and design transportation facilities to connect with other modes.
- **Policy 1.3: Relationship of Interurban and Urban Mobility.** It is the policy of the State of Oregon to provide intercity mobility through and near urban areas in a manner which minimizes adverse effects on urban land use and travel patterns and provides for efficient long distance travel.
 - **Strategy 1.3.1:** Use a regional planning approach and inter-regional coordination to address problems that extend across urban growth boundaries.
 - **Strategy 1.3.2:** In coordination with affected jurisdictions, develop and manage the transportation network so that local trips can be conducted primarily on the local system and the interstate and statewide facilities can primarily serve intercity movement and interconnect the systems. Develop, maintain and improve parallel roadways, freight rail, transit, bus rapid transit, commuter rail and light rail to provide alternatives to using intercity highways for local trips where possible.

What this means for the Gearhart TSP: The TSP will help coordinate future economic growth with the transportation system. Development of intercity and intra-city transportation corridors and local transportation networks needs to consider long-term transportation and land use impacts. It will also promote the most cost-effective modes and solutions over the long term that are easy to use, reliable, cost-effective and accessible to all potential users, including the transportation disadvantaged.

OTP Goal 2, Management of the System, aims to improve the efficiency of the transportation system by optimizing the existing transportation infrastructure capacity with improved operations and management.

- **Policy 2.1: Capacity and Operational Efficiency.** It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long term benefit of people and goods movement.
 - **Strategy 2.1.1:** Promote transportation demand management and other transportation system operations techniques that reduce peak period travel, help shift traffic volumes away from the peak period and improve traffic flow. Such techniques may include high occupancy vehicle lanes with express transit service, truck-only lanes, van/carpools, park-and-ride facilities, parking management programs, telework, flexible work schedules, peak period pricing, ramp metering, traveler information systems, traffic signal optimization, route diversion strategies, incident management and enhancement of rail, transit, bicycling and walking.
 - **Strategy 2.1.2:** Protect the integrity of statewide transportation corridors and facilities from encroachment by such means as managing access to state highways, limiting interchanges, creating safe rail crossings and controlling incompatible land use around airports, ports, pipelines and other intermodal passenger and freight facilities.

- **Strategy 2.1.3:** Use advanced traveler information devices, incident management, speed management, improvements to signaling systems and other technologies to extend the efficiency, safety and capacity of transportation systems. Develop protocols and implement methods for alternate routing to respond to incidents.
- **Strategy 2.1.4:** Enhance efficiency and reduce conflicts among transportation users, for example by reducing bottlenecks and geometric constraints, and improving or removing modal crossings. Provide for a network of arterials and highways to efficiently move goods and services while enhancing safety and community movements on local streets. Provide for signal prioritization and road patterns that support public transit. Support rail reconfiguration and additional tracks that benefit passenger and freight movements.

What this means for the Gearhart TSP: The TSP will prioritize travel demand management and transportation system operations techniques that fine tune existing systems and policies over costly major roadway capacity improvements.

OTP Goal 3, Economic Vitality, promotes the expansion and diversification of Oregon’s economy through the efficient and effective movement of people, goods, services and information in a safe, energy-efficient and environmentally sound manner.

- **Policy 3.2 – Moving People to Support Economic Vitality.** It is the policy of the State of Oregon to develop an integrated system of transportation facilities, services and information so that intrastate, interstate and international travelers can travel easily for business and recreation.
 - **Strategy 3.2.2:** In regional and local transportation system plans, support options for traveling to employment, services and businesses. These include, but are not limited to, driving, walking, bicycling, ridesharing, public transportation and rail.
 - **Strategy 3.2.4:** Address scenic values in state, regional and local planning, improvements and maintenance. Support state and federal Scenic Byways and Tour Routes and connections to parks and recreation areas.
 - **Strategy 3.2.5:** Promote tourism via air, bicycles, motor vehicles, rail and ships. Support connections to recreational trails.
- **Policy 3.3 – Downtowns and Economic Development.** It is the policy of the State of Oregon to provide transportation improvements to support downtowns and to coordinate transportation and economic development strategies.
 - **Strategy 3.3.1:** Coordinate private and public resources to provide transportation improvements and services to help stimulate active and vital downtowns, economic centers and main streets.

What this means for the Gearhart TSP: The TSP will identify projects that support local business opportunities, and ensuring the efficient movement of people and goods to recreational, employment, housing and other destinations in Gearhart.

OTP Goal 4, Sustainability, seeks to provide a transportation system that meets present needs without compromising the ability of future generations to meet their needs from the joint perspective of environmental, economic and community objectives. This system is consistent with, yet recognizes differences in, local and regional land use and economic development plans. It is efficient and offers choices among transportation modes. It distributes benefits and burdens fairly and is operated, maintained and improved to be sensitive to both the natural and built environments.

- **Policy 4.1 – Environmentally Responsible Transportation System.** It is the policy of the State of Oregon to provide a transportation system that is environmentally responsible and encourages conservation and protection of natural resources.
 - **Strategy 4.1.1:** Practice stewardship of air, water, land, wildlife and botanical resources. Take into account the natural environments in the planning, design, construction, operation and maintenance of the transportation system. Create transportation systems compatible with native habitats and species and help restore ecological processes, considering such plans as the Oregon Conservation Strategy and the Oregon Plan for Salmon and Watersheds. Where adverse impacts cannot reasonably be avoided, minimize or mitigate their effects on the environment. Work with state and federal agencies and other stakeholders to integrate environmental solutions and goals into planning for infrastructure development and provide for an ecosystem-based mitigation process.
 - **Strategy 4.1.2:** Encourage the development and use of technologies that reduce greenhouse gases.
- **Policy 4.3 – Creating Communities.** It is the policy of the State of Oregon to increase access to goods and services and promote health by encouraging development of compact communities and neighborhoods that integrate residential, commercial and employment land uses to help make shorter trips, transit, walking and bicycling feasible. Integrate features that support the use of transportation choices.
 - **Strategy 4.3.1:** Support the sustainable development of land with a mix of uses and a range of densities, land use intensities and transportation options in order to increase the efficiency of the transportation system. Support travel options that allow individuals to reduce vehicle use.
 - **Strategy 4.3.2:** Promote safe and convenient bicycling and walking networks in communities. Fill in missing gaps in sidewalk and bikeway networks, especially to important community destinations such as schools, shopping areas, parks, medical facilities and transit facilities. Enhance walking, bicycling and connections to public transit through appropriate community and main street design. Promote facility designs that encourage walking and biking.
 - **Strategy 4.3.4:** Promote transportation facility design, including context sensitive design, which fits the physical setting, serves and responds to the scenic, aesthetic, historic and environmental resources, and maintains safety and mobility.
 - **Strategy 4.3.5:** Reduce transportation barriers to daily activities for those who rely on walking, biking, rideshare, car-sharing and public transportation by providing: Access to public transportation and the knowledge of how to use it. Facility designs that consider the needs of the mobility-challenged including seniors, people with disabilities, children and non-English speaking populations.

What this means for the Gearhart TSP: The TSP will identify solutions that support the movement of people, regardless of mode, and that reduce transportation barriers to daily activities for walkers, bikers and public transportation users. The solutions will be environmentally responsible and should fit the physical setting and context of the surrounding land use.

OTP Goal 5, Safety and Security, aims to plan, build, operate and maintain the transportation system so that it is safe and secure.

- **Policy 5.1 – Safety.** It is the policy of the State of Oregon to continually improve the safety and security of all modes and transportation facilities for system users including operators, passengers, pedestrians, recipients of goods and services, and property owners.
 - **Strategy 5.1.3:** Ensure that safety and security issues are addressed in planning, design, construction, operation and maintenance of new and existing transportation systems, facilities and assets.
- **Policy 5.2 – Security.** It is the policy of the State of Oregon to provide transportation security consistent with the leadership of federal, state and local homeland security entities.
 - **Strategy 5.2.3:** Improve the evacuation and emergency response capabilities of the urban and rural transportation system.

What this means for the Gearhart TSP: The TSP will develop projects that ensure the transportation system maintains and improves individual safety and security and maximizes public safety and service access.

OTP Goal 6, Funding the Transportation System, seeks to create a transportation funding structure that will support a viable transportation system to achieve state and local goals today and in the future.

- **Policy 6.1 – Funding Structure.** It is the policy of the State of Oregon to develop a transportation finance structure that addresses the public funding aspects of all modes and reinforces plan strategies. This structure should include provisions for flexibility in the use of new funding sources and new partnerships to achieve system integration while also protecting transportation funds for transportation purposes.
 - **Strategy 6.1.2:** Develop and maintain adequate resources for demonstrated and proven transportation needs for all transportation modes and jurisdictions.

What this means for the Gearhart TSP: The TSP will include an assessment of the level of transportation funding projected to be available through the 20-year planning horizon in comparison to the cost of developing a transportation system that is able to meet the city's needs. Opportunities to establish stable funding sources will be discussed and project prioritization will consider the feasibility of funding.

OTP Goal 7, Coordination, Communication and Cooperation, ensures coordination, communication and cooperation among transportation users, providers and those most affected by transportation activities to align interests, remove barriers and bring innovative solutions so the transportation system functions as one system.

- **Policy 7.1 – A Coordinated Transportation System.** It is the policy of the State of Oregon to work collaboratively with other jurisdictions and agencies with the objective of removing barriers so the transportation system can function as one system.
 - **Strategy 7.1.1:** Examine transportation functions among and within state and local agencies and providers in order to make the delivery of transportation services and facilities more efficient. Consider consolidation of functions where it can improve efficiency, accountability and service delivery.
- **Policy 7.3 – Public Involvement and Consultation.** It is the policy of the State of Oregon to involve Oregonians to the fullest practical extent in transportation planning and implementation in order to deliver a transportation system that meets the diverse needs of the state.
 - **Strategy 7.3.1:** In all phases of decision-making, provide affected Oregonians early, open, continuous, and meaningful opportunity to influence decisions about proposed transportation activities. When preparing and adopting a multimodal transportation plan, modal/topic plan, facility plan or transportation improvement program, conduct and publicize a program for citizen, business, and tribal, local, state and federal government involvement. Clearly define the procedures by which these groups will be involved.
 - **Strategy 7.3.3:** Seek out and facilitate the involvement of those potentially affected including traditionally underserved populations.

What this means for the Gearhart TSP: The TSP will offer public involvement opportunities to all stakeholders and residents, comply with Title VI guidelines, and will coordinate with other jurisdictions and agencies, including Seaside and Clatsop County, to ensure the transportation system limits barriers and functions as one system.

Why does Gearhart need a TSP?

The city does not have an existing TSP, which it needs to comply with the regulations and requirements in the TPR, OTP, and State Modal Plans. This process will result in a TSP for the City of Gearhart that brings them into compliance with the TPR and more appropriately serves their transportation needs.

ODOT Classifications for State Highway 101 in Gearhart

OHP Goal 1, Policy 1A (State Highway Classification System) categorizes state highways for planning and management decisions. Within Gearhart, Highway 101 (aka, US 101) is classified as a Statewide Highway. Statewide Highways 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.

What this means for the Gearhart TSP: While this policy places importance on the efficient travel of through motor vehicle trips on Highway 101, the policy must still be balanced with other goals and objectives of the Oregon Transportation Plan to ensure its multi-modal intentions are addressed.

State Highway Freight System: OHP Goal 1, Policy 1C addresses the need to balance the movement of goods and services with other uses. It states that the timeliness of freight movements should be considered when developing and implementing plans and projects on freight routes. Within Gearhart, Highway 101 is classified as a Federal Truck Route.

What this means for the Gearhart TSP: Transportation solutions along Highway 101 through Gearhart must be accommodating to the Federal Truck Route designation. Federal Truck Routes require 12' travel lanes.

Reduction Review Routes: An Administrative Rule was recently adopted to provide clear direction in the implementation of ORS 366.215³. The rule requires review of all potential actions that will alter, relocate, change or realign a Reduction Review Route that could result in permanent reductions in vehicle-carrying capacity. Reduction of vehicle-carrying capacity means a permanent reduction in the horizontal or vertical clearance of a highway section, by a permanent physical obstruction to motor vehicles located on useable right-of-way subject to Commission jurisdiction, unless such changes are supported by the Stakeholder Forum. If ODOT identifies that an action may result in a reduction of vehicle-carrying capacity, a Stakeholder Forum will be convened to help advise ODOT regarding the effect of the proposed action on the ability to move motor vehicles through a section of highway. Highway 101 through Gearhart is classified as a Reduction Review Route.

What this means for the Gearhart TSP: Transportation improvements recommended on Highway 101 will include a record of the proposed roadway dimensions and sufficient detail to allow for a review of Vehicle-Carrying Capacity during future design.

Scenic Byways: OHP Goal 1, Policy 1D addresses the need to preserve and enhance the scenic assets of designated routes. It requires any transportation improvements along designated routes to consider the aesthetics and design elements of the project, along with safety and performance impacts. Within Gearhart, Highway 101 is classified as a Scenic Byway.

³ ORS 366.215 states the Oregon Transportation Commission may not permanently reduce the vehicle-carrying capacity of an identified freight route. Specific exceptions to this prohibition are allowed by statute. ORS 366.215 states the Oregon Transportation Commission may not permanently reduce the vehicle-carrying capacity of an identified freight route. Specific exceptions to this prohibition are allowed by statute.

What this means for the Gearhart TSP: Transportation improvements recommended along Highway 101 through Gearhart must consider aesthetics and design elements that support the Scenic Byway designation.

Lifeline Routes: OHP Goal 1, Policy 1E designates routes for emergency response in the event of an earthquake, categorized as Tier 1, 2 and 3. The routes identified as Tier 1 are considered to be the most significant and necessary to ensure a functioning statewide transportation network. A functioning Tier 1 lifeline system provides traffic flow through the state and to each region. The Tier 2 lifeline routes provide additional connectivity and redundancy to the Tier 1 lifeline system. The Tier 2 system allows for direct access to more locations and increased traffic volume capacity, and it provides alternate routes in high-population regions in the event of outages on the Tier 1 system. The Tier 3 lifeline routes provide additional connectivity and redundancy to the lifeline systems provided by Tiers 1 and 2. In Gearhart, Highway 101 is classified as Tier 3 lifeline route.

What this means for the Gearhart TSP: The City can use the TSP to designate local lifeline routes to ensure their intended function is considered in system investment and management decisions.

Gearhart Classification for Roadways

With the TSP, Gearhart should establish a functional classification system to manage the roadway network based on a hierarchy according to the intended purpose of each road. From highest to lowest intended usage, the typical classifications are arterials, collectors, and local streets. Roadways with a higher intended usage generally provide more efficient traffic movement (or mobility) through the city, while roadways with lower intended usage provide greater access for shorter trips to local destinations such as businesses or residences.

What this means for the Gearhart TSP: A functional classification system for the City will be developed for the TSP.

How is the Transportation System Managed?

State Highway Mobility Standards: OHP Goal 1, Policy 1F sets mobility targets for ensuring a reliable and acceptable level of mobility on the highway system. Each intersection along state highways has a mobility target requiring that the highway operate at or below a specified volume to capacity (v/c) ratio. The mobility targets applicable to Highway 101 in Gearhart (pursuant to Policy 1F, Table 6) are shown in Table 1.

- Volume to capacity (V/C) ratio: A decimal representation (between 0.00 and 1.00) of the proportion of capacity that is being used (i.e., the saturation) at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than

1.00, the turn movement, approach leg, or intersection is oversaturated and will experience excessive queues and long delays.

Table 1: Highway 101 Intersection Mobility Targets

Highway 101 Segment	Posted Speed Limit	Highway 101 Classification	Highway 101 Signalized Intersections	Unsignalized Intersections	
				US 101 Approaches	Side Street Approaches
US 101 from the north UGB to Shamrock Road	55 mph	Statewide Highway; Inside UGB; Non-MPO	0.80 v/c	0.80 v/c	0.90 v/c
US 101 from Shamrock Road to Garden Terrace	45 mph		0.80 v/c	0.80 v/c	0.90 v/c
US 101 from Garden Terrace to the south UGB	40 mph		0.85 v/c	0.85 v/c	0.90 v/c

Source: Oregon Highway Plan (OHP), Policy 1F, Table 6

OHP Action 1F.3, of Policy 1F allows local jurisdictions to consider alternate mobility standards for state highways where it would be infeasible to meet the standards listed in Table 1 above. The alternative standards shall be clear and objective and must be related to v/c ratios. The standards must demonstrate that it would be infeasible to meet the highway mobility standards listed in Table 1 above and must be adopted as part of the local TSP. In addition, the TSP shall include all feasible actions for:

- Providing a network of local streets, collectors and arterials to relieve traffic demand on state highways and to provide convenient pedestrian and bicycle ways;
- Managing access and traffic operations to minimize traffic accidents, avoid traffic backups on freeway ramps, and make the most efficient use of highway capacity;
- Managing traffic demand, where feasible, to manage peak hour traffic loads on state highways;
- Providing alternative modes of transportation; and
- Managing land use to limit vehicular demand on state highways consistent with the Land Use and Transportation Policy (1B).

The TSP shall include a financially feasible implementation program and shall demonstrate strong public and private commitment to carry out the identified improvements and other actions. The alternate highway mobility standards will become effective only after the Transportation Commission has adopted them.

What this means for the Gearhart TSP: System performance for Highway 101 will be measured, in part, using the adopted mobility targets. The TSP will evaluate the need for adopting alternate mobility targets for Highway 101 if there are no feasible project alternatives identified to meet the existing mobility targets. If found to be necessary, the City may request adoption of alternate mobility targets by the Oregon Transportation Commission.

City and County Mobility Standards: The city of Gearhart does not have adopted mobility standards for intersections under their jurisdiction.

Clatsop County has the following mobility targets that would apply to streets under their jurisdiction in Gearhart (Hillila Road, and McCormick Gardens Road):

- **Signalized, all-way stop, or roundabout controlled intersections:** During the highest one-hour period on an average weekday (typically, but not always the evening peak period between 4 p.m. and 6 p.m. during the spring or fall): The intersection as a whole must meet Level of Service (LOS) “E” or better and a volume to capacity (v/c) ratio not higher than 0.85.
- **Two-way stop and yield controlled intersections:** During the highest one-hour period on an average weekday (typically, but not always the evening peak period between 4 p.m. and 6 p.m. during the spring or fall): All movements serving more than 20 vehicles shall be maintained at LOS “E” or better and a v/c ratio not higher than 0.90. LOS “F” is acceptable at movements serving no more than 20 vehicles during the peak hour.

What this means for the Gearhart TSP: The TSP will establish mobility standards for city streets, to evaluate street performance.

Access Management on Highway 101: The Oregon Access Management Rule⁴ (OAR 734-051) attempts to balance the safety and mobility needs of travelers along state highways with the access needs of property and business owners. ODOT’s rules manage access to the state’s highway facilities in order to maintain highway function, operations, safety, and the preservation of public investment consistent with the policies of the 1999 OHP. Access management rules allow ODOT to control the issuing of permits for access to state highways, state highway rights of way and other properties under the State’s jurisdiction.

In addition, the ability to close existing approaches, set access spacing standards and establish a formal appeals process in relation to access issues is identified. These rules enable the State to direct location and spacing of intersections and approaches on state highways, ensuring the relevance of the functional classification system and preserving the efficient operation of state routes.

OHP Goal 3, Policy 3A and OAR 734-051 set access spacing standards for driveways and approaches to the state highway system.⁵ The standards are based on state highway classification and differ based on posted speed. The applicable standards for Highway 101 through Gearhart City can be seen in Table 2.

Table 2: Highway 101 Access Spacing Standards

Highway 101 Segment	Posted Speed Limit	Classification	Minimum Intersection Spacing
US 101 from the north UGB to Shamrock Road	55 mph	Urban; Statewide Highway; ADT > 5000	1,320 feet
US 101 from Shamrock Road to Garden Terrace	45 mph		800 feet
US 101 from Garden Terrace to the south UGB	40 mph		800 feet

Source: 1999 Oregon Highway Plan, Appendix C Revisions to Address Senate Bill 264

⁴ Access Management Rule: http://arcweb.sos.state.or.us/rules/OARS_700/OAR_734/734_051.html

⁵ ODOT Access Management Standards (Appendix C): www.oregon.gov/ODOT/TD/TP/OHP_AM.shtml

What this means for the Gearhart TSP: ODOT access spacing standards for Highway 101 should be incorporated into the TSP, along with supporting policies that work towards meeting the access spacing standards in Table 2.

Access Management on Local Roadways: The city of Gearhart does not identify minimum intersection spacing standards for driveways or public roadways under their jurisdiction. The Gearhart City Zoning Ordinance sets driveway access requirements for properties fronting Highway 101, however, the local driveway spacing standard does not conform to the state standards shown in Table 2 above. Any recommended change to the current city access standards for the development of this TSP will be document in Technical Memo #7: Plan and Development Code Amendment

Clatsop County does not have access spacing standards along local streets (Hillila Road, and McCormick Gardens Road are classified as local streets by the County). The County spacing standards require 265 feet of spacing between accesses along minor arterial, 130 feet along major collector streets, and 65 feet along minor collector streets. Any recommended change to the current city access standards for the development of this TSP will be document in Technical Memo #7: Plan and Development Code Amendment

What this means for the Gearhart TSP: The TSP will develop access spacing standards for streets in Gearhart. Access spacing standards can help increase the safety of streets by creating an environment that matches the street functional classification and forestalling costly major capacity improvements.

Major Projects: OHP Goal 1, Policy 1G requires maintaining performance and improving safety by improving efficiency and management before adding capacity. The intent of policy 1G and Action 1G.2 is to ensure that major improvement projects to state highway facilities have been through a planning process that involves coordination between state, regional, and local stakeholders and the public, and that there is substantial support for the proposed improvement.

What this means for the Gearhart TSP: The TSP will consider project alternatives that improve or manage the existing transportation system before implementing higher cost street capacity enhancement projects.

Projects off Highway 101: OHP Goal 2, Policy 2B establishes ODOT's interest in projects on local roads that maintain or improve safety and mobility performance on state roadways, and supports local jurisdictions in adopting land use and access management policies.

What this means for the Gearhart TSP: The TSP will include sections describing existing and future land use patterns, access management and implementation measures to enhance connectivity, and will consider solutions that reduce the need for local trips on Highway 101.

Traffic Safety: OHP Goal 2, Policy 2F identifies the need for projects in the state to improve safety for all users of the state highway system through engineering, education, enforcement, and emergency services. One

component of the TSP is to identify existing crash patterns and rates and to develop strategies to address safety issues. Proposed projects will aim to reduce the vehicle crash potential and/or improve bicycle and pedestrian safety by providing upgraded facilities that meet current standards.

What this means for the Gearhart TSP: The TSP will develop projects that ensure the transportation system maintains and improves individual safety and security by maximizing the comfort and convenience of walking, biking and transit transportation options, public safety and service access.

Alternative Passenger Modes: OHP Goal 4, Policy 4B, requires that highway projects encourage the use of alternative passenger modes to reduce local trips. The TSP will also consider ways to support and increase the use of alternative passenger modes to reduce trips on highways and other facilities.

What this means for the Gearhart TSP: The TSP will articulate multi-modal policy objectives and consider recommendations from the Clatsop County TSP, Seaside TSP, and Sunset Empire Transit District Long Range Transportation Plan that will enhance multi-modal travel in Gearhart.

Transportation Demand Management: OHP Goal 4, Policy 4D, encourages efficient use of the state transportation system through investment in transportation demand management strategies.

What this means for the Gearhart TSP: The TSP will consider transportation demand management strategies, such as increasing transportation options and affordability, to create greater mobility, reduce auto trips, make more efficient use of the roadway system, and minimize air pollution.

Projects on Highway 101: The Highway Design Manual⁶ (HDM) provides uniform design standards and procedures for ODOT and is in general agreement with the 2001 American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*. Some key areas where guidance is provided are the location and design of new construction, major reconstruction, and resurfacing, restoration or rehabilitation (3R) projects. The HDM should be used for all projects on Highway 101 in Gearhart to determine design requirements, including the minimum required volume to capacity ratios for use in the design of highway projects.

What this means for the Gearhart TSP: System performance of Highway 101 improvement projects will be measured, in part, using the HDM v/c ratios. While HDM standards must be applied to ODOT facilities, design exceptions can be granted to those standards where conditions justify such action in order to balance the policies and objectives of the Oregon Transportation Plan.

⁶ ODOT Highway Design Manual: http://www.oregon.gov/ODOT/HWY/ENGSERVICES/hwy_manuals.shtml

Oregon Bike and Pedestrian Plan: The provision of safe and accessible bicycling and walking facilities in an effort to encourage increased levels of bicycling and walking is the goal of the Oregon Bicycle and Pedestrian Plan, which is an element of the Oregon Transportation Plan. The plan identifies actions that will assist local jurisdictions in understanding the principals and policies that ODOT follows in providing bike and walkways along state highways. In order to achieve the plan’s objectives, the strategies for system design are outlined, including:

- Providing bikeway and walkway systems and integrating with other transportation systems
- Providing a safe and accessible biking and walking environment
- Developing educational programs that improve bicycle and pedestrian safety

The Policy and Action section contains background information, legal mandates and current conditions, goals, actions and implementation strategies ODOT proposes to improve bicycle and pedestrian transportation. Originally adopted in 1995 and reaffirmed as an element of the O’TP in 2006, this section is currently being updated as the “Bicycle and Pedestrian Mode Plan.”

The Design Guide is the technical element of the plan that guides the design and management of bicycle and pedestrian facilities on state-owned facilities. It has been designated as a companion piece to the Highway Design Manual and includes updated and innovative pedestrian and bicycle treatments. The Design Guide was updated in 2011 and will remain separate from the policy portion of the plan.

What this means for the Gearhart TSP: The TSP should implement the goals and policies of the Bicycle and Pedestrian Plan, including the three actions to ensure safe multimodal infrastructure. The subsequent, updated design guide (2011) portion represents ODOT’s standards for constructing state-owned facilities. The standards for constructing or maintaining bicycle and pedestrian infrastructure are recommended by ODOT, but not required for use by local jurisdictions.

Oregon Public Transportation Plan: The current Oregon Public Transportation Plan (OPTP) was adopted in 1997 and is in the process of being updated. While ODOT is currently undertaking an update to the plan, the goals and policies found in the plan will continue to guide transit planning. The vision adopted by the Oregon Public Transportation Plan Advisory Committee, and which guides the plan includes:

- A comprehensive, interconnected and dependable public transportation system, with stable funding, that provides access and mobility in and between communities of Oregon in a convenient, reliable and safe manner that encourages people to ride.
- A public transportation system that provides appropriate service in each area of the state, including service in urban areas that is an attractive alternative to the single-occupant vehicle, and high-quality, dependable service in suburban, rural and frontier (remote) areas.
- A system that enables those who do not drive to meet their daily needs.
- A public transportation system that plays a critical role in improving the livability and economic prosperity for Oregonians.

The plan contains goals, policies, and strategies relating to the whole of the state's public transportation system. The plan is intended to provide guidance for ODOT and public transportation agencies regarding the development of public transportations.

What this means for the Gearhart TSP: The OPTP continues to serve as the overarching policy framework for transit in Oregon. The TSP will reflect and be consistent with the guiding policy found in the Plan, where applicable, in coordination with Sunset Empire Transportation District

Oregon Transportation Safety Action Plan: The goals and policies of the Oregon Transportation Plan (OTP) are further implemented by various modal plans, including the Oregon Transportation Safety Action Plan (OTSAP). The OTSAP is intended to help sustain and strengthen the focus on factors contributing to transportation related fatalities and injuries and encourage safety programs and practices that address other significant safety problems including the rising death toll for pedestrians and roadside workers, secondary crashes occurring on urban freeways, inadequate emergency response services, and conflicts between motor vehicles and other travel modes. Strategies and actions include:

- **Implement engineering solutions for bicyclists and pedestrians:** Continue to identify, evaluate, and implement engineering solutions for bicyclists, pedestrians and other non-motorized vehicles with an eye to improving the safety of system users.
- **Engineering systems for public input that hear multiple viewpoints:** Develop systems and controls to assure that ODOT hears the perspectives of all road users and interest groups as it develops solutions to safety, livability, and engineering problems. Evaluate the usefulness of the “Hearing Every Voice” system.
- **Engineering incorporating safety messages into the roadway system:** Identify ways to incorporate safety messages and cues into Oregon’s roadway system. Develop a long range roadside signage strategy and plan for safety messages.
- **Advocate safety in local system plans:** Strongly advocate for the consideration of roadway, human, and vehicle elements of safety in modal, corridor and local system plan development.
- **Consider access management:** In planning and project development, continue to consider access management techniques in both rural and urban settings that show improvements in safety for the roadway user.
- **Consider the special needs of motorcycles, bicyclists and pedestrians in the safety of road maintenance functions:** Continue to consider safety—including the special needs of motorcyclists, bicyclists, and pedestrians—in all road maintenance functions. Provide educational opportunities to agency staff and partners that highlight the importance of considering the special safety needs of these users.
- **Use vegetation management techniques to reduce hazards and increase visibility:** With consideration to the scenic quality of the roadway, use vegetation management techniques to improve the safety of roadway users.

- **Consider local needs and limitations when establishing safety standards:** Continue to consider local needs and resource limitations when establishing safety standards for operations and maintenance by communicating consistently with local agencies.

What this means for the Gearhart TSP: The TSP will incorporate the applicable strategies and actions where practical.

Other Background Information for the TSP

The following sections summarize additional background information or guidance documents that will be used in the development of the Gearhart TSP.

US 101 Conditions Report: The US 101 Conditions Report provides physical and traffic operational information about the Highway 101 corridor, including the portion through Gearhart, in graphical format. It covers material such as land use, traffic operations, facility inventory, safety, approach inventory, and geometrics data of the highway by mile-point.

What this means for the Gearhart TSP: The data from this plan will be used as a resource to compile existing conditions information for the TSP.

City of Gearhart Comprehensive Plan: The 1994 City of Gearhart Comprehensive Plan is a long range plan for development, preservation of the character, and protection of land and water in the city. It is intended to meet the requirements of the Statewide Planning Goals and to guide the community's vision for future growth and development.⁷ There are 12 policies under the Transportation Goal in the Comprehensive Plan. Policies that have a bearing on the TSP update are summarized below.

Transportation policies

- Surrounding land use and traffic generation patterns will be considered during the initial stages of planning for any new development along Highway 101. Cluster development to minimize access impacts on Highway 101;
- Frontage roads and access collection points will be encouraged where appropriate, locations to be coordinated with the Oregon Department of Transportation Highway Division. Encourage the use of alternative modes of transportation to decrease overall levels of air pollution;
- Along the Coast Highway, access control techniques will be used in cooperation with the Oregon Department of Transportation to coordinate traffic and land use patterns, and to help minimize the negative impacts of growth. Area-wide needs supersede site-specific needs.
- The City, to ensure an orderly traffic flow, and to promote safety on the Oregon Coast Highway will require that:
 - A. The number of access points be minimized.

⁷ Statewide Planning Goals - <http://www.oregon.gov/lcd/pages/goals.aspx>

- B. Clustering of development, both residential and commercial activities, be carried out.
 - C. Appropriate setbacks from the public right-of-way be provided.
 - D. Shared driveways and parking lots be encouraged.
 - E. Wherever feasible, local traffic will utilize local streets rather than highway accesses.
- In the event of significant new development proposals for lands adjacent to the Coast Highway the City will work with the Oregon Department of Transportation through the Highway Division's District Engineer to ensure unimpeded traffic flow and safety to the fullest extent possible.
 - Adequate parking for residential and commercial uses will be maintained through enforcement of zoning ordinance parking requirements.
 - The City will work with Clatsop County to develop an efficient county wide public transportation system.
 - The City will work with adjacent jurisdictions to develop a regional bike trails system.
 - The City is concerned about any proposal to U. S. Highway 101 widening within its urban growth boundary. The City bases its concern on the following findings:
 - A. The City must bear the cost of moving its water main. This cost is estimated to be several hundred thousand dollars, with no contribution by the Oregon Department of Transportation.
 - B. There would be substantial impacts on homes, businesses, and freshwater wetland adjacent to the highway right of way.
 - C. The projected cost of the parkway would be better used for a bypass project. The City supports the construction of a bypass for US 101 extending from the Cannon Beach Junction are to the City of Astoria along the Cavenham Forest Industries mainline.
 - D. The land uses planned for the area fronting U.S. Highway 101, within the urban growth boundary, do no warrant the construction of an elaborate five (5) lane system.
 - The Ridge Path is recognized as a recreational asset, as an appropriate utility easement location, and as a portion of the Oregon Coast Trail. Appropriate easement widths shall be required in new developments within the Urban Growth Boundary.
 - The City will cooperate with the Oregon State Parks Department in the regulation of driving and parking on the beach within the Gearhart Urban Growth Boundary.
 - The City will participate with the City of Seaside, in the airport planning process. Emphasis should be given to analyzing the impacts, costs and benefits to the Community. Consideration should be given to diminished or controlled use because of its impact on surrounding residential uses.

Urban Growth policies

- Preserve the predominately residential character of Gearhart through zoning and land use regulations.

- Require appropriate easement widths for recreational trails in new developments within the Urban Growth Boundary.
- Extending services only in the UGB and maintaining the predominantly low-density semi-rural residential character of the community, including limiting commercial development, especially tourist commercial development.
- Medium density developments, when appropriate, will be concentrated along high capacity transportation corridors in order to achieve greater energy efficiency.

What this means for the Gearhart TSP: The TSP update process will provide an opportunity to review transportation policies and update them to better represent current state, regional and local practices and objectives. Potential policy changes may reflect issues that have been evolving since the Comprehensive Plan was adopted, such as increasing transportation (mode) choices and reducing single-occupancy vehicle trips.

City of Gearhart Zoning Ordinance: The City of Gearhart Zoning Ordinance serves as the primary implementation tool for the Gearhart Comprehensive Plan. The document ensures that development is consistent with adopted policies by setting requirements and permitted uses. Particular regulations in the City's Zoning Ordinance that may affect transportation planning are summarized below.

- **Section 6.060 Clear Vision Areas:** requires a clear vision area be maintained on the corners of all property at the intersection of two streets, or a street and a railroad.
- **Section 6.130 Off-Street Parking Requirements:** sets a minimum off-street parking requirement for the City's residential, public/semi-public, commercial, and commercial recreation buildings. Neighborhood Commercial Zone (C-1) is exempt from such requirement unless otherwise noted.
- **Section 6.140 Off-Street loading requirements:** sets requirements for loading areas based on different uses.
- **Section 6.150 Off-Street Parking and Loading, General Provisions:** governs the application of off-street parking and loading, including parking for a single structure that hosts several different uses and distance of parking from the building or use it is required to serve. It also sets design requirements for parking lots and loading areas.
- **Section 6.160 Additional Criteria for Access Controls on Highway 101:** sets standards on driveway access spacing, driveway location, curb cuts, new parking lots fronting Highway 101, and access easement.

Access spacing standards for US 101 are determined by ODOT. ODOT spacing standards are defined in the Oregon Highway Plan, OAR 731-051, and ODOT's Highway Design Manual. It is recommended that the City adopt new standards that conform to the state requirements.

- **Section 6.161 Landscaping Requirements Adjacent to U.S. Highway 101:** provides minimum requirements on landscaping along Highway 101. All new sub-divisions shall provide landscaping to buffer the sub-division.

What this means for the Gearhart TSP: The Zoning Ordinance may need to be amended to be consistent with the TSP, implement its recommendations, and comply with state transportation regulations such as the TPR.

City of Gearhart Hazard Mitigation Plan: This plan's goal is to increase the community's resilience to natural hazards. It focuses on the natural hazards that could affect the City of Gearhart.

During disaster events, evacuation may make the highway unusable within the necessary evacuation timeline as surrounding jurisdictions may also rely upon it for transportation. Lewis and Clark Road, which connects Astoria to Seaside, is a two lane roadway that could provide secondary access if it is not impacted in a disaster event.

Transportation is an important consideration when planning for emergency service provisions. Growth within the city will put pressure on both major and minor roads, especially if the main mode of travel is by automobiles.

What this means for the Gearhart TSP: The TSP should consider investments that enhance the city's resilience to natural hazards.

Draft Sunset Empire Transit District Long Range Transportation Plan: The Sunset Empire Transit District (SETD) is currently updating its long range transportation plan. The plan will serve as the basis for the transit element of transportation system plans adopted by local jurisdictions within the service area, and provide guidance to these jurisdictions for their efforts to increase transit use and reduce greenhouse gases.

Several goals include increasing ridership, decreasing headways, adding bus pullouts on US 101, adding bus shelters and kiosks, and improving inter-city connections. The draft long range plan also identifies some potential needs that should be addressed in the TSP:

- Connectivity between Origins and Destinations
 - In Gearhart and Seaside, a notable number of transit riders reported going to destinations well off of U.S. 101. This trend highlights the need to improve pedestrian infrastructure to accommodate walking to and from bus stops.
- Unmet Transit Needs
 - The summer visitors in Gearhart could create a higher demand for transit.
 - In Gearhart, employment locations west of U.S. 101, including tourist-oriented hotels and businesses, service makes it difficult to access low-wage jobs and jobs with irregular schedules.
 - Assisted living facilities in Gearhart need better demand response transit services.
 - Not enough transit stops in the city limit to provide adequate coverage.
- Unsupportive Land Use

- A scan of zoning codes revealed little support for transit in current land use policies. There is no mention of transit in Gearhart codes.
- **Policies and Recommendations**
 - Combine Route 20 into Route 101, creating a continuous hourly service route linking Cannon Beach, Seaside, Gearhart, Warrenton, and Astoria.
 - Linking land use and transportation requires integrating transit are not well served by a transit line.
 - The lack of evening, and infrequent considerations into development review, zoning update, and urban design policies. Coordination of transportation and land use designation not only supports transit, but may also reduce costs of related infrastructure.
 - Increase service frequency and hours to benefit both visitors and workers in Gearhart.

What this means for the Gearhart TSP: The TSP will consider the recommendations from the draft Sunset Empire Transit District Long Range Transportation Plan in developing the local transit element. Specifically, the TSP will include existing and planned transit routes in Gearhart and city policies that are supportive of transit, consistent with SETD's plan. In addition, recommended amendments to the Zoning Ordinance will include proposed development requirements that are supportive of transit, such as providing transit amenities and access to existing and planned transit stops.

City of Seaside Transportation System Plan: The following transportation improvement recommendations from the City of Seaside TSP could also be applicable to the city of Gearhart and included in the new TSP.

- **Transit**
 - Restoring 30-minute peak headways on weekdays on Route 20 and Route 101.
 - Extending service on Route 101 later in the day to better match up with class schedules for Clatsop Community College
 - Providing Service on Sundays
- **Bicycle and Pedestrian Improvements**
 - Improving bicycle and pedestrian facilities along Highway 101
 - Implementing a shared-use pathway network
 - Creating bike and pedestrian bridges
- **Access Management**
 - Reducing the number of accesses
 - Restricting access

- **Alternate Mobility Standards:** The current mobility standards along Highway 101 vary, depending on the segment. The adopted Alternate Mobility Standard is applied to four Highway 101 intersections in Seaside (see the OTP section on page 7).
 - US 101 / Lewis and Clark Road
 - US 101 / 12th Avenue
 - US 101 / Broadway
 - US 101 / Avenue U

What this means for the Gearhart TSP: The TSP will consider and potentially incorporate recommendations from the Seaside TSP that are also relevant and appropriate for Gearhart.

Clatsop County Transportation System Plan: The Clatsop County Transportation System Plan (TSP) was recently updated in 2015. The plan is primarily intended to serve areas of the county outside of the urban growth boundaries, including that of Gearhart. However, the county plan does apply to any streets under the county's jurisdiction within Gearhart, including Hillila Road, and McCormick Gardens Road. County access spacing and mobility targets must be applied to streets under County jurisdiction (see sections earlier in this document). The Clatsop County TSP also recommended a pedestrian and bicycle enhancement project just north of the Gearhart UGB. The Gearhart TSP may want to consider extending this project through the city.

What this means for the Gearhart TSP: The TSP will incorporate the relevant recommendations from the Clatsop County TSP.

Appendix A: Applicable Plans and Policies

The following plans and policies were reviewed for the Gearhart TSP:

City of Gearhart

- City of Gearhart Comprehensive Plan, 1994
- City of Gearhart Zoning Ordinance, July 2015
- City of Gearhart Hazard Mitigation Plan, December 2014
- City of Gearhart capital improvements over the previous five years
- City of Gearhart Subdivision Ordinance

State of Oregon

- Transportation Planning Rule (OAR 660-012), Last Updated 2012
- Access Management Rules (OAR 734-051), amended December 2011
- Oregon Transportation Plan, 2006
- Oregon Bicycle and Pedestrian Plan, 1995
- Oregon Freight Plan, 2011
- Oregon Highway Plan, Amended, 2013
- Oregon Public Transportation Plan, 1997
- Oregon Transportation Safety Action Plan, 2011 (Updated Draft, 2015)

Other Local Agencies

- Clatsop County Transportation System Plan, October 2015
- Seaside Transportation System Plan, October 2010
- Draft Sunset Empire Transit District Long Range Transportation Plan

Section B

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Section C

Memo 2: Funding for Transportation System Improvements

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.



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MEMORANDUM

DATE: 21 Mar 16

TO: Gearhart TSP Project Management Team

FROM: Carl Springer – DKS Associates

SUBJECT: Gearhart Transportation System Plan Update
Task 1.6 – Funding Assumptions for Transportation System Improvements

The purpose of this memorandum is to review how the City has collected transportation funds for investments in the past, and to layout the funding framework to be used in the future. The type and scale of funding assumptions that we make will be important for establishing realistic expectations for making community investments. It also informs discussions about project prioritization and whether new or expanded funding sources will be needed to attain the community's objectives.

The guidance provided herein is only intended as a starting point for the conversation. We anticipate that this work will evolve throughout the planning process as input is received from the Project Advisory Committee, elected officials, and the general public.

KEY FINDINGS

- The majority of the City's \$100,000 annual transportation revenues are collected from the State Highway Fund, which includes motor vehicle registration fees, and state and federal gas taxes.
- The City allocates about \$90,000 annually for roadway maintenance and operations, leaving a modest balance available.
- The State Highway Fund monies are not tied to an inflation index, and over time, their value decreases relative to construction costs.
- Similarly, the city's road district tax is not indexed to adjust with construction cost inflation.
- Based on historical trends, the costs to maintain street facilities will double by 2040.
- Therefore, as construction costs rise with inflation, additional revenues will be required to offset these additional costs to maintain the current level of services provided.

CURRENT REVENUE SOURCES

The City uses two primary revenue sources to fund transportation expenses;

- State Highway Fund distributions,
- Gearhart Road District Tax



The table below summarizes the transportation revenues over the past five fiscal years at the City of Gearhart. The average for that period is just under \$100,000 each year.

Table 1: Gearhart Transportation Revenues Summary (2014 dollars)

Revenue Source	Annual Average
State Gas Tax - Streets	\$73,000
State Gas Tax - Bicycle & Pedestrian (1%)	\$730
Road District Tax	\$25,500
Miscellaneous Revenues / Interest / Aid	\$600
Total Revenues	\$99,830

Note: Annual average based on 5-year history from fiscal year 2009/10 to fiscal year 2013/14

State Highway Fund

The State Highway Fund generates revenues primarily through the state motor vehicle fuel tax, vehicle registration fees, and truck weight-mile fees. It also relies on distributions from the federal Highway Trust Fund, which is largely funded from the federal gas tax. The state funding sources are generally dedicated to debt service, highway maintenance and agency (ODOT) operations. Federal funds flow to states through the Surface Transportation Program (STP). ODOT relies on these distributions to fund many of the safety, highway, and bridge improvement projects identified in the Statewide Transportation Improvement Program (STIP).

A portion of these State Highway Trust Fund monies are allocated on a per capita basis to local cities including Gearhart. By statute, the money may be used for any road-related purpose, including walking, biking, bridge, street, signal, and safety improvements. State law requires that a minimum of one percent of the State gas tax and vehicle registration funds received be set aside for construction and maintenance of walking and bicycling facilities.

The federal and state gas tax funds have previously failed to keep up with cost increases and inflation. With improved vehicle fuel efficiency, changes in travel behavior, and policies aimed at reducing vehicle miles traveled, the real revenue collected has gradually eroded over time. The federal Highway Trust Fund has recently relied on general fund transfers to make up the gap between revenues and expenses.

In an effort to offset the relative decline in contribution of state funds, the Oregon Jobs and Transportation Act (Oregon House Bill 2001) was passed in 2009, increasing transportation-related fees including the state gas tax and vehicle registration fees. Oregon vehicle registration fees are collected as a fixed amount at the time a vehicle is registered with the Department of Motor Vehicles. Vehicle registration fees in Oregon recently increased from \$27 to \$43 per vehicle per year for passenger cars, with similar increases for other vehicle types. The gas tax in Oregon increased on January 1, 2011 by six cents, to 30 cents per gallon. This was the first



increase in the state gas tax since 1993. These fees and taxes are not indexed to general cost inflation, and, over time, the value of the revenues will decline as costs to deliver services increase.

The City is eligible to collect other revenues from grants to supplement the revenues from recurring sources that are shown in Table 1. However, in recent years, no grants have been awarded for the transportation system.

CURRENT EXPENDITURES

The expenditures incurred for the City to operate, maintain, and improve the transportation system include;

- Personal Services
- Materials & Services
- Equipment Maintenance & Purchase

Capital improvement expenditures may include projects that expand the existing transportation system (new transportation facilities or intersection improvements) or maintain it (repaving or purchasing maintenance equipment).

Table 2: Gearhart Transportation Expenditures Summary (2014 dollars)

Expenditure Type	Annual Average
Personal Services	\$47,200
Materials & Services	\$25,300
Capital Outlay, Equipment Maintenance & Purchases	\$16,800
Debt Service	\$0
Total Expenditures	\$89,300

Note: Annual Average based on 5-year history from fiscal year 2009/10 to fiscal year 2013/14

PROJECT-SPECIFIC FUNDING

In addition to the recurring sources of revenues described previously, Gearhart may expect to receive project-specific funding through federal or state programs. This type of external funding is not received annually, but is often relied upon to complete critical transportation improvements.

The most significant funding opportunity for transportation improvement projects in Oregon is the Statewide Transportation Improvement Program (STIP). ODOT modified the process for selecting projects that receive STIP funding in 2012. The new process follows a jurisdictionally blind approach, meaning local agencies can receive funding for projects off the state system. Focus projects are expected to be those that enhance system connectivity and improve multi-modal travel options. In the short-term, funding for local roads will be allocated



to primarily focus on a few systemic low cost fixes that can be implemented in the shorter timeframe. With the updated TSP, the City will be prepared to apply for STIP funding.

Another potential funding source is the ODOT Highway Safety Improvement Program (HSIP). Oregon’s funding under the HSIP increased significantly and with direction from the Federal Highway Administration to address safety challenges on all public roads, ODOT will likely increase the amount of funding available for safety projects on local roads. Safety funding will be distributed to each ODOT region, which will collaborate with local governments to select projects that can reduce fatalities and serious injuries, regardless of whether they lie on a local road or a state highway.

While a specific funding source has not been determined, it is reasonably likely that some grant or aid programs will make funding available through the TSP horizon year of 2040. A conservative estimate for the next 20 years is \$1 million in project-specific funding from external sources.

CITY OF GEARHART FUNDING PROJECTION

Over the previous five years, transportation-related revenues (approximately \$100,000 per year from recurring sources) have slightly exceeded transportation-related expenditures (approximately \$90,000 per year) in Gearhart. The historical funding and expenditures are used together with assumptions about growth to estimate the available funding for transportation projects through 2040.

Projected Revenues

Current revenue sources are expected to provide about \$2.4 million through 2040 (see Table 3) from recurring sources, with an additional \$1 million possibly from ODOT discretionary funding. Although there is no index for cost inflation, the revenue sources based on gas taxes should increase in proportion to the City’s population growth. As a conservative estimate, the same levels of annual funding are assumed through 2040. It should be noted that technological advances might further improve vehicle fuel efficiency, potentially resulting in lower revenues unless funding methodologies are modified.

Table 3: Revenue Projection through 2040 (in 2014 dollars)

Revenue Source	Total
State Gas Tax - Streets	\$1,741,700
State Gas Tax - Bicycle & Pedestrian (1%)	\$17,500
Federal or State Project Funding/Grants	\$1,000,000
Gearhart Road District Fund	\$608,000
Miscellaneous Revenues / Interest / Aid	\$14,400
Total Revenues	\$3,381,600



Projected Expenditures

City expenditures for maintenance, operations and management of the transportation system are expected to increase over time with inflation. Based on expenditures over the past five years (shown in Table 2) and expected increases in costs,^{1,2} expenditures are expected to total approximately \$2.14 million in 2014 dollars. However, based on historical personnel and construction cost increases, this amount is expected to increase to \$4.40 million through 2040, roughly two times the current level.

Transportation projects that enhance or expand the current transportation system are not included in this estimate. It is also important to note that the current spending on maintenance and preservation activities may not have kept up with the desired quality for infrastructure. To address deferred maintenance and future needs, maintenance costs may be higher than the historical spending indicates.

With revenues expected to remain relatively flat (due to small population increase expected in Gearhart and no cost inflation index for gas taxes) and maintenance costs increasing, Gearhart will need to utilize other funds to maintain the current levels of maintenance and operations.

Table 4: Operations and Maintenance Expenditure Projection through 2040 (in 2014 dollars)

Expenditures	Total
Personal Services	\$1,133,000
Paving & Repairs	\$608,000
Capital Outlay, Equipment Maintenance & Repair	\$403,700
Total Expenditures (2014 Dollars)	\$2,144,700

It is important to note that the current spending on maintenance and preservation activities has not kept up with the desired quality for infrastructure. To address deferred maintenance and future needs, maintenance costs may be higher than the historical spending indicates.

¹ Construction (maintenance) cost increases are estimated based on historical cost indices from 1995 to 2015, per RSMMeans.

<http://rsmmeansonline.com/References/CCI/3-Historical%20Cost%20Indexes/1-Historical%20Cost%20Indexes.PDF>

² Staff and operating cost increases are estimated based on Consumer Price Index conversion factors from 1995 to 2015, per Robert Sahr, Oregon State University. Revised April 10, 2014.

<http://liberalarts.oregonstate.edu/files/polisci/faculty-research/sahr/inflation-conversion/pdf/cv1995.pdf>



Funding Balance From Recurring Revenue Sources

Overall, Gearhart is expected to have about \$1.2 million available to fund transportation solution projects and strategies through 2040. The City may wish to consider expanding its funding options in order to provide a funding strategy that will enable desired improvements to be constructed in a timely manner. As mentioned above, additional funding could become available through the competitive grant process. It is estimated that \$1 million may be awarded to the City through grants.

POTENTIAL ADDITIONAL FUNDING SOURCES

New transportation funding options include local taxes, assessments and charges, and state and federal appropriations, grants, and loans. All of these resources can be constrained based on a variety of factors, including the willingness of local leadership and the electorate to burden citizens and businesses; the availability of local funds to be dedicated or diverted to transportation issues from other competing City programs; and the availability of state and federal funds. Nonetheless, it is important for the City to consider available opportunities for enhancing funding for the transportation improvements that will be identified in the TSP.

The following sources have been used by other cities to fund the capital and maintenance aspects of their transportation programs. There may be means to begin to or further utilize these sources, as described below, to address needs identified in the TSP.

Transportation Utility Fee

A transportation utility fee is a recurring monthly charge that is paid by all residences and businesses within the City. The fee can be based on the number of trips a particular land use generates or as a flat fee per unit. It can be collected through the City's regular utility billing. Existing law places no express restrictions on the use of transportation utility fee funds, other than the restrictions that normally apply to the use of government funds. Some cities utilize the revenue for any transportation related project, including construction, improvements and repairs. However, many cities choose to place self-imposed restrictions or parameters on the use of the funds.

The alternative to a new fee would be to increase the collection rate of the existing Gearhart Road District tax to fund a select few projects that the community highly values.

Local Hotel/Lodging Tax

Many Oregon jurisdictions impose a local hotel tax which charges a transient room tax. Some portion of the tax may be dedicated to transportation projects. This tax places more of the cost burden for the transportation improvements in the City on non-residents.

General Fund Revenues

At the discretion of the City Council, the City can allocate General Fund revenues to pay for its Transportation program (General Fund revenues primarily include property taxes, use taxes, and any other miscellaneous taxes and fees imposed by the City). This allocation is completed as a part of the City's annual budget process, but the



funding potential of this approach is constrained by competing community priorities set by the City Council. General Fund resources can fund any aspect of the program, from capital improvements to operations, maintenance, and administration. Additional revenues available from this source are only available to the extent that either General Fund revenues are increased or City Council directs and diverts funding from other City programs.

Local Improvement Districts

Local Improvement Districts (LIDs) can be formed to fund capital transportation projects. LIDs provide a means for funding specific improvements that benefit a specific group of property owners. LIDs require owner/voter approval and a specific project definition. Assessments are placed against benefiting properties to pay for improvements. LIDs can be matched against other funds where a project has system wide benefit beyond benefiting the adjacent properties. Fees are paid through property tax bills. LIDs are often used for sidewalks and pedestrian amenities that provide local benefit to residents along the subject street.

Debt Financing

While not a direct funding source, debt financing can be used to mitigate the immediate impacts of significant capital improvement projects and spread costs over the useful life of a project. Though interest costs are incurred, the use of debt financing can serve not only as a practical means of funding major improvements, but is also viewed as an equitable funding strategy, spreading the burden of repayment over existing and future customers who will benefit from the projects. The obvious caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations.

The Oregon Transportation Infrastructure Bank (OTIB) is a potential source for cities to borrow funds for transportation improvement projects. The OTIB is a statewide revolving loan fund. Projects eligible to receive funding include roadway improvements, bicycle and pedestrian access, and transit capital projects. Potential projects are rated by OTIB staff along with a regional advisory committee and require approval from the Oregon Transportation Commission.

Section C

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Section D

Memo 3: Facility Standards

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.

MEMORANDUM #3

DATE: March 29, 2016

TO: Gearhart TSP Project Management Team

FROM: Carl Springer, PE, PTP - DKS Associates
Charles Tso – DKS Associates

SUBJECT: Gearhart Transportation System Plan
Technical Memorandum #3: Facility Standards

P14180-006

This memo provides an overview of the streets, sidewalks, and multi-use paths design standards for the City of Gearhart. To ensure future development or redevelopment of property is consistent with the community's vision for the transportation system in the City, this document includes a detail of the multi-modal street system hierarchy, street design types, and standards and regulations.

The City currently does not have any street design standards. Design standards is an effective tool to help Gearhart provide road facilities that meet the future needs and goals of the community. It is important to understand that adopting the design standards in this TSP does not mean the City needs to re-build its existing streets to meet the standards; it only means having a guideline for building better streets in the future. This document only includes general dimensions of different street types and conceptual illustrations of what different streets can look like. The technical details of street design standards will be in a separate document that is not part of this TSP.

Multi-Modal Street System

The streets in Gearhart today are mostly narrow, low-traffic, and residential. Most streets do not have sidewalks or marked crossings, and some streets have paved shoulders. Only a few streets provide motor-vehicle connection to Highway 101. Stormwater drainage is an issue on many streets when there rain fall is high. Understanding the Gearhart streets' current conditions is necessary to develop context-sensitive and multi-modal street design standards.

Traditional roadway design focuses on the speed and throughput of motor vehicle traffic. The one size fits all design approach is less effective at integrating the roadway with the character of the surrounding area and addressing the needs of other road users (e.g. people walking and people bicycling). For instance, the design of an arterial roadway through a commercial area has often traditionally been the same as one through a residential neighborhood, both primarily focused on the movement of motor vehicles without allowing flexibility in optimizing the street for walking and biking.

To comply with the policies in the Transportation Planning Rule (TPR) and the Oregon Transportation Plan (OTP) all roadways within Gearhart should be multi-modal streets that serve the needs of different road users. Based on intended purposes of each street, the street system is classified into a hierarchy organized by

function and surrounding characteristics. These classifications ensure that the streets reflect the neighborhood through which they pass, consisting of a scale and design appropriate to the character of the abutting properties and land uses. The classifications also provide for and balance the needs of all travel modes including pedestrians, bicyclists, transit riders, motor vehicles and freight. Within these street classifications, context sensitive design may result in alternative cross-sections.

Street Functional Classification

Traditionally, roadways are classified based on the type of vehicular travel they are intended to serve (local access versus through traffic). In Gearhart, the federal functional classification of a roadway (shown in Figure 3-1) determines the level of mobility for all travel modes, defining its level of access and usage within the City. The street functional classification system recognizes that individual streets do not act independently of one another but instead form a network that works together to serve travel needs on a local and regional level. From highest to lowest intended usage, the classifications are: major arterial, major collector, minor collector, and local streets. Figure 3-1 illustrates the street hierarchy concept. Roadways with a higher intended usage generally provide faster motor vehicle traffic movement (or mobility), while roadways with lower intended usage (local streets) provide greater access for shorter trips to local destinations.

Functional Classification Changes

Existing federal functional classifications of streets in Gearhart were reviewed to determine consistency with the intended use. Due to the Gearhart's small geographic area and low vehicle volume, the federal functional classifications were modified. Since state highways serve regional travel through the City, they were designated as major arterial streets. Streets providing primary access to major arterial streets are major collectors. Similarly, streets providing primary access to neighborhoods and activity generators in Gearhart are minor collector streets. All other streets were classified as local streets. The updated functional classifications is shown in table 3-1

- **Major Arterial Streets** are state highways. These roadways serve the highest volume of motor vehicle traffic and are primarily utilized for to move traffic through the City and longer distance regional trips.
- **Collector Streets** provide connections between major arterials and local residential streets. Collectors provide greater accessibility to neighborhoods, often connecting to major activity generators (commercial centers, civic buildings, etc), and faster through movement for local traffic.
- **Local Streets** provide direct access to residences in Gearhart. These roadways are often lined with residences and are designed to serve lower volumes of traffic and are designed to serve lower volumes of traffic with posted speeds of 25 miles per hour or less.

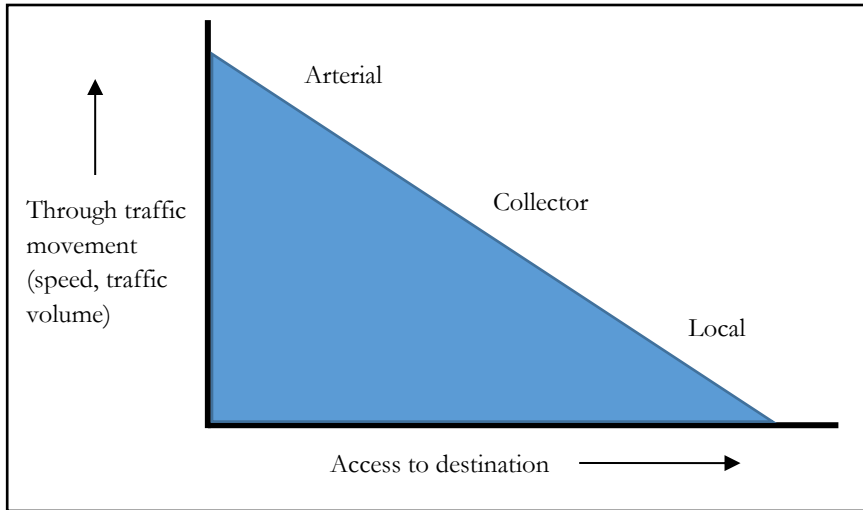


Figure 3-1 Roadway Hierarchy, Through Traffic, and Access

Any street type located in steep, environmentally sensitive, rural, historic, or development limited areas of the City may be considered a *constrained street*. These streets may require different design elements that may not be to scale with the adjacent land use. Constrained elements may include narrower or limited travel lanes, and pedestrian and bicycle facilities, or accommodations that generally match those provided by the surrounding developed land uses. To the extent possible, pedestrian and bicycle accommodations should be provided on an adjacent roadway, via a shared-use path or shared within the right-of-way using distinctive design details.

Table 3-1 Street Cross Section Standards							
Functional Classification	Cross-section Width ¹	Travel Lanes	Bike Lanes	Sidewalks	On-street Parking	Swale	Shoulder
Collector	48-62'	Two lanes at 10-11'	6' on both sides	5-6' on both sides	Optional 8' on both sides	Optional 4-6'	Optional
Local Street	38-52'	Travel-way of 18-20' (total)	Only sharrow	5' on both sides	Allowed in travel-way	3'-5' Swale	Optional 4'-6'

¹ Range of widths listed represent minimum and maximum acceptable widths.
² A 12' multi-use path on one or both sides of the roadway is an acceptable substitute for bicycle lanes and sidewalks.
³ A sharrow is a pavement marking that indicates a travel lane is a shared bicycle and vehicle facility.
⁴ Unless required by a specific development.

Street Design

Design of the streets in Gearhart requires attention to many elements of the public right-of-way and considers how the street interacts with the adjoining properties. The three zones that comprise the cross-section of streets, including the walking zone, biking/on-street parking zone and driving zone, are shown in Figure 2. The design of these zones varies based on the functional classification and area type. Overall, the TSP includes three different design types for streets based on their functional classification. Note that the TSP does not include a design type for US 101, since it is a state highway and therefore subject to the design criteria in the state's Highway Design Manual. The following provides design criteria for shared streets (see Walking and Biking Treatment Guidelines section) that does not vary by functional classification. The design criteria for streets are in Figures 3-4 to 3-11. Also included are guidelines for constrained areas (e.g., steep, environmentally sensitive, rural, historic, or previously developed areas of the city) where the design may need to reduce or eliminate lower priority elements of the street. A constrained design should require a variance to the city's standard design prior to construction approval.

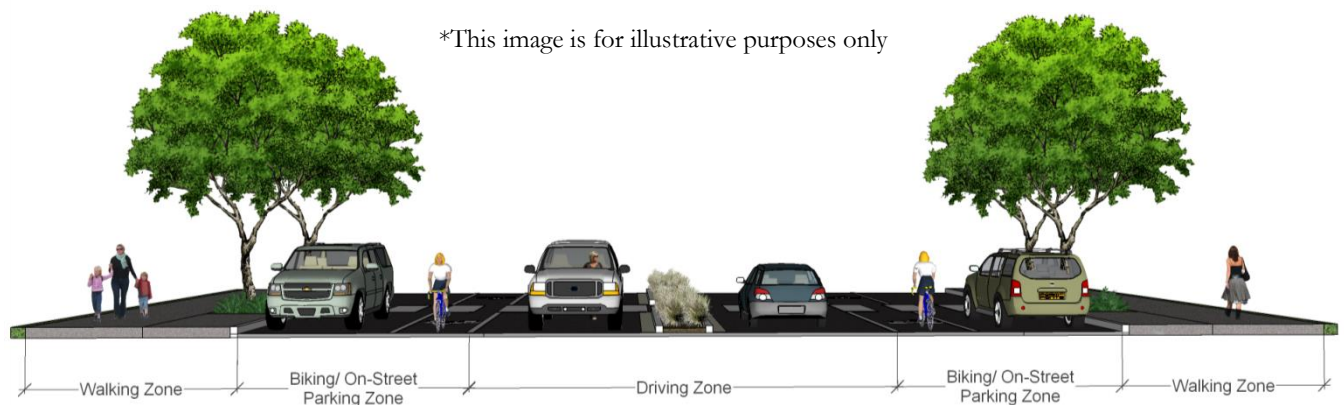


Figure 3-2: Components of Gearhart Streets*

Walking Zone: This is the zone dedicated for pedestrian travel (see Figure 3-3). The walking zone varies by the street type and should be a high priority on major and minor collector streets. It should include a minimum five-foot clear throughway for walking, an additional area for street furnishings, bike racks, or landscaping (e.g. benches, transit stops and/or plantings) and a clearance distance between curbside on-street parking and the street furnishing area or landscape strip, so parking of cars and opening doors of parked vehicles protect the street furnishings and landscaping. Streets located along a transit route should incorporate furnishings to support transit ridership, such as transit shelters and benches, into the furnishings/landscape strip adjacent to the biking/on-street parking zone.

Biking/On-Street Parking Zone: This is the zone for biking and on-street parking, and is usually the location for transit boarding and alighting. The biking/on-street parking zone is determined by the street type and should be a high priority in commercial areas, which should include on-street parking with a minimum six-foot striped bike lane or five-foot bike lane with a three-foot buffer. The National Association of City Transportation Officials (NACTO) recommends that “when [a bike lane is] placed adjacent to a parking lane, the desirable reach from the curb face to the edge of the bike lane (including the parking lane, bike lane, and optional buffer between them) is 14.5; the absolute minimum is 12 feet” Parking lane width is recommended to be between 7 and 9 feet.

Driving Zone: This is the throughway zone for drivers, including cars, buses and trucks and should be a high priority along major collector streets.

Bicyclists may use this zone when there is no marked bike lane on the street. The functional classification of the street generally determines the number of through lanes, lane widths, and turn lane requirements. However, the route designations (such as transit street or bike route) take precedence when determining the appropriate lane width. Larger vehicles such as buses and trucks may need wider lanes to negotiate turning movements. NACTO recommends 11 feet minimum for buses and trucks. In some cases, streets might need wider lanes for short distances where buses and trucks must negotiate right-turns without encroaching into adjacent or opposing travel lanes. Streets that require a raised median should include landscaping and a minimum six-foot wide pedestrian refuge at marked crossings.



Figure 3-3: Up Close View of the Walking Zone

Recommended Street Design Cross Sections: Figure 3-4 to 3-11

The following figures illustrate what local and collector streets could look like and how the right-of-way is utilized for different purposes and users. It is recommended that all new street or street-reconstruction projects to include paved sidewalks to ensure ADA accessibility and reduce risk liability. The figures for local streets show sidewalks next to a swale without curb. The advantage of this configuration is allowing stormwater to drain into the swale without building and maintaining drains. However, adding a curb with drainage inlets to the swale can achieve the same effect.

It is recommended to include bike lanes with buffer on collector streets to provide more safety and comfort to people on bicycles as they would interact with more and faster traffic. Swales can be used to separate sidewalks from the biking/parking zone instead of grass or planting strips to reduce maintenance cost. However, it is recommended to do curb with swale provide some physical separation between road users and swales. All figures are for illustration purposes, the configurations and dimensions are not final.

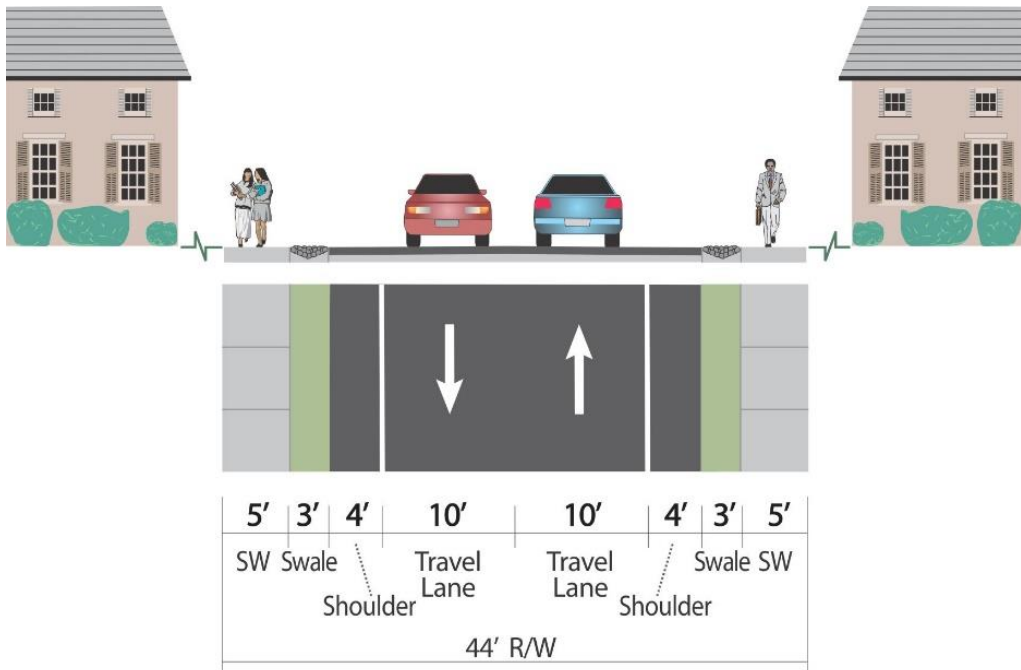


Figure 3-4 Local Street, 44'

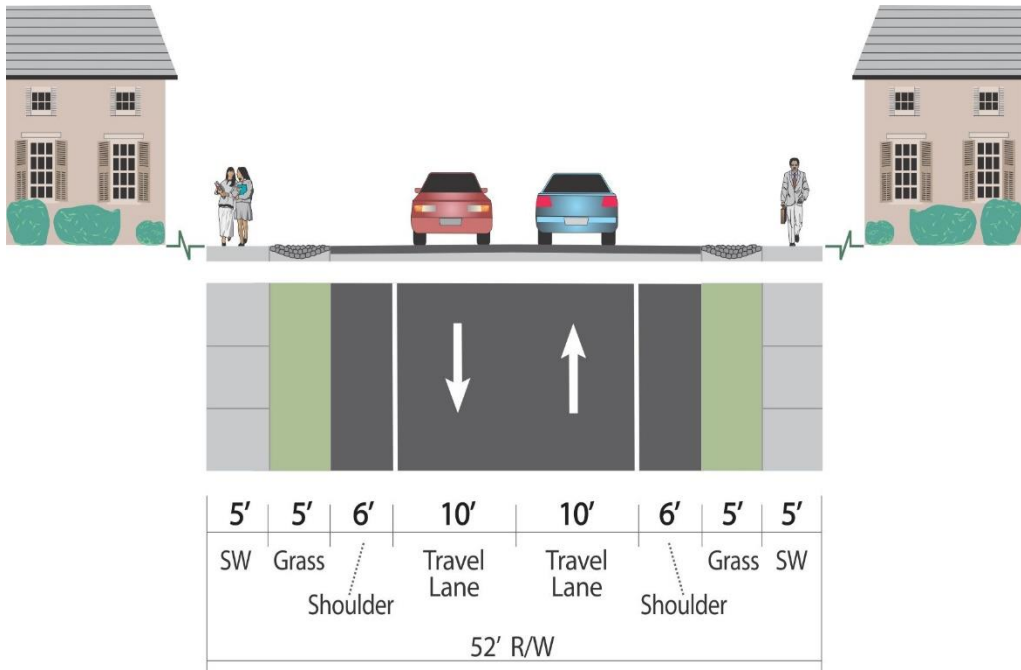


Figure 3-5 Local Street, 52'

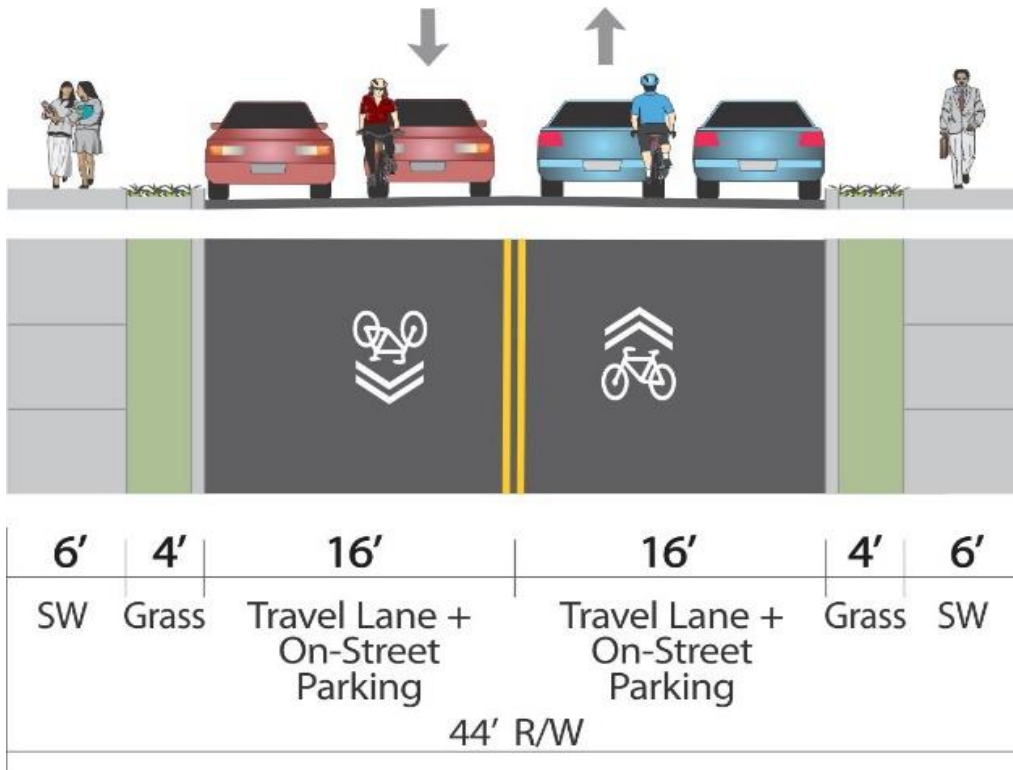


Figure 3-6 Collector, 44'

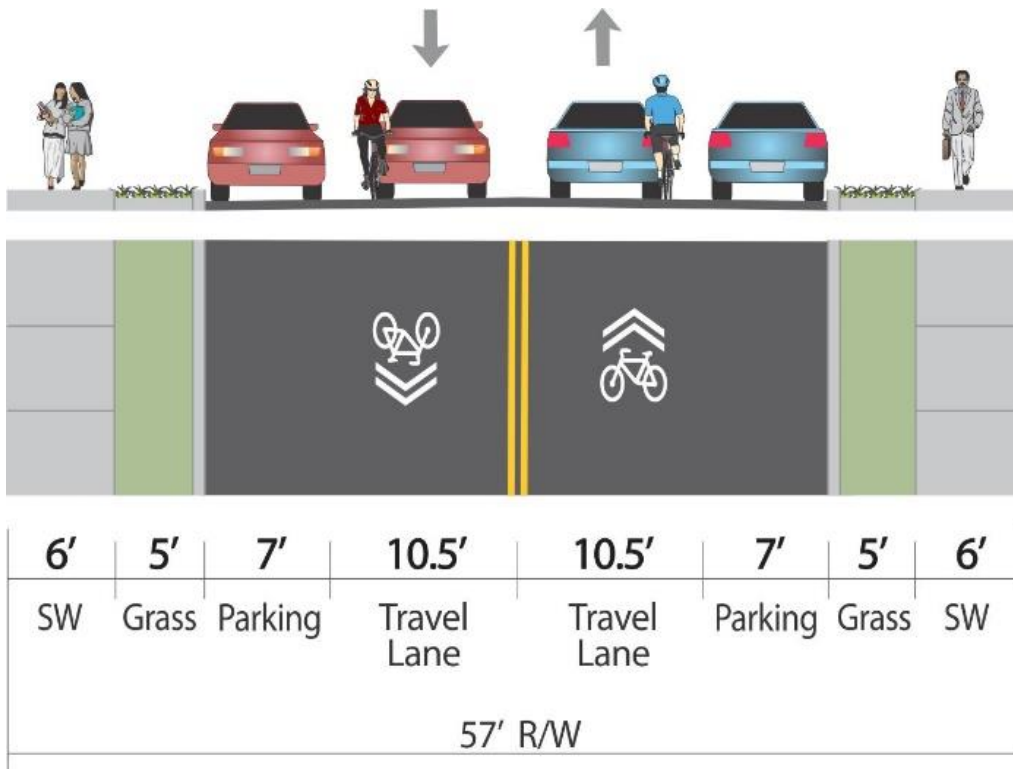


Figure 3-7 Collector, 57'

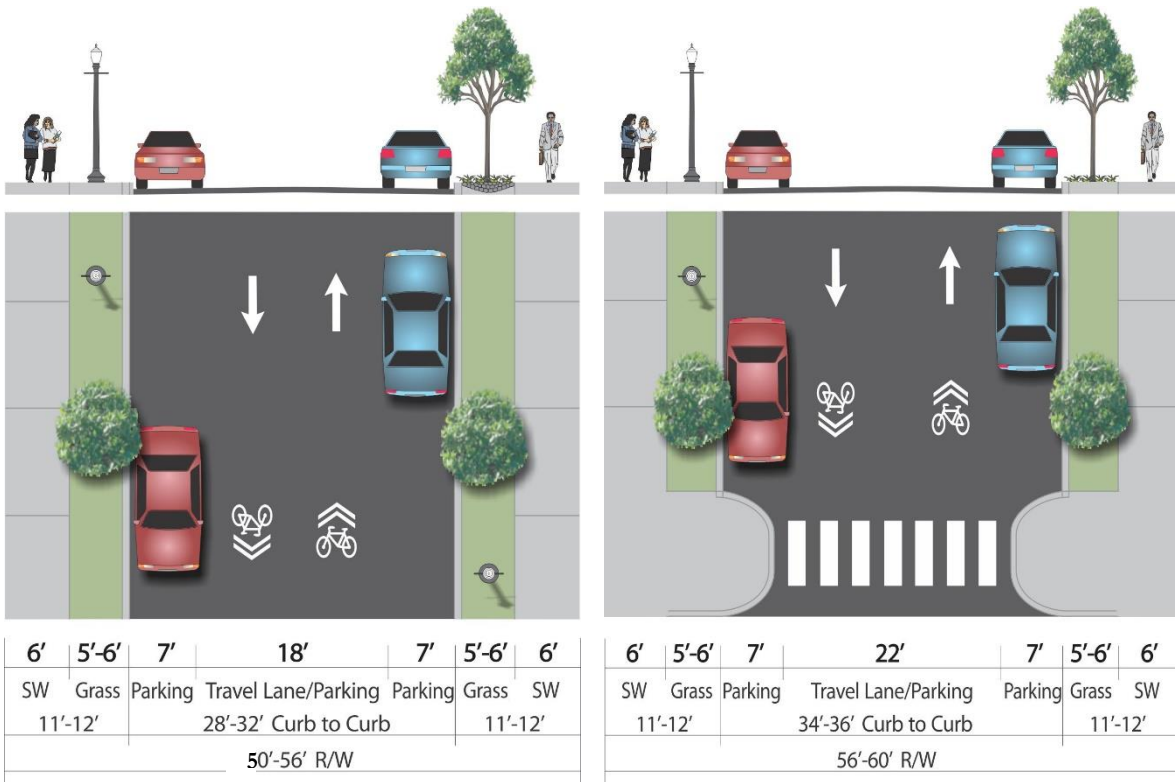


Figure 3-8 Collector, 50'-56', aerial view

Figure 3-9 Collector, 56'-60', aerial view

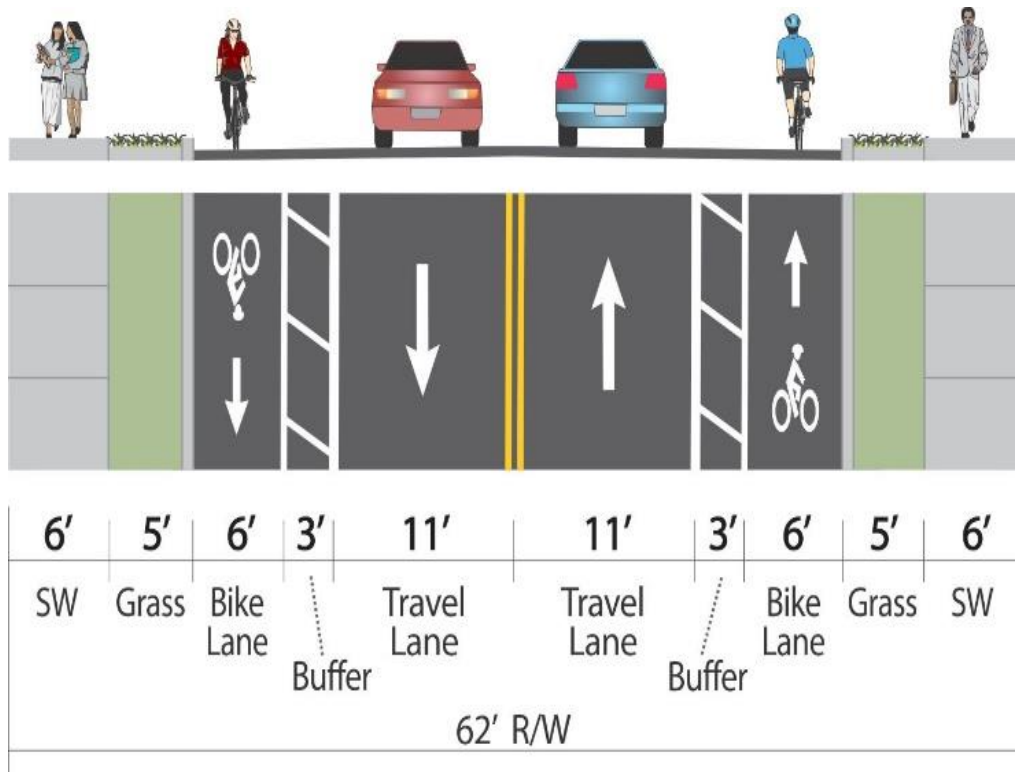


Figure 3-10 Collector, 62'

Access Spacing Standards

Access management is a broad set of techniques that balance the need to provide efficient, safe, and timely travel with the ability to allow access to individual destinations. Proper access management standards (i.e. block size, driveway spacing, etc.) and techniques will promote reduced congestion and crash rates, and may lessen the need for additional roadway capacity.

Table 3-2 identifies the minimum and maximum public street intersection and minimum private access spacing standards for streets in Gearhart. New streets or redeveloping properties must comply with these standards to the extent practical (as determined by the city). As the opportunity arises through redevelopment, streets not complying with these standards could improve with strategies such as shared access points, access restrictions (through the use of a median or channelization islands) or closed access points as feasible.

	Arterial	Collector	Local
Maximum Block Size (Public Street to Public Street)	See Oregon Highway Plan	530 ft.	530 ft.
Minimum Block Size (Public Street to Public Street)		265 ft.	265 ft.
Minimum Driveway Spacing (Public Street to Driveway and Driveway to Driveway)		130 ft.	None

On-street Parking

On-street parking should be a high priority along Mixed-Use or Residential streets (in mixed-use and residential areas). The optimum design criteria for collector and local streets in mixed-use and residential areas (see Figures 3 and 4) calls for on-street parking on both sides of the street. On-street parking is generally discouraged along Commercial/Industrial streets, although it may be allowed if the adjacent land use would benefit from it and adequate right-of-way is available. The City may eliminate on-street parking from one or both sides along streets located in constrained areas located in steep, environmentally sensitive, rural, historic, or development limited areas of the City.

The width of on-street parking should typically be eight feet, except along Residential streets where parking turn-over is not as frequent (as shown in Table 2). Along Residential streets, the width of on-street parking can be reduced to seven feet. The typical length of the on-street parking stall should be 20 feet, but may be reduced if additional maneuvering area is available (as determined by the City).

Table 3-3 On-street Parking Design Criteria	Mixed-Use Streets	Residential Streets	Commercial /Industrial Streets
Typical Parking Stall Width	8 feet	7 feet	8 feet
Typical Parking Stall Length	20 feet	20 feet	20 feet

Traffic Impact Analysis (TIA)

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. The details for TIA should be incorporated into the City’s development code.

Walking and Biking Treatment Guidelines

The following sections detail various walking and biking standards and treatment guidelines.

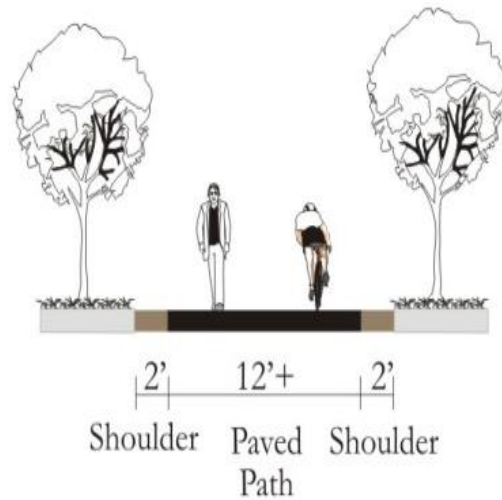
Shared Use Paths

Shared-use paths provide off-roadway facilities for walking and biking travel. Depending on their location, they can serve both recreational and general travel needs. Shared-use path designs vary in surface types and widths.

Gearhart currently has a north-south unpaved pedestrian trail. The decision to whether pave a shared-use path depends on community consensus. There are aesthetic and environmental advantages to unpaved natural trails but there are also trade-offs. Paved surfaces are generally better for bicycle travel and are more walkable during and after rain events. Accessibility tends to be higher for paved shared-use paths.

Shared-use paths should provide ample space for both walking and biking and should also be able to accommodate maintenance vehicles. The recommended design criteria for shared-use paths can be seen in figure 3-11. The City may reduce the width of the paved shared-use path to a minimum of eight feet in constrained areas located in steep, environmentally sensitive, rural, historic, or development limited areas of the City. In areas with significant walking or biking demand, the paved shared-use path should be 16 feet.

Figure 3-11: Recommended Design Criteria for Shared-Use Paths



In addition, a variety of amenities can make a path inviting to the user. These could include features such as way-finding signs, water fountains, benches, lighting, maps, art, and shelters.

Walking and Biking Routes

A network of family friendly walking and biking routes are envisioned to connect destinations and neighborhoods in Gearhart. These routes are shared roadways that modify existing low volume, low speed streets to prioritize the through movement of bicyclists and pedestrians while maintaining local access for automobiles. Walking and bicycling routes typically include wayfinding signage and pavement markings, as well as traffic calming features (e.g. diverters, speed bumps, etc.) that reduce motor vehicle speeds and volumes. Limiting vehicular speed not only improves residents' feelings of safety, but also promotes greater use of the public space.

Further enhancements may include features such as trees, and street furniture in addition to wider sidewalks and improved pedestrian amenities (e.g., bulb-outs and pedestrian-scale lighting). A network of walking and bicycling routes helps encourage active transportation by providing comfortable, low-stress routes between neighborhoods and local parks, schools, and shopping areas. Where these facilities cross major roadways it is important to provide safe and comfortable pedestrian and bicycle crossings.

Street Crossings

Enhanced street crossings are generally required on roadways with high traffic volumes and/or speeds in areas with nearby transit stops, residential uses, schools, parks, shopping and employment destinations. These crossings should include treatments such as marked crosswalks, high visibility crossings, and curb extensions to improve the safety and convenience of street crossings. If the maximum block size shown in Table 1 is exceeded, mid-block pedestrian and bicycle access ways must be provided at spacing no more than 330 feet, unless the connection is impractical due to inadequate sight distance, high vehicle travel speeds, or other factors that may prevent the crossing (as determined by the City). Otherwise, the crossings should be provided consistent with the block spacing standards shown in Table 1.

Mobility Standards

The traffic volume in Gearhart is seasonal in nature, which results in a wide variance of traffic volumes between summer and winter months. To avoid building excessive road capacity that is under-used in off-peak seasons, this TSP focuses on setting mobility standards for average annual weekday traffic needs, and not the summertime peak. Establishing mobility standards for streets and intersections in Gearhart will encourage a sustainable transportation system by providing a metric to assess the impacts of new development on the existing transportation network.

The TSP recommends the following mobility standards for streets under the city's jurisdiction. State-owned streets must comply with the mobility targets included in the Oregon Highway Plan. Clatsop County has mobility standards for county roadways in the Clatsop County TSP.

- Signalized, All-way Stop, or Roundabout Controlled Intersections: During the highest one-hour period on an average weekday (typically, but not always the evening peak period between 4 p.m. and 6 p.m. during the spring or fall): the intersection as a whole must meet Level of Service (LOS) "D" or better

- Two-way Stop and Yield Controlled Intersections: During the highest one-hour period on an average weekday (typically, but not always the evening peak period between 4 p.m. and 6 p.m. during the spring or fall): All movements serving more than 20 vehicles shall be LOS “D” or better. LOS “E” is acceptable at movements serving no more than 20 vehicles during the peak hour.

Section D

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Section E

Memo 4: Transportation System Conditions, Deficiencies and Needs

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.



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MEMORANDUM

DATE: August 1, 2016
TO: Gearhart TSP Project Management Team
FROM: Carl Springer, PE, PTP; Kevin Chewuk, PTP

SUBJECT: Gearhart Transportation System Plan

Technical Memorandum #4: Transportation System Conditions

P14180-006

This memorandum provides a summary of the existing (2016) and baseline (2040) transportation conditions for Gearhart, providing answers to the following questions

- What makes Gearhart unique?
- Where do people want to go?
- What factors affect how people travel?
- How are people choosing to travel?
- What transportation infrastructure is available?
- What is the condition of the transportation system?

Summary of Key Findings

Below is a summary of key findings from the analysis of transportation conditions that helps establish a baseline for system performance.

Walking

- Many streets in Gearhart do not have complete sidewalks on one side of the street, or even on both sides.
- Despite the limited walking network, most streets in Gearhart are narrow, with low traffic volumes and low travel speeds. Given the flat terrain of the area, most of these are suitable as shared streets (particularly those with a functional classification of local).
- Overall, the walking network rates relatively high near downtown and surrounding the Gearhart Golf Links, and poor towards the east side of the city and along US 101.

Biking

- While the bicycle system is relatively incomplete, significant segments of continuous bicycle facilities exist along Marion Avenue, Gearhart Loop Road, and Cottage Avenue along the perimeter of Gearhart Golf Links.

- The shoulders along US 101 do not provide standard widths for bicycle travel through much of Gearhart (paved width of less than six feet).
- One bicycle-involved collision occurred along Marion Avenue, between 10th Street and 13th Street.
- The bicycle-involved crash was caused by a driver failing to yield the right of way when turning.
- For bicycling, the majority of arterial and collector streets in Gearhart rate relatively high on the west side of the city, and poor on the east side. The streets with the lowest ratings are the streets important for local and regional through travel (i.e., US 101, Pacific Way, Gearhart Loop Road), where most businesses and services are located.

Transit

- Sunset Empire Transportation District bus stops in Gearhart are located near US 101 and Pacific Way (at Gearhart Bowl), and US 101 and Wild Rose Lane (at Bud's RV Park).
- Only the bus stop near US 101 and Pacific Way includes signage to identify the stop.
- Both of the stops lack a bench and shelter, and sidewalk connections to the surrounding neighborhoods and businesses.
- NorthWest Public Oregon Intercity Transit (POINT), connects Gearhart to the surrounding region, including Portland. The NorthWest POINT bus stop is located along US 101, just north of Gearhart Loop Road.
- Most transit users in the city are more than a half-mile from a bus stop.

Driving

- Nearly 60 percent of the workers in Gearhart live in another city that is located more than ten miles away, creating many long commute trips and encouraging travel by motor vehicle.
- Motor vehicle volumes on the roadways in Gearhart most commonly peak during weekday evenings between 4:25 p.m. and 5:25 p.m.
- Gearhart experiences an average of around 10 crashes a year, though the severity of most crashes is generally low, with 78 percent involving only property damage or minor injuries.
- The US 101/ Gearhart Loop Road intersection was noted as having a high rate of crashes, with the intersection also identified through ODOT's Safety Priority Index System as having a high combination of crash frequency and severity.
- The four most common driver errors are responsible for nearly 70 percent of all crashes in Gearhart.
 1. Did Not Yield Right-of-Way (31 percent)
 2. Followed Too Closely (20 percent)
 3. Speed too fast for conditions (12 percent)
 4. Disregarded Traffic Signal (4 percent)
- All study intersections meet the mobility targets under existing (2016) p.m. peak hour summer conditions. However, the US 101/ Gearhart Loop Road and US 101/ G Street-Oster Road

intersections are forecasted to exceed the applicable mobility targets by 2040, with the side street approaches to the highway forecasted to operate with a volume-to-capacity above 1.00.

Other Modes of Travel

- Within Gearhart, US 101 is designated as a Tier 3 lifeline route.
- Most streets in Gearhart are located in the tsunami inundation area for a local tsunami, with the evacuation zone extending east of McCormick Gardens Road. The city has optional high ground areas that remain dry in 95 percent of tsunami scenarios analyzed.
- It is recommended that local “emergency transportation routes” be designated to help facilitate the movement of people during a major regional emergency or disaster. The TSP would prioritize investments along these routes to preserve the function for emergency response.
- The bridge along US 101 in Seaside over Neawanna Creek, south of Lewis and Clark Road is flagged as functionally obsolete.
- The bridge along US 101 in Seaside over Neawanna Creek does not provide shoulders for bicycle travel.
- Within Gearhart, US 101 is classified as a Federal Truck Route.
- The Seaside Municipal Airport serves 2,600 annual operations (i.e., take-offs or landings).
- Regional and international air service for passengers and freight is provided via Portland International Airport (PDX).
- North West Transportation Options provides transportation options outreach including carpool/vanpool matching services for commuters in Clatsop, Tillamook, and Columbia counties.

What Makes Gearhart Unique?

Stretching along the Pacific Ocean, Gearhart is a quaint beach town. While the population of permanent residents in the city is close to 1,500 residents¹, summer populations can rise to nearly 3,500. Visitors are drawn to the city's two-mile beachfront, golfing, and more. Visitors arrive via US 101 and often stay for extended periods, traveling to major destinations throughout the city. Walking and biking is a popular travel choice for visitors in hotels or vacation rentals to the destinations in the city.



Downtown Gearhart

Where do People Want to Go?

One of the first steps in planning for an effective transportation system is gaining an understanding of the key destinations that people travel to throughout the city. Demand for travel is created by locations where people go to work, school, or to take care of other daily needs. These destinations are referred to as activity generators (or trip attractors). Activity generators represent important starting and ending points for travel in Gearhart, and they provide a basis for assessing important travel patterns.

Within the City

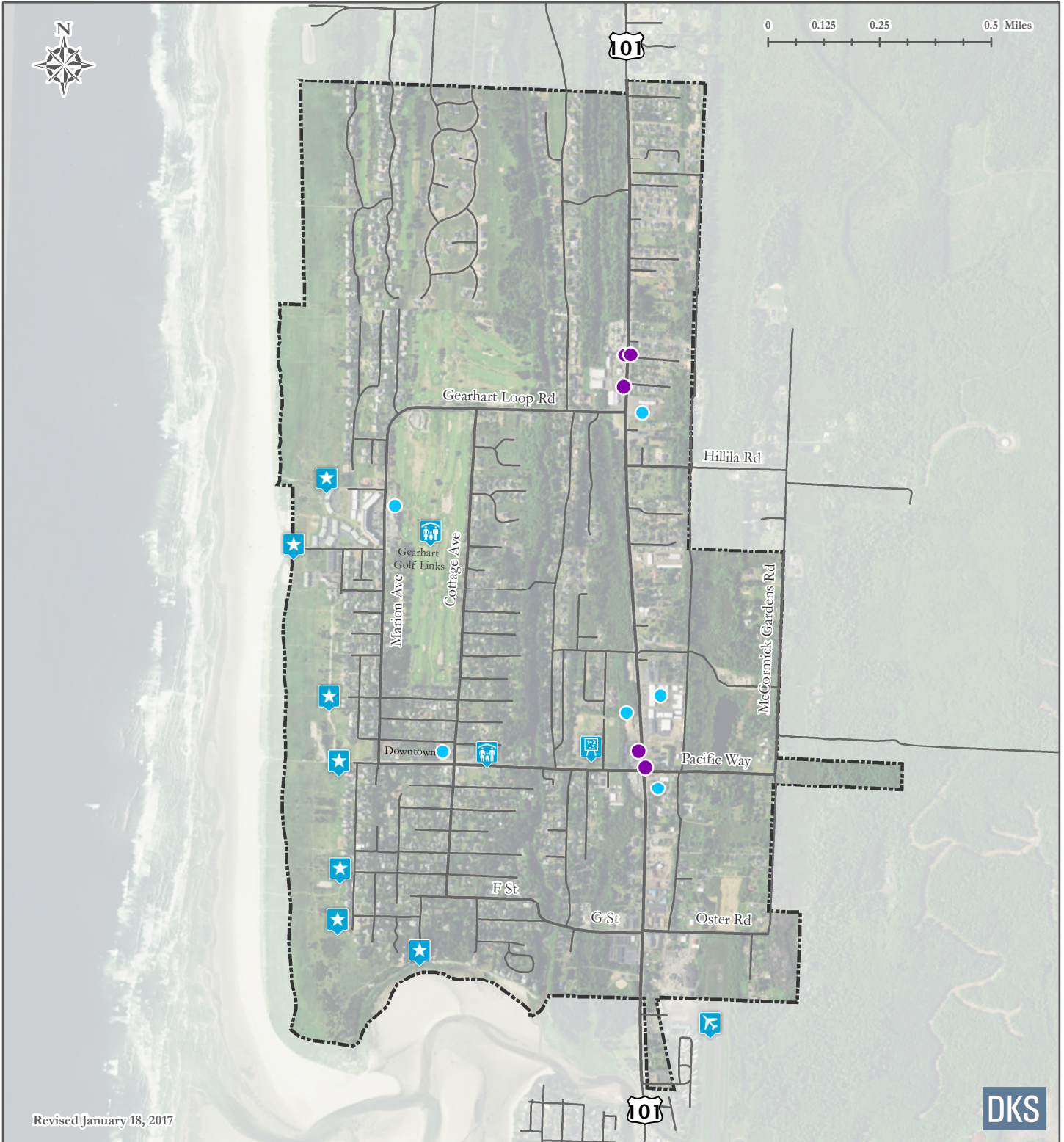
Gearhart has numerous activity generators that attract residents and visitors alike. The most common categories of activity generators in the city include the following (see Figure 1 for general locations):

- Recreational/Entertainment (e.g., Beach, hotels, vacation rentals, Gearhart Golf Links, McMenamins, and Gearhart Bowl)
- Schools (e.g., Gearhart Elementary School)
- Places of employment (e.g., Business areas, industrial areas, offices)
- Shopping (e.g., Downtown Gearhart, highway businesses, restaurants)
- Community/Government (e.g., City Hall)
- Public Transportation (e.g., Bus stops)

Each of these categories of activity generators represents important starting and ending points for travel and provides a good basis for planning ideal routes.

¹ Portland State University Population Research Center. Certified Population Estimate July 1, 2015.

Major Activity Generators





Revised January 18, 2017

DKS

Legend:

Major Activity Generators:

-  Airport
-  School
-  Community Amenity
-  Beach Access
-  Shopping or Dining
-  Bus Stop

-  Urban Growth Boundary
-  Arterial or Collector Street

Outside of the City

Having safe and efficient access to areas outside of the city is critical for many people who either live or work outside of Gearhart. Much of the traffic in Gearhart, especially during the more congested weekday peak periods, is related to employment. As shown in Table 1, nearly 60 percent of the workers in Gearhart live in another city that is located more than ten miles away. Residents of Gearhart also contribute to travel between cities, as shown in Table 2. More than 60 percent of workers living in Gearhart commute to employment locations at least ten miles outside of the city.

Table 1: Where Gearhart Workers Live

Gearhart workers who:	Percent of Gearhart Residents	Distance from Gearhart
Live in Gearhart	11%	-
Live outside Gearhart	89%	-
<i>Live in Seaside</i>	32%	1+ miles
<i>Live in Portland Metro Area</i>	14%	65+ miles
<i>Live in Astoria</i>	13%	14+ miles
<i>Live in Warrenton</i>	11%	10+ miles
<i>Live in Cannon Beach</i>	7%	11+ miles
<i>Live in Long Beach, WA</i>	3%	30+ miles
<i>Live in Other Cities</i>	9%	10+ miles

Source: Home Destination Report, On The Map, US Census Bureau, 2014

Table 2: Where Gearhart Residents Work

Gearhart residents who:	Percent of Gearhart Residents	Distance from Gearhart
Work in Gearhart	7%	-
Work outside Gearhart	93%	-
<i>Work in Seaside</i>	28%	1+ miles
<i>Work in Portland Metro Area</i>	27%	65+ miles
<i>Work in Astoria</i>	11%	14+ miles
<i>Work in Cannon Beach</i>	7%	11+ miles
<i>Work in Warrenton</i>	6%	10+ miles
<i>Work in Tillamook</i>	1%	50+ miles
<i>Work in Other Cities</i>	13%	10+ miles

Source: Work Destination Report, On The Map, US Census Bureau, 2014

What Factors Affect How People Travel?

Travelers often weigh a variety of factors when deciding how to commute to their destination. Whether the trip will be via motor vehicle, walking, bicycle, or public transportation, the choice is often a balance between ease and convenience of travel, travel cost, and travel time.

Where are you going? Whether you are going to work, school, shopping, or to a park, your trip type (or your destination point) often determines your mode of transportation. Those destined for a park or school generally have a higher likelihood to walk or bicycle than those going to work or shopping. The distance of that destination plays a role in mode choice. Trips that are shorter generally present a better opportunity to walk or bicycle; longer distance trips more often require transit or motor vehicle modes.

Will you have to cross a busy road or walk along a road without sidewalks? The availability of sidewalks, curb ramps to provide wheelchair access, crosswalks, and bicycle lanes increases the comfort and access of walking and biking. The lack of or poor quality of these facilities, particularly on higher volume or higher speed roadways, discourages people from utilizing non-motorized vehicle modes of transportation.

Where you work and how long it takes you to get there. Gearhart residents who work outside of the city (as well as people who work in Gearhart but live elsewhere) are likely to commute via motor vehicle due to travel distance and commute time. However, some commuters may choose to bike or use transit if the regional transportation system offers convenient biking facilities or transit services between cities.

What public transportation service is available? Distance to bus stops, frequency of service, route coverage, connections to other transportation options, and amenities at stops are some of the factors that play a role in a user's decision to utilize public transportation. For those who cannot afford or are unable to drive, transit is an attractive option for making longer trips.

Age and income. Demographic characteristics such as age and income play a key role in determining mode of transportation. Gearhart residents with lower incomes, as well as the youngest and oldest residents, often account for more trips via walking, biking, and public transportation.

As seen in Table 3, about 23 percent of Gearhart residents are school-age children, while 20 percent of residents are over 65. The median income of Gearhart is around \$50,000.

Table 3: Key Demographics in Gearhart

Demographic	Gearhart
Age (by percent of residents)	
<i>School-Aged (Under 18)</i>	23%
<i>College-Aged (18-24)</i>	6%
<i>Middle-Aged (25 to 64)</i>	51%
<i>Retired-Aged (65+)</i>	20%
Median Household Income	\$50,179

Source: US Census Bureau, 2010-2014 American Community Survey

Is it cold or raining? Weather plays a role in determining how trips are made. Gearhart experiences cool, rainy winters, with mild and generally dry summers. According to the Oregon Climate Service, average

temperatures in the winter months (December to February) are around 45 degrees Fahrenheit, with measurable rainfall occurring about 20 days each winter month. The spring and fall months (March to May, and September to November) are slightly warmer and dryer, with average temperatures between 50 and 54 degrees Fahrenheit, and about 12 days of measurable rainfall. The summer months (June to August) are typically very pleasant, with average temperatures around 59 degrees Fahrenheit, and less than 7 days of measurable rainfall each month². Cold, rainy weather can make walking and biking trips less attractive, encouraging users to make a trip via motor vehicle.

How are People Choosing to Travel?

The number of people who choose to walk, bike, ride transit or drive is important for assessing how well existing transportation facilities serve the needs of users. Available data on commuter travel mode choices and peak hour travel demand is used to better understand travel behavior in the community and inform the needs analysis for the existing transportation system.

Commute Mode of Gearhart Residents

Most Gearhart residents commuted to work between the years 2010 and 2014 via single-occupant motor vehicles (about 72 percent)³. About three percent of residents walked to work, and approximately one percent used public transportation.

The commute mode choices of Gearhart residents are compared with other cities in the region in Table 4. The single-occupant motor vehicle commute share in Gearhart was lower than that of Warrenton, but higher than that of Astoria, Cannon Beach and Seaside. The walking and biking commute share in Gearhart was similar to that of Warrenton, and much lower than that of Cannon Beach and Seaside. Commuting to work via public transportation was not common in most of these cities (two percent or less)⁴.

Table 4: Transportation Modes Used by Employees to Commute to Work

Transportation Mode	Percent of Commuters				
	Gearhart	Astoria	Cannon Beach	Seaside	Warrenton
<i>Workers over 16 years</i>	760	4,480	804	2,555	2,337
Motor Vehicle- Single Occupant	72%	64%	55%	60%	81%
Motor Vehicle- Carpool	15%	16%	12%	5%	9%
Walked	3%	8%	19%	20%	3%
Biked	0%	1%	4%	5%	0%
Public Transportation	1%	4%	0%	3%	0%
Worked at Home	9%	5%	10%	6%	6%
Other	1%	2%	0%	1%	1%

Source: US Census Bureau, 2010-2014 American Community Survey

² Climate Summary for Seaside (no data was available for Gearhart), Oregon Climate Service.

³ 2010-2014 American Community Survey, US Census Bureau

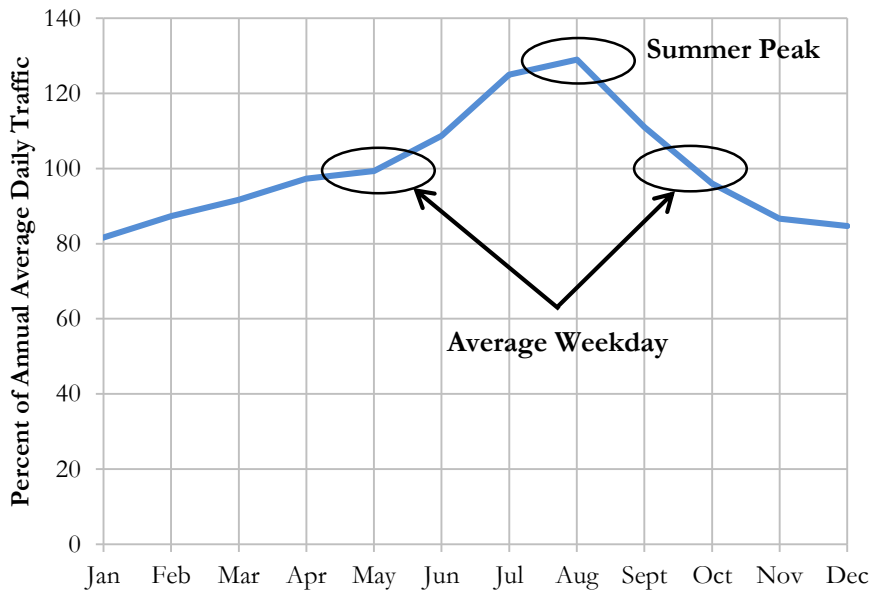
⁴ Although the US Census Bureau is a valuable source of information for work-related commute patterns, it does not truly represent the full range of travel within Gearhart. Non-motorized vehicle transportation modes are likely higher in Gearhart for other types of travel including trips to school, recreation, or access to transit.

Transportation Demand by Mode

Pedestrian, bicycle, and motor vehicle traffic counts were conducted at key intersections throughout Gearhart on typical weekdays⁵. This information indicates where and when travel demand is highest for each mode of travel. It also provides a basis for assessing how well existing transportation facilities are able to meet the needs of users during peak demand periods.

- **Pedestrian volumes during the p.m. peak hour** are generally highest near downtown Gearhart, including along Pacific Way and Cottage Avenue (see the appendix for the traffic count summary). The highest hourly pedestrian activity during the evening peak occurred at the Pacific Way intersection with Cottage Avenue, with 18 pedestrian crossings in the one-hour period between 4:25 p.m. and 5:25 p.m. Pedestrian crossings at study intersections along US 101 were low, with no more than one during the one-hour period.
- **Bicycle volumes** indicate limited biking, with highest volumes along Pacific Way (see the appendix for the traffic count summary). During the evening peak hour, most of the study intersections had one observed bicyclist during the one-hour period between 4:25 p.m. and 5:25 p.m. The Pacific Way intersection with Cottage Avenue had the highest observed bicycle volume, with four bicyclists counted during the single hour at the intersection.
- **Motor vehicle volumes** on the roadways in Gearhart (shown in Figure A1 in the appendix) most commonly peak during weekday evenings between 4:25 p.m. and 5:25 p.m. However, traffic volumes generally vary depending on the time of year. Traffic volumes in the city may increase as much as 29 percent above average during the summer (see Figure 2). This summer increase is due to an influx of vacationers and visitors to Gearhart.

Figure 2: Typical Seasonal Traffic Profile for Streets in Gearhart



⁵ Based on counts conducted in June of 2016.

What transportation infrastructure is available?

Existing transportation infrastructure includes a range of facilities for people who drive, walk, ride bikes, or use transit. The following sections summarize the existing infrastructure for the pedestrian, bicycle, transit, and roadway systems.

Pedestrian System

Walking plays a key role in Gearhart's transportation network. Planning for pedestrians not only helps the city provide a complete, multi-modal transportation system, it supports healthy lifestyles and addresses a social equity issue, ensuring that the young, the elderly, and those not financially able to afford motorized transport have access to goods, services, employment, and education. Approximately three percent of commuters in the city walk to work, with another one percent utilizing public transportation to get to work, which generally includes a walking trip at the beginning or end. In addition to the work commute trips, walking trips are made to and from recreational or shopping areas, schools, or other activity generators. Continuous sidewalk connections between all activity generators and arterial/collector roadways are desirable to allow for safe and attractive non-motorized travel options.

The walking network in Gearhart, shown in Figure 3, is composed of sidewalks, and multi-use paths, and is relatively under developed. Many streets in Gearhart do not have complete sidewalks on one side of the street, or even on both sides. Portions of Pacific Way, Marion Avenue, Cottage Avenue, Ocean Avenue, and 10th Street have sidewalks, and the Ridge Path connects 8th Street with F Street east of Cottage Avenue.

Despite the limited walking network, most streets in Gearhart are narrow, with low traffic volumes and low travel speeds. Given the flat terrain of the area, most of these are suitable as shared streets (or streets which motor vehicles, pedestrians and bicyclists share the traveled way), particularly those with a functional classification of local.

Bicycle System

The bicycle system provides a non-motorized travel option for trips that are longer than a comfortable walking distance. A well-developed bicycle system promotes a healthy and active lifestyle for the residents, and visitors of Gearhart. While no commuters in the city bicycle to work, bicycle trips are made to and from recreational or shopping areas, schools, or other activity generators. Continuous bicycle connections between all activity generators and arterial/collector roadways are desirable to allow for safe and attractive non-motorized travel options.

The bicycle network in Gearhart, shown in Figure 3, is composed of bike lanes, and roadway shoulders. While the system is relatively incomplete, significant segments of continuous bicycle facilities exist along Marion Avenue, Gearhart Loop Road, and Cottage Avenue along the perimeter of Gearhart Golf Links.

The shoulders along US 101 do not provide standard widths for bicycle travel through much of Gearhart (paved width of less than six feet).

Transit System

The Sunset Empire Transportation District (SETD) provides transit service in Gearhart via one weekday fixed bus (Route 101), and one weekend bus route (Pacific Connector). Figure 3 shows the route through Gearhart.

Bus stops in Gearhart are located near US 101 and Pacific Way (at Gearhart Bowl), and US 101 and Wild Rose Lane (at Bud's RV Park). Only the bus stop near US 101 and Pacific Way includes signage to identify the stop. Both of the stops lack a bench and shelter, and sidewalk connections to the surrounding neighborhoods and businesses. Most transit users in the city are more than a half-mile from a bus stop.

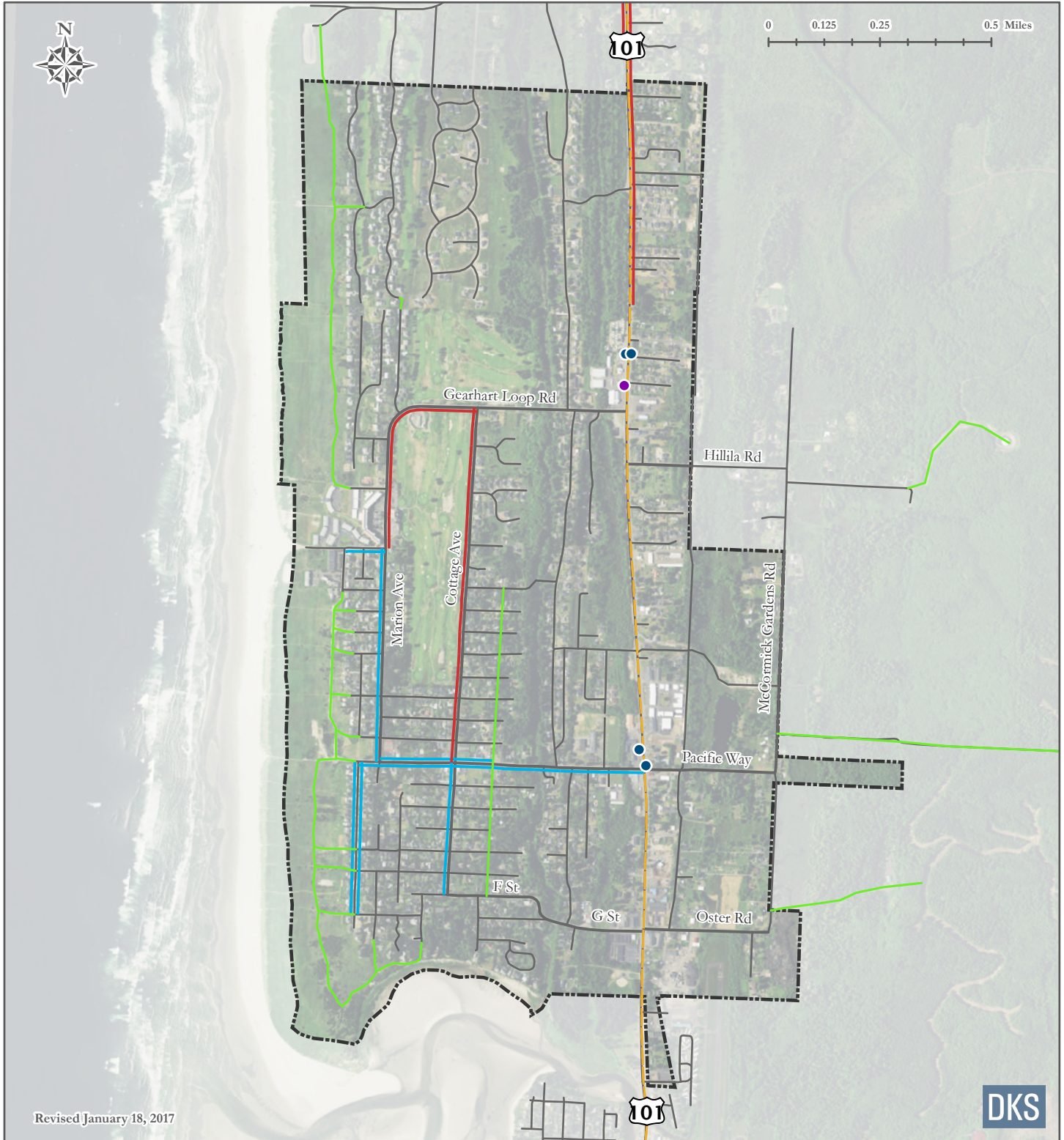
SETD Route 101 travels through Gearhart northbound and southbound 12 times a day, Monday through Friday, connecting the city with Astoria, Warrenton, and Seaside. Transit service is provided from 6:35 a.m. to 9:00 p.m. with typical headways of one hour. Key destinations along this route include Clatsop Community College, Providence Seaside Hospital, Costco, Home Depot, Fred Meyer, and Safeway. SETD buses are equipped with a lift to allow for wheelchair access and include bicycle racks.

The SETD Pacific Connector travels through Gearhart northbound and southbound three times a day, Saturday and Sunday, connecting the city with Astoria, Warrenton, Seaside, Cannon Beach, and Manzanita. Transit service is provided from 8:57 a.m. to 4:59 p.m. with headways typically between two and four hours.

NorthWest Public Oregon Intercity Transit (POINT), operated by MTR Western, connects Gearhart to the surrounding region, including Portland. Bus service is provided between the Astoria Transit Center and the Portland Greyhound and Portland Amtrak stations. The bus leaves the Astoria Transit Center destined for Portland twice daily, with stops in Gearhart at 8:40 a.m. and 6:20 p.m., and leaves Portland destined for Astoria twice daily, with stops in Gearhart at 11:20 a.m. and 8:20 p.m. seven days a week. The NorthWest POINT bus stop is located along US 101, just north of Gearhart Loop Road.

SETD provides an Americans with Disabilities Act (ADA) paratransit service for persons with disabilities who are unable to access or use regular fixed route buses, called RideAssist. This service is curb-to-curb through wheelchair lift equipped mini-buses. Passenger origins and destinations must be within three-fourths of a mile of fixed-route service. RideAssist service is offered during the same days and times as fixed-route service.

Existing Pedestrian, Bicycle, and Transit System



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Legend:

Pedestrian, Bicycle, and Transit Facilities:

- Sidewalk
- Bike Lane or Shoulder Bikeway (> 5 feet)
- Trails
- Bus Route
- SETD Bus Stop
- NorthWest POINT Bus Stop
- Urban Growth Boundary
- Arterial or Collector Street

Roadway System

The major transportation route through Gearhart, US 101, runs north to south bisecting the city. Gearhart roadways are fairly well connected and generally follow a grid pattern on the west of US 101 where practical. The Pacific Ocean, Neawanna Creek, Gearhart Golf Links, Neacoxie Creek, and wetlands, however, limit continuous north to south routes parallel to US 101. At several locations, US 101 is the only north-south street, forcing most drivers to use it for longer trips within the city.

A few key city roadways that provide north-south access are Marion Avenue, Cottage Avenue, and McCormick Gardens Road. Marion Avenue and Cottage Avenue parallel Gearhart Golf Links on the west side of US 101, and McCormick Gardens Road provides a connection on the east side of US 101. Key east-west city roadways include Gearhart Loop Road towards the north end of the city, Pacific Way centered in the middle, and F Street, and G Street in the south end of the city.

Functional Classification

To manage the street network, the city classified the streets based on a hierarchy according to the intended purpose of each (as shown in Figure 4). From highest to lowest intended usage, the classifications are principal arterial, collector, and local streets. Streets with higher intended usage generally limit access to adjacent property in favor of more efficient motor vehicle traffic movement (i.e., mobility). Local roadways with lower intended usage have more driveway access and intersections, and generally accommodate shorter trips to nearby destinations.

- **Principal Arterials** serve as the main travel routes through the city and serve the highest volume of motor vehicle traffic. The only roadway in the city classified as a principal arterial is US 101. Principal arterials are generally for longer motor vehicle trips with limited local access. Posted speed limits on the highway ranges from 40 to 55 miles per hour.
- **Collectors** connect many parts of the city and often serve traffic traveling to and from principal arterials. These roadways provide greater accessibility to neighborhoods, connect to major activity generators, and provide efficient through movement for local traffic. In Gearhart, portions of Gearhart Loop Road, Hillila Road, Pacific Way, F Street, G Street, Oster Road, Marion Avenue, Cottage Avenue, and McCormick Gardens Road are collectors. Posted speeds on collector streets in Gearhart typically range between 25 and 35 miles per hour.
- **Local Streets** provide more direct access to residences without serving through travel in Gearhart. These roadways generally are lined with residences and are designed to serve lower volumes of traffic with a statutory speed limit of 25 miles per hour.

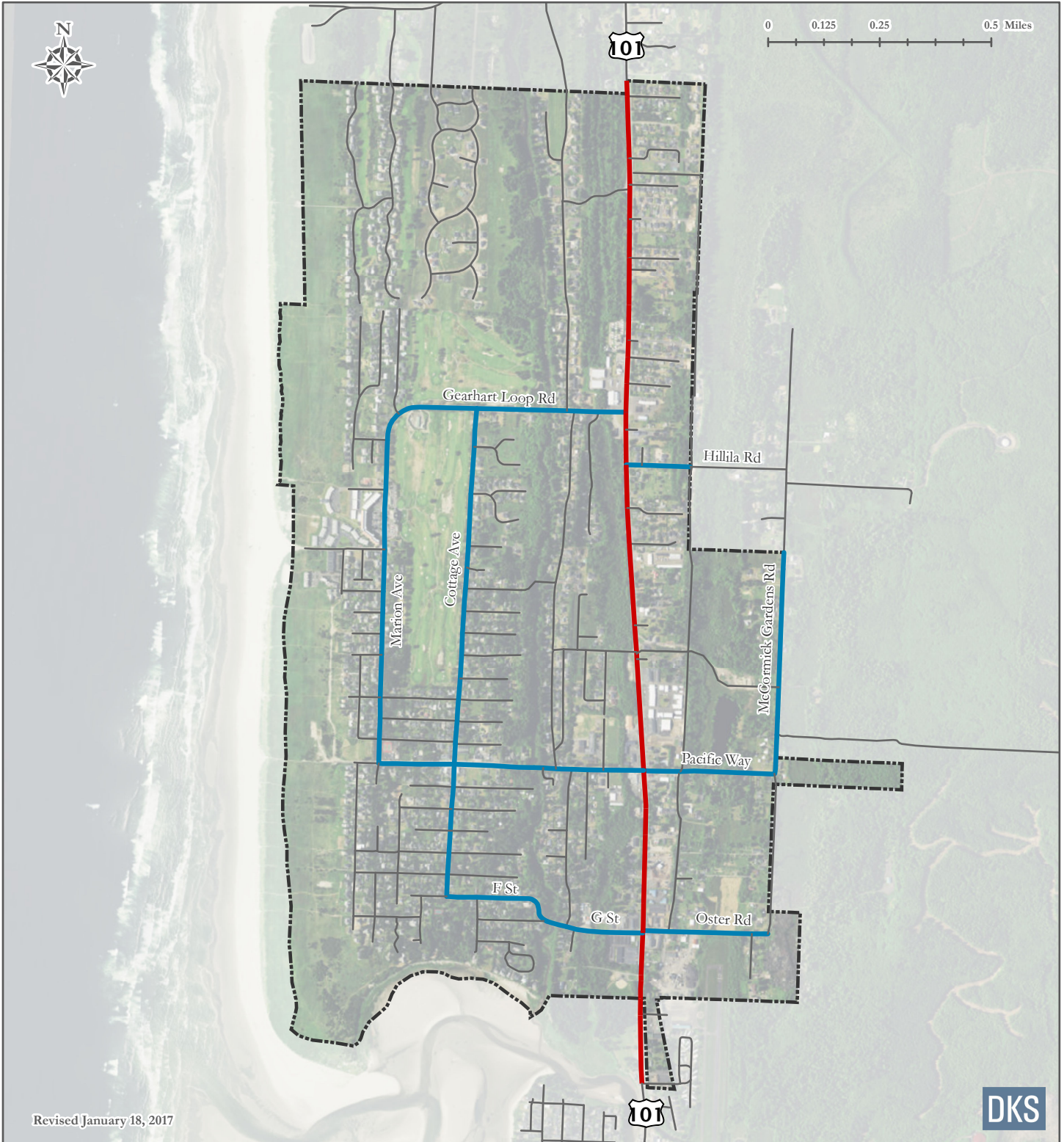
ODOT and Clatsop County classify roadways in Gearhart under their jurisdiction. Within Gearhart, US 101 is under ODOT jurisdiction. US 101 is classified as a Statewide Highway⁶.

Hillila Road, and McCormick Gardens Road are under county jurisdiction, but within the Gearhart Urban Growth Boundary. The county classifies these as local streets.

The federal government also has a functional classification system that is used to determine federal aid funding eligibility (see the Federal Functional Classification map in the appendix). Roadways federally

⁶ 1999 Oregon Highway Plan, Including amendments November 1999 through May 2015, Oregon Department of Transportation, 2016.

designated as a major collector, minor arterial, principal arterial, or interstate are eligible for federal aid. US 101 is federally classified as a principal arterial, while most locally designated collector streets are federally classified as major collectors.



Revised January 18, 2017



Legend:

Functional Classification

- Principal Arterial
- Collector
- Local Streets

Urban Growth Boundary

Emergency Response

Figure 5 shows designated lifeline routes and recommended emergency transportation routes in Gearhart, along with tsunami inundation areas and current bridge locations. The following sections describe the purpose of each designated route and why they are important to Gearhart.

Lifeline Routes

The Oregon Highway Plan (OHP) Goal 1, Policy 1E has designated routes for emergency response in the event of an earthquake, categorized as Tier 1, 2 and 3. The routes identified as Tier 1 are considered to be the most significant and necessary to ensure a functioning statewide transportation network. A functioning Tier 1 lifeline system provides traffic flow through the state and to each region. The Tier 2 lifeline routes provide additional connectivity and redundancy to the Tier 1 lifeline system. The Tier 2 system allows for direct access to more locations and increased traffic volume capacity, and it provides alternate routes in high-population regions in the event of outages on the Tier 1 system. The Tier 3 lifeline routes provide additional connectivity and redundancy to the lifeline systems provided by Tiers 1 and 2. ODOT has designated US 101 as a Tier 3 lifeline route through Gearhart.

Tsunami Evacuation Routes

The Oregon Department of Geology and Mineral Industries has developed a tsunami evacuation plan for Gearhart. This plan (shown in the appendix) details evacuation routes, evacuation sites, shelters, and evacuation areas. Evacuation signs have been installed along streets to indicate the direction inland or to higher ground.

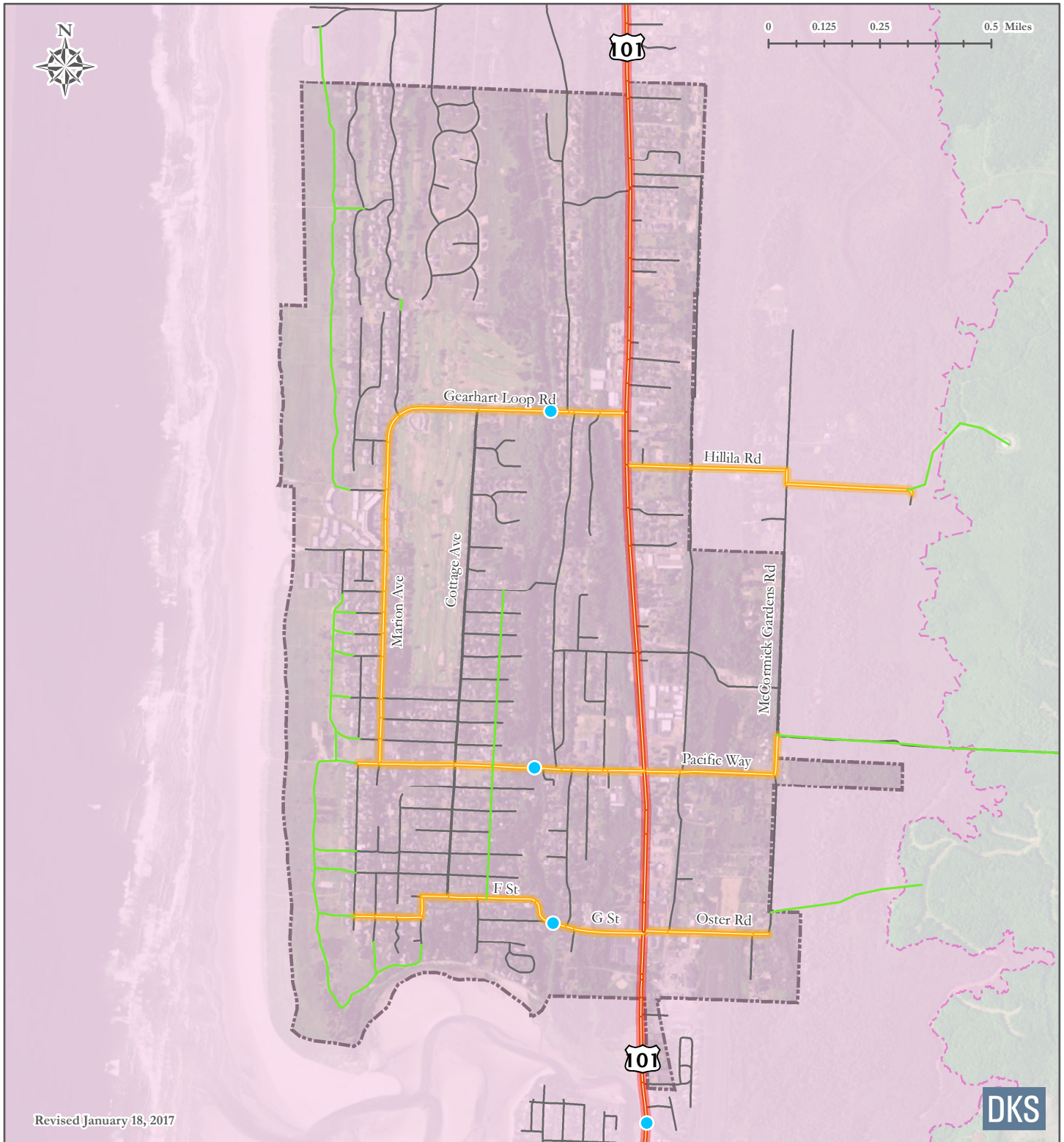
Most streets in Gearhart are located in the tsunami inundation area for a local tsunami, with the evacuation zone extending east of McCormick Gardens Road. The city has optional high ground areas that remain dry in 95 percent of tsunami scenarios analyzed (see map in the appendix). These areas are for last resort evacuation in cases where someone is physically unable to get outside of the hazard area or if there are impassable obstacles.

Emergency Transportation Routes

As part of the TSP update, it is recommended that local “emergency transportation routes” be designated to help facilitate the movement of people during a major regional emergency or disaster. Recommended routes to be designated in Gearhart include Gearhart Loop Road from Marion Avenue to US 101, Hillila Road from US 101 to McCormick Gardens Road, Salminen Road from McCormick Gardens Road to the eastern terminus, Pacific Way from Ocean Avenue to McCormick Gardens Road, F Street-G Street from Ocean Avenue to US 101, Oster Road from US 101 to the eastern terminus, and Marion Avenue from Pacific Way to Gearhart Loop Road. The TSP would prioritize investments along these routes to preserve the function for emergency response.

Bridges

There are no bridges within the Gearhart Urban Growth Boundary, although there are three culverts over Neacoxie Creek. The culverts are located along Gearhart Loop Road, Pacific Way, and G Street, with these crossings being the only connections between US 101 and the west side of the city. There are also two bridges along US 101 over Neawanna Creek and Mill Creek just south of the city, providing the only connection between Gearhart and Seaside. The bridge along US 101 over Neawanna Creek, south of Lewis and Clark Road is flagged as functionally obsolete. The bridge does not provide shoulders for bicycle travel.



Legend:

Emergency Response Routes


 ODOT Tier 3 Lifeline Route

 Local Emergency Transportation Route

 Tsunami Inundation Area

 Bridge or Culvert

 Urban Growth Boundary

 Arterial or Collector Street

 Trails

Freight

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The designation of through truck routes provides for this efficient movement, while maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. Within Gearhart, US 101 is classified as a Federal Truck Route. Federal Truck Routes generally require 12-foot travel lanes, but allow 11-foot travel lanes within Special Transportation Areas with lower truck volumes.

Heavy vehicles account for approximately four percent of the traffic on US 101 through Gearhart during an average weekday⁷. Traffic count data including heavy vehicle percentages is summarized in the appendix.

Rail

Gearhart has no freight rail service. Amtrak passenger service is available in Portland, located approximately 80 miles away. Connections to the Amtrak depot in Portland can be made via the NorthWest POINT bus service.

Air

The Seaside Municipal Airport, owned and operated by the city of Seaside, is a public use airport located between Oster Road and Lewis and Clark Road, to the east of US 101. The airport is a local general aviation facility, which primarily supports single engine, general aviation aircraft, but is capable of accommodating smaller twin-engine general aviation aircraft.

It also supports local air transportation needs and special use aviation activities. The airport provides support to 4 based aircraft. Services and facilities available include: hangar storage, and tie-downs. The airport has one runway, and serves 2,600 annual operations (i.e., take-offs or landings).

Regional and international air service for passengers and freight is provided via Portland International Airport (PDX). The airport is located approximately 90 miles (or under two hours) to the east of Gearhart and is connected via US 26, I-84, and I-205.

Waterway

Gearhart is bordered by the Pacific Ocean on the west and is traversed by Neacoxie Creek just to the west of US 101. Neawanna Creek separates Gearhart and Seaside at the south end of the city. These waterways generally only serve recreational needs.

Pipeline

Northwest Natural Gas operates several feeder lines from the main natural gas pipeline that serve Gearhart. There are no other major regional water or oil pipelines within the city limits.

⁷ Automatic Traffic Recorder (04-001), US 101 MP 15.90, 2.09 miles north of Dellmoor Loop Road, 2014.

Transportation System Management and Operations (TSMO)

Transportation System Management and Operations (TSMO) is a set of integrated transportation solutions for improving the performance of existing transportation infrastructure through a combination of system and demand management strategies and programs.

Transportation System Management (TSM): TSM solutions attempt to better manage the flow of traffic to achieve maximum efficiency of the current roadway system, possibly resulting in an increase in facility capacity. There is no TSM infrastructure in Gearhart, however, US 101 south of Seaside benefits from TSM infrastructure, as described below:

- Highway Advisory Radio (HAR): ODOT currently operates and maintains a highway advisory radio (HAR) system for US 101. The system is coordinated to provide traveler information using advance signing, on US 101 approaching US 26.
- CCTV Camera: Camera near the US 101 and Beerman Creek Lane intersection for monitoring travel conditions.
- Weather Warning System: A weather station near the US 101 and Beerman Creek Lane intersection for monitoring weather conditions.

Transportation Demand Management (TDM): TDM solutions encourage travelers to choose alternatives to driving alone in their car by providing services, incentives, supportive infrastructure and awareness of travel options. These strategies improve the performance of the existing infrastructure and services, and may result in fewer vehicles on the roadway system. TDM measures in use in Gearhart include:

- North West Transportation Options provides transportation options outreach including carpool/vanpool matching services for commuters in Clatsop, Tillamook, and Columbia counties.
- Investment in pedestrian/bicycle facilities.

What is the Condition of the Transportation System?

The transportation system in Gearhart is managed with a variety of measures designed to ensure that the transportation infrastructure in the city maintains acceptable quality and performance. Performance is evaluated based on the history of crashes and various measures of the pedestrian, bicycle, and motor vehicle transportation system.

Safety Evaluation

A review of available crash data identified patterns of motor vehicle, pedestrian, and bicyclist crashes. ODOT's crash data⁸ from January 2011 through December 2015 (the most recent five years of available data) for all roadways within the Urban Growth Boundary of Gearhart showed a total of 49 crashes (an average of about 10 crashes a year). A majority of these (about 70 percent) were either rear-end or turning type crashes (see Figure 6). One of the crashes involved a bicycle. Figure 7 shows the crash locations within the Urban Growth Boundary.

While no crashes resulted in death during this period, one crash caused a serious injury. The overall severity of crashes in Gearhart over the past five years is generally low, with 78 percent involving only property damage (no injuries) or minor injuries.

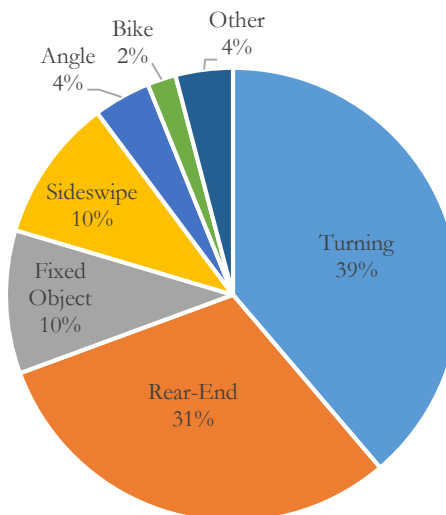


Figure 6: Crash Types (2011-2015)

Causes of Crashes

The city of Gearhart and ODOT strive to provide roads that are engineered to be as safe as possible. However, engineering is only one part of the road safety equation. Education and enforcement are critical elements in promoting safe driver behavior. The four most common driver errors are responsible for nearly 70 percent of all crashes in Gearhart.

- Did not yield right-of-way (31 percent)
- Followed too closely (20 percent)
- Speed too fast for conditions (12 percent)
- Disregarded traffic signal (4 percent)

⁸ ODOT crash data includes crashes with pedestrians and bicyclists, but only if a motor vehicle was involved. Crash reports are the responsibility of individual drivers, and are only required in the event of death, bodily injury, or damage exceeding \$1,500. As such, low-severity crashes are generally underreported.



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Legend:

Collision Severity:

- Severe Injury
- Moderate Injury
- Minor Injury
- Property Damage Only
- ★ Collision Involving Bicycle

- ▭ Urban Growth Boundary
- Arterial or Collector Street

Pedestrian and Bicycle Safety

One of the crashes involved a bicycle. The bicycle-involved collision occurred along Marion Avenue, between 10th Street and 13th Street, when driver failed to yield the right of way when turning. The cyclist sustained moderate injuries. There were no pedestrian-involved collisions during this period.

Intersection Safety

Crash rates provide an additional perspective on intersection safety and identify locations where people have a higher risk of being involved in a crash. Crash frequencies (the number of crashes in a period of time) tend to increase with higher vehicle traffic. With more exposure to vehicles, there are more opportunities for crashes to occur. Crash rates consider the amount of crashes relative to the traffic volume at the intersection, and are expressed in units of crashes per million entering vehicles. Study intersections are divided into groups of similar intersections for this analysis, called “Intersection Populations.”

Crash rates for the study intersections were calculated and compared to statewide 90th percentile crash rates published by ODOT⁹. The 90th percentile crash rate compares an intersection’s crash history to that of other similar intersections across Oregon. Where an intersection’s crash rate is greater than this threshold, it is an indication that a problem might exist and that further study is warranted.

There was one intersection with a crash rate that exceeded the 90th percentile crash rate as shown in Table 5.

Table 5: Study Intersection Collision Analysis

Intersection		Total Collisions (2011 to 2016)	Collision Severity		Observed Crash Rate (per MEV)	90th Percentile Rate (per MEV)	Over 90th Percentile Rate
			Property Damage Only	Injury			
1	US 101/ Gearhart Loop Road	10	4	6	0.32	0.29	Over
2	US 101/ Pacific Way	7	5	2	0.21	0.86	Under
3	US 101/ G Street-Oster Road	2	1	1	0.06	0.41	Under
4	Pacific Way/ Cottage Avenue	1	1	0	0.20	0.41	Under
5	Pacific Way/ Marion Avenue	0	0	0	0.00	0.29	Under
6	Pacific Way/ Ocean Avenue	0	0	0	0.00	0.29	Under

Per MEV = Crashes per million entering vehicles

The intersection with a high crash rate is discussed below.

⁹ The critical crash rate method from the Highway Safety Manual was not analyzed due to the reference populations being less than 5 intersections.

- **US 101/ Gearhart Loop Road (stop controlled):** This three-leg intersection with stop control on Gearhart Loop Road, had ten collisions. Turning movement crashes were most common here, specifically while accessing or leaving Gearhart Loop Road. Failure to yield was the most common cause of crashes. Two of the crashes resulted in moderate injuries, and eight resulted in property damage or minor injuries.

Roadway Segment Safety

In Gearhart, most crashes (about 60 percent) occur at intersections. Segment crash rates along state highways were calculated to complement the intersection-based analysis and provide a more complete picture of roadway safety. Segment crash rates are determined by dividing the number of crashes everywhere on the segment by the total vehicle traffic along the segment, and are reported in crashes per million vehicle miles traveled (MVMT). The calculated crash rates were compared to the five-year average of state highway crash rates for similar highways¹⁰.

No state highway segments were identified as having high crash rates, as shown in Table 6.

Table 6: Highway Segment Collision Analysis

Highway (limits)	Distance (miles)	Total Collisions (2011 to 2016)	Observed Crash Rate (per MVMT)	Statewide Collision Rate (per MVMT)	Over Statewide Collision Rate
US 101 (north UGB to Garden Terrace Road)	1.03	21	0.64	1.51	Under
US 101 (Garden Terrace Road to south UGB)	1.02	24	0.74	1.51	Under

Per MVMT = Crashes per million vehicle miles traveled

Safety Priority Index System (SPIS) Assessment

The Safety Priority Index System (SPIS) is a method developed by ODOT for identifying hazardous locations on and off state highways. The score for each 0.10-mile segment of highway is based on three years of crash data, considering crash frequency, rate, and severity. SPIS then ranks all segments throughout the state by score and identifies the top 5 percent and top 10 percent segments.

According to the ODOT 2014 SPIS ratings (data reported between 2011 and 2013), 2013 SPIS ratings (data reported between 2010 and 2012), and 2012 SPIS ratings (data reported between 2009 and 2011), there is one location in Gearhart that ranks among the top most hazardous sections of highways in Oregon. The identified location is listed and discussed below.

- US 101 around the Gearhart Loop Road intersection (top five percent segment- 2012 SPIS; high crash rate intersection, see above).

Walking and Bicycle Network Conditions

To assess the pedestrian and bicycle network conditions within the study area, a high-level qualitative evaluation was conducted based on the ODOT Multimodal Analysis Methodology¹¹. The quality and

¹⁰ Table II of the 2014 ODOT Crash Rate Book.

¹¹ Analysis Procedures Manual Version 2, Oregon Department of Transportation, March 2016.

availability of various characteristics are rated system-wide as “Excellent”, “Good”, “Fair”, or “Poor”. The intent of the analysis is to show the extent to which the pedestrian and bicycle network provides a level of comfort and safety for users. The analysis will be used to inform, create, and confirm recommendations for pedestrian and bicycle projects.

Qualitative Walking Network Assessment

For the pedestrian network evaluation, consideration is given to the presence of a sidewalk or path, a buffer zone (i.e., bike lane, shoulder, landscape strip, or on-street parking) and street lighting, and traffic volumes, number of travel lanes and travel speeds along the adjacent roadway. The intent of the analysis is to show the extent to which the pedestrian network provides a level of comfort and safety for users. The analysis will be used to inform, create, and confirm recommendations for pedestrian projects.

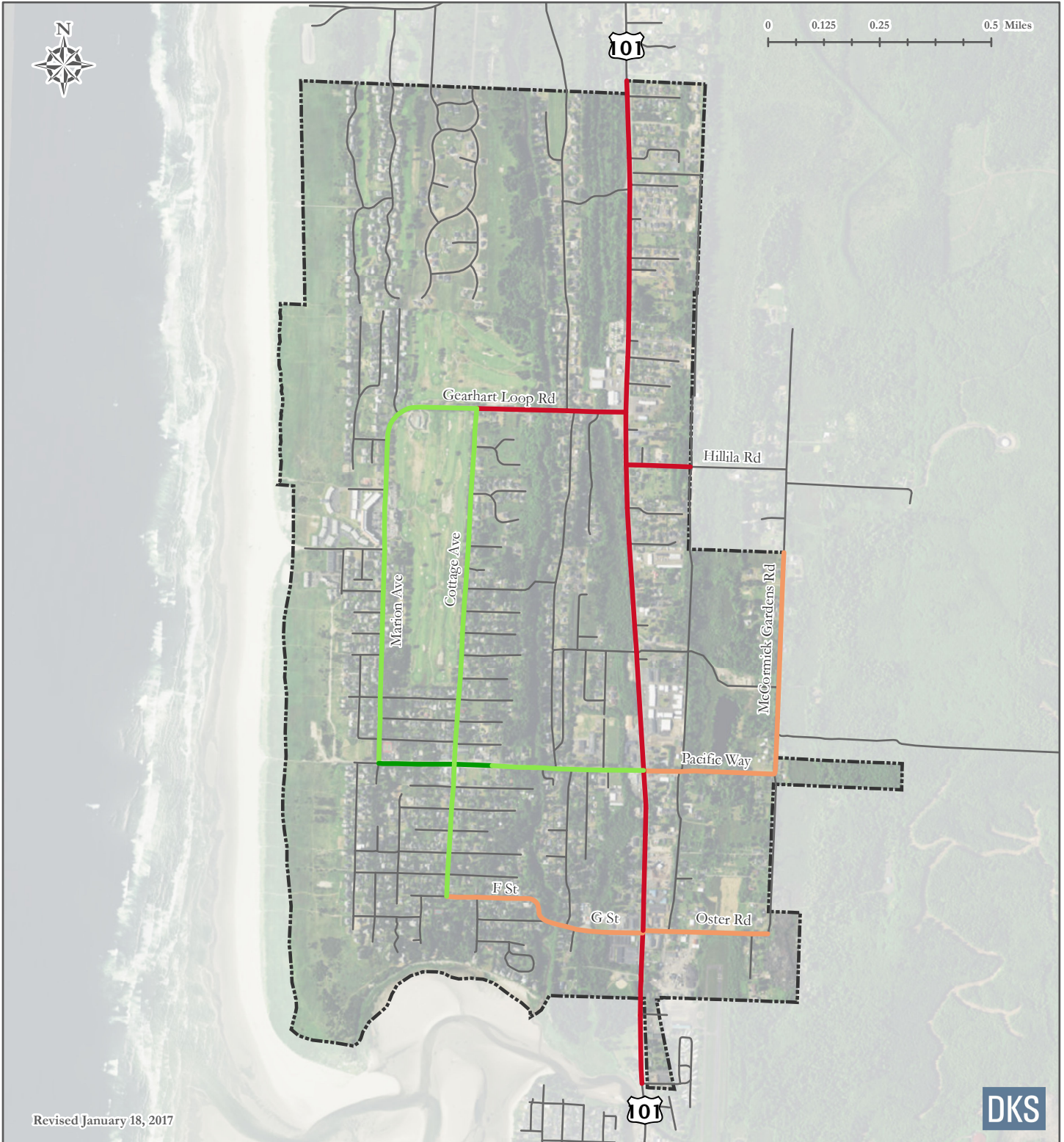
In Gearhart, an “Excellent” rating requires sidewalks on both sides of the roadway, along with a desirable buffer zone given the roadway characteristics. A “Good” rating requires a sidewalk or shoulder on at least one side of the roadway, along with low traffic volumes and low motor vehicle travel speeds along the adjacent roadway. A “Fair” rating is given to a roadway without sidewalks or shoulders, but with low traffic volumes and low motor vehicle travel speeds along the adjacent roadway. A “Poor” rating denotes gaps within the pedestrian facilities along that corridor.

Figure 8 summarizes the pedestrian network conditions in Gearhart. Overall, the network rates relatively high near downtown and surrounding the Gearhart Golf Links, and poor towards the east side of the city and along US 101.

Qualitative Bicycle Network Assessment

For the bicycle network evaluation, consideration is given to the presence and width of bike facilities (i.e., bike lane, shoulder, path, shared roadway), grade and pavement conditions of the roadway, and the number of travel lanes, motor vehicle volumes, and travel speeds along the adjacent roadway. In Gearhart, an “Excellent” rating requires separated bicycle facilities. A “Good” rating requires adequate bicycle facilities and width given the segment characteristics. A “Fair” rating is given to a roadway with bicycle facilities, but without the preferred facility type or width given the segment characteristics. A “Poor” rating denotes gaps within the bike network along that corridor.

Figure 9 summarizes the bicycle network conditions in Gearhart. This analysis shows that the arterial and collector streets in Gearhart rate relatively high on the west side of the city, and poor on the east side. The streets with the lowest ratings are the streets important for local and regional through travel (i.e., US 101, Pacific Way, Gearhart Loop Road), where most businesses and services are located. These streets rate low due to the relatively high motor vehicle traffic volumes and speeds and lack of separated bicycle facilities.



Revised January 18, 2017



Legend:

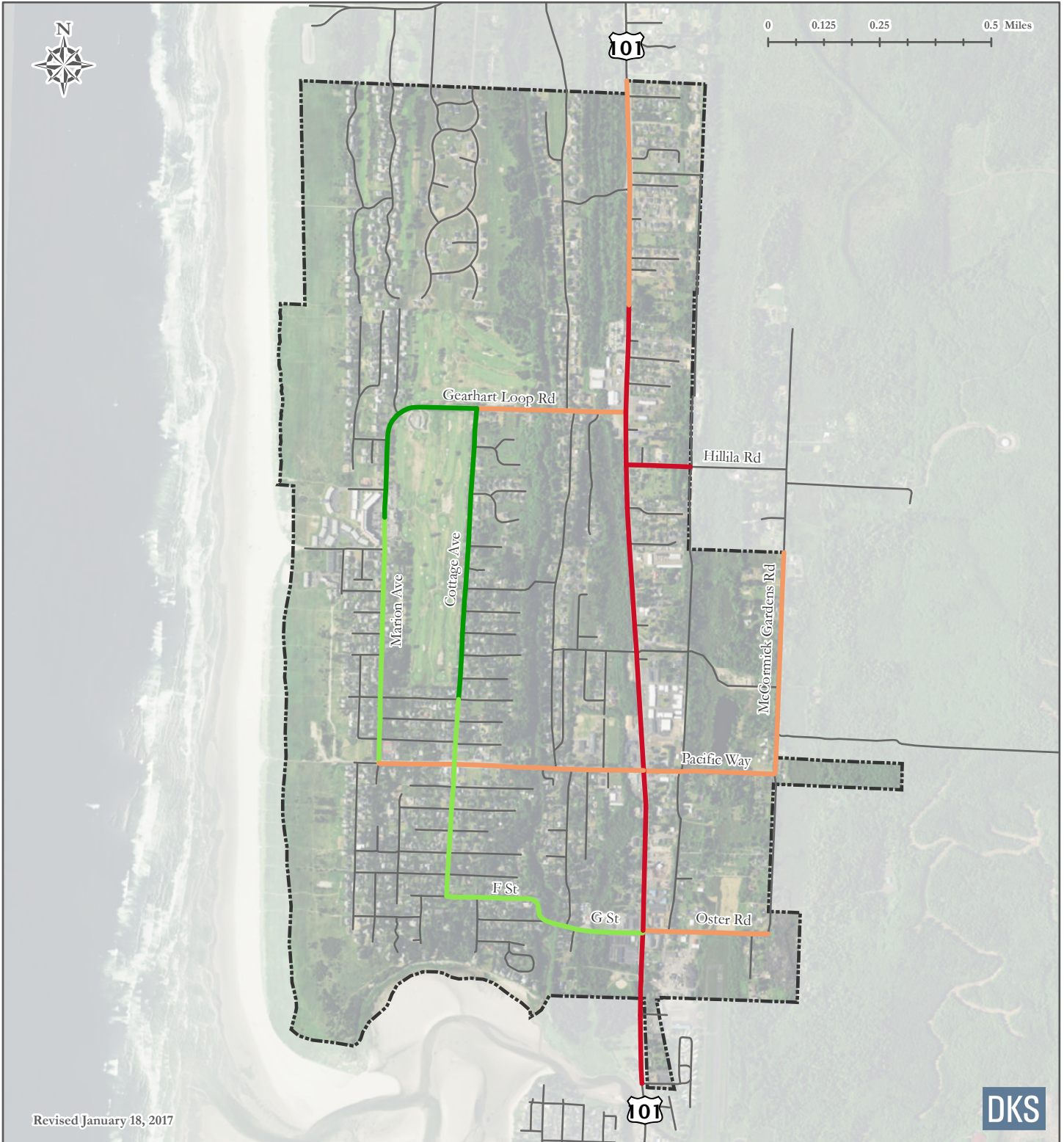
Qualitative Pedestrian Assessment:

- Excellent
- Good
- Fair
- Poor

Urban Growth Boundary

Note:

Rating is based on a combination of sidewalk presence, speed limit, presence of buffers, roadway volume, number of lanes, shoulder widths and presence of lighting. Rating calculated on Collectors and Arterials.



Revised January 18, 2017



Legend:

Qualitative Bicycle Assessment:

- Excellent
- Good
- Fair
- Poor

Urban Growth Boundary

Note:

Rating is based on a combination of speed limit, presence of bicycle facilities, presence of buffers, on-street parking, access and other street characteristics. Rating calculated on Collectors and Arterials.

Driving Conditions

The TSP compares intersections in Gearhart to mobility targets and standards intended to maintain a minimum level of efficiency for motor vehicle travel. Two methods to gauge intersection operations include volume-to-capacity (v/c) ratios and level of service (LOS).

- **Volume-to-capacity (v/c) ratio:** A decimal representation (between 0.00 and 1.00) of the proportion of occupied capacity (capacity defined as the theoretical maximum vehicle throughput in a given time frame) at a turn movement, approach leg, or intersection. It is the peak hour traffic volume divided by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. A ratio approaching 1.00 indicates increased congestion and reduced performance. A ratio greater than 1.00 indicates the turn movement, approach leg, or intersection is oversaturated, which usually results in excessive queues and long delays.
- **Level of service (LOS):** A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and traffic is highly congested.

Intersection mobility targets vary by jurisdiction of the roadways. All intersections under state jurisdiction in Gearhart must comply with the v/c ratios in the Oregon Highway Plan (OHP). The ODOT v/c targets are based on highway classification and posted speeds. A LOS “D” is the minimum performance standard during the peak-hour for signalized and un-signalized intersections under city jurisdiction. At un-signalized intersections under city jurisdiction, a LOS “E” is acceptable at movements serving no more than 20 vehicles during the peak hour.

The applicable mobility targets at each study intersection in the city are identified in Table 7. Study intersections that do not meet the mobility targets shown will require mitigation strategies to be identified in the TSP.

Intersection Operations

The motor vehicle conditions in Gearhart vary based on the time of year. During the summer (typically in August), traffic volumes are higher on major street corridors than during the average weekday (typically during late May and late September) and, therefore, traffic operations are worse. For this reason, the transportation system plan evaluated the motor vehicle conditions at all six study intersections during peak summer (30th highest annual hour volume) conditions. Details of the traffic analysis methodology, including seasonal factors and volume development, are provided in the appendix.

A listing of operating conditions at all study intersections is summarized in Table 7 and provided in the appendix. All study intersections meet the mobility targets under existing (2016) p.m. peak hour conditions. It is important to note that while the US 101/ Gearhart Loop Road and US 101/ G Street-Oster Road intersections meet their mobility target, the side street experiences significant delays during the p.m. peak hour (more than 90 seconds per vehicle at the Gearhart Loop Road and Oster Road approaches to the highway in the summer, equivalent to a LOS “F”).

Despite the forecasted increase in motor vehicle trips through 2040, most study intersections are expected to operate well within the mobility targets. The exception is the US 101/ Gearhart Loop Road and US 101/ G

Street-Oster Road intersections, which are forecasted to operate with a volume-to-capacity above 1.00 for the side street approaches to the highway. The side streets at these intersections (Gearhart Loop Road and G Street-Oster Road) will continue to experience high delay due to steady volumes on US 101. These approaches typically require more time for an acceptable gap in traffic to make a left turn onto the highway, therefore, the delay of the side street is high and capacity is reduced.

Table 7: Study Intersection Traffic Operational Analysis (P.M. Peak Hour- 30HV Conditions)

Intersection (traffic control)	Mobility Target	Existing Conditions (2016)		Forecasted Baseline Conditions (2040)	
		Volume/ Capacity	Level of Service	Volume/ Capacity	Level of Service
1 US 101/ Gearhart Loop Road (stop control)	Highway Approaches 0.80 v/c; Side Street Approaches 0.90 v/c	0.06 / 0.51	B / F	0.11 / 1.82	B/ F
2 US 101/ Pacific Way (signalized)	0.85 v/c	0.50	A	0.63	B
3 US 101/ G Street-Oster Road (stop control)	Highway Approaches 0.85 v/c; Side Street Approaches 0.90 v/c	0.07 / 0.56	B / F	0.13 / 1.91	B/ F
4 Pacific Way/ Cottage Avenue (stop control)	LOS D	0.14 / 0.07	A / A	0.19 / 0.10	A / A
5 Pacific Way/ Marion Avenue (stop control)	LOS D	0.10 / 0.12	A / A	0.13 / 0.15	A / A
6 Pacific Way/ Ocean Avenue (stop control)	LOS D	0.02 / 0.01	A / A	0.02 / 0.01	A / A

Signalized intersections:

LOS = Level of Service of Intersection
 V/C = Volume-to-Capacity Ratio of Intersection

Stop Controlled intersections:

LOS = Level of Service of Major Street/Minor Street
 V/C = Volume-to-Capacity Ratio of Major Movement/Minor Movement

Bolded and gray shading indicates an intersection that fails to meet the existing mobility target.



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Technical Memorandum #4: Transportation System Conditions Appendix

Section 1: 2016 Existing 30 HV and Forecasted 2040 DHV PM Peak Hour Traffic Volumes

Section 2: Traffic Count Summary

Section 3: Federal Functional Classification

Section 4: Tsunami Evacuation Map

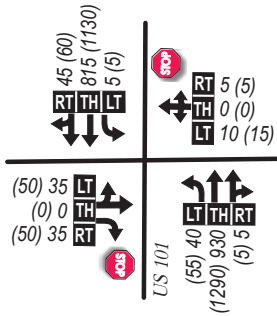
Section 5: Analysis Methodology and Assumptions Memorandum

Section 6: Existing Operating Conditions at Study Intersections (2016 PM Peak Hour- 30HV Conditions)

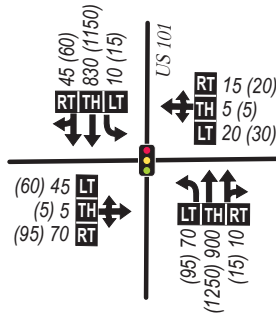
Section 7: Forecasted Baseline Operating Conditions at Study Intersections (2040 PM Peak Hour- DHV Conditions)

Section I: 2016 Existing 30 HV and Forecasted 2040 DHV PM Peak Hour Traffic Volumes

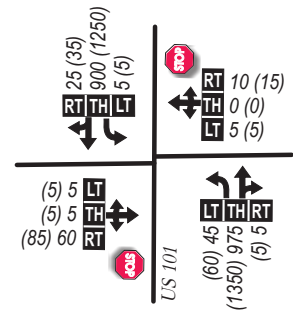
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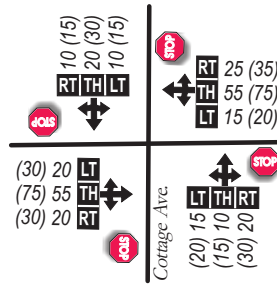
2. US 101 / Pacific Way



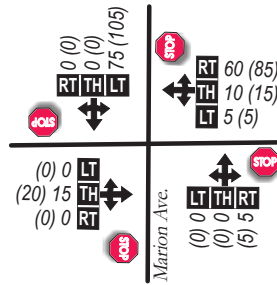
3. US 101 / G Street-Oster Road



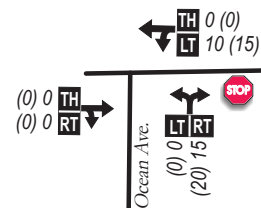
4. Pacific Way / Cottage Avenue



5. Pacific Way / Marion Avenue



6. Pacific Way / Ocean Avenue



LEGEND



- Study Intersection



STOP - Stop Sign

← - Lane Configuration



LT TH RT - Turn Movement Volume
Left • Thru • Right

Existing 2016 (2040 Baseline) - Peak Hour Traffic Volumes

DKS



No Scale

Figure A1

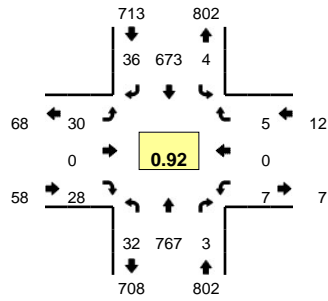
**Existing 2016 30 HV and Forecasted
Baseline 2040 DHV Traffic Volumes**

(P.M. Peak Hour)

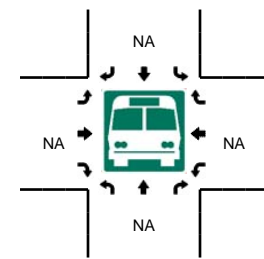
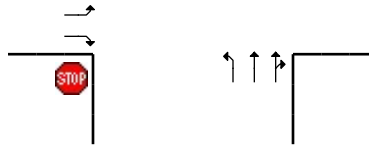
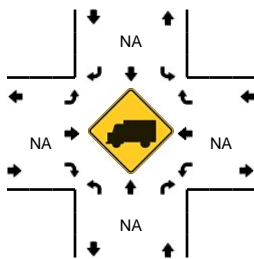
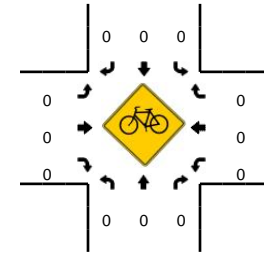
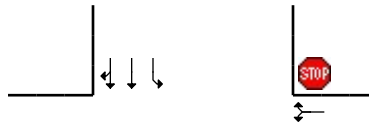
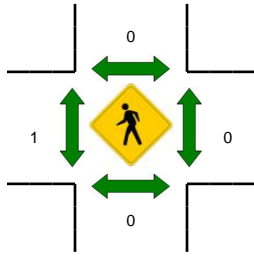
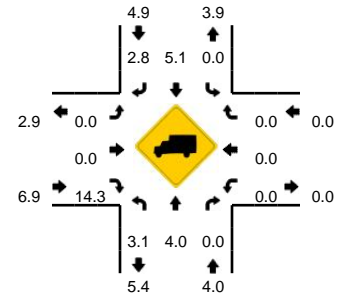
Section 2: Traffic Count Summary

LOCATION: US 101 -- Gearhart Ln
CITY/STATE: Gearhart, OR

QC JOB #: 13824701
DATE: Wed, Jun 08 2016



Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

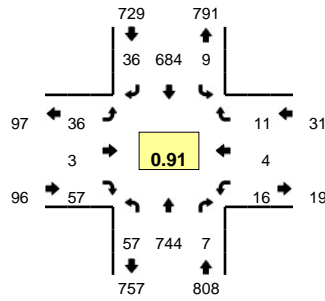


5-Min Count Period Beginning At	US 101 (Northbound)				US 101 (Southbound)				Gearhart Ln (Eastbound)				Gearhart Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:55 PM	3	61	0	0	0	53	1	0	4	0	5	0	1	0	0	0	128	1459
4:00 PM	2	50	0	0	0	68	1	0	5	0	1	0	1	0	0	0	128	1456
4:05 PM	3	66	1	0	0	65	1	0	1	0	2	0	0	0	0	0	139	1488
4:10 PM	1	66	0	0	0	42	1	0	1	0	3	0	0	0	0	0	114	1476
4:15 PM	1	67	1	0	0	50	1	0	1	0	0	0	0	0	0	0	121	1472
4:20 PM	1	75	1	0	0	45	3	0	3	0	1	0	0	0	0	0	129	1499
4:25 PM	1	62	1	0	0	65	2	0	2	0	0	0	1	0	1	0	135	1513
4:30 PM	0	67	0	0	1	51	2	0	1	0	2	0	0	0	0	0	124	1531
4:35 PM	4	54	1	0	1	57	3	0	3	0	1	0	0	0	1	0	125	1504
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4:50 PM	3	64	0	0	0	46	5	0	4	0	8	0	0	0	0	0	130	1543
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5:15 PM	4	75	0	0	1	63	2	0	3	0	1	0	2	0	1	0	152	1584
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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	36	892	0	0	8	692	24	0	32	0	20	0	12	0	4	0	1720	
Heavy Trucks	0	20	0	0	0	40	4	0	0	0	4	0	0	0	0	0	68	
Pedestrians		0				0					0				0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

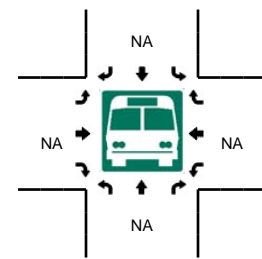
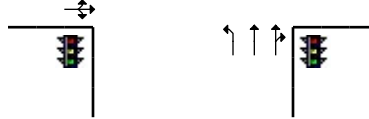
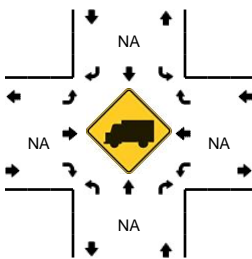
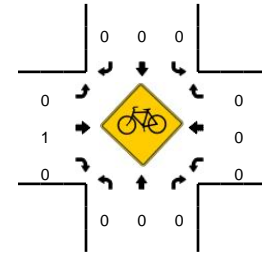
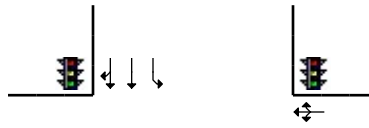
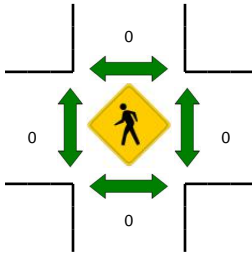
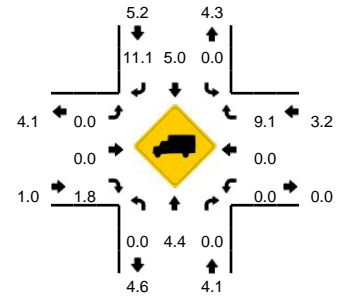
Comments:

LOCATION: US 101 -- Pacific Way
CITY/STATE: Gearhart, OR

QC JOB #: 13824702
DATE: Wed, Jun 08 2016



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Peak 15-Min: 5:05 PM -- 5:20 PM

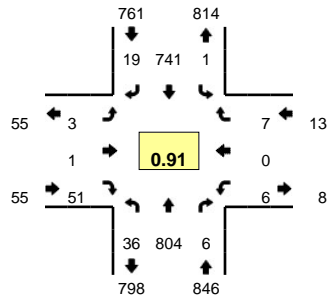


5-Min Count Period Beginning At	US 101 (Northbound)				US 101 (Southbound)				Pacific Way (Eastbound)				Pacific Way (Westbound)				Total	Hourly Totals
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5:50 PM	3	25	0	0	0	57	5	0	4	4	2	0	4	1	1	0	106	1524
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	60	852	16	0	4	720	32	0	48	0	60	0	24	0	12	0	1828	
Heavy Trucks	0	20	0		0	48	4		0	0	0		0	0	0		72	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

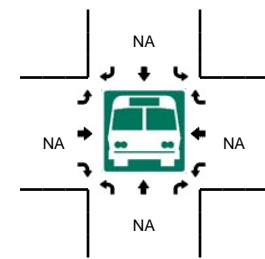
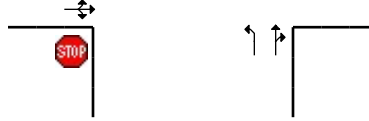
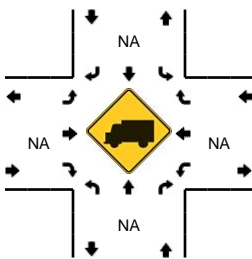
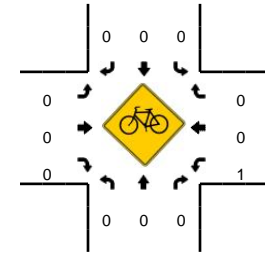
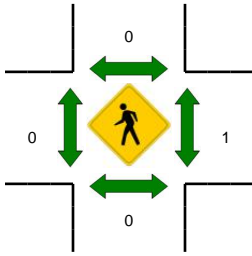
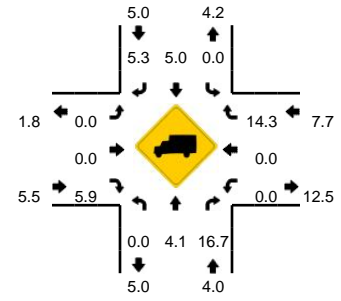
Comments:

LOCATION: US 101 -- G St/Oster Rd
CITY/STATE: Gearhart, OR

QC JOB #: 13824703
DATE: Wed, Jun 08 2016



Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

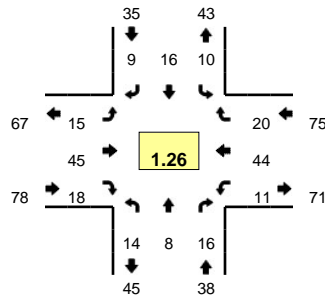


5-Min Count Period Beginning At	US 101 (Northbound)				US 101 (Southbound)				G St/Oster Rd (Eastbound)				G St/Oster Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:55 PM	5	60	0	0	0	60	2	0	2	0	4	0	1	0	0	0	134	1582
4:00 PM	2	57	1	0	0	65	1	0	2	0	1	0	1	0	0	0	130	1590
4:05 PM	1	77	1	0	1	66	0	0	0	0	3	0	1	0	0	0	150	1612
4:10 PM	6	72	1	0	0	60	1	0	0	0	2	0	0	0	0	0	142	1640
4:15 PM	5	79	1	0	0	53	0	0	0	0	4	0	0	0	1	0	143	1639
4:20 PM	3	68	0	0	0	50	1	0	0	0	3	0	0	0	1	0	126	1632
4:25 PM	4	67	0	0	0	60	1	0	0	1	3	0	0	0	1	0	137	1643
4:30 PM	7	59	1	0	0	68	2	0	2	0	2	0	0	0	0	0	141	1654
4:35 PM	2	70	0	0	1	52	1	0	0	0	2	0	1	0	0	0	129	1640
4:40 PM	2	71	0	0	0	62	2	0	0	0	5	0	0	0	0	0	142	1633
4:45 PM	2	62	0	0	0	73	4	0	1	0	7	0	0	0	0	0	149	1656
4:50 PM	2	63	2	0	0	62	1	0	0	0	4	0	0	0	0	0	134	1657
4:55 PM	3	67	0	0	0	70	0	0	0	0	3	0	0	0	2	0	145	1668
5:00 PM	4	48	2	0	0	41	3	0	0	0	10	0	2	0	0	0	110	1648
5:05 PM	2	67	1	0	0	62	2	0	0	0	5	0	1	0	0	0	140	1638
5:10 PM	5	73	0	0	0	65	0	0	0	0	1	0	1	0	3	0	148	1644
5:15 PM	1	95	0	0	0	69	2	0	0	0	4	0	1	0	1	0	173	1674
5:20 PM	2	62	0	0	0	57	1	0	0	0	5	0	0	0	0	0	127	1675
5:25 PM	6	51	0	0	0	62	0	0	0	0	4	0	0	0	0	0	123	1661
5:30 PM	5	59	1	0	1	53	0	0	0	0	5	0	1	0	0	0	125	1645
5:35 PM	4	49	1	0	0	59	0	0	0	0	4	0	1	0	0	0	118	1634
5:40 PM	0	62	2	0	0	40	0	0	0	0	5	0	1	0	1	0	111	1603
5:45 PM	2	59	1	0	0	62	0	0	0	0	3	0	0	0	0	0	127	1581
5:50 PM	4	28	0	0	1	64	0	0	0	1	1	0	0	0	0	0	99	1546
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	32	940	4	0	0	784	16	0	0	0	40	0	12	0	16	0	1844	
Heavy Trucks	0	20	0	0	0	56	0	0	0	0	4	0	0	0	0	0	80	
Pedestrians		0				0					0			4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

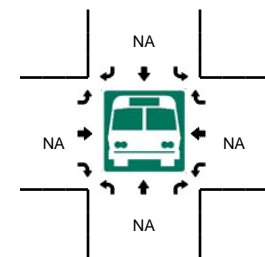
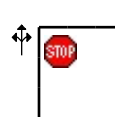
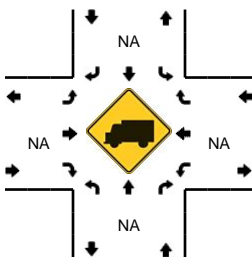
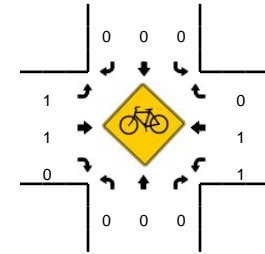
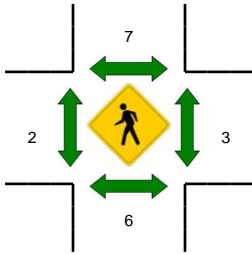
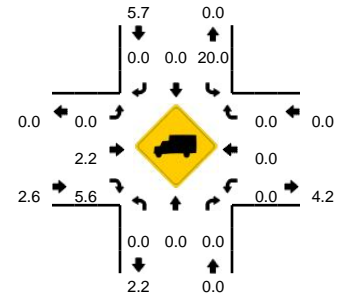
Comments:

LOCATION: Cottage Ave -- Pacific Way
CITY/STATE: Gearhart, OR

QC JOB #: 13824704
DATE: Wed, Jun 08 2016



Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:05 PM -- 5:20 PM



5-Min Count Period Beginning At	Cottage Ave (Northbound)				Cottage Ave (Southbound)				Pacific Way (Eastbound)				Pacific Way (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:55 PM	4	1	0	0	1	1	0	0	2	3	1	0	3	2	0	0	18	200
4:00 PM	3	2	1	0	1	0	2	0	0	1	1	0	1	2	2	0	16	196
4:05 PM	0	0	1	0	0	0	1	0	1	3	0	0	0	3	0	0	9	188
4:10 PM	1	2	2	0	3	1	0	0	0	4	1	0	0	3	2	0	19	191
4:15 PM	1	0	1	0	1	3	1	0	0	5	0	0	1	4	2	0	19	198
4:20 PM	2	2	0	0	1	0	0	0	2	9	2	0	3	1	1	0	23	208
4:25 PM	1	1	1	0	0	1	2	0	0	6	2	0	1	4	2	0	21	209
4:30 PM	2	0	1	0	0	0	0	0	3	5	2	0	2	4	4	0	23	215
4:35 PM	2	2	3	0	1	3	0	0	4	5	2	0	2	3	1	0	28	224
4:40 PM	1	0	1	0	1	1	2	0	1	2	1	0	1	7	1	0	19	230
4:45 PM	0	1	0	0	1	2	0	0	1	4	1	0	0	3	1	0	14	230
4:50 PM	2	0	2	0	0	0	0	0	0	2	1	0	2	4	1	0	14	223
4:55 PM	1	1	2	0	1	0	1	0	0	3	4	0	1	2	2	0	18	223
5:00 PM	2	0	0	0	2	2	0	0	2	4	2	0	0	4	2	0	20	227
5:05 PM	0	0	1	0	3	1	0	0	0	2	1	0	0	1	3	0	12	230
5:10 PM	1	1	2	0	0	2	2	0	2	4	1	0	1	2	1	0	19	230
5:15 PM	1	2	1	0	0	1	0	0	0	3	0	0	0	5	1	0	14	225
5:20 PM	1	0	2	0	1	3	2	0	2	5	1	0	1	5	1	0	24	226
5:25 PM	0	2	0	0	2	1	0	0	2	4	1	0	2	1	1	0	16	221
5:30 PM	2	0	1	0	0	1	0	0	1	2	1	0	0	2	1	0	11	209
5:35 PM	1	1	1	0	1	0	0	0	0	1	0	0	0	3	1	0	9	190
5:40 PM	0	2	1	0	1	0	1	0	0	0	2	0	1	4	1	0	13	184
5:45 PM	0	0	1	0	1	0	0	0	0	2	1	0	0	3	1	0	9	179
5:50 PM	0	1	1	0	1	0	0	0	1	5	0	0	1	1	1	0	12	177
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	8	12	16	0	12	16	8	0	8	36	8	0	4	32	20	0	180	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians		4				4				0				0			8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Pacific Way btwn Ridge Path & Woodland Ave SPECIFIC LOCATION: Pacific Way btwn Ridge Path & Woodland Ave CITY/STATE: Gearhart, OR						QC JOB #: 13824705 DIRECTION: EB DATE: Jun 08 2016 - Jun 09 2016				
Start Time	Mon	Tue	Wed 08-Jun-16	Thu 09-Jun-16	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			0	0		0			0	
1:00 AM			1	0		1			1	
2:00 AM			0	0		0			0	
3:00 AM			0	0		0			0	
4:00 AM			0	0		0			0	
5:00 AM			0	0		0			0	
6:00 AM			3	3		3			3	
7:00 AM			2	7		5			5	
8:00 AM			10	20		15			15	
9:00 AM			19	18		19			19	
10:00 AM			13	10		12			12	
11:00 AM			20	20		20			20	
12:00 PM			13	24		19			19	
1:00 PM			22	19		21			21	
2:00 PM			19	15		17			17	
3:00 PM			16	14		15			15	
4:00 PM			8	10		9			9	
5:00 PM			7	8		8			8	
6:00 PM			11	5		8			8	
7:00 PM			8	7		8			8	
8:00 PM			6	6		6			6	
9:00 PM			6	4		5			5	
10:00 PM			0	1		1			1	
11:00 PM			0	0		0			0	
Day Total			184	191		192			192	
% Weekday Average			95.8%	99.5%						
% Week Average			95.8%	99.5%		100.0%				
AM Peak			11:00 AM	8:00 AM		11:00 AM			11:00 AM	
Volume			20	20		20			20	
PM Peak			1:00 PM	12:00 PM		1:00 PM			1:00 PM	
Volume			22	24		21			21	
<i>Comments:</i>										

LOCATION: Pacific Way btwn Ridge Path & Woodland Ave SPECIFIC LOCATION: Pacific Way btwn Ridge Path & Woodland Ave CITY/STATE: Gearhart, OR							QC JOB #: 13824705 DIRECTION: WB DATE: Jun 08 2016 - Jun 09 2016			
Start Time	Mon	Tue	Wed 08-Jun-16	Thu 09-Jun-16	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			1	0		1			1	
1:00 AM			0	0		0			0	
2:00 AM			0	0		0			0	
3:00 AM			0	0		0			0	
4:00 AM			0	0		0			0	
5:00 AM			0	0		0			0	
6:00 AM			3	2		3			3	
7:00 AM			2	7		5			5	
8:00 AM			11	22		17			17	
9:00 AM			19	18		19			19	
10:00 AM			15	8		12			12	
11:00 AM			18	20		19			19	
12:00 PM			13	20		17			17	
1:00 PM			24	19		22			22	
2:00 PM			18	15		17			17	
3:00 PM			17	17		17			17	
4:00 PM			9	11		10			10	
5:00 PM			8	9		9			9	
6:00 PM			12	6		9			9	
7:00 PM			9	8		9			9	
8:00 PM			7	8		8			8	
9:00 PM			6	5		6			6	
10:00 PM			0	0		0			0	
11:00 PM			0	0		0			0	
Day Total			192	195		200			200	
% Weekday Average			96.0%	97.5%						
% Week Average			96.0%	97.5%		100.0%				
AM Peak			9:00 AM	8:00 AM		9:00 AM			9:00 AM	
Volume			19	22		19			19	
PM Peak			1:00 PM	12:00 PM		1:00 PM			1:00 PM	
Volume			24	20		22			22	
<i>Comments:</i>										

LOCATION: N Marion Avenue north of Pacific Way SPECIFIC LOCATION: N Marion Avenue north of Pacific Way CITY/STATE: Gearhart, OR							QC JOB #: 13824707 DIRECTION: NB DATE: Jun 07 2016 - Jun 08 2016			
Start Time	Mon 07-Jun-16	Tue 08-Jun-16	Wed 08-Jun-16	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			2			2			2	
1:00 AM			0			0			0	
2:00 AM			0			0			0	
3:00 AM			0			0			0	
4:00 AM			0			0			0	
5:00 AM			1			1			1	
6:00 AM			10			10			10	
7:00 AM			15			15			15	
8:00 AM			54			54			54	
9:00 AM										
10:00 AM										
11:00 AM										
12:00 PM										
1:00 PM		85				85			85	
2:00 PM		77				77			77	
3:00 PM		53				53			53	
4:00 PM		51				51			51	
5:00 PM		45				45			45	
6:00 PM		23				23			23	
7:00 PM		25				25			25	
8:00 PM		26				26			26	
9:00 PM		16				16			16	
10:00 PM		1				1			1	
11:00 PM		7				7			7	
Day Total		409	82			491			491	
% Weekday Average		83.3%	16.7%							
% Week Average		83.3%	16.7%			100.0%				
AM Peak Volume			8:00 AM 54			8:00 AM 54			8:00 AM 54	
PM Peak Volume		1:00 PM 85				1:00 PM 85			1:00 PM 85	
<i>Comments:</i>										

LOCATION: N Marion Avenue north of Pacific Way **QC JOB #:** 13824707
SPECIFIC LOCATION: N Marion Avenue north of Pacific Way **DIRECTION:** SB
CITY/STATE: Gearhart, OR **DATE:** Jun 07 2016 - Jun 08 2016

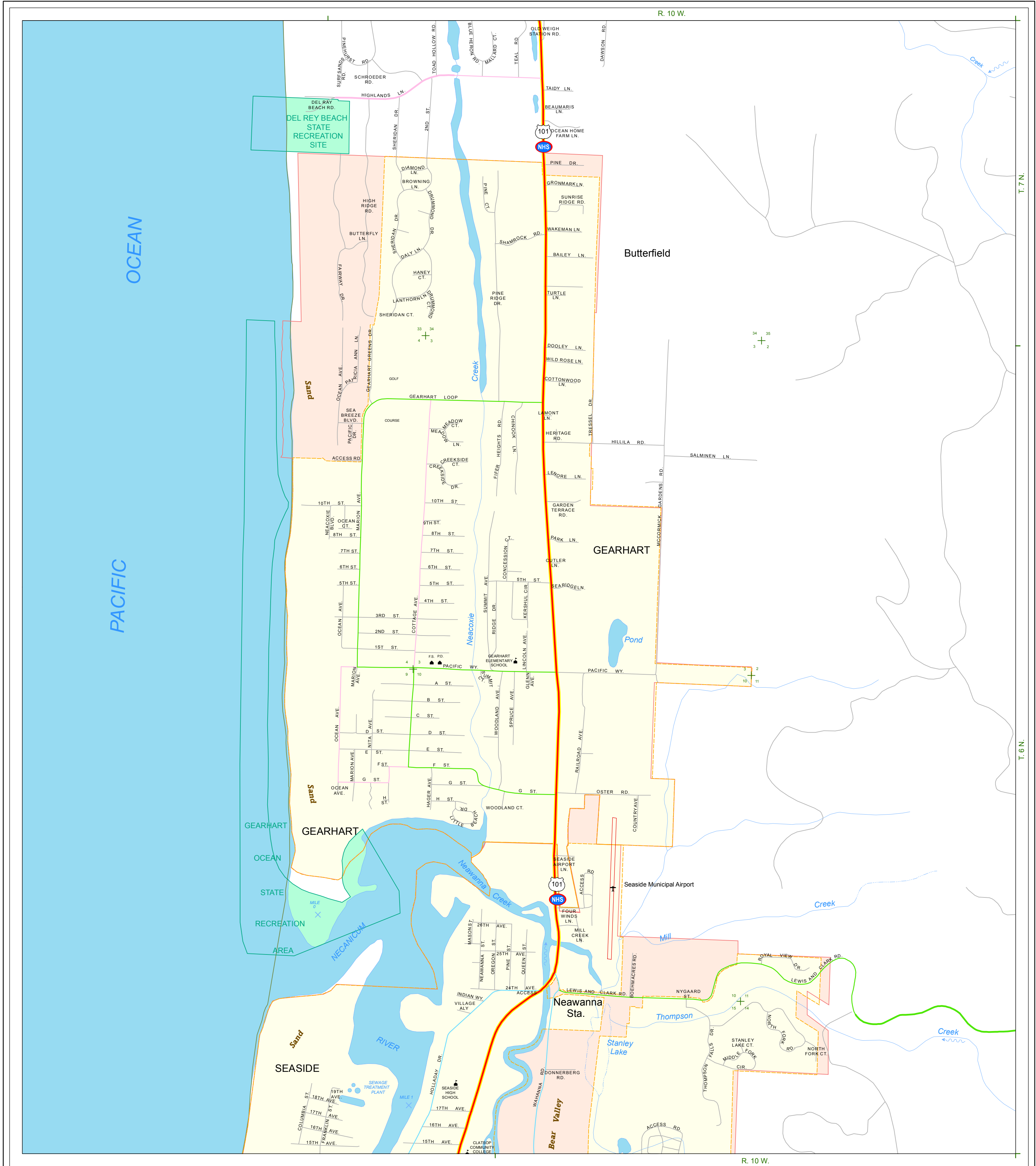
Start Time	Mon 07-Jun-16	Tue 08-Jun-16	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			2			2			2	
1:00 AM			0			0			0	
2:00 AM			0			0			0	
3:00 AM			0			0			0	
4:00 AM			0			0			0	
5:00 AM			2			2			2	
6:00 AM			11			11			11	
7:00 AM			17			17			17	
8:00 AM			55			55			55	
9:00 AM										
10:00 AM										
11:00 AM										
12:00 PM										
1:00 PM		82				82			82	
2:00 PM		68				68			68	
3:00 PM		52				52			52	
4:00 PM		50				50			50	
5:00 PM		43				43			43	
6:00 PM		21				21			21	
7:00 PM		25				25			25	
8:00 PM		27				27			27	
9:00 PM		15				15			15	
10:00 PM		3				3			3	
11:00 PM		5				5			5	
Day Total		391	87			478			478	
% Weekday Average		81.8%	18.2%							
% Week Average		81.8%	18.2%			100.0%				
AM Peak Volume			8:00 AM 55			8:00 AM 55			8:00 AM 55	
PM Peak Volume		1:00 PM 82				1:00 PM 82			1:00 PM 82	

Comments:

LOCATION: S Ocean Avenue south of Pacific Way SPECIFIC LOCATION: S Ocean Avenue south of Pacific Way CITY/STATE: Gearhart, OR						QC JOB #: 13824706 DIRECTION: NB DATE: Jun 08 2016 - Jun 09 2016				
Start Time	Mon	Tue	Wed 08-Jun-16	Thu 09-Jun-16	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			1	0		1			1	
1:00 AM			0	0		0			0	
2:00 AM			0	0		0			0	
3:00 AM			0	0		0			0	
4:00 AM			0	0		0			0	
5:00 AM			0	0		0			0	
6:00 AM			3	2		3			3	
7:00 AM			2	7		5			5	
8:00 AM			11	22		17			17	
9:00 AM			19	18		19			19	
10:00 AM			15	8		12			12	
11:00 AM			18	20		19			19	
12:00 PM			13	20		17			17	
1:00 PM			24	19		22			22	
2:00 PM			18	15		17			17	
3:00 PM			17	17		17			17	
4:00 PM			9	11		10			10	
5:00 PM			8	9		9			9	
6:00 PM			12	6		9			9	
7:00 PM			9	8		9			9	
8:00 PM			7	8		8			8	
9:00 PM			6	5		6			6	
10:00 PM			0	0		0			0	
11:00 PM			0	0		0			0	
Day Total			192	195		200			200	
% Weekday Average			96.0%	97.5%						
% Week Average			96.0%	97.5%		100.0%				
AM Peak			9:00 AM	8:00 AM		9:00 AM			9:00 AM	
Volume			19	22		19			19	
PM Peak			1:00 PM	12:00 PM		1:00 PM			1:00 PM	
Volume			24	20		22			22	
<i>Comments:</i>										

LOCATION: S Ocean Avenue south of Pacific Way SPECIFIC LOCATION: S Ocean Avenue south of Pacific Way CITY/STATE: Gearhart, OR						QC JOB #: 13824706 DIRECTION: SB DATE: Jun 08 2016 - Jun 09 2016				
Start Time	Mon	Tue	Wed 08-Jun-16	Thu 09-Jun-16	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			0	0		0			0	
1:00 AM			1	0		1			1	
2:00 AM			0	0		0			0	
3:00 AM			0	0		0			0	
4:00 AM			0	0		0			0	
5:00 AM			0	0		0			0	
6:00 AM			3	3		3			3	
7:00 AM			2	7		5			5	
8:00 AM			10	20		15			15	
9:00 AM			19	18		19			19	
10:00 AM			13	10		12			12	
11:00 AM			20	20		20			20	
12:00 PM			13	24		19			19	
1:00 PM			22	19		21			21	
2:00 PM			19	15		17			17	
3:00 PM			16	14		15			15	
4:00 PM			8	10		9			9	
5:00 PM			7	8		8			8	
6:00 PM			11	5		8			8	
7:00 PM			8	7		8			8	
8:00 PM			6	6		6			6	
9:00 PM			6	4		5			5	
10:00 PM			0	1		1			1	
11:00 PM			0	0		0			0	
Day Total			184	191		192			192	
% Weekday Average			95.8%	99.5%						
% Week Average			95.8%	99.5%		100.0%				
AM Peak			11:00 AM	8:00 AM		11:00 AM			11:00 AM	
Volume			20	20		20			20	
PM Peak			1:00 PM	12:00 PM		1:00 PM			1:00 PM	
Volume			22	24		21			21	
<i>Comments:</i>										

Section 3: Federal Functional Classification



<p>FUNCTIONAL CLASSIFICATION</p> <p>STATE HWY JURISDICTION</p> <ul style="list-style-type: none"> INTERSTATE PRINCIPAL ARTERIAL MINOR ARTERIAL MAJOR COLLECTOR LOCAL ROAD <p>INTERSTATE - U.S. ROUTE - ORE. ROUTE</p> <p>NATIONAL HIGHWAY SYSTEM ROUTE</p> <p>CITY LIMIT</p> <p>URBAN GROWTH BOUNDARY</p> <p>RAILROAD - AMTRAK PASSENGER STATION</p> <p>GRAVEL PIT - QUARRY - ODOT STOCKPILE</p> <p>ODOT MAINTENANCE STATION</p>	<p>LEGEND</p> <p>FOR FURTHER FUNCTIONAL CLASSIFICATION INFORMATION, CONTACT ODOT REGION OFFICE.</p> <ul style="list-style-type: none"> PUBLIC BUILDING COURTHOUSE HOSPITAL CITY HALL ARMORY POST OFFICE SCHOOL LIBRARY SAFETY REST AREA WEIGH STATION PARK & RIDE LOCATION INTERCITY - CITY TRANSIT COMMERCIAL - GENERAL AVIATION PORT FACILITY 	<p>Published by</p> <p>GIS</p> <p>PREPARED DIGITALLY BY THE OREGON DEPARTMENT OF TRANSPORTATION IN COOPERATION WITH THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION</p> <p>NORTH</p> <p>SCALE</p> <p>0 600 1,200 2,400 Feet</p> <p>0 180 360 720 Meters</p>	<p>GEARHART POPULATION 1,475</p> <p>T. 6 N. R. 10 W. W.M.</p>	<p>OREGON TRANSPORTATION MAP</p> <p>Showing Federal Functional Classification of Roads</p> <p>City of</p> <p>GEARHART</p> <p>CLATSOP COUNTY 2015 Edition</p> <p>AVAILABLE TRANSPORTATION SERVICES SHOWN WITH YELLOW BACKGROUND</p> <ul style="list-style-type: none"> PARK & RIDE INTERBUS AMTRAK PORT AIRPORT COMM. AIR
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Copies Available from the Oregon Department of Transportation, Geographic Information Services Unit, Mill Creek Office Building, 555 13th St. NE, Salem, Oregon 97301, (503) 986-3154, <http://www.oregon.gov/ODOT/TD/DTA/Pages/gis/citymaps.aspx>
 Population numbers are based on current Oregon Population Report, College of Urban and Public Affairs, Portland State University, <http://pdx.edu/cpr>

Section 4: Tsunami Evacuation Map



TSUNAMI EVACUATION MAP SEASIDE & GEARHART, OREGON

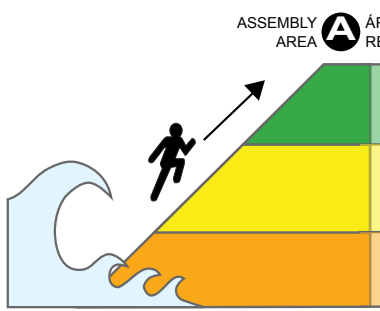


IF YOU FEEL AN EARTHQUAKE:

- Drop, cover, and hold
- Move immediately inland to higher ground
- Do not wait for an official warning

SI USTED SIENTE EL TEMBLOR:

- Tírese al suelo, cúbrase, y espere
- Diríjase de inmediato a un lugar más alto que el nivel del mar
- No espere por un aviso oficial



OUTSIDE HAZARD AREA: Evacuate to this area for all tsunami warnings or if you feel an earthquake.

LOCAL CASCADIA EARTHQUAKE AND TSUNAMI: Evacuation zone for a local tsunami from an earthquake at the Oregon coast.

DISTANT TSUNAMI: Evacuation zone for a distant tsunami from an earthquake far away from the Oregon coast.

ZONA DE PELIGRO EXTERIOR: Evacue a esta área para todas las advertencias del maremoto o si usted siente un temblor.

MAREMOTO LOCAL (terremoto de Cascadia): Zona de evacuación para un tsunami local de un temblor cerca de la costa de Oregon.

MAREMOTO DISTANTE: Zona de evacuación para un tsunami distante de un temblor lejos de la costa de Oregon.

MAP SYMBOLS / SÍMBOLOS DEL MAPA

- Evacuation route / Ruta de evacuación
- Ⓐ Assembly area / Área reunión
- ⌒ Bridge / Puente
- 🏫 School / Escuela
- 🏛️ City Hall / Municipalidad
- 🚒 Fire Department / Bomberos
- 👮 Law enforcement / Policía
- 🏥 Hospital / Hospital
- ✈️ Airport/Aeropuerto
- 👤 Trail / Sendero

+ 35' Elevation, in feet / Elevación, en pies



City of Gearhart Optional High Ground* - Evacuate to this area only as a last resort (if you cannot get outside the hazard area before the first tsunami wave arrives).

City of Gearhart Optional Tsunami Assembly Area*

*The local and distant tsunami evacuation zones shown on this map are worst-case scenarios. Optional high ground areas for the City of Gearhart are being shown in case you are physically unable to get outside the hazard area or if there are impassable obstacles in your way (such as wetlands, rivers, lakes, or earthquake debris). This optional high ground remains dry in 95 percent of tsunami scenarios analyzed.

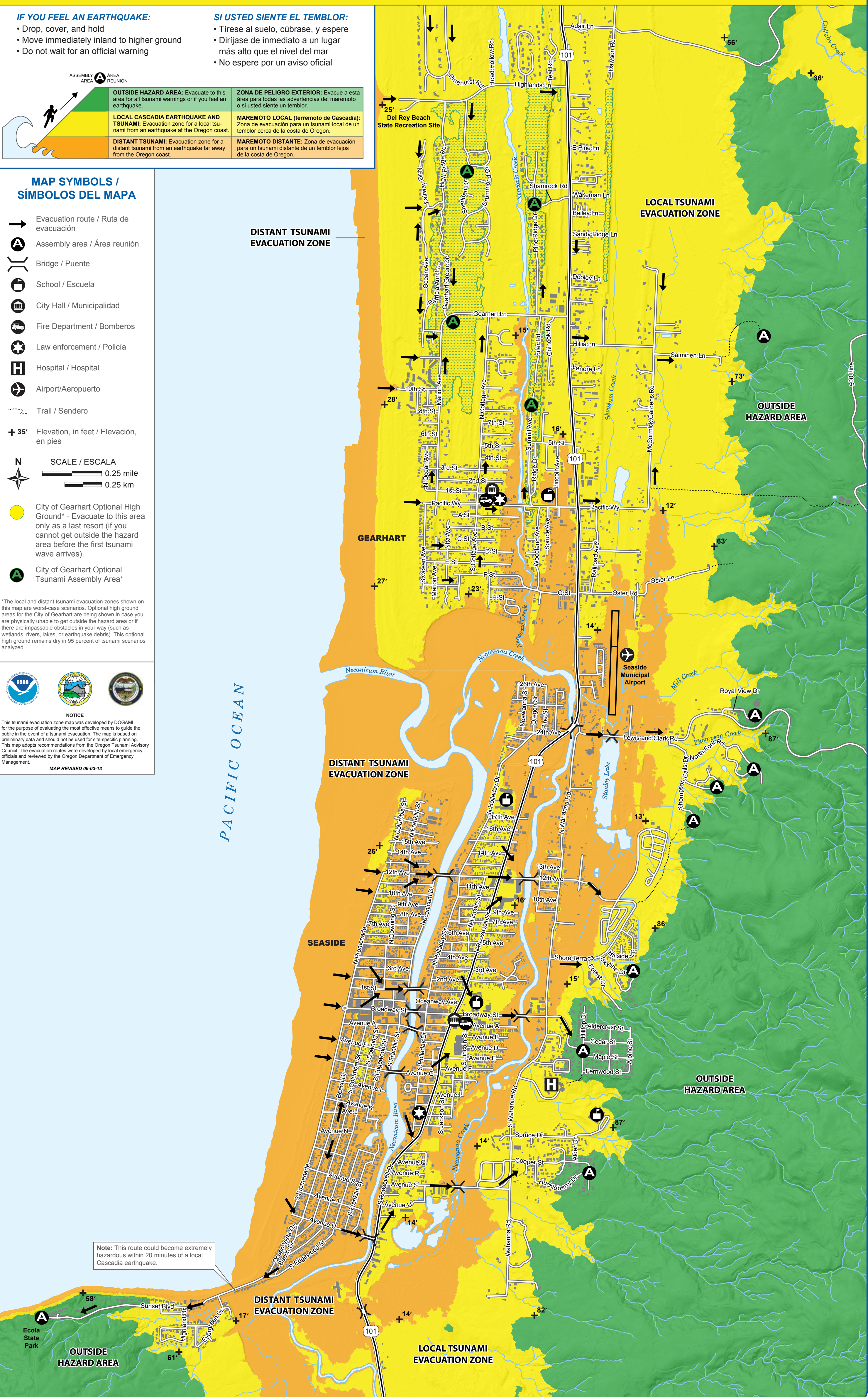


NOTICE

This tsunami evacuation zone map was developed by DOGAMI for the purpose of evaluating the most effective means to guide the public in the event of a tsunami evacuation. The map is based on preliminary data and should not be used for site-specific planning. This map adopts recommendations from the Oregon Tsunami Advisory Council. The evacuation routes were developed by local emergency officials and reviewed by the Oregon Department of Emergency Management.

MAP REVISED 06-03-13

PACIFIC OCEAN



Note: This route could become extremely hazardous within 20 minutes of a local Cascadia earthquake.

If you feel an earthquake, a tsunami may be coming...

- **DROR COVER, HOLD** until the earthquake is over; protect yourself and family
- **MOVE IMMEDIATELY INLAND** to high ground and away from low-lying coastal areas
- **FOLLOW EVACUATION ROUTE SIGNS**
- **DO NOT WAIT** for an official warning
- **GO ON FOOT** if at all possible
- **DO NOT PACK** or delay
- **DO NOT RETURN** to the beach – large waves may continue to come onshore for several hours
- **WAIT** for an "all clear" from local emergency officials before returning to low-lying areas



www.OregonTsunami.org



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- International Tsunami Information Center**
737 Bishop Street, Suite 2200
Honolulu, HI 96813
(808) 532-6422
<http://itic.ioc-unesco.org>
- Nature of the Northwest Information Center**
800 NE Oregon Street #28, Suite 965
Portland, OR 97232
(971) 673-2331
<http://www.naturenw.org>
- Oregon Department of Geology and Mineral Industries**
800 NE Oregon Street #28, Suite 965
Portland, OR 97232
(971) 673-1555
<http://www.oregongeology.org>
- Clatsop County Emergency Management**
800 Exchange Street, Suite 400
Astoria, OR 97103
(503) 325-8645
www.co.clatsop.or.us
- Oregon Emergency Management**
3225 State Street, Salem, OR 97301
P.O. Box 14370, Salem, OR 97309-5062
(503) 378-2911
<http://www.oregon.gov/OMD/ OEM/>
- City of Gearhart**
698 Pacific Way
Gearhart, OR 97138
(503) 738-5501
www.cityofgearhart.com
- Gearhart Fire Department**
670 Pacific Way
Gearhart, OR 97138
(503) 738-7838
www.gearhartfire.com
- City of Seaside**
989 Broadway Street
Seaside, OR 97138
(503) 738-5511
(503) 738-6311 non-business hours
www.cityofseaside.us

CONTACTS



Seaside & Gearhart



This information could save your life – Please read it and share it with your family and friends.



BE PREPARED!

- Assemble **emergency kits** with at least a 3-day supply for each family member:
- Local map showing safe evacuation routes to high ground
 - First-aid supplies, prescriptions and non-prescription medication
 - Water bottle and filtration or treatment supplies capable of providing 1 gallon per person per day
 - Non-perishable food (ready-to-eat meals, canned food, baby food, energy bars)
 - Cooking and eating utensils, can opener, Sterno® or other heat source
 - Matches in water-proof container or lighter
 - Shelter (tent), sleeping bags, blankets
 - Portable radio, NOAA weather radio, flashlight, and extra batteries
 - Rain gear, sturdy footwear, extra clothing
 - Personal hygiene items (toilet paper, soap, toothbrush)
 - Tools and supplies (pocket knife, shut-off wrench, duct tape, gloves, whistles, plastic bags)
 - Cash

WHAT TO KNOW about tsunamis

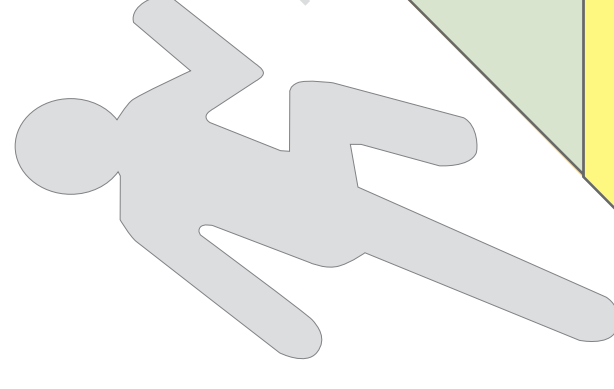
A **tsunami** is a series of sea waves, usually caused by a displacement of the ocean floor by an undersea earthquake. As tsunamis enter shallow water near land, they increase in height and can cause great loss of life and property damage.

Recent research suggests that tsunamis have struck the Oregon coast on a regular basis. They can occur any time, day or night. Typical wave heights from tsunamis occurring in the Pacific Ocean over the last 500 years have been 20–65 feet at the shoreline. However, because of local conditions a few waves may have been much higher — as much as 100 feet.

We distinguish between a tsunami caused by an undersea earthquake near the Oregon coast (a **local tsunami**) and an undersea earthquake far away from the coast (a **distant tsunami**).

How to help with tsunami awareness in your community

- Start a tsunami buddy system
 - Make and distribute emergency packs
 - Initiate or participate in a local preparedness program
- Visit OregonTsunami.org to find more great resources!



Local tsunamis

A **local tsunami** can come onshore within 15 to 20 minutes after the earthquake — before there is time for an official warning from the national warning system. Ground shaking from the earthquake may be the only warning you have. Evacuate quickly!



Look for these hazard zone signs and be ready to leave the area by following evacuation route signs.

Distant tsunamis

A **distant tsunami** will take 4 hours or more to come ashore. You will feel no earthquake, and the tsunami will generally be smaller than that from a local earthquake. Typically, there is time for an official warning and evacuation to safety.

Evacuation for a distant tsunami will generally be indicated by a **3-minute siren blast** (if your area has sirens) and an announcement over NOAA weather radio that the local area has been put into an official **TSUNAMI WARNING**. In isolated areas along beaches and bays you may not hear a warning siren. Here, a **sudden change of sea level** should prompt you to move immediately to high ground. If you hear the 3-minute blast or see a sudden sea level change, first evacuate away from shoreline areas, then turn on your local broadcast media or NOAA weather radio for more information.



WHAT TO DO for both local and distant tsunamis

1. Evacuate on foot, if at all possible. Follow evacuation signs and arrows to an Assembly Area.*
2. If you need help evacuating, tie something **white** (sheet or towel) to the front door knob. Make it large enough to be visible from the street. If the emergency is a distant tsunami, then help may arrive. In the event of a local tsunami, it is unlikely that anyone will help you, so make a plan and be prepared!
3. Stay away from potentially hazardous areas until you receive an ALL CLEAR from local officials. Tsunamis often follow river channels, and dangerous waves can persist for several hours. Local officials must inspect all flooded or earthquake-damaged structures before anyone can go back into them.
4. After evacuation, check with local emergency officials if you think you have special skills and can help, or if you need assistance locating lost family members.

*Assembly areas **A** are shown on the map. Do not confuse Assembly Areas with Evacuation Centers, which are short-term help centers set up after a disaster occurs.

Section 5: Analysis Methodology and Assumptions Memorandum

Section 6: Existing Operating Conditions at Study Intersections (2016 PM Peak Hour- 30HV Conditions)

Intersection												
Int Delay, s/veh	2.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	35	0	35	10	0	5	40	930	5	5	815	45
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	0	0	0	4	4	4	5	5	5
Mvmt Flow	38	0	38	11	0	5	43	1011	5	5	886	49

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1513	2024	468	1555	2047	509	935	0	0	1016	0	0
Stage 1	921	921	-	1101	1101	-	-	-	-	-	-	-
Stage 2	592	1103	-	454	946	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.5	6.5	6.9	4.18	-	-	4.2	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.5	4	3.3	2.24	-	-	2.25	-	-
Pot Cap-1 Maneuver	79	54	528	78	57	515	716	-	-	661	-	-
Stage 1	281	336	-	230	290	-	-	-	-	-	-	-
Stage 2	447	275	-	560	343	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	74	50	528	69	53	515	715	-	-	660	-	-
Mov Cap-2 Maneuver	74	50	-	69	53	-	-	-	-	-	-	-
Stage 1	264	333	-	216	273	-	-	-	-	-	-	-
Stage 2	415	258	-	515	340	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	54.5	49.5	0.4	0.1
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	715	-	-	74	528	97	660	-	-
HCM Lane V/C Ratio	0.061	-	-	0.514	0.072	0.168	0.008	-	-
HCM Control Delay (s)	10.4	-	-	96.7	12.3	49.5	10.5	-	-
HCM Lane LOS	B	-	-	F	B	E	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.1	0.2	0.6	0	-	-

HCM Signalized Intersection Capacity Analysis

2: US 101 & Pacific Way

Gearhart TSP
2016 Existing Conditions- 30 HV (PM Peak)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Volume (vph)	45	5	70	20	5	15	70	900	10	10	830	45
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1554			1558		1583	3161		1568	3113	
Flt Permitted		0.87			0.88		0.21	1.00		0.28	1.00	
Satd. Flow (perm)		1370			1401		347	3161		455	3113	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	49	5	77	22	5	16	77	989	11	11	912	49
RTOR Reduction (vph)	0	44	0	0	13	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	87	0	0	30	0	77	1000	0	11	959	0
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	5%	5%	5%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		9.3			9.3		39.0	34.1		31.0	30.1	
Effective Green, g (s)		9.3			9.3		39.0	35.1		31.0	31.1	
Actuated g/C Ratio		0.16			0.16		0.68	0.61		0.54	0.54	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.5			2.5		2.5	5.2		2.5	5.2	
Lane Grp Cap (vph)		222			227		341	1936		263	1689	
v/s Ratio Prot							c0.02	c0.32		0.00	c0.31	
v/s Ratio Perm		c0.06			0.02		0.13			0.02		
v/c Ratio		0.39			0.13		0.23	0.52		0.04	0.57	
Uniform Delay, d1		21.5			20.5		4.2	6.3		6.1	8.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			0.2		0.2	0.5		0.0	0.8	
Delay (s)		22.3			20.7		4.4	6.8		6.1	9.4	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		22.3			20.7			6.6			9.4	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection												
Int Delay, s/veh	3.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	60	5	0	10	45	975	5	5	900	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	6	6	6	8	8	8	4	4	4	5	5	5
Mvmt Flow	5	5	66	5	0	11	49	1071	5	5	989	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2193	2190	1004	2222	2200	1075	1016	0	0	1077	0	0
Stage 1	1014	1014	-	1173	1173	-	-	-	-	-	-	-
Stage 2	1179	1176	-	1049	1027	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.18	6.58	6.28	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.18	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.18	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.572	4.072	3.372	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	32	44	288	30	43	260	675	-	-	636	-	-
Stage 1	283	311	-	228	259	-	-	-	-	-	-	-
Stage 2	228	261	-	268	304	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	29	40	288	19	40	260	674	-	-	635	-	-
Mov Cap-2 Maneuver	29	40	-	19	40	-	-	-	-	-	-	-
Stage 1	262	309	-	211	240	-	-	-	-	-	-	-
Stage 2	202	242	-	201	302	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	59.8	109	0.5	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	674	-	-	138	50	635	-	-
HCM Lane V/C Ratio	0.073	-	-	0.557	0.33	0.009	-	-
HCM Control Delay (s)	10.8	-	-	59.8	109	10.7	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.8	1.2	0	-	-

Intersection

Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	20	55	20	0	15	55	25	0	15	10	20
Peak Hour Factor	0.92	0.78	0.78	0.78	0.92	0.78	0.78	0.78	0.92	0.78	0.78	0.78
Heavy Vehicles, %	2	3	3	3	2	0	0	0	2	0	0	0
Mvmt Flow	0	26	71	26	0	19	71	32	0	19	13	26
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.9	7.8	7.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	21%	16%	25%
Vol Thru, %	22%	58%	58%	50%
Vol Right, %	44%	21%	26%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	95	95	40
LT Vol	15	20	15	10
Through Vol	10	55	55	20
RT Vol	20	20	25	10
Lane Flow Rate	58	122	122	51
Geometry Grp	1	1	1	1
Degree of Util (X)	0.069	0.14	0.137	0.064
Departure Headway (Hd)	4.289	4.15	4.057	4.497
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	840	849	868	801
Service Time	2.291	2.247	2.156	2.499
HCM Lane V/C Ratio	0.069	0.144	0.141	0.064
HCM Control Delay	7.6	7.9	7.8	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.5	0.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	10	20	10
Peak Hour Factor	0.92	0.78	0.78	0.78
Heavy Vehicles, %	2	6	6	6
Mvmt Flow	0	13	26	13
Number of Lanes	0	0	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.8
HCM LOS	A

Lane

Intersection

Intersection Delay, s/veh 7.5
Intersection LOS A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	15	0	0	5	10	60	0	0	0	5	0	75	0	0
Peak Hour Factor	0.92	0.78	0.78	0.78	0.92	0.78	0.78	0.78	0.92	0.78	0.78	0.78	0.92	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	19	0	0	6	13	77	0	0	0	6	0	96	0	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.1	6.7	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	7%	100%
Vol Thru, %	0%	100%	13%	0%
Vol Right, %	100%	0%	80%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	15	75	75
LT Vol	0	0	5	75
Through Vol	0	15	10	0
RT Vol	5	0	60	0
Lane Flow Rate	6	19	96	96
Geometry Grp	1	1	1	1
Degree of Util (X)	0.006	0.022	0.098	0.116
Departure Headway (Hd)	3.606	4.186	3.659	4.339
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	981	845	968	824
Service Time	1.669	2.26	1.724	2.374
HCM Lane V/C Ratio	0.006	0.022	0.099	0.117
HCM Control Delay	6.7	7.4	7.1	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.1	0.3	0.4

HCM Unsignalized Intersection Capacity Analysis

6: S Ocean Avenue & Pacific Way

Gearhart TSP
2016 Existing Conditions- 30 HV (PM Peak)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↕		↗
Volume (veh/h)	0	0	10	0	0	15
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	13	0	0	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		26	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		26	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	98
cM capacity (veh/h)			1623		982	1085

Direction, Lane #	WB 1	NB 1
Volume Total	13	19
Volume Left	13	0
Volume Right	0	19
cSH	1623	1085
Volume to Capacity	0.01	0.02
Queue Length 95th (ft)	1	1
Control Delay (s)	7.2	8.4
Lane LOS	A	A
Approach Delay (s)	7.2	8.4
Approach LOS		A

Intersection Summary			
Average Delay		7.9	
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Section 7: Forecasted Baseline Operating Conditions at Study Intersections (2040 PM Peak Hour- DHV Conditions)

Intersection

Int Delay, s/veh 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	50	0	50	15	0	5	55	1290	5	5	1130	60
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	0	0	0	4	4	4	5	5	5
Mvmt Flow	53	0	53	16	0	5	58	1358	5	5	1189	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2027	2711	627	2081	2739	683	1253	0	0	1363	0	0
Stage 1	1232	1232	-	1476	1476	-	-	-	-	-	-	-
Stage 2	795	1479	-	605	1263	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.5	6.5	6.9	4.18	-	-	4.2	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.5	4	3.3	2.24	-	-	2.25	-	-
Pot Cap-1 Maneuver	~ 32	19	414	31	20	396	540	-	-	485	-	-
Stage 1	180	238	-	135	192	-	-	-	-	-	-	-
Stage 2	336	179	-	456	243	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 29	17	414	25	18	396	540	-	-	485	-	-
Mov Cap-2 Maneuver	~ 29	17	-	25	18	-	-	-	-	-	-	-
Stage 1	161	236	-	121	171	-	-	-	-	-	-	-
Stage 2	296	160	-	394	240	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 347.5	227.4	0.5	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	540	-	-	29	414	33	485	-	-
HCM Lane V/C Ratio	0.107	-	-	1.815	0.127	0.638	0.011	-	-
HCM Control Delay (s)	12.5	-	-	\$ 679.9	15	227.4	12.5	-	-
HCM Lane LOS	B	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	6.2	0.4	2.2	0	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

Gearhart TSP

2: US 101 & Pacific Way

2040 Forecasted Baseline Conditions- DHV (PM Peak)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Volume (vph)	60	5	95	30	5	20	95	1250	15	15	1150	60
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1552			1557		1583	3161		1568	3114	
Flt Permitted		0.86			0.80		0.13	1.00		0.16	1.00	
Satd. Flow (perm)		1358			1276		225	3161		266	3114	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	5	100	32	5	21	100	1316	16	16	1211	63
RTOR Reduction (vph)	0	45	0	0	17	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	123	0	0	41	0	100	1332	0	16	1272	0
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	5%	5%	5%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		12.7			12.7		51.8	46.3		44.4	42.6	
Effective Green, g (s)		12.7			12.7		51.8	47.3		44.4	43.6	
Actuated g/C Ratio		0.17			0.17		0.70	0.64		0.60	0.59	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.5			2.5		2.5	5.2		2.5	5.2	
Lane Grp Cap (vph)		233			219		259	2025		191	1839	
v/s Ratio Prot							c0.03	c0.42		0.00	0.41	
v/s Ratio Perm		c0.09			0.03		0.24			0.05		
v/c Ratio		0.53			0.19		0.39	0.66		0.08	0.69	
Uniform Delay, d1		27.8			26.1		6.4	8.2		6.5	10.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7			0.3		0.7	1.1		0.1	1.5	
Delay (s)		29.5			26.4		7.1	9.3		6.7	12.0	
Level of Service		C			C		A	A		A	B	
Approach Delay (s)		29.5			26.4			9.2			11.9	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection												
Int Delay, s/veh	22											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	85	5	0	15	60	1350	5	5	1250	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	8	8	8	4	4	4	5	5	5
Mvmt Flow	5	5	89	5	0	16	63	1421	5	5	1316	37

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2903	2898	1335	2942	2913	1425	1353	0	0	1426	0	0
Stage 1	1345	1345	-	1550	1550	-	-	-	-	-	-	-
Stage 2	1558	1553	-	1392	1363	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.18	6.58	6.28	4.14	-	-	4.15	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.18	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.18	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.572	4.072	3.372	2.236	-	-	2.245	-	-
Pot Cap-1 Maneuver	10	15	184	9	15	161	502	-	-	468	-	-
Stage 1	183	216	-	138	170	-	-	-	-	-	-	-
Stage 2	138	171	-	170	210	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	8	13	184	~ 3	13	161	502	-	-	468	-	-
Mov Cap-2 Maneuver	8	13	-	~ 3	13	-	-	-	-	-	-	-
Stage 1	160	214	-	121	149	-	-	-	-	-	-	-
Stage 2	109	150	-	84	208	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 411.8	\$ 1107.2	0.6	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	502	-	-	65	11	468	-	-
HCM Lane V/C Ratio	0.126	-	-	1.538	1.914	0.011	-	-
HCM Control Delay (s)	13.2	-	-	\$ 411.8	\$ 1107.2	12.8	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	8.7	3.5	0	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Intersection Delay, s/veh	8.3											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	30	75	30	0	20	75	35	0	20	15	30
Peak Hour Factor	0.92	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	3	3	3	2	0	0	0	2	0	0	0
Mvmt Flow	0	35	88	35	0	24	88	41	0	24	18	35
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.4	8.3	8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	22%	15%	25%
Vol Thru, %	23%	56%	58%	50%
Vol Right, %	46%	22%	27%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	135	130	60
LT Vol	20	30	20	15
Through Vol	15	75	75	30
RT Vol	30	30	35	15
Lane Flow Rate	76	159	153	71
Geometry Grp	1	1	1	1
Degree of Util (X)	0.095	0.193	0.182	0.092
Departure Headway (Hd)	4.462	4.369	4.286	4.684
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	803	823	838	765
Service Time	2.489	2.39	2.307	2.711
HCM Lane V/C Ratio	0.095	0.193	0.183	0.093
HCM Control Delay	8	8.4	8.3	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.7	0.7	0.3

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	15	30	15
Peak Hour Factor	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	6	6	6
Mvmt Flow	0	18	35	18
Number of Lanes	0	0	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.2
HCM LOS	A

Lane

Intersection

Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	0	20	0	0	5	15	85	0	0	0	5
Peak Hour Factor	0.92	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	24	0	0	6	18	100	0	0	0	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.5	7.3	6.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	5%	100%
Vol Thru, %	0%	100%	14%	0%
Vol Right, %	100%	0%	81%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	20	105	105
LT Vol	0	0	5	105
Through Vol	0	20	15	0
RT Vol	5	0	85	0
Lane Flow Rate	6	24	124	124
Geometry Grp	1	1	1	1
Degree of Util (X)	0.006	0.028	0.127	0.151
Departure Headway (Hd)	3.685	4.256	3.7	4.394
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	955	827	952	813
Service Time	1.769	2.356	1.789	2.441
HCM Lane V/C Ratio	0.006	0.029	0.13	0.153
HCM Control Delay	6.8	7.5	7.3	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.1	0.4	0.5

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	105	0	0
Peak Hour Factor	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	124	0	0
Number of Lanes	0	0	1	0

Approach SB

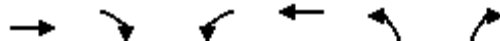
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.2
HCM LOS	A

Lane

HCM Unsignalized Intersection Capacity Analysis

6: S Ocean Avenue & Pacific Way

Gearhart TSP
2040 Forecasted Baseline Conditions- DHV (PM Peak)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↕		↗
Volume (veh/h)	0	0	15	0	0	20
Sign Control	Free		Free		Yield	
Grade	0%		0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	18	0	0	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		35	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		35	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	98
cM capacity (veh/h)			1623		967	1085

Direction, Lane #	WB 1	NB 1
Volume Total	18	24
Volume Left	18	0
Volume Right	0	24
cSH	1623	1085
Volume to Capacity	0.01	0.02
Queue Length 95th (ft)	1	2
Control Delay (s)	7.2	8.4
Lane LOS	A	A
Approach Delay (s)	7.2	8.4
Approach LOS		A

Intersection Summary			
Average Delay		7.9	
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Section E

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Section F

Memo 5: Transportation System Investments

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.



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MEMORANDUM

DATE: October 11, 2016
TO: Gearhart TSP Project Management Team
FROM: Carl Springer, PE, PTP; Kevin Chewuk, PTP

SUBJECT: Gearhart Transportation System Plan

Technical Memorandum #5: Transportation System Investments

P14180-006

This document details the transportation system investments recommended to serve travel in Gearhart. Included is a summary of the process utilized to develop and analyze the solutions and a description of the projects identified to improve the transportation system in the City.

Approach to Developing Projects

Gearhart's approach to developing transportation projects emphasized improved system efficiency and management over adding capacity. The approach considered four tiers of priorities that included:

1. Highest Priority – preserve the function of the system through management practices such as improved traffic signal operations, encouraging alternative modes of travel, and implementation of new policies and standards.
2. High Priority – improve existing facility efficiency through minor enhancement projects that upgrade roads to desired standards, fill important system connectivity gaps, or include safety improvements to intersections and corridors.
3. Moderate Priority – add capacity to the system by widening, constructing major improvements to existing roadways, or extending existing roadways to create parallel routes to congested corridors.
4. Lowest Priority – add capacity to the system by constructing new facilities.

The project team recommended higher priority solution types to address identified needs unless a lower priority solution was clearly more cost-effective or better supported the desires of the City. This process allowed the City to maximize use of available funds, minimize impacts to the natural and built environments, and balance investments across all modes of travel.

This memorandum presents the aspirational project list to address all of the identified City transportation needs, regardless of the ability for the City or State to fund them. The complete list of projects is referred to as Aspirational Projects. The list will be refined at a later stage to indicate the highest priority projects that can be reasonably funded during the 20-year planning horizon. The shorter, financially constrained list, is referred to as Financially Constrained Projects.

Aspirational Projects

Aspirational projects (projects which the City supports and would like to implement) include all identified projects for improving Gearhart’s transportation system, regardless of their primary funding source, and priority. These projects are not reasonably likely to be funded during the 20-year planning horizon, however they do address an identified problem and they are supported by the City.

The preliminary list of aspirational projects addresses the gaps and deficiencies identified in Technical Memorandum #4 (Transportation System Conditions, Deficiencies and Needs) and was developed by following the four-tiered identification process detailed earlier in this document. The set includes projects for all of the major modes of travel in the City (motor vehicle, pedestrian, bicycle and transit). The full list of aspirational projects, shown in Tables 1 and 2, and Figure 1, includes those identified through the TSP planning process. The TSP planning process eliminates any project that may not be feasible for reasons other than financial (such as environmental or existing development limitations).

The full list includes 57 projects. Each project was assigned a primary source of funding for planning purposes (City, State, County, or SETD), although such designations do not create any obligation for funding. The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change, and will ultimately be determined through a preliminary and final design process, and are subject to city and/or ODOT approval.

Financially Constrained Projects (Technical Memo #6)

A prioritized list of “City” projects (where the City is assumed to be the primary contributor of funding) that is constrained to a 20-year funding estimate will be provided in Technical Memorandum #6 (Recommended Transportation Improvements). This memorandum will also provide a prioritized list of “State” projects that the City could use to make decisions for applying for grants or other funding mechanisms. However, the City can choose to provide funds to help support State projects—thus, expediting the timeline on those projects the City would like prioritized. While there may be “County” or “SETD” projects that the TSP would like to be prioritized in the next 20 years, these decisions are ultimately up to the County or Sunset Empire Transportation District.

Table 1: Aspirational Transportation Enhancement Programs

Project ID	Project Description	Project Elements	Project Purpose	Primary (Secondary) Mode	Primary Funding Source
A	Neighborhood Traffic Calming Program	Implement program to process community requests for neighborhood traffic calming, investigate options, and implement improvements. Key areas for traffic calming investigations include: Cottage Avenue, F Street, G Street, and Pine Ridge Drive.	Reduce motor vehicle travel speeds along residential streets	Motor Vehicle	City
B	Tsunami Evacuation Route Identification	Enhance tsunami evacuation route wayfinding throughout the City.	Tsunami evacuation	Walking / Biking	City
C	Bike Parking Program	Install new bike parking at key activity centers around the City.	Increase bike parking	Walking / Biking	City
D	Wayfinding Signage Program	Install wayfinding signage to assist pedestrians and bicyclists in choosing comfortable routes and to help visitors navigate through the City.	Improve wayfinding signage	Walking / Biking	City
E	Ridge Path Enhancements	Implement improvements along the Ridge Path alignment and at Ridge Path street crossings. Key areas for street crossing improvements include at Pacific Way, and F Street.	Ridge Path enhancements	Walking / Biking	City

Table 2: Aspirational Transportation Improvement Projects

Project ID	Project Description	Project Elements**	Project Purpose	Primary (Secondary) Mode	Primary Funding Source
G1	Pine Ridge Drive Improvements from Shamrock Road north to the end of the street	Add pedestrian and bicycle improvements to Pine Ridge Drive from Shamrock Road north to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G2	Shamrock Road Improvements from US 101 to Pine Ridge Drive	Add pedestrian and bicycle improvements to Shamrock Road from US 101 to Pine Ridge Drive (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G3	Pine Ridge Drive Improvements from Gearhart Loop Road to Shamrock Road	Add pedestrian and bicycle improvements to Pine Ridge Drive from Gearhart Loop Road to Shamrock Road (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G4	Gearhart Loop Road bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the Gearhart Loop Road bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	Motor Vehicle (Walking / Biking)	City
G5	Gearhart Loop Road Improvements from US 101 to Cottage Avenue	Add pedestrian and bicycle improvements to Gearhart Loop Road from US 101 to Cottage Avenue (e.g., shared-use path on the north side, and sidewalk or path on the south side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G6	Gearhart Loop Road Improvements from Cottage Avenue to 10th Street	Add pedestrian and bicycle improvements to Gearhart Loop Road from Cottage Avenue to 10th Street (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G7	Marion Avenue Improvements from Pacific Way to 10th Street	Add bicycle improvements to Marion Avenue from Pacific Way to 10th Street (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	Walking / Biking	City

Table 2: Aspirational Transportation Improvement Projects

Project ID	Project Description	Project Elements**	Project Purpose	Primary (Secondary) Mode	Primary Funding Source
G8	Fifer Heights Road Improvements from Gearhart Loop Road to the end of the street	Add pedestrian and bicycle improvements to Fifer Heights Road from Gearhart Loop Road to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G9	Shared-use path connection between Summit Avenue and Fifer Heights Road	Create a shared-use path connection between Summit Avenue and Fifer Heights Road.	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G10	Shared-use path connection over Neacoxie Creek, between the 8th Street and Summit Avenue	Create a shared-use path connection over Neacoxie Creek, between the 8th Street and Summit Avenue. The connection to Summit Avenue is via a vacant lot (right-of-way is needed).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G11	Summit Avenue Improvements from 5th Street north to the end of the street	Add pedestrian and bicycle improvements to Summit Avenue from 5th Street north to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G12	Summit Avenue Improvements from Pacific Way to 5th Street	Add pedestrian and bicycle improvements to Summit Avenue from Pacific Way to 5th Street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G13	5th Street Improvements from US 101 to Summit Avenue	Add pedestrian and bicycle improvements to 5th Street from US 101 to Summit Avenue (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G14	Pacific Way Improvements from US 101 to the Ridge Path	Add pedestrian and bicycle improvements to Pacific Way from US 101 to the Ridge Path (e.g., sidewalk or path on the north side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G15	Pacific Way bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the Pacific Way bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	Motor Vehicle (Walking / Biking)	City

Table 2: Aspirational Transportation Improvement Projects

Project ID	Project Description	Project Elements**	Project Purpose	Primary (Secondary) Mode	Primary Funding Source
G16	Pacific Way Improvements from Marion Avenue to the Ridge Path	Add bicycle improvements to Pacific Way from Marion Avenue to the Ridge Path (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	Walking / Biking	City
G17	Ocean Avenue Improvements from Pacific Way to G Street	Improvements to be determined through alternatives evaluation.	Emergency vehicle access	Motor Vehicle	City
G18	F Street-G Street Improvements from Ocean Avenue to Cottage Avenue	Add pedestrian improvements to F Street-G Street from Ocean Avenue to Cottage Avenue (e.g., sidewalk or path on the south side).	Walking facility gap; tsunami evacuation	Walking / Biking	City
G19	Cottage Avenue Improvements from Pacific Way to F Street	Add bicycle improvements to Cottage Avenue from Pacific Way to F Street (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	Walking / Biking	City
G20	F Street-G Street Improvements from US 101 to Cottage Avenue	Add pedestrian and bicycle improvements to F Street-G Street from US 101 to Cottage Avenue (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G21	G Street bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the G Street bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	Motor Vehicle (Walking / Biking)	City
G22	Woodland Avenue Improvements from Pacific Way to G Street	Add pedestrian and bicycle improvements to Woodland Avenue from Pacific Way to G Street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G23	Oster Road Improvements from US 101 to the end of the street	Add pedestrian and bicycle improvements to Oster Road from US 101 to the end of the street (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City

Table 2: Aspirational Transportation Improvement Projects

Project ID	Project Description	Project Elements**	Project Purpose	Primary (Secondary) Mode	Primary Funding Source
G24	McCormick Gardens Road extension from Pacific Way to Oster Road	Extend McCormick Gardens Road from Pacific Way to Oster Road. This street should be constructed as a Collector, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	Motor Vehicle (Walking / Biking)	City
G25	Railroad Avenue Improvements from Pacific Way to Oster Road	Add pedestrian and bicycle improvements to Railroad Avenue from Pacific Way to Oster Road (e.g., sidewalk or path on the east side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G26	Pacific Way Improvements from US 101 to McCormick Gardens Road	Add pedestrian and bicycle improvements to Pacific Way from US 101 to McCormick Gardens Road (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G27	Railroad Avenue extension from Pacific Way to Park Lane	Extend Railroad Avenue from Pacific Way to Park Lane. This street should be constructed as a Local Street, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	Motor Vehicle (Walking / Biking)	City
G28	Shared-use path connection between 5th Street and McCormick Gardens Road	Create a shared-use path connection between 5th Street and McCormick Gardens Road.	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G29	Tressel Drive extension from Hilllila Road to Park Lane	Extend Tressel Drive from Hilllila Road to Park Lane. This street should be constructed as a Local Street, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	Motor Vehicle (Walking / Biking)	City
G30	Tressel Drive Improvements from Hilllila Road to the end of the street	Add pedestrian and bicycle improvements to Tressel Drive from Hilllila Road to the end of the street (e.g., shared-use path on the east side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City
G31	Shared-use path connection between Shamrock Road and Tressel Drive	Create a shared-use path connection between Shamrock Road and Tressel Drive.	Walking and biking facility gap; tsunami evacuation	Walking / Biking	City

Table 2: Aspirational Transportation Improvement Projects

Project ID	Project Description	Project Elements**	Project Purpose	Primary (Secondary) Mode	Primary Funding Source
S1	US 101 Improvements between Shamrock Road and the north UGB (near Pine Lane)	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	Motor Vehicle (Walking / Biking)	State
S2	US 101 Improvements between Shamrock Road and Gearhart Loop Road	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	Motor Vehicle (Walking / Biking)	State
S3	US 101/ Gearhart Loop Road Intersection Improvements	Intersection improvements (e.g., possible installation of a traffic signal, if warranted; upgrade the intersection to current ADA standards).	Motor vehicle congestion; walking and biking highway crossing	Motor Vehicle (Walking / Biking)	State
S4	US 101 Improvements between Gearhart Loop Road and 5th Street	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	Motor Vehicle (Walking / Biking)	State
S5	US 101 Improvements between 5th Street and Pacific Way	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	Motor Vehicle (Walking / Biking)	State
S6	US 101/ Pacific Way Intersection Improvements	Intersection improvements (e.g., upgrade the intersection to current ADA standards).	Walking and biking highway crossing	Walking / Biking	State
S7	US 101 Improvements between Pacific Way and G Street-Oster Road	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	Motor Vehicle (Walking / Biking)	State
S8	US 101 Improvements between G Street-Oster Road and the south UGB (near Seaside Airport Lane)	Improvements to be determined through alternatives evaluation. This project should connect with the planned shared-use path in Seaside.	Motor vehicle safety; walking and biking facility gap	Motor Vehicle (Walking / Biking)	State

Table 2: Aspirational Transportation Improvement Projects

Project ID	Project Description	Project Elements**	Project Purpose	Primary (Secondary) Mode	Primary Funding Source
S9	US 101 bridge over Mill Creek in Seaside Improvements	Support the replacement of the US 101 bridge over Mill Creek (Bridge No. 03079A) in Seaside, to include seismic retrofits and pedestrian and bicycle facilities.	Walking and biking facility gap; tsunami evacuation	Motor Vehicle (Walking / Biking)	State
S10	US 101 bridge over Neawanna Creek in Seaside Improvements	Support the replacement of the US 101 bridge over Neawanna Creek (Bridge No. 01305) in Seaside (Seaside TSP Project 1b), to include seismic retrofits and pedestrian and bicycle facilities.	Walking and biking facility gap; tsunami evacuation	Motor Vehicle (Walking / Biking)	State
C1 *	Pine Ridge Drive extension to Highlands Lane	Extend Pine Ridge Drive to Highlands Lane. This street should be constructed as a Local street, with a shared-use path on the west side. This project is located outside of the UGB.	Street connectivity; walking and biking facility gap	Motor Vehicle (Walking / Biking)	County
C2	Hillila Road Improvements from US 101 to Tressel Drive	Add pedestrian and bicycle improvements to Hillila Road from US 101 to Tressel Drive (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	County
C3 *	Hillila Road Improvements from Tressel Drive to McCormick Gardens Road	Add pedestrian and bicycle improvements to Hillila Road from Tressel Drive to McCormick Gardens Road (e.g., shared-use path on the north side). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	Walking / Biking	County
C4 *	Salminen Road Improvements from McCormick Gardens Road to the end of the street	Add pedestrian and bicycle improvements to Salminen Road from McCormick Gardens Road to the end of the street (e.g., shared-use path). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	Walking / Biking	County
C5 *	McCormick Gardens Road Improvements from Hillila Road to the UGB	Add pedestrian and bicycle improvements to McCormick Gardens Road from Hillila Road to the UGB, 0.15 miles south of Salminen Road (e.g., shared-use path on the east side). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	Walking / Biking	County
C6	McCormick Gardens Road Improvements from Pacific Way to the UGB	Add pedestrian and bicycle improvements to McCormick Gardens Road from Pacific Way to the UGB, 0.15 miles south of Salminen Road (e.g., shared-use path on the east side).	Walking and biking facility gap; tsunami evacuation	Walking / Biking	County

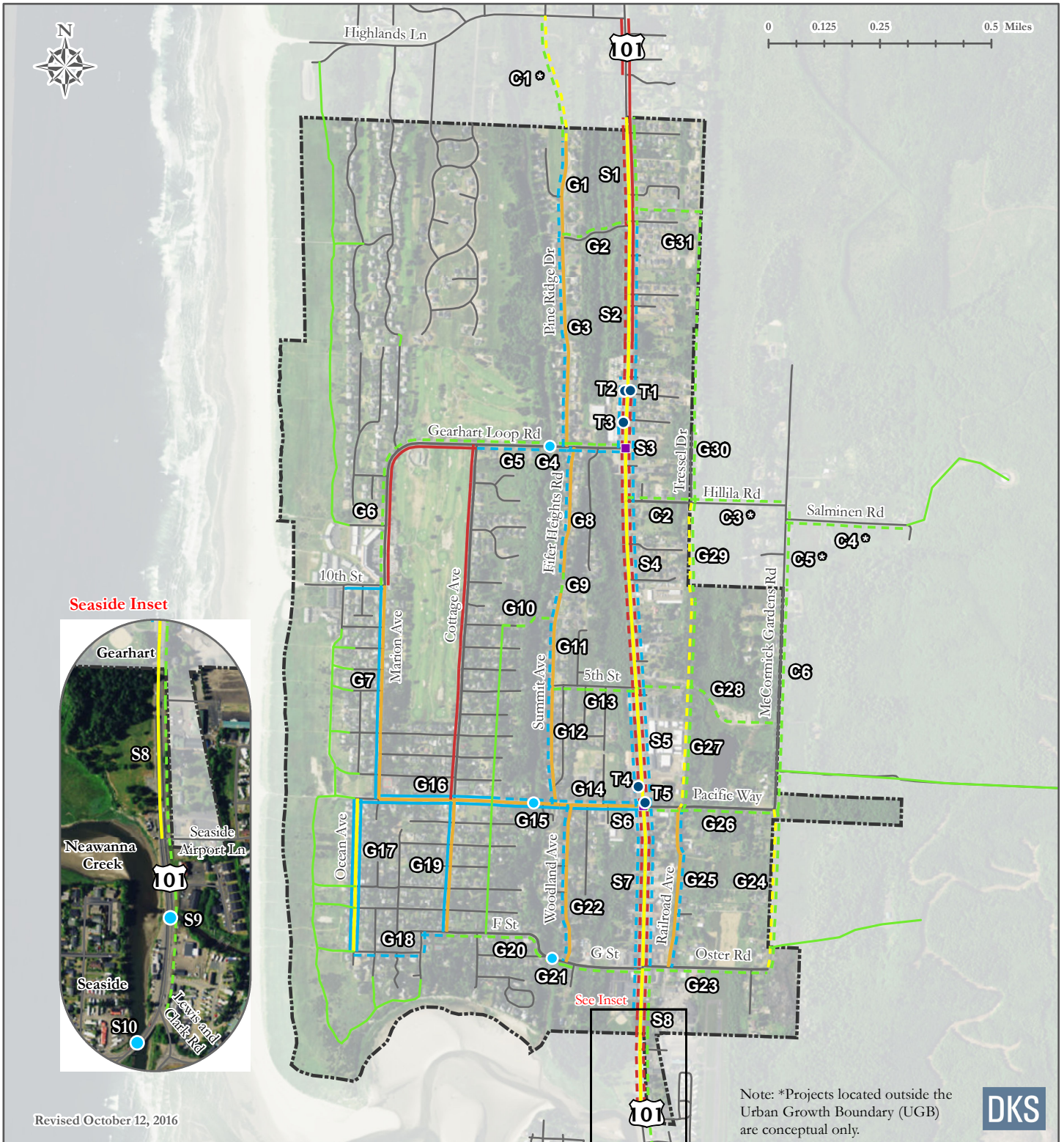
Table 2: Aspirational Transportation Improvement Projects

Project ID	Project Description	Project Elements**	Project Purpose	Primary (Secondary) Mode	Primary Funding Source
T1	Bus stop along northbound US 101 near Wild Rose Lane Upgrades	Upgrade amenities at the SETD bus stop along northbound US 101 near Wild Rose Lane, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	Transit	City/ SETD
T2	Bus stop along southbound US 101 near Wild Rose Lane Upgrades	Upgrade amenities at the SETD bus stop along southbound US 101 near Wild Rose Lane, to include sheltered stops with seating, route information, bicycle parking, and improved lighting. The NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane should be relocated to this location (see project T3).	Transit facility improvements	Transit	City/ SETD
T3	NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane Relocation	Relocate the NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane to share the location with the SETD bus stop along southbound US 101 near Wild Rose Lane.	Transit facility improvements	Transit	City/ SETD
T4	Bus stop along southbound US 101 near Pacific Way Upgrades	Upgrade amenities at the SETD bus stop along southbound US 101 near Pacific Way, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	Transit	City/ SETD
T5	Bus stop along northbound US 101 near Pacific Way Upgrades	Upgrade amenities at the SETD bus stop along northbound US 101 near Pacific Way, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	Transit	City/ SETD

Note: * Projects located outside the Urban Growth Boundary (UGB) are conceptual only. They are either new facilities, or improvements to existing facilities, that may be needed to (1) accommodate tsunami evacuation or (2) provide some other safety or connectivity benefit. They are not needed to accommodate traffic volumes forecasted within the planning horizon, nor has a funding source been identified. Consequently, they are not considered planned facilities as referred to in OAR 660-012 and cannot be constructed without additional analysis, public review, and approval (from local and state agencies). It may also be necessary to obtain an exception to statewide planning goals or expand the UGB.

** The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change, and will ultimately be determined through a preliminary and final design process, and are subject to City and/or ODOT approval.

Aspirational Transportation Improvement Projects



Note: *Projects located outside the Urban Growth Boundary (UGB) are conceptual only.



Revised October 12, 2016

Legend:

- Planned Street Improvement
- - - Planned Street Extension
- Planned Intersection Improvement
- Planned Bus Stop Improvement
- Planned Bridge or Culvert Improvement

Pedestrian, and Bicycle Facilities:

- | Existing | Planned | |
|---------------------------------------|--|---|
| — | - - - | Sidewalk |
| — | - - - | Bike Lane or Shoulder
Bikeway (> 5 feet) |
| — | - - - | Trails |
| — | — | Planned Shared Street |

- Urban Growth Boundary
- Arterial or Collector Street
- # Project ID

US 101 Design Options

The Gearhart TSP identified the need for alternative design treatments to address circulation, capacity or safety needs along several segments of US 101 in areas with constrained right-of-way or other development limitations (see Figure 2). The following sections summarize the evaluation of the multiple improvement options to provide the community direction in developing recommended solutions for these street segments.

Each of the improvement options for segments of the highway were evaluated and compared to help provide the community direction in developing recommended solutions. The design options are preliminary and are subject to change. Community input and collaboration and further technical analysis will ultimately lead to a recommended solution to be included in the “Aspirational Transportation System” for the TSP.

There is approximately 80 feet of right-of-way along the highway through Gearhart. Design elements proposed for US 101 that do not comply with ODOT’s design standards (e.g., auto lanes less than 12 feet wide, center turn lanes less than 14 feet wide, bike lanes less than 6 feet wide, and sidewalk less than 6 feet wide), would require the City to request a design exception. Also note that federal regulations pertaining to storm water treatment necessitate the addition of five-foot landscape strips between the highway and sidewalk where improvements are made that significantly increase the amount of right-of-way. This requirement presented an additional challenge for fitting highway improvements within constrained areas.



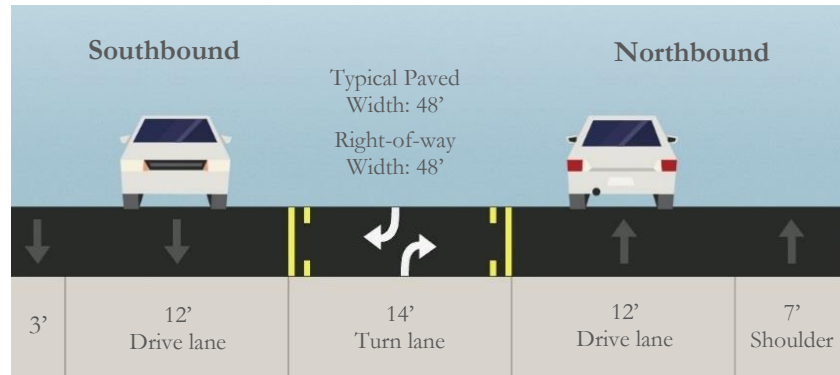
Figure 2: US 101 Segments

Segment I: Shamrock Road to the north UGB (near Pine Lane)

The segment of US 101 between Shamrock Road to the north UGB (near Pine Lane) includes three travel lanes, a seven-foot shoulder in the northbound direction, and a narrow shoulder in the southbound direction to accommodate those bicycling. It lacks adequate pedestrian facilities. Two design options were evaluated along US 101 between Shamrock Road and the north UGB (near Pine Lane). These options are:

Option 1a: Do Nothing

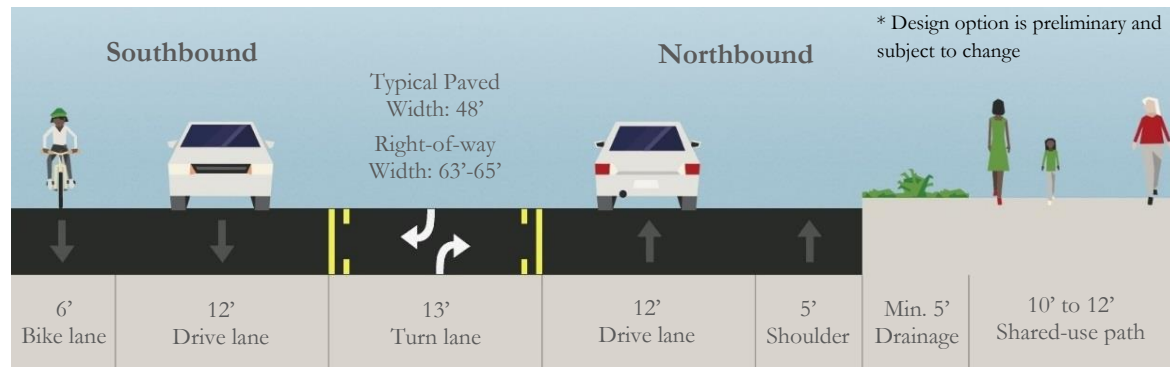
US 101 retains three travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Option 1a: Do Nothing

Option 1b: Reconfigure US 101 to provide bike lanes and widen for a shared-use path

Improvements will reconfigure the existing paved width of US 101 (i.e., center turn lane width reduced by one foot, and northbound shoulder width reduced by two feet) to provide a southbound bike lane. A separated shared-use path will be constructed along the east side of the highway to accommodate those walking and bicycling. A buffer will be between the highway and path to treat storm water.



Option 1b: Reconfigure US 101 to provide bike lanes and widen for a shared-use path

Evaluation of Shamrock Road to the north UGB (near Pine Lane) Design Options: The evaluation summary of key criteria is shown in Table 3. Option 1b has the greatest likelihood to address the identified gaps and deficiencies since Option 1a (Do Nothing) does not provide adequate pedestrian or bicycle facilities. Option 1b will fit within the existing highway right-of-way along the segment, but will require reconfiguration of the existing paved width of US 101 to accommodate the southbound bike lane and construction of a separated shared-use path.

Table 3: US 101 Segment 1 Design Options Evaluation

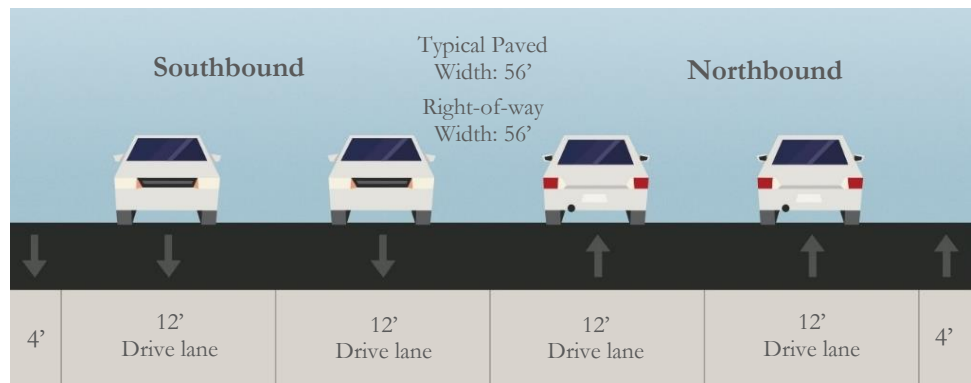
Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 1a					N/A
Option 1b					\$\$

Segment 2: Shamrock Road to Hillila Road

The segment of US 101 between Shamrock Road and Hillila Road includes four travel lanes with only narrow shoulders to accommodate those walking or bicycling. This segment has several driveway and street connections to US 101, and lacks a center turn lane for decelerating left turning vehicles to move out of the path of through traffic. Keeping those vehicles out of the mainline could prevent rear-end collisions. This segment was identified as a hazardous section of highway. This segment has bus stops on both sides of US 101 near Wild Rose Lane, and flooding has been noted to occur due to curbs along the edge of the highway and lack of drainage. Four design options were evaluated along this segment of US 101.

Option 2a: Do Nothing

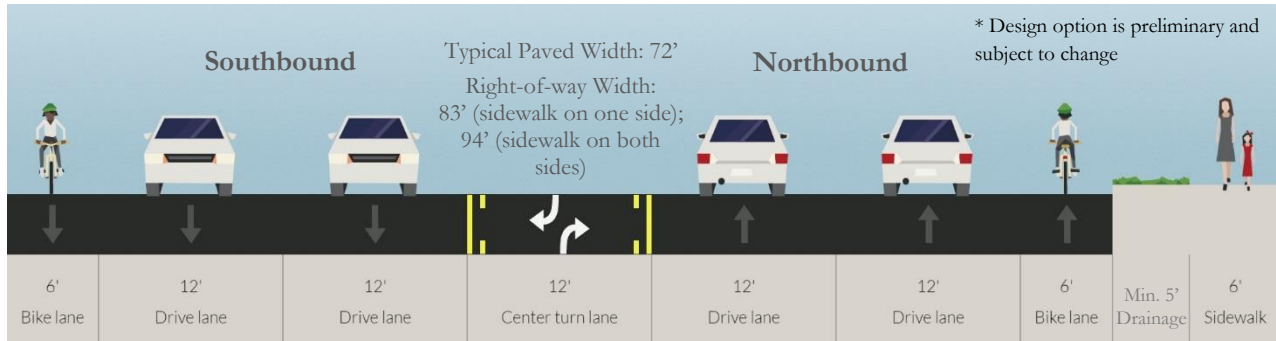
US 101 retains four travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Option 2a: Do Nothing

Option 2b: Widen US 101 to five lanes, with a sidewalk and bike lanes

US 101 will be widened to provide five lanes (two travel lanes in each direction and a center turn lane), in addition to the needed bike lanes and a sidewalk. The segment between Bud's RV Park and Gearhart Loop Road will include a sidewalk on both sides of the highway to enhance access to the bus stops, while the remainder of the segment will include a sidewalk on only the east side of the highway. A buffer will be between the highway and sidewalk to treat storm water. This option will not fit within existing right-of-way and could impact adjacent development.



Option 2b: Widen US 101 to five lanes, with a sidewalk and bike lanes

Option 2c: Reconfigure the street width of US 101 to include a center turn lane/median and bike lanes, and widen for a sidewalk

US 101 will lose one travel lane in the northbound direction for a center turn lane and will be widened to provide bike lanes and a sidewalk. The segment between Bud’s RV Park and Gearhart Loop Road will include a sidewalk on both sides of the highway to enhance access to the bus stops, while the remainder of the segment will include a sidewalk on only the east side of the highway. A buffer will be between the highway and sidewalk to treat storm water. The elimination of one northbound travel lane for motor vehicles will increase congestion somewhat; however, traffic demand in this area is below the capacity of the roadway, and the resulting congestion will be similar to that of the three lane section of US 101 just to the north of Gearhart. Motor vehicle passing opportunities will still be available along the segment of US 101 with two northbound travel lanes between Pacific Way and Hillila Road (a distance of about 0.75 miles).

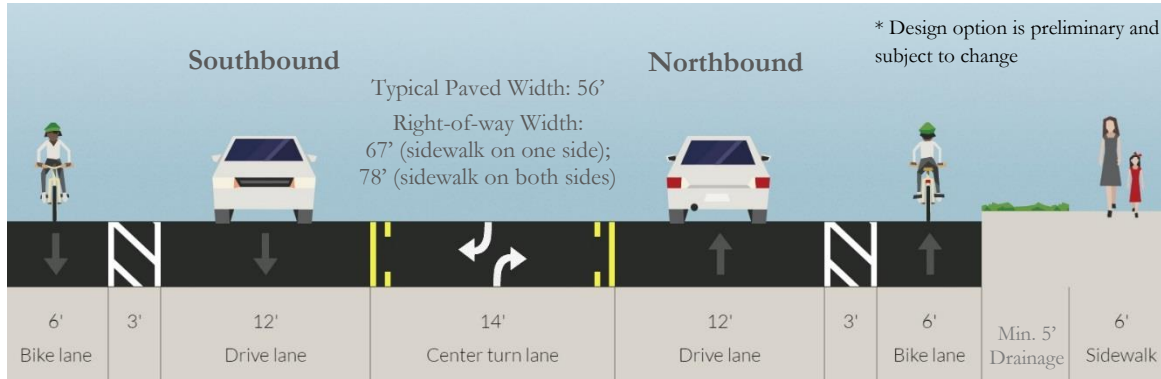


Option 2c: Reconfigure the street width of US 101 to include a center turn lane/median and bike lanes, and widen for a sidewalk

Option 2d: Reconfigure US 101 to three lanes and buffered bike lanes, and widen for a sidewalk

US 101 will lose one travel lane in each direction and add bike lanes and striped buffers between the bike lane and travel lane. The segment between Bud’s RV Park and Gearhart Loop Road will include a sidewalk on both sides of the highway to enhance access to the bus stops, while the remainder of the segment will include a sidewalk on only the east side of the highway. A buffer will be between the highway and sidewalk to treat storm water. The elimination of travel lanes for motor vehicles will increase congestion somewhat; however, traffic demand in this area is below the capacity of the roadway, and the resulting congestion will be similar to

that of the three lane section of US 101 just to the north of Gearhart. This option will eliminate the existing motor vehicle passing opportunities along US 101 through Gearhart.



Option 2d: Reconfigure US 101 to three lanes and buffered bike lanes, and widen for a sidewalk

Evaluation of Shamrock Road to Hillila Road Design Options: The evaluation summary of key criteria is shown in Table 4. Options 2b, 2c and 2d have the greatest likelihood to address the identified gaps and deficiencies along the segment. Option 2a (Do Nothing) does not provide adequate pedestrian or bicycle facilities or address the safety issues along the segment. Option 2b will require the most significant widening and will not fit within existing highway right-of-way. Options 2c and 2d can fit within existing highway right-of-way, but will eliminate travel lanes along US 101 to accommodate the center turn lane and bike lanes. Option 2c will allow for some motor vehicle passing opportunities in Gearhart, while Option 2d eliminates all passing opportunities.

Table 4: US 101 Segment 2 Design Options Evaluation

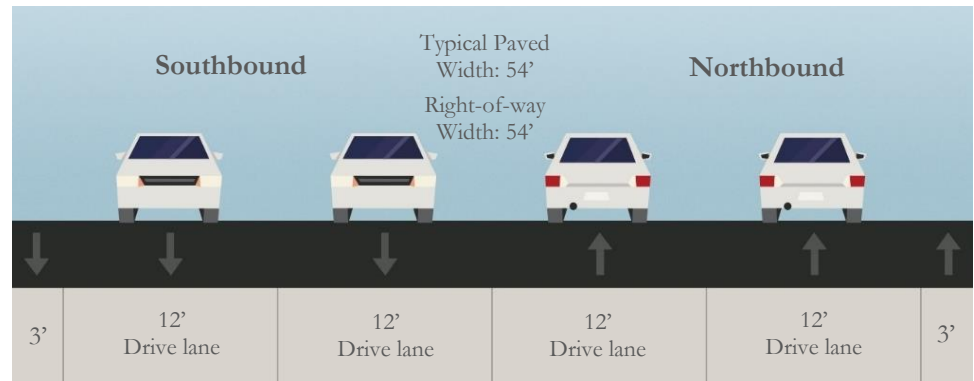
Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 2a					N/A
Option 2b					\$\$\$\$\$
Option 2c					\$\$\$\$
Option 2d					\$\$

Segment 3: Hillila Road to Pacific Way

The segment of US 101 between Hillila Road and Pacific Way includes four travel lanes with only narrow shoulders to accommodate those walking or bicycling. This segment has several driveway and street connections to US 101, and lacks a center turn lane for decelerating left turning vehicles to move out of the path of through traffic. Keeping those vehicles out of the mainline could prevent rear-end collisions. This segment has bus stops on both sides of US 101 near Pacific Way. Four design options were evaluated along this segment of US 101.

Option 3a: Do Nothing

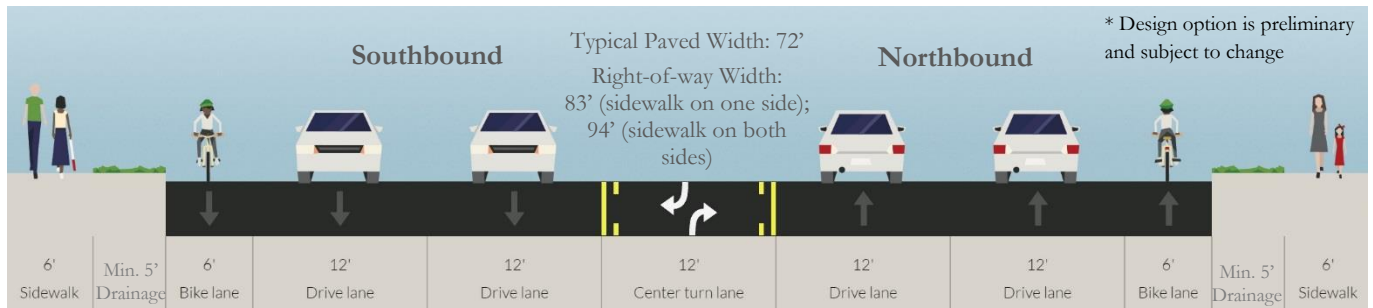
US 101 retains four travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Option 3a: Do Nothing

Option 3b: Widen US 101 to five lanes, with sidewalks and bike lanes

US 101 will be widened to provide five lanes (two travel lanes in each direction and a center turn lane), in addition to the needed sidewalks and bike lanes. The segment between 5th Street and Pacific Way will include a sidewalk on both sides of the highway to enhance access to the bus stops, while the remainder of the segment will include a sidewalk on only the east side of the highway. A buffer will be between the highway and sidewalk to treat storm water. This option will not fit within existing right-of-way and could impact adjacent development.

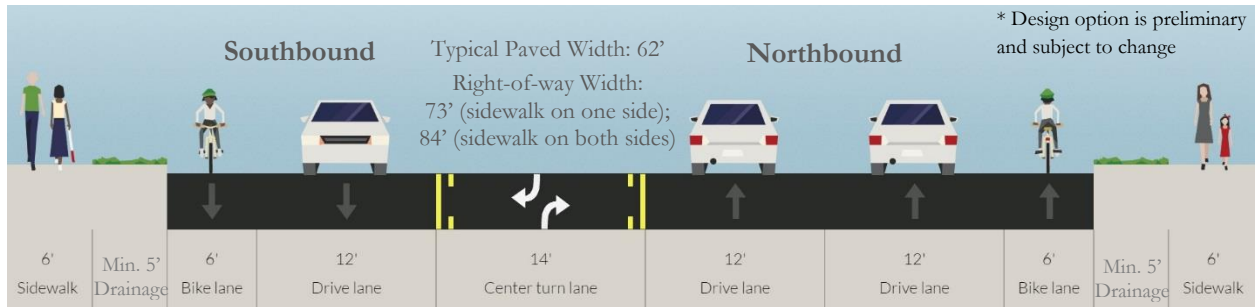


Option 3b: Widen US 101 to five lanes, with sidewalks and bike lanes

Option 3c: Reconfigure the street width of US 101 to include a center turn lane/median and bike lanes, and widen for sidewalks

US 101 will lose one travel lane in the southbound direction for a center turn lane and will be widened to provide sidewalks and bike lanes. The segment between 5th Street and Pacific Way will include a sidewalk on both sides of the highway to enhance access to the bus stops, while the remainder of the segment will include a sidewalk on only the east side of the highway. A buffer will be between the highway and sidewalks to treat

storm water. The elimination of one southbound travel lane for motor vehicles will increase congestion somewhat; however, traffic demand in this area is below the capacity of the roadway, and the resulting congestion will be similar to that of the three lane section of US 101 just to the north of Gearhart. Motor vehicle passing opportunities will still be available along the segment of US 101 with two southbound travel lanes between Shamrock Road and Hillila Road (a distance of about 0.60 miles).



Option 3c: Reconfigure the street width of US 101 to include a center turn lane/median and bike lanes, and widen for sidewalks

Option 3d: Reconfigure US 101 to three lanes and buffered bike lanes, and widen for sidewalks

US 101 will lose one travel lane in each direction and add bike lanes and painted buffers between the bike lane and cars. The segment between 5th Street and Pacific Way will include a sidewalk on both sides of the highway to enhance access to the bus stops, while the remainder of the segment will include a sidewalk on only the east side of the highway. A buffer will be between the highway and sidewalks to treat storm water. The elimination of travel lanes for motor vehicles will increase congestion somewhat; however, traffic demand in this area is below the capacity of the roadway, and the resulting congestion will be similar to that of the three lane section of US 101 just to the north of Gearhart. This option will eliminate the existing motor vehicle passing opportunities along US 101 through Gearhart.



Option 3d: Reconfigure US 101 to three lanes and buffered bike lanes, and widen for sidewalks

Evaluation of Hillila Road to Pacific Way Design Options: The evaluation summary of key criteria is shown in Table 5. Options 3b, 3c and 3d have the greatest likelihood to address the identified gaps and deficiencies along the segment. Option 3a (Do Nothing) does not provide adequate pedestrian or bicycle facilities or provide a center turn lane. Option 3b will require the most significant widening and will not fit within existing highway right-of-way. Options 3c and 3d can fit within existing highway right-of-way, but will eliminate travel lanes along US 101 to accommodate the center turn lane and bike lanes. Option 3c will allow for some motor vehicle passing opportunities in Gearhart, while Option 3d eliminates all passing opportunities.

Table 5: US 101 Segment 3 Design Options Evaluation

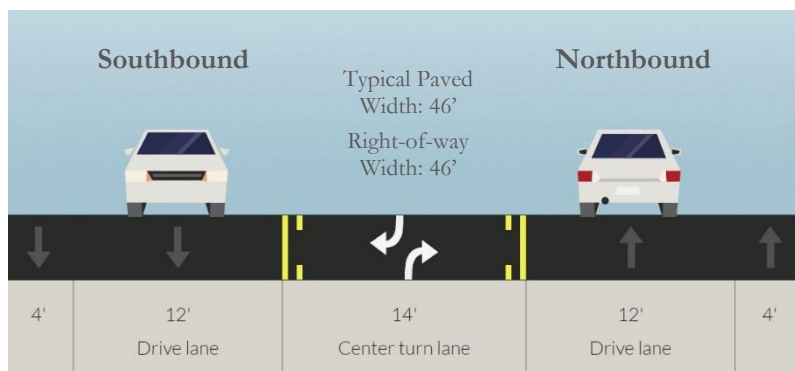
Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 3a					N/A
Option 3b					\$\$\$\$\$
Option 3c					\$\$\$\$
Option 3d					\$\$

Segment 4: Pacific Way to G Street-Oster Road

The segment of US 101 between Pacific Way to G Street-Oster Road includes three travel lanes with only narrow shoulders to accommodate those walking or bicycling. Two design options were evaluated along this segment.

Option 4a: Do Nothing

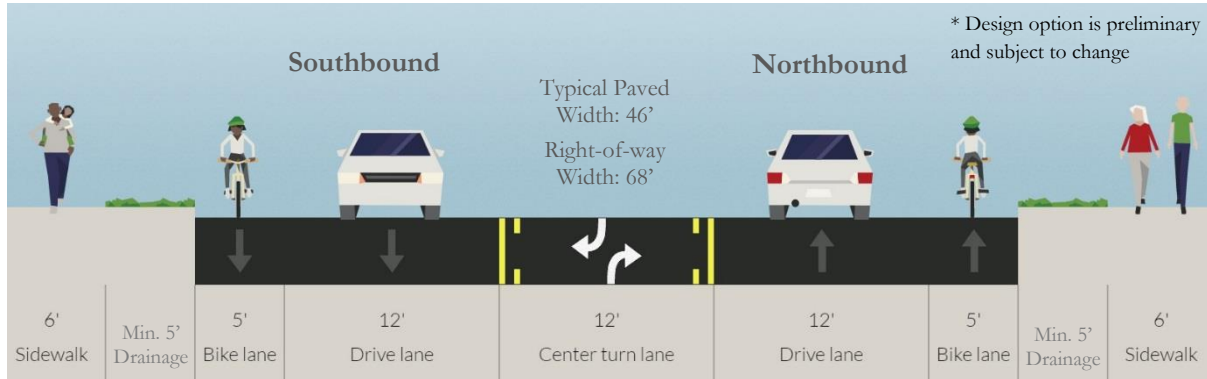
US 101 retains three travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Option 4a: Do Nothing

Option 4b: Reconfigure US 101 to provide bike lanes and widen for sidewalks

Improvements will reconfigure the existing paved width of US 101 to provide bike lanes (i.e., center turn lane width reduced by two feet). Sidewalks will be constructed along both sides of the highway to accommodate those walking. A buffer will be between the highway and sidewalk to treat storm water.



Option 4b: Reconfigure US 101 to provide bike lanes and widen for sidewalks

Evaluation of Pacific Way to G Street-Oster Road Design Options: The evaluation summary of key criteria is shown in Table 6. Option 4b has the greatest likelihood to address the identified gaps and deficiencies since Option 4a (Do Nothing) does not provide adequate pedestrian or bicycle facilities. Option 4b will fit within the existing highway right-of-way along the segment, but will require reconfiguration of the existing paved width of US 101 to accommodate bike lanes and construction of sidewalks.

Table 6: US 101 Segment 4 Design Options Evaluation

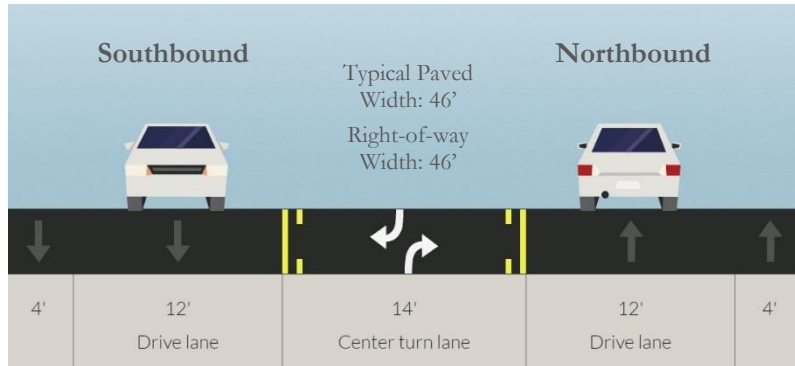
Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 4a					N/A
Option 4b					\$\$

Segment 5: G Street-Oster Road to the south UGB (near Seaside Airport Lane)

The segment of US 101 between G Street-Oster Road and the south UGB (near Seaside Airport Lane) includes three travel lanes and narrow shoulders to accommodate those walking or bicycling. It lacks adequate pedestrian facilities. This segment should provide connectivity to a planned shared-use path on the east side of US 101 in Seaside. Two design options were evaluated along this segment.

Option 5a: Do Nothing

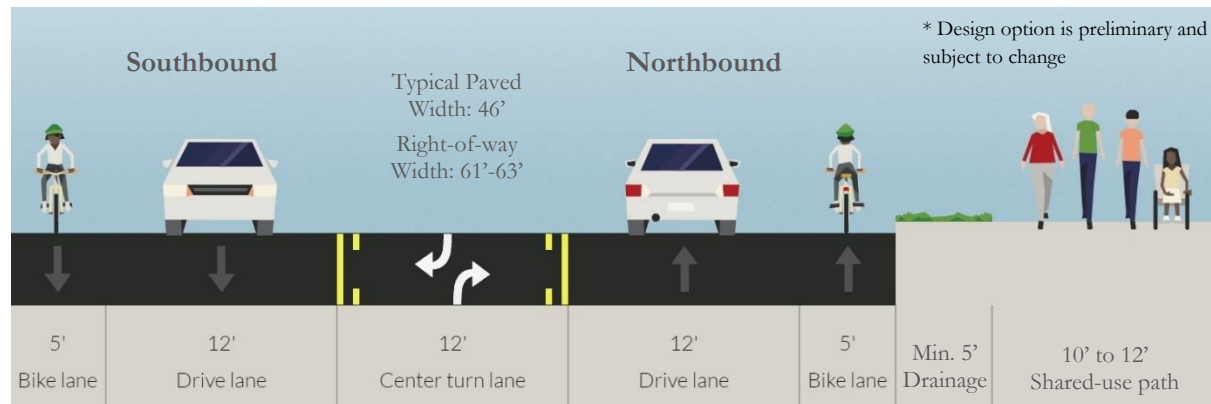
US 101 retains three travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Option 5a: Do Nothing

Option 5b: Reconfigure US 101 to provide bike lanes and widen for a shared-use path

Improvements will reconfigure the existing paved width of US 101 to provide bike lanes (i.e., center turn lane width reduced by two feet). A separated shared-use path will be constructed along the east side of the highway to accommodate those walking and bicycling. A sidewalk will also be constructed along the west side of US 101 between G Street-Oster Road and Sons of Norway Road. A buffer will be between the highway and path/sidewalk to treat storm water.











Option 5b: Reconfigure US 101 to provide bike lanes and widen for a shared-use path

Evaluation of G Street-Oster Road and the south UGB (near Seaside Airport Lane) Design Options:

The evaluation summary of key criteria is shown in Table 7. Option 5b has the greatest likelihood to address the identified gaps and deficiencies since Option 5a (Do Nothing) does not provide adequate pedestrian or bicycle facilities. Option 5b will fit within the existing highway right-of-way along the segment, but will require reconfiguration of the existing paved width of US 101 to accommodate bike lanes and construction of a separated shared-use path and sidewalk.

Table 7: US 101 Segment 5 Design Options Evaluation

Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 5a					N/A
Option 5b					\$\$

US 101 Operational Analysis of Design Options

Table 8 documents US 101 intersection operations for the baseline (i.e., five-lanes at Gearhart Loop Road and Pacific Way, and 3 lanes at the G Street-Oster Road study intersections), and the US 101 reconfiguration scenarios that correspond with the above US 101 design options. The table demonstrates the results of doing nothing, and taking away capacity from the highway. The table compares baseline operations to the Oregon Highway Plan (OHP) mobility targets, and it compares the US 101 reconfiguration operations to the Highway Design Manual (HDM) design-mobility standards. Note that currently adopted mobility targets/standards for US 101 are based on accommodating summertime conditions.

Traffic demand in the summer p.m. peak period at most unsignalized highway intersections likely will exceed capacity by 2040 due to very high delays for drivers attempting to turn left onto the highway, regardless of how many lanes are on US 101. To meet current OHP mobility targets, signalized intersections would need to be five lanes. Such widening, however, would be very costly and would impact many adjacent properties and established development.

Average weekday peak hours (non-summer, representing about eight months of the year) will likely be far less congested. Turning out of many unsignalized side streets will be easier and signalized intersections will likely operate within adopted mobility targets.

Considering the significant costs and impacts associated with widening US 101, ODOT and Gearhart could consider adopting alternative mobility targets as part of a long-term strategy for this corridor that would shift the focus to managing congestion so as to maintain efficient operations during the non-summer months. This approach would continue to serve traffic well during the majority of the year, and acknowledges that traffic conditions during the peak three to four summer months will be more congested. The segments of US 101 to the north and south of Gearhart, between Patriot Way and Surfpines Road and through Seaside, have alternative mobility targets based on non-summer months (i.e., average weekday) that have been adopted by the Oregon Transportation Commission.

Table 8 also details the effects that reducing the number of travel lanes to make space for a center turn lane, bike lanes or sidewalks (i.e., US 101 reconfiguration) would have on congestion. In the summer, reducing the capacity through Gearhart would moderately increase congestion.

Table 8: Study Intersection Traffic Operational Analysis (2040 P.M. Peak Hour- DHV Conditions)

Intersection	Traffic Control	OHP Mobility Target	Forecasted Baseline Conditions	HDM Design Mobility Target	Reconfigure to 4 lanes	Reconfigure to 3 lanes
			Volume / Capacity		Volume / Capacity	Volume / Capacity
1 US 101/ Gearhart Loop Road	Stop control	Highway Approaches 0.80 v/c; Side Street Approaches 0.90 v/c	0.11 / 1.82	0.70 v/c	0.11 / >2.00	0.10 ** / >2.00
	Signalized*	0.80 v/c	0.58	0.70 v/c	0.96	0.95 **
2 US 101/ Pacific Way	Signalized	0.85 v/c	0.63	0.75 v/c	0.94	1.00
3 US 101/ G Street-Oster Road	Stop control	Highway Approaches 0.85 v/c; Side Street Approaches 0.90 v/c	0.13 / 1.91	0.75 v/c	N/A – No Change	N/A – No Change

Signalized intersections:

V/C = Volume-to-Capacity Ratio of Intersection

Stop Controlled intersections:

V/C = Volume-to-Capacity Ratio of Major Movement/Minor Movement

Bolded and red shading indicates an intersection that fails to meet the existing OHP mobility target or HDM Design mobility target.

Note: * Traffic signal installation was assumed at this intersection.

** The northbound US 101 approach at this intersection has one lane in both the 4-lane and 3-lane scenarios. The southbound approach has two lanes in the 4-lane scenario, and one in the 3-lane scenario, but with a right turn lane. This causes the v/c ratio to go down slightly between the 4- and 3-lane scenarios.

US 101 Intersection Improvements

A signal warrant analysis was performed for the US 101/ Gearhart Loop Road and US 101/ G Street-Oster Road intersections with side street approaches to the highway that are forecasted to operate with a volume-to-capacity above 1.00 to determine if side street traffic volumes will be high enough to justify (i.e., warrant) the construction of traffic signals by 2040.

For this analysis, TPAU’s preliminary traffic signal warrants form¹ was utilized. TPAU uses the MUTCD Signal Warrant 1, Case A and Case B, which deal primarily with high volumes on the intersecting minor roadway and high volumes on the major roadway. Meeting preliminary signal warrants does not guarantee that a signal will be installed. Before a signal can be installed, a field warrant analysis is conducted by the Region. If warrants are met, the State Traffic Engineer will make the final decision on the installation of a signal.

The result of the analysis found that a traffic signal would not be warranted at the intersections by 2040. However, a signal is still recommended for further consideration at the US 101/ Gearhart Loop Road intersection to provide another signalized opportunity for motor vehicles to turn to and from US 101 and an additional highway crossing location for pedestrian and bicyclists. Installation of a traffic signal at the US 101/ Gearhart Loop Road intersection would likely attract even more drivers than anticipated from adjacent unsignalized locations, because it would be easier to turn out onto the highway. This would be especially true during the summer months, when delays for drivers attempting to turn left onto the highway can be very high. This intersection would be approximately 0.80 miles from the nearest traffic signal at Pacific Way, which would meet ODOT signal spacing standards (0.5 miles).

¹ Analysis Procedures Manual, TPAU

With a traffic signal in place, the US 101/ Gearhart Loop Road intersection would meet existing OHP mobility targets by 2040 with the existing configuration of the intersection (five lanes).

S. Ocean Avenue Design Options

S. Ocean Avenue has a paved street width of approximately 18 feet. On-street parking is currently permitted along the east side of the street, where drivers often park on the sidewalk to allow more clearance for passing vehicles. This does not allow enough clearance for emergency vehicles to travel down the street. To allow on-street parking on one side and accommodate emergency vehicle access, a through lane of 14 feet is needed. The following summarizes the evaluation of a few improvement options to provide the community direction in developing a recommended solution.

Option 1: Prohibit on-street parking

Parking is prohibited on both sides of S. Ocean Avenue. It remains a two-way street, with a through lane width of approximately 18 feet.

Option 2: Remove the sidewalk along the east-side of the street, and allow intermittent on-street parking

The sidewalk on the east-side of the street is removed and intermittent on-street parking is allowed on the east side. Approximately eight feet of width will be available for on-street parking and 14 feet for a through lane. It remains a two-way street, with the breaks in the on-street parking stalls allowing for vehicles to pass.

Option 3: Remove the sidewalk along the east-side of the street, allow on-street parking and make S. Ocean Avenue one-way northbound

The sidewalk on the east-side of the street is removed and on-street parking is allowed on the east side. It becomes a one-way street northbound, with approximately eight feet of width available for on-street parking and 14 feet for a through lane.

Option 4: Remove the sidewalk along the east-side of the street, allow on-street parking and make S. Ocean Avenue one-way southbound

The sidewalk on the east-side of the street is removed and on-street parking is allowed on the east side. It becomes a one-way street southbound, with approximately eight feet of width available for on-street parking and 14 feet for a through lane.

Evaluation of S. Ocean Avenue Design Options: Option 1 has the greatest impacts, since all on-street parking is removed. Residents without off-street parking will have to park along adjacent streets. Options 2, 3 and 4 will require removal of the sidewalk along the east side of the street. Options 3 and 4 will create out-of-direction travel and will increase traffic on adjacent streets. Option 2 will have a least negative impacts, but will reduce some on-street parking stalls to allow vehicles to pass.

Section F

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Section G

Memo 6: Cost and Prioritization of Proposed Investments

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.



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MEMORANDUM

DATE: December 9, 2016
TO: Gearhart TSP Project Management Team
FROM: Carl Springer, PE, PTP; Kevin Chewuk, PTP

SUBJECT: Gearhart Transportation System Plan

Technical Memorandum #6: Costs and Prioritization of Proposed Improvements P14180-006

This document explains how the consultant team narrowed the 57 Aspirational Projects into a financially constrained list. The following sections summarize the analysis process and how priorities were assigned, based on the performance-based framework that connects community goals and policies to transportation investments.

This initial draft of projects will be refined through the remaining planning process, before a select set of recommended projects are published with the Transportation System Plan. It is expected that circumstances will arise after the plan is adopted, and the ranking framework applied here can be updated by City staff, as appropriate.

TSP Investments

Earlier in this plan update, we worked with the City and ODOT to make our best guess about how much transportation funding might be available for local improvement projects (see Technical Memorandum #2 for details) over the 20-year planning horizon. Not all projects can be funded, so we developed a process for evaluating and ranking projects to help identify which transportation investments would be most valued by the community. As a reminder, the terminology being applied here is as follows:

- **Aspirational Projects** – The complete list of desired transportation projects within the city limits of Gearhart. Depending on who is responsible for the roadway, the improvement project may be led by either the City, ODOT, County, or SEITD at a future date.
- **Constrained Projects** – These are the most valued projects, in terms of how they meet critical needs and how well they work to deliver on community goals. In practice, they are a subset of the Aspirational Projects. Projects in this group have a total construction budget that is similar to the reasonably available funding over the planning horizon.

The full list of aspirational and constrained projects, shown in Table 1 on page 5, includes 57 projects, totaling an estimated \$50 million worth of investments. The TSP's multi-modal, network-wide approach to identifying transportation system solutions assigns the projects to one of several categories:

- **Motor vehicle** projects would improve safety and mobility throughout the City for motorists. Gearhart identified 12 projects to improve roadway segments and intersections that, as originally proposed, would cost an estimated \$22 million to complete.

Several design options are still under consideration for US 101 through Gearhart that range from widening to five lanes to reconfiguring the existing highway to three travel lanes. Further community and agency input is needed before a preferred alternative can be recommended for the TSP; however, the current preferred alternatives have been assumed for the cost estimates. See Technical Memorandum #5 for more information.

- **Bridge** projects would provide seismic retrofits and improve those that are substandard in the City. Gearhart identified five bridge improvement projects that, as originally proposed, would cost an estimated \$2 million to complete. The bridge projects include City support for replacement of the US 101 bridge over Mill Creek and US 101 bridge over Neawanna Creek in Seaside.
- **Walking and Bicycling** projects include sidewalk, path and roadway crossing improvements, and an integrated network of bicycle lanes, marked on-street routes and shared-use paths to facilitate safe and convenient travel Citywide. Gearhart identified 30 pedestrian and bicycle projects that, as originally proposed, would cost an estimated \$25 million to complete.

The aspirational project list combines a number of pedestrian and bicycle projects along US 101 with the motor vehicle project alternatives still under consideration. These projects require further community and agency input before a preferred alternative can be recommended for the TSP.

- **Transit** projects would enhance the quality and convenience for passengers. A total of five transit projects, as originally proposed, would cost an estimated \$200 thousand.
- **Demand and System Management** projects to encourage more efficient usage of the transportation system. A total of five projects, as originally proposed, would cost an estimated \$700 thousand.

Funding Gap

The \$31.5 million total cost of the 36 identified locally-funded transportation system projects is far greater than the City's ability to raise funds with their existing programs. Much of Gearhart's current revenue streams for transportation fund maintenance of the existing system. Rising maintenance costs through 2040 will diminish the funds available for improvements. Unless Gearhart develops additional revenue streams, the City can expect to have no more than \$1.2 million of local street funds to spend on locally-funded improvements over the next 20 years.

The TSP has identified nearly \$10.5 million worth of needed investments (spread out over 10 projects) along US 101. ODOT has indicated that only \$1 million in discretionary state and/or federal funds may be available to invest in Gearhart over the next 20 years¹ for system modernization and enhancement.

¹ The State has not committed any future funding for projects in Gearhart. This assumption is for long-range planning purposes only. This estimate is based on assuming that Gearhart will receive a reasonable share of the state/federal funding projected to be available over the 20-year planning horizon in Region 2 and based on ODOT sustaining their current revenue structure. It is used to illustrate the degree of financial constraints faced by ODOT as of the writing of

The TSP has identified six projects estimated at over \$8 million for which Clatsop County would be the primary source of funding, and five projects estimated at \$200 thousand that would be jointly funded by the City and SETD.

Prioritizing Investments

Unless the City expands its funding options, very few of the desired transportation system projects on the City roadway system and along US 101 are likely to happen before 2040. For this reason, the TSP splits transportation solutions into improvement packages.

- Package 1 is financially constrained, meaning it includes an estimate of how the City would use the \$1.2 million likely to be available through existing City funding sources. Package 1 also includes an estimate of how the City would use revenue from various state and/or federal sources.
- Packages 2 and 3 each rely on \$2.5 million of additional funding that would be available if the City opted to add one of the new funding sources described in Technical Memorandum #2.
- Package 4 is comprised of the aspirational projects, those remaining projects that likely would not have City or state funding by 2040.

The TSP evaluated and compared all proposed projects using six TSP goals. Based on a project's contribution to achieving the transportation goals of Gearhart, the process assigned each transportation solution a priority. The process favored implementation of low cost projects that would have more immediate impacts and spread investment benefits Citywide.

Although the TSP identifies priorities for the investments, the City does not have to implement the projects in that order. Future circumstances could allow or require the City to fund projects not on the financially constrained project list to address an unanticipated transportation need or take advantage of an unexpected opportunity.

The Financially Constrained Plan

The financially constrained plan identifies the transportation solutions that the City prioritizes for funding and implementation by 2040, presented in Table 1 and Figure 1.

ODOT has projected that the City could receive up to \$1.2 million from various state and/or federal sources over the next 20 years. Based on current needs, Table 1 and Figure 1 show how the City would use the state funds. Because ODOT supports all of the projects listed in the constrained and aspirational plans equally, they are illustrative only and ODOT does not give them higher priority than any other US 101 project in the City's list. The City may modify and adapt the list within the limits of the financial constraint threshold, as it currently exists or as it may evolve, to advance any supported project along US 101 in response to any opportunity or issue that may arise during the planning horizon.

The Aspirational Plan

The aspirational transportation system identifies valuable solutions that will not have funding by 2040, unless additional sources become available. Some of the projects require City funding and resources beyond what is

this document. Actual funding through state and federal sources may be higher or lower than this estimate, which does not include projects that the federal Highway Safety Improvement Program (HSIP) could fund.

available in the time frame of this plan. Others are contingent upon grants. Some of the aspirational projects in Table 1 and in Figure 1 have designations of Package 2 or Package 3, indicating their priority, should the City develop new sources of funding.

Financially Constrained and Aspirational Projects

The following pages include the financially constrained and aspirational projects in table form and on an accompanying map. Improvement Package 1, Financially Constrained Plan, totals the \$1.2 million expected to be available through existing City funding sources. It also suggests how the City would use a likely amount of revenue from state and/or federal sources. Improvement Package 2 relies on \$2.5 million of additional funding that would be available only if the City added one of the new funding sources described in Technical Memorandum #2. Improvement Package 3 relies on \$2.5 million of additional funding that would be available only if the City added a second new funding source described in Technical Memorandum #2. Improvement Package 4 includes projects that likely would not have City or state funding by 2040.

The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change and will ultimately be determined through a preliminary and final design process, and are subject to City and/or ODOT approval.

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements**	Project Purpose	Estimated Cost (2016 Dollars)	Primary Funding Source***	Package ****
Demand and System Management Projects						
A	Neighborhood Traffic Calming Program	Implement program to process community requests for neighborhood traffic calming, investigate options, and implement improvements. Key areas for traffic calming investigations include: Cottage Avenue, F Street, G Street, and Pine Ridge Drive.	Reduce motor vehicle travel speeds along residential streets	\$100,000	City	4
B	Tsunami Evacuation Route Identification	Enhance tsunami evacuation route wayfinding throughout the City.	Tsunami evacuation	\$50,000	City	1
C	Bike Parking Program	Install new bike parking at key activity centers around the City.	Increase bike parking	\$30,000	City	1
D	Wayfinding Signage Program	Install wayfinding signage to assist pedestrians and bicyclists in choosing comfortable routes and to help visitors navigate through the City.	Improve wayfinding signage	\$75,000	City	1
E	Ridge Path Enhancements	Implement improvements along the Ridge Path alignment and at Ridge Path street crossings. Key areas for street crossing improvements include at Pacific Way, and F Street.	Ridge Path enhancements	\$425,000	City	2
Estimated Cost for all Demand and System Management Projects				\$680,000		
Motor Vehicle Projects						
G17	Ocean Avenue Improvements from Pacific Way to G Street	Improvements to be determined through alternatives evaluation. Cost estimate assumes Option 4 (remove the sidewalk along the east-side of the street, allow on-street parking and make S. Ocean Avenue one-way southbound). See Technical Memorandum #5 for more information.	Emergency vehicle access	\$155,000	City	4
G24	McCormick Gardens Road extension from Pacific Way to Oster Road	Extend McCormick Gardens Road from Pacific Way to Oster Road. This street should be constructed as a Collector, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	\$3,265,000	City	4
G27	Railroad Avenue extension from Pacific Way to Park Lane	Extend Railroad Avenue from Pacific Way to Park Lane. This street should be constructed as a Local Street, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	\$3,030,000	City	4

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements**	Project Purpose	Estimated Cost (2016 Dollars)	Primary Funding Source***	Package ****
G29	Tressel Drive extension from Hillila Road to Park Lane	Extend Tressel Drive from Hillila Road to Park Lane. This street should be constructed as a Local Street, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	\$2,825,000	City	4
S1	US 101 Improvements between Shamrock Road and the north UGB (near Pine Lane)	Improvements to be determined through alternatives evaluation. Cost estimate assumes Option 1b (reconfigure US 101 to provide bike lanes and widen for a shared-use path). See Technical Memorandum #5 for more information.	Motor vehicle safety; walking and biking facility gap	\$915,000	State	4
S2	US 101 Improvements between Shamrock Road and Hillila Road	Improvements to be determined through alternatives evaluation. Cost estimate assumes Option 2d (reconfigure US 101 to three lanes and buffered bike lanes, and widen for a shared-use path). See Technical Memorandum #5 for more information.	Motor vehicle safety; walking and biking facility gap	\$2,675,000	State	4
S3	US 101/ Gearhart Loop Road Intersection Improvements	Intersection improvements (e.g., possible installation of a traffic signal, if warranted; upgrade the intersection to current ADA standards).	Motor vehicle congestion; walking and biking highway crossing	\$445,000	State	4
S4	US 101 Improvements between Hillila Road and 5th Street	Improvements to be determined through alternatives evaluation. Cost estimate assumes Option 3d (reconfigure US 101 to three lanes and buffered bike lanes, and widen for a shared-use path). See Technical Memorandum #5 for more information.	Motor vehicle safety; walking and biking facility gap	\$1,790,000	State	4
S5	US 101 Improvements between 5th Street and Pacific Way	Improvements to be determined through alternatives evaluation. Cost estimate assumes Option 3d (reconfigure US 101 to three lanes and buffered bike lanes, and widen for a sidewalk and shared-use path). See Technical Memorandum #5 for more information.	Motor vehicle safety; walking and biking facility gap	\$1,455,000	State	4
S7	US 101 Improvements between Pacific Way and G Street-Oster Road	Improvements to be determined through alternatives evaluation. Cost estimate assumes Option 4b (reconfigure US 101 to provide bike lanes and widen for a sidewalk and shared-use path). See Technical Memorandum #5 for more information.	Motor vehicle safety; walking and biking facility gap	\$1,650,000	State	4

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements**	Project Purpose	Estimated Cost (2016 Dollars)	Primary Funding Source***	Package ****
S8	US 101 Improvements between G Street-Oster Road and the south UGB (near Seaside Airport Lane)	Improvements to be determined through alternatives evaluation. This project should connect with the planned shared-use path in Seaside. Cost estimate assumes Option 5d (reconfigure US 101 to provide bike lanes and widen for a shared-use path). See Technical Memorandum #5 for more information.	Motor vehicle safety; walking and biking facility gap	\$1,345,000	State	1
C1*	Pine Ridge Drive extension to Highlands Lane	Extend Pine Ridge Drive to Highlands Lane. This street should be constructed as a Local street, with a shared-use path on the west side. This project is located outside of the UGB.	Street connectivity; walking and biking facility gap	\$2,860,000	County	4
Estimated Cost for all Motor Vehicle Projects				\$22,410,000		
Bridge Projects						
G4	Gearhart Loop Road bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the Gearhart Loop Road bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	\$725,000	City	1
G15	Pacific Way bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the Pacific Way bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	\$965,000	City	2
G21	G Street bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the G Street bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	\$430,000	City	2
S9	US 101 bridge over Mill Creek in Seaside Improvements	Support the replacement of the US 101 bridge over Mill Creek (Bridge No. 03079A) in Seaside, to include seismic retrofits and pedestrian and bicycle facilities.	Walking and biking facility gap; tsunami evacuation	\$5,000 (City staff time only)	State	4
S10	US 101 bridge over Neawanna Creek in Seaside Improvements	Support the replacement of the US 101 bridge over Neawanna Creek (Bridge No. 01305) in Seaside (Seaside TSP Project 1b), to include seismic retrofits and pedestrian and bicycle facilities.	Walking and biking facility gap; tsunami evacuation	\$5,000 (City staff time only)	State	4
Estimated Cost for all Bridge Projects				\$2,130,000		
Walking and Biking Projects						

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements**	Project Purpose	Estimated Cost (2016 Dollars)	Primary Funding Source***	Package ****
G1	Pine Ridge Drive Improvements from Shamrock Road north to the end of the street	Add pedestrian and bicycle improvements to Pine Ridge Drive from Shamrock Road north to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	\$440,000	City	4
G2	Shamrock Road Improvements from US 101 to Pine Ridge Drive	Add pedestrian and bicycle improvements to Shamrock Road from US 101 to Pine Ridge Drive (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	\$520,000	City	4
G3	Pine Ridge Drive Improvements from Gearhart Loop Road to Shamrock Road	Add pedestrian and bicycle improvements to Pine Ridge Drive from Gearhart Loop Road to Shamrock Road (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	\$1,470,000	City	4
G5	Gearhart Loop Road Improvements from US 101 to Cottage Avenue	Add pedestrian and bicycle improvements to Gearhart Loop Road from US 101 to Cottage Avenue (e.g., shared-use path on the north side, and sidewalk or path on the south side).	Walking and biking facility gap; tsunami evacuation	\$1,925,000	City	4
G6	Gearhart Loop Road Improvements from Cottage Avenue to 10th Street	Add pedestrian and bicycle improvements to Gearhart Loop Road from Cottage Avenue to 10th Street (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	\$1,670,000	City	4
G7	Marion Avenue Improvements from Pacific Way to 10th Street	Add bicycle improvements to Marion Avenue from Pacific Way to 10th Street (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	\$30,000	City	1
G8	Fifer Heights Road Improvements from Gearhart Loop Road to the end of the street	Add pedestrian and bicycle improvements to Fifer Heights Road from Gearhart Loop Road to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	\$850,000	City	4
G9	Shared-use path connection between Summit Avenue and Fifer Heights Road	Create a shared-use path connection between Summit Avenue and Fifer Heights Road.	Walking and biking facility gap; tsunami evacuation	\$50,000	City	1

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements**	Project Purpose	Estimated Cost (2016 Dollars)	Primary Funding Source***	Package ****
G10	Shared-use path connection over Neacoxie Creek, between the 8th Street and Summit Avenue	Create a shared-use path connection over Neacoxie Creek, between the 8th Street and Summit Avenue. The connection to Summit Avenue is via a vacant lot (right-of-way is needed).	Walking and biking facility gap; tsunami evacuation	\$910,000	City	2
G11	Summit Avenue Improvements from 5th Street north to the end of the street	Add pedestrian and bicycle improvements to Summit Avenue from 5th Street north to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	\$675,000	City	4
G12	Summit Avenue Improvements from Pacific Way to 5th Street	Add pedestrian and bicycle improvements to Summit Avenue from Pacific Way to 5th Street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	\$825,000	City	4
G13	5th Street Improvements from US 101 to Summit Avenue	Add pedestrian and bicycle improvements to 5th Street from US 101 to Summit Avenue (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	\$615,000	City	4
G14	Pacific Way Improvements from US 101 to the Ridge Path	Add pedestrian and bicycle improvements to Pacific Way from US 101 to the Ridge Path (e.g., sidewalk or path on the north side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	\$1,340,000	City	3
G16	Pacific Way Improvements from Marion Avenue to the Ridge Path	Add bicycle improvements to Pacific Way from Marion Avenue to the Ridge Path (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	\$15,000	City	1
G18	F Street-G Street Improvements from Ocean Avenue to Cottage Avenue	Add pedestrian improvements to F Street-G Street from Ocean Avenue to Cottage Avenue (e.g., sidewalk or path on the south side).	Walking facility gap; tsunami evacuation	\$780,000	City	4
G19	Cottage Avenue Improvements from Pacific Way to F Street	Add bicycle improvements to Cottage Avenue from Pacific Way to F Street (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	\$20,000	City	1

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements**	Project Purpose	Estimated Cost (2016 Dollars)	Primary Funding Source***	Package ****
G20	F Street-G Street Improvements from US 101 to Cottage Avenue	Add pedestrian and bicycle improvements to F Street-G Street from US 101 to Cottage Avenue (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	\$1,610,000	City	4
G22	Woodland Avenue Improvements from Pacific Way to G Street	Add pedestrian and bicycle improvements to Woodland Avenue from Pacific Way to G Street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	\$1,115,000	City	4
G23	Oster Road Improvements from US 101 to the end of the street	Add pedestrian and bicycle improvements to Oster Road from US 101 to the end of the street (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	\$965,000	City	4
G25	Railroad Avenue Improvements from Pacific Way to Oster Road	Add pedestrian and bicycle improvements to Railroad Avenue from Pacific Way to Oster Road (e.g., sidewalk or path on the east side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	\$1,255,000	City	4
G26	Pacific Way Improvements from US 101 to McCormick Gardens Road	Add pedestrian and bicycle improvements to Pacific Way from US 101 to McCormick Gardens Road (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	\$1,000,000	City	3
G28	Shared-use path connection between 5th Street and McCormick Gardens Road	Create a shared-use path connection between 5th Street and McCormick Gardens Road.	Walking and biking facility gap; tsunami evacuation	\$605,000	City	4
G30	Tressel Drive Improvements from Hillila Road to the end of the street	Add pedestrian and bicycle improvements to Tressel Drive from Hillila Road to the end of the street (e.g., shared-use path on the east side).	Walking and biking facility gap; tsunami evacuation	\$580,000	City	4
G31	Shared-use path connection between Shamrock Road and Tressel Drive	Create a shared-use path connection between Shamrock Road and Tressel Drive.	Walking and biking facility gap; tsunami evacuation	\$270,000	City	4
S6	US 101/ Pacific Way Intersection Improvements	Intersection improvements (e.g., upgrade the intersection to current ADA standards).	Walking and biking highway crossing	\$365,000	State	4

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements**	Project Purpose	Estimated Cost (2016 Dollars)	Primary Funding Source***	Package ****
C2	Hillila Road Improvements from US 101 to Tressel Drive	Add pedestrian and bicycle improvements to Hillila Road from US 101 to Tressel Drive (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	\$515,000	County	4
C3*	Hillila Road Improvements from Tressel Drive to McCormick Gardens Road	Add pedestrian and bicycle improvements to Hillila Road from Tressel Drive to McCormick Gardens Road (e.g., shared-use path on the north side). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	\$675,000	County	4
C4*	Salminen Road Improvements from McCormick Gardens Road to the end of the street	Add pedestrian and bicycle improvements to Salminen Road from McCormick Gardens Road to the end of the street (e.g., shared-use path). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	\$1,995,000	County	4
C5*	McCormick Gardens Road Improvements from Hillila Road to the UGB	Add pedestrian and bicycle improvements to McCormick Gardens Road from Hillila Road to the UGB, 0.15 miles south of Salminen Road (e.g., shared-use path on the east side). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	\$515,000	County	4
C6	McCormick Gardens Road Improvements from Pacific Way to the UGB	Add pedestrian and bicycle improvements to McCormick Gardens Road from Pacific Way to the UGB, 0.15 miles south of Salminen Road (e.g., shared-use path on the east side).	Walking and biking facility gap; tsunami evacuation	\$1,670,000	County	4
Estimated Cost for all Walking and Biking Projects				\$25,270,000		
Transit Projects						
T1	Bus stop along northbound US 101 near Wild Rose Lane Upgrades	Upgrade amenities at the SETD bus stop along northbound US 101 near Wild Rose Lane, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	\$50,000	City/SETD	4
T2	Bus stop along southbound US 101 near Wild Rose Lane Upgrades	Upgrade amenities at the SETD bus stop along southbound US 101 near Wild Rose Lane, to include sheltered stops with seating, route information, bicycle parking, and improved lighting. The NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane should be relocated to this location (see project T3).	Transit facility improvements	\$50,000	City/SETD	4

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements**	Project Purpose	Estimated Cost (2016 Dollars)	Primary Funding Source***	Package ****
T3	NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane Relocation	Relocate the NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane to share the location with the SETD bus stop along southbound US 101 near Wild Rose Lane.	Transit facility improvements	\$1,000	City/SETD	4
T4	Bus stop along southbound US 101 near Pacific Way Upgrades	Upgrade amenities at the SETD bus stop along southbound US 101 near Pacific Way, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	\$50,000	City/SETD	4
T5	Bus stop along northbound US 101 near Pacific Way Upgrades	Upgrade amenities at the SETD bus stop along northbound US 101 near Pacific Way, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	\$50,000	City/SETD	4
Estimated Cost for all Transit Projects				\$201,000		

Note: * Projects located outside the Urban Growth Boundary (UGB) are conceptual only. They are either new facilities, or improvements to existing facilities, that may be needed to (1) accommodate tsunami evacuation or (2) provide some other safety or connectivity benefit. They are not needed to accommodate traffic volumes forecasted within the planning horizon, nor has a funding source been identified. Consequently, they are not considered planned facilities as referred to in OAR 660-012 and cannot be constructed without additional analysis, public review, and approval (from local and state agencies). It may also be necessary to obtain an exception to statewide planning goals or expand the UGB.

** The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change, and will ultimately be determined through a preliminary and final design process, and are subject to City and/or ODOT approval.

***Funding will come from a variety of sources. Primary funding source is based on the agency who has jurisdiction over an existing facility, or who is expected to construct a new facility.

****Improvement Package 1: Financially Constrained Plan (Totals the \$1.2 million likely to be available through existing City funding sources. Package 1 also includes a reasonable estimate of how the City would use revenue from various state and/or federal sources).

Improvement Package 2: Relies on \$2.5 million of additional funding that would be available if the City opted to add one of the new funding sources described in Technical Memorandum #2.

Improvement Package 3: Relies on \$2.5 million of additional funding that would be available if the City opted to add one of the new funding sources described in Technical Memorandum #2.

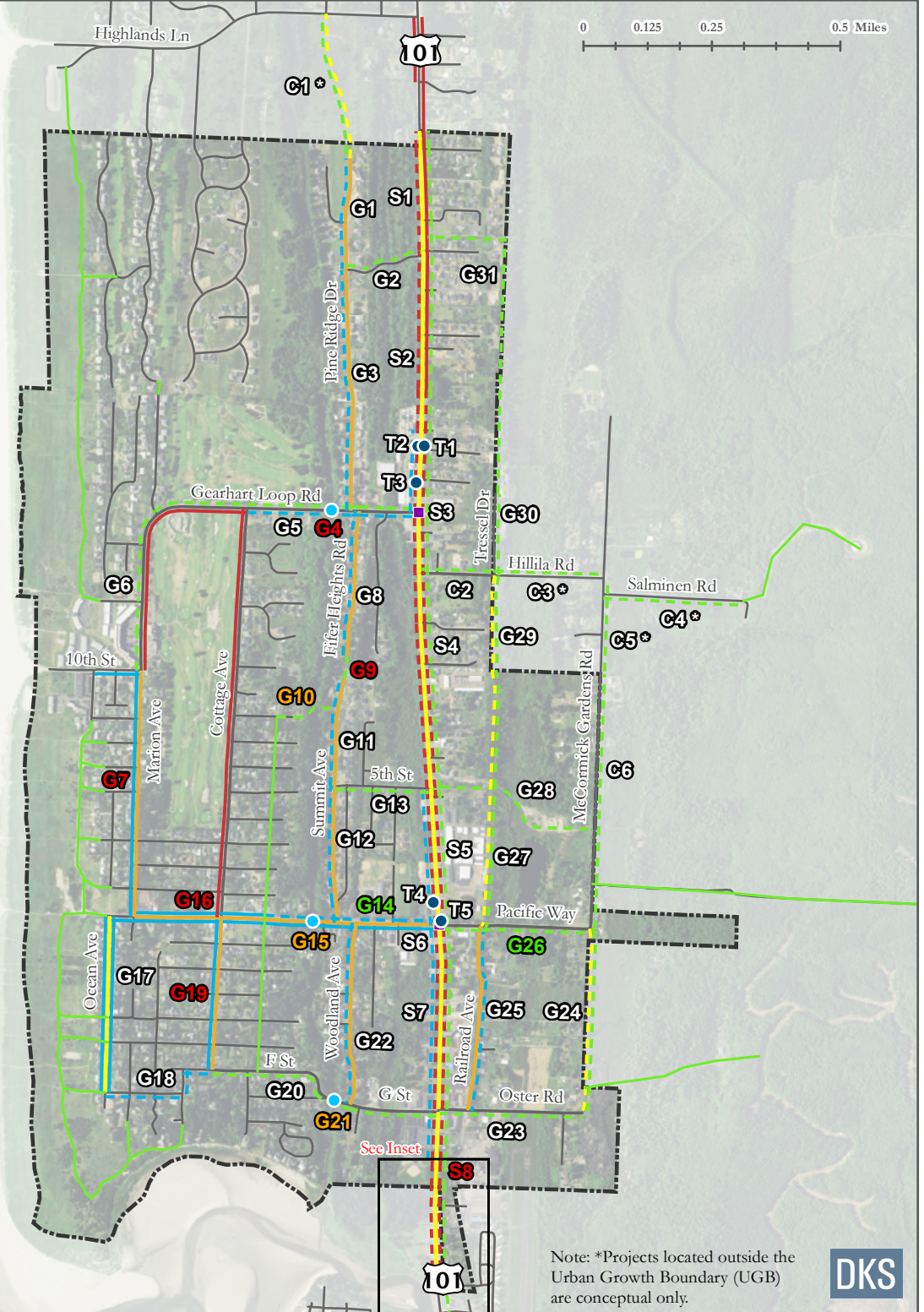
Improvement Package 4: Comprised of the aspirational projects, those remaining projects that likely would not have City or state funding by 2040.



Planned TSP Investments



Seaside Inset



Revised December 9, 2016

Note: *Projects located outside the Urban Growth Boundary (UGB) are conceptual only.



Legend:

- Planned Street Improvement
- - - Planned Street Extension
- Planned Intersection Improvement
- Planned Bus Stop Improvement
- Planned Bridge or Culvert Improvement

Pedestrian, and Bicycle Facilities:

- | Existing | Planned | |
|---------------------------------------|--|---|
| — | - - - | Sidewalk |
| — | - - - | Bike Lane or Shoulder
Bikeway (> 5 feet) |
| — | - - - | Trails |
| — | — | Planned Shared Street |

- Project included in the Financially Constrained Plan (Package 1)
- Priority project with additional funding (Package 2)
- Priority project with additional funding (Package 3)
- Project included in the Aspirational Plan (Package 4)

Section G

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Section H

Memo 7: Plan and Development Code Amendments

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.



MEMORANDUM

Technical Memorandum #7: Policy and Code Amendments (Recommended)

Gearhart Transportation System Plan (2017)

DATE March 30, 2017 *Last revised August 3, 2017*
TO Carole Connell, City of Gearhart
FROM Darci Rudzinski, Jamin Kimmell, APG
CC Kevin Chewuk, Carl Springer, DKS

Purpose and organization

The purpose of this memorandum (Technical Memorandum #7) is to propose amendments to the City of Gearhart Comprehensive Plan, the Gearhart Zoning Ordinance (GZO), and the Gearhart Subdivision Ordinance. The proposed amendments are intended to implement the goals and strategies of the draft Gearhart Transportation System Plan (TSP) and ensure compliance with the Transportation Planning Rule (TPR). More broadly, the intent of the amendments is to ensure that the city's comprehensive plan and development code provide sufficient guidance to ensure that future decisions and land use actions are consistent with the planned transportation system.

The first section of the memorandum evaluates the existing transportation policies in the Gearhart Comprehensive Plan then proposes new goals and policies that are consistent with the TSP (Table 1). The second section of the memorandum provides recommended GZO amendments (Table 2).

POLICY AMENDMENTS

The City of Gearhart Comprehensive Plan was adopted in 1994. The Transportation chapter of the plan includes one overall goal and enumerates 12 implementing policies. Currently, the City has one adopted transportation goal:

To provide and encourage safe, convenient, and economic systems for all modes of transportation in the Gearhart area.

The multiple ideas in this one, general goal, can be expressed in more detail by multiple goals, specific to topics and issues important to the community. For this reason, it is proposed that the policies be reorganized under a hierarchy of multiple goals, with specific implementing policies nested underneath each.

Many of the City’s adopted policies are still pertinent to the vision and goals for the system outlined in the draft TSP. Several policies identify specific projects that were in progress when the policies were written in 1994; these policies are proposed to be removed or substantially altered to reflect current conditions and community priorities.

Existing policies that remain relevant can be included as an implementing policy under one of the newly written goals, with minor modifications to the policy language for clarity, consistency, or to reflect current priorities. A summary of the proposed amendments to the existing 12 policies are presented in Table 1.

Table 1. Comprehensive Plan Policy Assessment and Recommendations

EXISTING POLICIES	ASSESSMENT AND RECOMMENDATIONS
<p>1. <i>Surrounding land use and traffic generation patterns will be considered during the initial stages of planning for any new development along US 101.</i></p>	<p>Policy 1 concerns the need to carefully review the impacts of development proposals on US 101. This need remains relevant and will be incorporated into the new policies.</p>
<p>2. <i>Frontage roads and access collection points will be encouraged where appropriate, locations to be coordinated with the Oregon Department of Transportation Highway Division.</i></p>	<p>Policies 2 and 3 concern the need to use appropriate access management strategies on US 101. Access management on state highways is now governed by ODOT pursuant to the Oregon Access Management Rule (OAR 734-051). These policies can be consolidated and revised to call for the city to move toward the access standards of the rule.</p>
<p>3. <i>Along the Coast Highway, access control techniques will be used in cooperation with the Oregon Department of Transportation to coordinate traffic and land use patterns, and to help minimize the negative impacts of growth. Area-wide needs supersede site-specific needs.</i></p>	

EXISTING POLICIES	ASSESSMENT AND RECOMMENDATIONS
<p>4. <i>The City, to ensure an orderly traffic flow, and to promote safety on the Oregon Coast Highway will require that...</i></p> <ul style="list-style-type: none"> a. <i>The number of access points be minimized.</i> b. <i>Clustering of development, both residential and commercial activities, be carried out.</i> c. <i>Appropriate setbacks from the public right-of-way be provided.</i> d. <i>Shared driveways and parking lots be encouraged.</i> e. <i>Wherever feasible, local traffic will utilize local streets rather than highway accesses.</i> 	<p>Policy 4(a) address access management on US 101 and should be amended as described for Policies 2 and 3.</p> <p>Policies 4(b-d) describe potential development standards appropriate for US 101. These standards may be more appropriate for inclusion in the zoning code. A general statement of the need for development standards should remain in the policies.</p> <p>Policy (4e) concerns connectivity of local streets and desire for alternatives to US 101 for local trips. As individual route choices cannot be controlled by city policies or regulations, this statement should concern the need to provide or improve alternatives to US 101 for local trips.</p>
<p>5. <i>In the event of significant new development proposals for lands adjacent to the Coast Highway the City will work with the Oregon Department of Transportation through the Highway Division’s District Engineer to ensure unimpeded traffic flow and safety to the fullest extent possible.</i></p>	<p>The intent of Policy 5 remains relevant and will be incorporated into proposed new policies.</p>
<p>6. <i>Adequate parking for residential and commercial uses will be maintained through enforcement of zoning ordinance parking requirements.</i></p>	<p>The intent of Policy 6 remains relevant and will be incorporated into proposed new policies.</p>
<p>7. <i>The City will work with ODOT, Clatsop County, and the Sunset Empire Transportation District to develop and maintain an efficient county wide public transportation system.</i></p>	<p>Policy 7 should be amended to refer to Sunset Empire Transportation District, the transit provider in the city. Additionally, the policy may identify broader goals for the transit system in accordance with the TSP.</p>
<p>8. <i>The City will work with adjacent jurisdictions to develop a regional bike trails system.</i></p>	<p>The intent of Policy 8 remains relevant and will be incorporated into proposed new policies.</p>
<p>9. <i>The City is concerned about any proposal to U. S. US 101 widening within its urban growth boundary. The City bases its concern on the following findings...</i></p>	<p>Policy 9 may refer to a specific proposal at the time the policy was written. The list of findings that follows is likely specific to the design or alternatives of that proposal. This policy should be amended to state the importance of the design of</p>

EXISTING POLICIES	ASSESSMENT AND RECOMMENDATIONS
	US 101 to the community and refer to the design option for US 101 adopted within the TSP.
<p><i>10. The Ridge Path is recognized as a recreational asset, as an appropriate utility easement location, and as a portion of the Oregon Coast Trail. Appropriate easement widths shall be required in new developments within the Urban Growth Boundary.</i></p>	<p>The intent of Policy 10 remains relevant and will be incorporated into proposed new policies. As identified by the TSP, this policy may also refer to improvements to the path itself and connections to the path.</p>
<p><i>11. The City will cooperate with the Oregon State Parks Department in the regulation of driving and parking on the beach within the Gearhart Urban Growth Boundary.</i></p>	<p>The intent of Policy 11 remains relevant and will be incorporated into proposed new policies.</p>
<p><i>12. The City will participate with the City of Seaside, in the airport planning process. Emphasis should be given to analyzing the impacts, costs, and benefits to the community. Consideration should be given to diminished or controlled use because of its impact on surrounding residential uses.</i></p>	<p>The reference to a specific planning process in Policy 12 should be removed as the process is no longer active. The intent of the policy to address livability concerns near the Seaside Airport will be incorporated into proposed new policies.</p>

Proposed Goals and Policies

The following set of five goal statements was developed through a review of draft chapters of the TSP, consideration of the goals and policies within recently adopted TSP's of other coastal cities, and discussion with city staff. All goal statements are new; policy statements are either new or are restatements of an existing policy, as explained in Table 1.

Goal 1: Access and Connectivity for All Modes

Provide a transportation system that ensures a convenient and accessible network for all modes of travel, including walking, biking, using transit, and driving.

- Policy 1.1: Improve connectivity for people walking or biking by completing gaps in the current network of pedestrian and bicycle facilities.
- Policy 1.2: Where street connection are not possible or desired, seek development of multi-use path connections between disconnected streets or public access ways to create a more connected and continuous transportation system for walking, biking, and rolling.
- Policy 1.3: Coordinate with Sunset Empire Transportation District to expand the transit system to more destinations, improve access to stops, and ensure an efficient system.
- Policy 1.4: Maintain existing local street connectivity and plan for new street connections consistent with the adopted Transportation System Plan, especially connections that provide alternative routes to US 101 for local trips.
- Policy 1.5: Coordinate with adjacent jurisdictions to maintain and enhance connections between Gearhart and neighboring cities and rural areas.
- Policy 1.6: Coordinate with Clatsop County and the City of Seaside to ensure that future development and transportation system improvements abutting the Gearhart UGB provide connectivity for emergency access and evacuation routes as well as parallel circulation routes to the highway that avoid overreliance on Highway 101.
- Policy 1.7: Work with the Oregon Department of Transportation to install marked pedestrian crossings on US 101 where appropriate.
- Policy 1.8: Work with the Oregon Department of Transportation to install traffic control measures at intersections on US 101 when conditions at those intersections meet appropriate standards for their installation.

Goal 2: Mobility

Provide a multi-modal transportation system that facilitates efficient and reliable travel and will accommodate future growth.

- Policy 2.1: Coordinate with ODOT to provide mobility on US 101 while integrating the needs for local access and for modes other than the private automobile.
- Policy 2.2: The City will seek to retain the existing highway right-of-way on US 101 to provide mobility for all modes, enhance livability, and mitigate environmental impacts.

- Policy 2.3: Coordinate with ODOT to adopt mobility standards for US 101 that reflect community priorities and acknowledge peak traffic conditions during summer months.
- Policy 2.4: Coordinate with ODOT to move toward consistency with state access management standards for US 101.
- Policy 2.5: Require specific design standards for development adjacent to US 101 and coordinate with ODOT to identify and mitigate impacts of development to capacity, safety, or access for all modes.
- Policy 2.6: Protect the function of existing and planned roadways as identified in the adopted Transportation System Plan by ensuring that all development proposals, plan amendments, and zone changes are consistent with the planned transportation system.
- Policy 2.7: Consider the impacts on existing or planned transportation facilities in all discretionary land use decisions and require applicable development proposals, as defined in the Zoning Ordinance, to prepare a traffic impact analysis unless a waiver is granted by the City Manager or designee.

Goal 3: Safety and Preparedness

Provide a transportation system that ensures safety for all modes and prepares the city to respond and recover from natural hazards.

- Policy 3.1: Support measures to increase safety for all modes.
- Policy 3.2: Establish, seek funding for, maintain, and promote safe and efficient tsunami evacuation routes.
- Policy 3.3: Enhance safety and preparedness by completing continuous pedestrian and bicycle facilities on arterial and collector streets, and by developing and connecting an off-street system of paths, with special priority assigned to tsunami evacuation routes.
- Policy 3.4: Enhance safety and preparedness by improving bridges and highway crossings for pedestrians and bicyclists, with special priority assigned to tsunami evacuation routes.
- Policy 3.5: Develop a comprehensive Tsunami Evacuation Facilities Improvement Plan (TEFIP) to implement the recommendations of the Transportation System Plan and to further refine community evacuation needs, designated routes, system standards, needed improvements to the local evacuation system, and potential funding.

Goal 4: Livability, Health, and Recreation

Provide a transportation system that preserves a livable community, enhances public health through supporting active transportation, and offers recreational opportunities.

- Policy 4.1: Pursue the development of a network of local shared use paths and trails in coordination with the regional trail network.

- Policy 4.2: Preserve and enhance the Ridge Path as a recreational asset for the city and a segment of the Oregon Coast Trail by establishing connections to the path, requiring appropriate access easements, and maintaining the path surface.
- Policy 4.3: Strive to provide adequate and efficient parking for all uses, particularly during peak summer months, to preserve livability of residential neighborhoods.
- Policy 4.4: Coordinate with the Oregon State Parks Department to regulate driving and parking on the beach within the Gearhart Urban Growth Boundary.
- Policy 4.5: Evaluate the impacts of Seaside Airport on the livability of nearby residential neighborhoods when planning any future expansions or operational changes.
- Policy 4.6: Support maintaining US 101 right-of-way in public ownership for a variety of uses, including multi-use paths, stormwater runoff treatment, future highway expansion, and other transportation-related uses that benefit the community.

Goals 5: Environmental Resources

Provide a transportation system that advances sustainable transportation options and minimizes impacts on the environment and important natural features.

- Policy 5.1: To minimize air pollution and enhance community health, promote sustainable transportation options through policies and investments that support walking, biking, transit.
- Policy 5.2: Implement local, state, and federal regulations to minimize the impacts of transportation on environmental resources, including steams, freshwater wetlands, estuaries, dunes, and habitat areas.

DEVELOPMENT CODE AMENDMENTS

This section of the memorandum provides recommended changes to the city’s development requirements, based on an audit and analysis of the Gearhart Zoning Ordinance (GZO) and Subdivision Ordinance. Proposed amendments to the GZO and Subdivision Ordinances are intended to both implement the goals and policies of the TSP and to ensure consistency with the Transportation Planning Rule (TPR).

Most of the transportation-related provisions of the development code are hosted in Article 6 – Supplementary Provisions of the GZO. Several sections of the Subdivision Ordinance also contain transportation-related provisions. Table 2 presents each recommendation, a reference to the relevant code section, and a reference to the relevant TSP goal or TPR section.

Appendix A provides the implementing code language related to each numbered recommendation.

Table 2. Recommended Code Amendments

RECOMMENDATION	CODE SECTION(S)	RELEVANT TSP GOAL OR TPR SECTION
<p>1. Require transportation improvements on existing streets with new development. Street improvements are currently only required for new subdivisions (in the Subdivision Ordinance) and for development in the Residential Commercial Planned Development Zone. The GZO does not currently require street improvements with new development. To develop a more complete and connected transportation network, the GZO should require all new development construct appropriate street improvements at the time of development or provide a fee-in-lieu for future improvements.</p>	<p>GZO, Section 6.300</p>	<p>Goal 1 Access and Connectivity for all Modes 660-012-0020(2)(d)</p>
<p>2. Permit outright transportation improvements that are consistent with the adopted TSP. Specific transportation facilities, services, and improvements are commonly not subject to land use regulation due to the minimal impact on land use. These should be listed as permitted outright or made exempt from regulations through provisions added to the GZO. The recommendation is to add a new code section to allow outright improvements that implement the transportation system plan and/or can be shown to be consistent with adopted policy.</p>	<p>GZO, Section 6.310</p>	<p>All TSP Goals OAR 660-012-0045(1)(a)</p>

RECOMMENDATION	CODE SECTION(S)	RELEVANT TSP GOAL OR TPR SECTION
<p>3. Revise access management standards for US 101 to be consistent with the Access Management Rule. The GZO provides for specific access management standards for US 101. However, access spacing standards for US 101 are determined by ODOT. ODOT spacing standards are defined in the Oregon Highway Plan, OAR 731-051, and ODOT’s Highway Design Manual. It is recommended that the City reference state standards or adopt standards for this facility that conform to the state requirements.</p>	<p>GZO, Section 6.160, Additional Criteria for Access Controls on Highway 101</p>	<p>Goal 2: Mobility Goal 3: Safety OAR 731-051</p>
<p>4. Include local access management standards that are consistent with the TSP. The GZO does not currently include access standards. Where new or modified access management and spacing standards are proposed in the updated TSP, the GZO will need to be updated to include (or reference) these standards.</p>	<p>GZO, Section 6.320</p>	<p>Goal 2: Mobility Goal 3: Safety OAR 660-012-0045(2)(a) OAR 660-012-0045(3)(b) OAR 660-012-0045(6)</p>
<p>5. Require a Traffic Impact Analysis (TIA) consistent with the recommendations of the updated TSP. There are no specific requirements for preparing Traffic Impact Analyses to ensure the City is provided with adequate information with which to determine the impacts of land use decisions on the transportation system, nor guidance on what is to be included in an impact study. A TIA requirement is suggested to be included in the GZO and the Subdivision Ordinance, with thresholds identified for the requirement that are proportionate to the potential impacts of development.</p>	<p>GZO, Section 6.330 Subdivision Ordinance, Section 38(2)</p>	<p>Goal 2: Mobility Goal 3: Safety OAR 660-012-0045(2)(b)</p>
<p>6. Include standards for pedestrian circulation within developments and around and through parking areas and add provisions for bicycle parking. Requirements for pedestrian circulation within developments, including evacuation routes, will promote pedestrian safety and improve connectivity between uses and the transportation network. These requirements should also apply to new subdivisions. Minimum standards for the number of required bicycle parking spaces for multi-family residential uses, public and commercial uses, and schools will support multi-modal usage.</p>	<p>GZO, Section 3.340 Subdivision Ordinance, Section 38, Streets GZO, Section 6.130, Off-Street Parking Requirements (bike parking)</p>	<p>Goal 1: Access and Connectivity Goal 3: Safety and Preparedness Goal 4: Livability, Health, and Recreation OAR 660-012-0045(3)(a)</p>

RECOMMENDATION	CODE SECTION(S)	RELEVANT TSP GOAL OR TPR SECTION
<p>7. Enhance standards for access and connectivity within new subdivisions. The Subdivision Ordinance sets out basic provisions for street design and connectivity. Specific refinements to the subdivision ordinance would enhance access, circulation, and connectivity for all modes by limiting allowances for cul-de-sac, requiring access ways (including, by reference to the GZO, evacuation routes), and requiring smaller block sizes.</p>	<p>Subdivision Ordinance, Section 38, Streets Subdivision Ordinance, Section 41, Blocks</p>	<p>Goal 1: Access and Connectivity</p>
<p>8. Require zone amendments to be consistent with the TSP. Review criteria for ordinance amendments can be strengthened by directly referencing the TSP as part of required conformance with the Comprehensive Plan. In addition, the City should consider adopting language requiring proposals that “significantly affect” an existing or planned transportation facility (pursuant to the TPR, Section -0060) to demonstrate consistency with the identified function, capacity, and performance standards of the facility.</p>	<p>GZO, Article 11, Amendments GZO, Section 11.070 Transportation Planning Rule Compliance</p>	<p>Goal 2: Mobility OAR 660-012-0060</p>
<p>9. Add new definitions to the GZO to include terms used in these amendments that are not currently defined. Several terms used in these proposed amendments are not defined in the GZO. These terms should be added to the definitions section for clarity and consistency. Minor edits to some existing definitions are also recommended in order to be consistent with the use of the term in these proposed amendments.</p>	<p>GZO, Section 1.030, Definitions Subdivision Ordinance, Section 4, Definitions</p>	<p>N/A</p>

APPENDIX A: PROPOSED CODE AMENDMENTS

Underlined text is new, ~~strikeout~~ is current text to be removed from adopted code language.¹

Recommendation 1: Require Transportation Improvements on Existing Streets

GZO, Section 3.1 Low Density Residential R-1

SECTION 3.240 R-1 ZONE STANDARDS

In an R-1 Zone the following standards shall apply. (For possible exceptions see Article 4.)

[...]

8. Off street parking

As specified in Section 6.130, Off Street Parking Requirements.

9. Transportation Improvements.

As specified in Section 6.300, Transportation Improvements.

~~9~~10. Sign Requirements:

As specified in Section 6.040, Sign Requirements.

[...]

[renumber existing 10. through 12.]

GZO, Section 3.2 Medium Density Residential R-2

SECTION 3.240 R-2 ZONE STANDARDS

In an R-2 Zone the following standards shall apply. (For possible exceptions see Article 4.)

[...]

7. Off street parking

As specified in Section 6.130, Off Street Parking Requirements.

8. Transportation Improvements.

As specified in Section 6.300, Transportation Improvements.

¹ Draft language has been informed by, and in some cases modified from, sample language originally provided to City staff in a December 23, 2016 memorandum, entitled Policy and Code Amendments (Proposed). Consultant reviewed with City staff proposed sample language and options for specific code modifications prior to the development of the proposed amendments presented here. The Model Development Code for Small Cities, published by the Transportation and Growth Management Program, was the basis for many of the proposed changes. See Model Development Code for Small Cities, Edition 3.1. (2015), Oregon Transportation and Growth Management Program: <https://www.oregon.gov/LCD/TGM/Pages/modelcode.aspx>

89. Sign Requirements:

As specified in Section 6.040, Sign Requirements.

[...]

[renumber existing 9. through 11.]

GZO, Section 3.3 High Density Residential R-3

SECTION 3.340 R-3 ZONE STANDARDS

In an R-3 Zone the following standards shall apply. (For possible exceptions, see Article 4.)

[...]

8. Off street parking

As specified in Section 6.130, Off Street Parking Requirements.

9. Transportation Improvements.

As specified in Section 6.300, Transportation Improvements.

910. Sign Requirements:

As specified in Section 6.040, Sign Requirements.

~~1011.~~ Other applicable accessory uses provisions are specified in various section of Article 6.

GZO, Section 3.4 Neighborhood Commercial Zone C-1

SECTION 3.440 C-1 ZONE STANDARDS

In a C-1 Zone the following standards shall apply. (For possible exceptions see Article 4.)

1. Uses shall include applicable R-1 Zone standards except:

- Minimum lot size can be 5,000 square feet, and
- Except where property owners offer joint easement of 25-foot side yards for accessibility to on site waste disposal facilities.

2. No off-street parking is required in the C-1 zone except for residential dwellings and neighborhood cafes located in new structures.

3. Transportation Improvements.

As specified in Section 6.300, Transportation Improvements.

GZO, Section 3.5 General Commercial Zone C-2

SECTION 3.540 C-2 ZONE STANDARDS

In a C-2 Zone the following standards shall apply. (For possible exceptions see Article 4.)

[...]

7. Off-street parking:

As specified in Section 6.130.

8. Transportation Improvements.

As specified in Section 6.300, Transportation Improvements.

~~89.~~ Sign requirements:

As specified in Section 6.040.

[renumber existing 9. and 10.]

GZO, Section 3.7 Residential Commercial Planned Development Zone RCPD

SECTION 3.740 RCPD ZONE STANDARDS

In a RCPD Zone the following standards shall apply.

[...]

8. Transportation:

A. Principal vehicular access points shall be designed to permit smooth traffic flow with controlled turning movements and minimum hazards to vehicular or pedestrian traffic, pursuant to Section 6.320 Access Management Standards. ~~Minor streets within the development shall not be connected to streets outside the development in such a way as to encourage their use by through traffic.~~

B. Streets in the development may be dedicated to public use or may be retained in private ownership. All streets will be constructed in accordance with City subdivision regulation standards. Streets that are to be dedicated to the City shall be built to City standards, pursuant to Section 6.130.

C. The Planning Commission may require that right-of-ways be dedicated to the City to allow for the proper development of adjacent properties.

GZO, Section 3.85 Public and Semi-Public Zone P/SP

SECTION 3.860 P/SP ZONE STANDARDS

In a C-2 Zone the following standards shall apply. (For possible exceptions see Article 4.)

[...]

7. Off-street parking:

As specified in Section 6.130.

8. Transportation Improvements.

As specified in Section 6.300, Transportation Improvements.

89. Sign requirements:

As specified in Section 6.040.

910. Other applicable accessory use provisions are specified in various sections of Article 6.

GZO, Section 6.300. Transportation Improvements

1. General Requirements.

- A. **Purpose.** The standards this chapter implement the transportation policies of the City of Gearhart Transportation System Plan.
- B. **Applicability.** The following types of development are required to construct transportation improvements in accordance with the standards and procedures of this chapter.
 - (1) New single-family dwelling or duplex, if the development fronts a street segment that is planned for a sidewalk or trail in the Transportation System Plan.
 - (2) New multi-family dwelling.
 - (3) New commercial development.
 - (4) Major expansion of a commercial development, defined by an increase in the gross floor area of the use by at least 25 percent.
 - (5) All developments in the Residential Commercial Planned Development (RCPD) zone and subdivisions or partitions are required to construct improvements in accordance with the Gearhart Subdivision Ordinance.
- C. **Street, Shared-use Path, and Evacuation Route Design Standards.** All transportation improvements, whether required as a condition of development or provided voluntarily, shall conform to the standards adopted within the City of Gearhart Transportation System Plan.
- D. **Public Improvement Requirement.** No building permit may be issued until all required street improvements are in place and approved by the City Manager or designee, or otherwise bonded, in conformance with the provisions of this Code. 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 public

- facilities. Findings in the development approval shall indicate how the required improvements directly relate to and are roughly proportional to the impact of development.
2. **New Streets.** All new streets shall conform to the standards and requirements of the Gearhart Subdivision Ordinance.
 3. **Improvements to Existing Streets.**
 - A. **Applicability.** Except as provided by subsection 4, below, existing substandard streets within or abutting a proposed development shall be improved in accordance with the standards of this chapter as a condition of development approval. The City Manager or designee may waive or modify this requirement where the applicant demonstrates that the condition of existing streets to serve the development meet city standards and are in satisfactory condition to handle projected traffic loads.
 - (1) **Single-Family Dwellings and Duplexes.** All single-family dwellings and duplexes that front an existing street segment that is planned for a sidewalk or trail in the Transportation System Plan shall construct sidewalk or trail improvements in accordance with the standards of that plan. The improvements may include but are not limited to sidewalks, trails, curbs, gutters, and planter strips.
 - (2) **Multi-Family Dwellings and Commercial Development.** All multi-family dwelling and commercial development shall construct a minimum of half-street improvements to all existing streets adjacent to, within, or necessary to serve the development in accordance with the standards of the Gearhart Transportation System Plan. Where a development has frontage on both sides of an existing street, full street improvements shall be required.
 4. **Waivers and Deferrals.** The City Manager or designee may waive or allow deferral of standard street improvements, including sidewalk, roadway, bicycle lane, undergrounding of utilities, and landscaping, as applicable, where one or more of the following conditions in (a) through (d) is met. Deferrals of sidewalk improvements are not permitted when there is an existing curb along the frontage of the site or the site is abutting an existing curb or sidewalk. Where the City Manager or designee agrees to defer a street improvement, it shall do so only where the property owner agrees not to remonstrate against the formation of a local improvement district in the future.
 - A. The standard improvements conflict with an adopted capital improvement plan.
 - B. The standard improvements would create a safety hazard.
 - C. The improvement is not likely to be extended during the planning horizon of the adopted TSP due to topography or committed development on adjacent property, and the improvement under consideration does not by itself significantly improve transportation operations or safety.

- D. The improvements are deemed more appropriate as part of a larger project in the future.
5. **Fee-in-Lieu Option.** In lieu of the transportation improvement requirements identified in Section 6.300, the City Manager or designee may elect to accept from the applicant monies to be placed in a fund dedicated to the future public construction of the improvements.
- A. The amount of monies deposited with the city shall be at least 100 percent of the estimated cost of the required street improvements, and may include more than 100 percent of the cost as required for inflation. Cost estimates shall be based from a preliminary design of the reconstructed street provided by the applicant's engineer and shall be approved by the city engineer or designee.
- B. If the City Manager or designee elects to accept these monies in lieu of the street improvements, the applicant shall also record against all lots or parcels a "construction deferral agreement and waiver of rights to remonstrance for street and storm drainage improvements" approved by the city attorney. The agreement should be worded such that the subject properties are responsible for paying the full cost of required street improvements along their unimproved street frontages. The agreement shall also state that the city has the right to collect money owed for the actual construction costs, if actual costs exceed the amount deposited, and that the city will reimburse the property owner(s) if the actual costs are less than anticipated.

Recommendation 2: Transportation Improvements Permitted Outright

GZO, Section 6.310. Transportation Improvements Permitted Outright.

Except where otherwise specifically regulated by this ordinance, the following improvements are permitted outright:

1. Normal operation, maintenance, repair, and preservation activities of existing transportation facilities.
2. Installation of culverts, pathways, medians, fencing, guardrails, lighting, and similar types of improvements within the existing right-of-way. Fencing must meet the requirements of Section 6.010.
3. Projects that are consistent with projects identified and planned for in the Transportation System Plan.
4. Landscaping as part of a transportation facility.
5. Emergency measure necessary for the safety and protection of property.
6. Acquisition of right-of-way for public roads, highways, and other transportation improvements designated in the Transportation System Plan.
7. Construction of a street or road as part of an approved subdivision or land partition consistent with the Gearhart Subdivision ordinance.

Recommendation 3: Access Management on US 101

GZO, Section 6.160. Additional Criteria for Access Controls on Highway 101

For property fronting Highway 101 the following additional criteria applies.

1. Access management standards for US 101 shall be those standards required by ODOT.
2. Where a new approach onto US 101 or change of use adjacent to US 101 requires ODOT approval, the applicant is responsible for obtaining ODOT approval. The City Manager or designee may approve a development conditionally, requiring the applicant first obtain required ODOT permit(s) before commencing development, in which case the City will work cooperatively with the applicant and ODOT to avoid unnecessary delays.
- ~~3. One driveway per 300 feet of highway frontage is allowed. Frontages of less than 300 feet shall be allowed one driveway.~~
- ~~4. Driveways on properties with one or two driveways allowed must be located adjacent to a side property line. Access easements must be granted to the property adjacent to the driveway. Half width driveways maybe allowed.~~
- ~~5. New driveways on properties located adjacent to properties that have existing property line driveways must be located adjacent to and utilize the existing driveway and use the same or an expanded curb cut.~~
- ~~6. Curb cuts shall not exceed 15 feet for one way drive, 24 feet for a two lane two way drive, or 36 feet for a three lane two way with a turn lane drive.~~
7. Parking lots located in front of a structure fronting on a highway shall be located adjacent to at least one side property line and access easements shall be granted to the adjacent property owner for access through the parking lot.
8. If a new parking lot is located to the front of a structure on a property adjacent to a property(s) with an existing parking lot, the new parking lot shall be located adjacent to the existing parking lot(s).

Recommendation 4: Local Access Management Standards

GZO, Section 6.320. Access Management Standards

1. **Purpose.** The purpose of this ordinance is to manage access to land development while preserving the movement of people and goods in terms of safety, capacity, functional classification, and performance standards as adopted in the Transportation System Plan. This ordinance shall apply to all arterials and collectors within the City of Gearhart and to all properties that abut these roadways at which time new or redevelopment occurs.
2. **Permit Required.** Vehicular access to a collector or arterial street (e.g., a new or modified driveway connection to a street or highway) requires an approach permit approved by the applicable roadway authority.
3. **Nonconforming Access Features.** Legal access connection in place as of August 2, 2017 that do not conform with the standards herein are considered nonconforming features and shall be brought into compliance with applicable standards under the following conditions:
 - A. When new access connection permits are requested;
 - B. Changing in use or enlargements or improvements that will increase trip generation.
4. **Access Spacing Standards.** Minimum access spacing standards are established in the Transportation System Plan for City roads according to their functional classification.
5. **Exceptions and Adjustments.** The City Manager or designee may approve adjustments to the spacing standards of subsection 4, above, where an existing connection to a City street does not meet the standards of the roadway authority and the proposed development moves in the direction of code compliance. The City Manager or designee may also approve a deviation to the spacing standards on City streets where it finds that mitigation measures, such as consolidated access (removal of one access), joint use driveways (more than one property uses same access), directional limitations (e.g., one-way), turning restrictions (e.g., right-in/right-out only), or other mitigation alleviate all traffic operations and safety concerns.
6. **Long-term Consolidation of Access.** The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The City shall require shared driveways as a condition of land division or site development review, as applicable, for the traffic safety and access management purposes in accordance with the following standards:
 - A. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).

- B. Reciprocal access easements (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including paths, at the time of final plat approval or as a condition of the site development approval.
7. **Access Consolidation Exception.** Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, parcel configuration, and similar conditions) prevent extending the street/driveway in the future.

Recommendation 5: Traffic Impact Analysis (TIA) Requirements

GZO, Section 6.330. Traffic Impact Analysis

1. **Purpose.** The purpose of this section is coordinate the review of land use applications with roadway authorities and to implement Section 660-012-0045(2)(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.
2. **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:
 - A. Changes in land use designation, or zoning designation that will generate more vehicle trip ends.
 - B. Projected increase in trip generation of 25 or more trips during either the AM or PM peak hour, or more than 300 daily trips.
 - C. Potential impacts to intersection operations.
 - D. Potential impacts to residential areas or local roadways, including any non-residential development that will generate traffic through a residential zone.
 - E. Potential impacts to pedestrian and bicycle routes, including, but not limited to school routes and multimodal roadway improvements identified in the TSP.
 - F. The location of an existing or proposed access driveway does not meet minimum spacing or sight distance requirements, or is 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, thereby creating a safety hazard.
 - G. A change in internal traffic patterns may cause safety concerns.
 - H. A TIA is required by ODOT pursuant with OAR 734-051.

- I. Projected increase of five trips by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) per day, or an increase in use of adjacent roadways by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) by 10 percent.
3. **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.
4. **Preapplication Conference.** For proposals that meet one or more of the thresholds in section 2, above, the applicant shall attend a preapplication meeting in order to coordinate with the city staff, and ODOT as necessary, to discuss the scope of a required TIA prior to submitting an application. ODOT will be invited to participate in the preapplication conference when an approach road to Highway 101 serves the subject property to ensure the completed TIA meets the requirements of both agencies.
5. **Approval Criteria.**
 - A. The study complies with the content requirements set forth by the city engineer or designee and ODOT staff 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 city engineer or designee and, if State facilities are affected, to ODOT;
 - C. For affected city facilities, the TIA demonstrates the project meets mobility and other applicable performance standards established in the adopted city Transportation System Plan have been met; and
 - D. Proposed design and construction of transportation improvements are in accordance with the street design standards and the access spacing standards specified in the Transportation System Plan.

Subdivision Ordinance, Section 38, Streets

1. **Traffic Impact Analysis.** Subdivision applications that meet the thresholds established in Gearhart Zoning Ordinance Section 6.330(B) shall prepare a Traffic Impact Analysis pursuant to the requirements of that section.

Recommendation 6: Pedestrian Access and Circulation and Bike Parking

GZO, Section 6.340. Pedestrian Access and Circulation

1. **Purpose and Intent.** This section implements the pedestrian access and connectivity policies of City of Gearhart Transportation System Plan. It is intended to provide for safe, reasonably direct, and convenient pedestrian access and circulation.
2. **Standards.** Developments shall conform to all of the following standards for pedestrian access and circulation:

- A. Continuous Walkway System.** A pedestrian walkway system shall extend throughout the development site and connect to adjacent sidewalks, if any, and to all future phases of the development, as applicable.
- B. Safe, Direct, and Convenient.** 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 Manager or designee 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 consistent with Americans with Disabilities Act (ADA) requirements.**
- C. Evacuation Routes.** Evacuation routes identified in the Transportation System Plan must be constructed to the standards identified in the Transportation System Plan.
- 3. Vehicle/Walkway Separation.** Except as required for crosswalks, per subsection 4, below, 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 Manager or designee 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. Crosswalks.** 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) or painted crosswalk striping. The crosswalk may be part of a speed table to improve driver-visibility of pedestrians.
- 5. Walkway Width and Surface.** Unless exempted under 6.340(B)(6), walkways shall be constructed of concrete, asphalt, brick or masonry pavers, or other durable surface, as approved by the City Manager or designee, 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 city transportation standards.
- 6. Construction Exceptions.** The Ridgeline Path and any beach paths may be constructed of soft-surface materials, as deemed appropriate by the City Manager or designee.

Subdivision Ordinance, Section 38, Streets

(...)

16. Pedestrian Access and Circulation. In addition to the access and connectivity standards required by subsection (9) Cul-de-sac and (10) Shared-use Paths, any individual site in the subdivision or partition shall meet the pedestrian access and circulation standards of Section 6.340 of the Gearhart Zoning Ordinance.

GZO, Section 6.130. Off-Street Parking Requirements

(...)

8. Bicycle Parking

- A. Standards.** Bicycle parking spaces shall be provided with new development and, where a change of use occurs, at a minimum, shall follow the standards in Table 6.130(1). Where an application is subject to Conditional Use Permit approval or the applicant has requested a reduction to an automobile-parking standard, the City Manager or designee may require bicycle parking spaces in addition to those in Table 6.130(1).
- B. Design.** Bicycle parking shall consist of staple-design steel racks or other City-approved racks, lockers, or storage bins, providing a safe and secure means of storing a bicycle.
- C. Exemptions.** This section does not apply to single-family and duplex housing, home occupations, and agricultural uses. The City Manager or designee may exempt other uses upon finding that, due to the nature of the use or its location, it is unlikely to have any patrons or employees arriving by bicycle.
- D. Hazards.** Bicycle parking shall not impede or create a hazard to pedestrians or vehicles, and shall be located so as to not conflict with the vision clearance standards of this code.

Table 6.130(1)	
Minimum Required Bicycle Parking Spaces	
Use	Minimum Number of Spaces
Multifamily Residential (not required for parcels with fewer than 4 dwelling units)	2 bike spaces per 4 dwelling units
Commercial	2 bike spaces per primary use or 1 per 5 vehicle spaces, whichever is greater
Community Service	2 bike spaces
Parks (active recreation areas only)	4 bike spaces
Schools (all types)	2 bike spaces per classroom
Institutional Uses and Places of Worship	2 bike spaces per primary use or 1 per 10 vehicle spaces, whichever is greater

Table 6.130(1)	
Minimum Required Bicycle Parking Spaces	
Use	Minimum Number of Spaces
Other Uses	<u>2 bike spaces per primary use or 1 per 10 vehicle spaces, whichever is greater</u>

Recommendation 7: Connectivity in Subdivisions

Subdivision Ordinance, Section 38, Streets

(...)

9. Cul-de-sac. ~~A cul-de-sac shall be as short as possible with a maximum length of 600 feet. A cul-de-sac shall terminate in a circular turnaround with a minimum radius of 40 feet.~~

- a. A cul-de-sac street shall only be used where the Planning Commission determines that environmental or topographical constraints, existing development patterns, or compliance with other applicable City requirements preclude a street extension. Where the City determines that a cul-de-sac is allowed, all of the following standards shall be met:
- b. The cul-de-sac shall not exceed a length of 400 feet, except where the Planning Commission determines that topographic or other physical constraints of the site require a longer cul-de-sac. The length of the cul-de-sac shall be measured along the centerline of the roadway from the near side of the intersecting street to the farthest point of the cul-de-sac.
- c. The cul-de-sac shall terminate with a circular or hammer-head turnaround meeting the Uniform Fire Code.
- d. The cul-de-sac shall provide, or not preclude the opportunity to later install, a pedestrian and bicycle shared-use path between it and adjacent developable lands. Such access ways shall conform to Section 38(10).

10. Shared-use paths. The Planning Commission, in approving a land use application with conditions, may require a developer to provide non-motorized access where the creation of a cul-de-sac or dead-end street is unavoidable and a shared-use path is needed to connects the end of the street to another street, a park, or a public access way. Where a shared-use path is required, it shall be not less than 10 feet wide and shall contain a minimum eight-foot-wide paved surface or other all-weather surface approved by the Planning Commission. Shared-use paths shall be contained within a public right-of-way or public access easement, as required by the City.

[renumber existing 38(10) through (14) to 38(11) through (15)]

Subdivision Ordinance, Section 41, Blocks

Blocks. The length, width and shape of blocks shall take into account the need for adequate lot size and street width, circulation patterns and conformity with the topography of the site. In order to promote efficient vehicular and pedestrian circulation throughout the city, subdivisions shall be served by an interconnected street network, pursuant to the standards in Subsections (1) and (2) below. Distances are measured from the edge of street rights-of-way. Where a street connection cannot be made due to physical site constraints, approach spacing requirements, access

management requirements, or similar restrictions; where practicable, a shared-use path connection shall be provided pursuant to Section 38(10).

1. Local Streets and Collector Streets: Minimum of block length of 265 feet and maximum block length of 530 feet.
2. Arterial Streets: Refer to ODOT standards.

Recommendation 8: TSP Compliance for Zone Amendments

GZO, Section 11.070. Consistency with Transportation System Plan.

Proposals to amend Comprehensive Plan or Zoning Map shall demonstrate the proposal is consistent with the adopted Transportation System Plan and the planned function, capacity and performance standards of the impacted facility or facilities. Proposals shall be reviewed to determine whether they significantly affect a transportation facility pursuant to Oregon Administrative Rule (OAR) 660-012-0060 (Transportation Planning Rule - TPR). Where the City, in consultation with the applicable roadway authority, finds that a proposed amendment would have a significant effect on a transportation facility, the City shall work with the roadway authority and applicant to modify the request or mitigate the impacts in accordance with the TPR and applicable law.

Recommendation 9: Add New Definitions

GZO, Section 1.030. Definitions.

Existing definitions with recommended edits

Access. The place, means or way by which pedestrians, bicycles, or vehicles shall have safe, adequate, and usable ingress and egress to a property, use or parking space.

Clear Vision Area (Vision Clearance Area). A triangular area on a lot at the intersection of two streets or a street and a railroad, two sides of which are lot lines to a distance specified in these regulations. The third side of the triangle is a line across the corner of the lot joining the ends of the other two sides. Where the lot lines or intersections have rounded corners, the lot lines will be extended in a straight line to a point of intersection. The vision clearance area contains no plantings walls, structures, or temporary or permanent obstructions exceeding two and one-half (2-1/2) feet in height measured from the top of the curb.

New definitions

Access Easement. An easement conveyed for the purpose of providing vehicle, bicycle, and/or pedestrian access from a public street to a lot or parcel across intervening property under separate ownership from the parcel being provided access. Cross access easement is an easement providing

vehicular access between two or more separate sites, so that the driver need not enter the public street system between sites.

Access Management. The systematic control of the location, spacing, design, and operation of driveways, median openings interchanges, and street connections to a roadway to minimize conflicts between turning and through vehicles, bicyclists, and pedestrians. The purpose of access management is to provide vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system. Public facility measures to support access management include roadway design applications, such as median treatments and auxiliary lanes, and the appropriate spacing of traffic signals. Measures that may be included as conditions of approval for development decisions include, but are not limited to, 1) standards such as minimum spacing of driveways and onsite vehicle storage requirements; 2) mitigations related to site conditions such as right-in-right-out only approaches, medians, dedicated turn lanes, and shared driveways; and 3) provision for future opportunities for mitigation by land dedication or easement.

Alternate Access. The right to access a property by means other than the proposed approach or access connection. It may include an existing public right-of-way, another location on the subject street or highway, an easement across adjoining property, a different street, a service road, a local road, or an alley, and may be in the form of a single or joint approach.

Access, Reasonable. Access that does not require excessive out-of-direction travel or pose a safety hazard.

Access Point. A connection providing for the movement of vehicles between a lot or parcel and a public roadway.

Access Spacing / Intersection Spacing. The minimum required distance from an intersection of a public or private street to the nearest driveway or other access connection, measured from the closest edge of the pavement of the intersecting street to the closest edge of the pavement of the connection along the traveled way.

Driveway. The area that provides vehicular access to a site from a street, or the area that provides vehicular circulation on a site.

Driveway Apron. The edge of a driveway where it meets a public right-of-way. Note: The design standards of the applicable roadway authority apply.

Driveway Approach. A driveway connection to a public street or highway where it meets a public right-of-way. Note: The design standards of the applicable roadway authority apply. See also, Oregon Administrative Rules 734, Division 51, for definitions specific to state highways.

Driveway, Shared. When land uses on two or more lots or parcels share one driveway. An easement or tract (owned in common) must be created and recorded for this purpose.

Easement. A grant of rights by a property owner that allows others to use the owner's land for a specific purpose, such as access, or to locate utilities. Recorded and on record at Clatsop County.

Evacuation Route. Multi-use paths that are designed and constructed to provide safe and direct evacuation necessitated by a Cascadia event earthquake and associated tsunami.

Half-Street Improvements. Improvement of one-half of an existing substandard road directly abutting a proposed development site. One-half of the road shall mean the area between the right-of-way centerline and the ultimate right-of-way line directly abutting the development site, along the entire length of the development site's frontage on the abutting road(s). Required improvements are based on the City's road design standards and determined by the City Manager or designee.

Planter Strip. A landscape area for street trees and other plantings within the public right-of-way, usually a continuous planter area between the street and a sidewalk.

Public Access Easement. A public access easement is an easement granted to the public for vehicular and pedestrian access, or for non-motorized access.

Public Improvements. Development of public infrastructure, as required by the City, a special district, or road authority, as applicable.

Right-Of-Way. Real property or an interest in real property owned by a roadway authority for the purpose of constructing, operating, and maintaining public facilities.

Roadway. The portion of a right-of-way that is improved for motor vehicle and bicycle travel, subject to applicable state motor vehicle licensing requirements. Roadway includes vehicle travel lanes and on-street parking areas. Roadway does not include area devoted to curbs, parking strips, or sidewalks.

Road/Roadway Authority. The City or other agency (e. g., Oregon Department of Transportation, City of Gearhart, or Clatsop County) with jurisdiction over a road or street.

Shared Driveway. A driveway used to access two or more parcels.

Sidewalk. A paved walkway within a public street right-of-way that is generally located adjacent to and separated from the roadway by a curb, drainage facility (e.g., ditch or swale), or planter strip.

Sight Distance. The unobstructed viewing distance measured from one object or location to another object or location, usually required for the purpose of traffic safety (e.g., a length of street or highway that a driver can see with an acceptable level of clarity, pursuant to the standards of the applicable roadway authority).

Shared-use path. A transportation improvement that supports multiple recreation and transportation opportunities, such as walking, bicycling, and rolling (e.g., skateboarding, inline skating, etc.). Shared-use path conform to adopted City standards, are separated from vehicular traffic, and are located either within the public right-of-way or a public easement.

Traffic Impact Analysis. A report prepared by a professional engineer that analyzes existing and future roadway conditions, and which may recommend transportation improvements and mitigation measures.

Walkway. A sidewalk or path, including any access way, improved to City standards, or to other roadway authority standards, as applicable. See also, Shared-use Path and Sidewalk.

Subdivision Ordinance, Section 4. Definitions.

Existing definitions with recommended edits

~~14. Pedestrian Way:~~ A right-of-way for pedestrian traffic.

Access Way. A walkway providing a through connection for pedestrians between two streets, between two lots, or between a development and a public right-of-way. It may be an access way for pedestrians and bicyclists (with no vehicle access), or a walkway on public or private property (i.e., with a public access easement); it may also be designed to accommodate emergency vehicles. See also, Walkway.

~~Sidewalk:~~ A pedestrian walkway with permanent surfacing.

Sidewalk. A paved walkway within a public street right-of-way that is generally located adjacent to and separated from the roadway by a curb, drainage facility (e.g., ditch or swale), or planter strip.

New definitions

Access. The place, means or way by which pedestrians, bicycles, or vehicles shall have safe, adequate, and usable ingress and egress to a property, use or parking space.

Block. All of the property bounded by streets, rights-of-way (pedestrian or vehicle ways), water features, or any combination thereof, but is not divided or separated in any way by streets or water features.

Shared-use path. A transportation improvement that supports multiple recreation and transportation opportunities, such as walking, bicycling, and rolling. Shared-use paths conform to adopted City standards, are separated from vehicular traffic, and are located either within the public right-of-way or a public easement.

Walkway. A sidewalk or path, including any access way, improved to City standards, or to other roadway authority standards, as applicable. See also, Shared-use Path and Sidewalk.

Section H

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Section I

Stakeholder Outreach Memo

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.



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MEMORANDUM

DATE: August 22, 2016

TO: Gearhart TSP Project Management Team

FROM: Carl Springer, PE, PTP; Kevin Chewuk, PTP, Kayla Fleskes

SUBJECT: Gearhart Transportation System Plan
Stakeholder Outreach

P14180-006

This memorandum provides a summary of stakeholder interviews conducted of nine Gearhart residents and business owners. Project staff conducted the interviews over telephone between July 10th and July 21st, 2016. The purpose of the interviews was to identify the transportation system needs that stakeholders feel are the most important in Gearhart and to gather potential improvement ideas that should be considered for the transportation system. This document summarizes the interviews, with input from the following stakeholders:

- Ted Norton, Homeowner - Homeowners association board member.
- Margaret Marino, Homeowner.
- Aaron Beilemeier, Owns Buds Campground and Convenience store on Highway 101.
- Patricia Roberts, Homeowner
- Terry Lowenburg, Commercial property owner in Gearhart
- Craig Weston, Commercial property owner - Member of the Windermere real estate.
- Cheryl Lund, Lives on the east side of Highway 101.
- Marty Gill, Lives in a neighborhood west side of Highway 101.
- Pat Wollner, Homeowner - Dog Walker

Summary of Transportation Network Issues

Below is a summary of key transportation network findings from the stakeholder outreach interviews.

Roadway System

Stakeholders identified numerous issues relating to driving within Gearhart. Stakeholders mentioned the following as issues (excluding issues related to US 101):

- Travel speeds of motor vehicles in Gearhart are generally very high
- Emergency vehicle access is limited along S. Ocean Avenue because of all of the on-street parking and narrow roadway width
- Drivers park along the pedestrian walkway on S. Ocean Avenue
- Downtown has cars backing into traffic, which leads to congestion and safety issues
- Brush overgrowth limits the visibility of pedestrians or oncoming traffic in some areas
- Tourists parking along roads to access the beach limit accessibility for residents

Stakeholders suggested the following improvements for the roadway system (excluding those associated with US 101):

- Improve access to S. Ocean Avenue by making it a one-way street or removing on-street parking
- Maintain crosswalks and corners to ensure they are free of brush
- Add additional public parking lots that are closer to beach accesses to get the parked cars off the street
- Add signage to more clearly limit beach driving access on 10th Street

In addition to discussing the City driving network, many stakeholders discussed the challenges associated with US 101, including:

- Speeds are excessive along US 101 within the City
- Speeds are especially high in the passing lane along US 101, which can lead to rear-end collisions when a car must wait to turn left from the passing lane
- Left turns from side streets in Gearhart onto US 101 are difficult and dangerous, unless driving from the traffic signal at Pacific Way
- Numerous red-light runners at the US 101/Pacific Way traffic signal
- Congestion near businesses along US 101 near Gearhart Loop Road leads to some traffic diverting to Shamrock Road to avoid the congestion
- Long travel times to get to Seaside from Surf Pines during the summer months
- Sidewalks are nearly non-existent along US 101

Some suggested improvements along US 101 include:

- Add a traffic signal at Gearhart Loop Road for safer highway access, potentially turning the signal into a flashing warning light during the winter when traffic is reduced and it is easier to turn left onto the highway
- Add right turn lanes for easier business access along US 101
- Add a two-way left-turn lane along US 101 to reduce congestion from drivers turning left
- Add a traffic signal at other roads that intersect the highway
- Add additional crossing points for pedestrians
- Add additional guide signs to attract tourists driving along US 101
- Improve the aesthetics of the roadside of US 101 with improved lighting, landscape, etc. to better define Gearhart
- Implement a road diet along US 101 to reduce the number of lanes and add pedestrian and bike facilities
- Add sidewalks on the east side of the highway
- Revisit the idea of a bypass for Highway 101 to improve travel times to nearby communities
- Implement automatic radar to help reduce speeding through the City

Bike and Pedestrian System

Due to the recreational nature of biking in Gearhart, many stakeholders did not feel there was a great need to improve bike facilities. However, stakeholders made the following comments about the biking network:

- US 101 is very unsafe for bikers, although most side streets feel safe for biking
- Cars backing out of parking in downtown Gearhart makes biking difficult along Pacific Way

Stakeholders identified the following issues in regards to the walking network:

- Many roadways are lacking defined pedestrian areas and are not well-lit
- The amount of traffic in downtown Gearhart is not conducive to pedestrian safety
- There is a lack of accessible pedestrian crossings across US 101
- High speed areas are not safe to walk

Stakeholders suggested the following improvements for pedestrian safety and accessibility:

- Adding additional sidewalks or a pedestrian path along G Street and other areas, where cars turn off the highway at high speeds
- Add additional signage, crossings and sidewalks near Pacific Way and Cottage Avenue
- Educate school children to walk on the side of the road with a path or sidewalk
- Add hiking access on the east side of the highway to Thompson Creek Falls

Transit

Stakeholders identified the following issues with regards to transit:

- The stops are infrequent and the route is limited
- Bus stops are not covered or well lit

In general, stakeholders did not feel there was a great need to improve transit to Gearhart, however some improvements that stakeholders suggested include:

- Improve education and signage for routes and schedules, especially for tourists
- Add a stop to downtown Gearhart to make transit more accessible
- Consider a fun transit option geared towards tourists through downtown Gearhart and to the beach during the summer months

Tsunami Evacuation

When discussing evacuation in the event of a tsunami, many stakeholders were concerned with the signage, education of visitors to Gearhart, and the resiliency of the current network. Stakeholders suggested the following strategies to address the transportation needs of a tsunami evacuation:

- Maintain and strengthen the bridges (and culverts that are underneath them) that cross the creek
- Add a pedestrian bridge over the creek
- Install a loudspeaker notification system
- Add more signage for tsunami evacuation routes, especially in tourist areas
- Create safety zones in the high ground east of Gearhart and create better access to the east of Gearhart for evacuation purposes
- Educate the public on different route options if there was a transportation facility failure that shut down a main evacuation route
- Add a main route through Gearhart that runs north to south to allow for quicker access to the main exit points from Gearhart onto the highway
- Create hiking trails that double as tsunami evacuation on the east side of US 101

Needs of Disadvantage Population

Stakeholders typically feel that the following are needs of transportation disadvantaged population:

- Lack of accessible sidewalks in Gearhart, including the intersection of Pacific Way and US 101 for elderly and disabled populations
- Lack of transit that serves downtown Gearhart

Funding Allocation

Above all other categories, stakeholders were most concerned with safety and want to prioritize safety projects. Many of the common improvements that the stakeholders listed include, in order from highest to lowest priority:

- Slower and safer speeds along US 101
- Safer access to US 101 from Gearhart
- More accessible pedestrian routes
- Enhanced and better maintained tsunami evacuation routes

Section I

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Section J

Public Involvement Summary

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.

SUMMARY OF PAC MEETING #1

DATE: April 14, 2016
TIME: 12:00pm – 1:30pm
LOCATION: Gearhart City Hall
SUBJECT: Gearhart Transportation System Plan Update

The purpose of this meeting is to discuss the transportation system plan's process and expected outcomes, the advisory committee's roles and responsibilities, review technical memo #2 and #3, and discuss community transportation issues.

TOPICS

INTRODUCTIONS, AND AGENDA OVERVIEW

Project staff and PAC members in attendance introduced themselves. The following were in attendance:

- Virginia
- Bill- ODOT
- Chad- City of Gearhart
- Carl
- Jeff
- Doug- School District
- Paulina
- Carole- Contract Planner
- Patrick- DLCD
- Jason
- Cheryl- City of Gearhart
- Carl Springer- DKS
- Charles Tso- DKS



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INTRODUCTIONS, AND AGENDA OVERVIEW

Carl Springer provided an overview of the transportation system plan process to date. We discussed what a TSP was, and why we're updating it

Schedule and Milestones

- This TSP will carry into early/mid 2017; the schedule is typical for a TSP
- Because Gearhart gets the most traffic in the summer months, traffic counts for the TSP cannot be conducted until June
- We will document existing conditions for all non-motor-vehicle modes and discuss our findings at the Public Event in June.
- This project is anticipated to slow down during the winter due to holidays
- Project schedules will be available on the project website.

Policies, Plans and Projects

- Chad shared the reason Gearhart is doing a TSP. Gearhart does not have a lot of policies and plans in place. If we had done our plans differently, we'd be in a better shape today. As we continue to grow, we need to make our community better but also balance the costs and maintenance challenges.
- Bill said ODOT is very supportive to Gearhart's decision in doing a TSP, even when it is not required to do it. ODOT has been involved with updating TSPs in Seaside, Clatsop County, and Warrenton. They are engaged in helping local jurisdictions with TSPs.

REVIEW TECHNICAL MEMO #2 AND #3

Funding Assumptions for City Facilities (Tech Memo #2)

- The level of funding for transportation projects in 2040 is extrapolated from current funding sources with some major assumptions.
 - Federal gas tax remain constant
 - Possible \$1 million in ODOT discretionary funds
 - No cost inflation index in Gearhart Road District
 - Level of road maintenance today is keeping up with needs
 - No other new funding sources
- Operations and maintenance expenditure in 2040 is expected to increase to \$4.4 million (\$2.1 million expenditure + \$2.3 million maintenance cost increase) when factoring in historical personnel and construction cost increases which exceeds the total expected revenue of \$3.4 million.

- David encouraged the PAC and the City to look at opportunities that will bring additional funding to projects. There 2 main opportunities: (1) increase in state funding in the future and (2) development charge for new development. Don't limit yourself to current level of funding. The plan is to create opportunities not obligations

Facility Design Options for Streets and trails (Tech Memo #3)

- TSP outlines a street hierarchy: Arterials (none in Gearhart), collectors, local streets, and trails.
- The design options are for new streets. This is not a proposal to retrofit all existing streets to look like the design options.
- The Committee agreed that bicycle safety is an issue on some Gearhart streets but there are also some streets that are good for bicycling. There is also concern about bicycling on Highway 101.
- The Committee discussed whether local streets should have sidewalks. Shared-use streets that mix all road users in the same road space don't work in Gearhart as well as they should in theory. Generally, the Committee preferred to separate pedestrians and cars but did not think sidewalks need to be paved and did not want any curb and gutter.

OPEN DISCUSSION ABOUT COMMUNITY ISSUES

What Works Well Today?

- The trails in the City
- Curbless streets

What Are the Biggest Concerns about Traveling in Town?

- Crossing Highway 101 is very difficult. Children, adults, and families face dangerous crossing conditions
- Chad agreed and said that the area east of Highway 101 feels like another city because they have limited access to the rest of Gearhart.
- Street connectivity is also an issue, both for daily traveling and for tsunami evacuation
- On-street parking issues

What Is ONE Thing That You Really Want the TSP to Address?

- Drainage
- Access across Highway 101

Gearhart TSP Update
Transportation Funding Assumptions, Tech Memo #2 DRAFT
Page 4

- Parking, especially during summer
- Walking to school

Follow-up from Bill:

Team -- I'm following up on our discussion yesterday regarding drainage along US 101.

I think we were talking specifically about the section north and south of Gearhart lane (near the former Builders Supply, now U-Haul) where ODOT has installed curb along the roadway. This is an area where water sometimes collects, impeding traffic. Someone commented there weren't any drainage inlets on the road. They suggested that openings could be cut into the curb to allow water to flow off of the roadway and filter into the adjacent landscape.

I looked at this section of roadway on my way back to Astoria yesterday. I saw what appeared to be drainage structures and openings in the curb. I will talk with the ODOT maintenance specialists to find out what we could do to address the drainage issues along this section of US 101.

I suspect the curbs were originally installed to prevent water from running off the roadway onto adjacent properties. There's probably a more adequate solution but it would require some engineering and \$\$ to construct. This is a good example of a project to include in the new TSP.



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Gearhart Transportation System Plan

Project Advisory Committee (PAC) Meeting #2

Summary

- MEETING DATE:** August 3, 2016
- MEETING TIME:** 1:30 pm – 3:00 pm
- MEETING LOCATION:** Gearhart City Hall
- MEETING PURPOSE:** The purpose of this meeting was to share highlights of the project team’s technical work since the first PAC meeting in April and summarize feedback received from the first Public Event in June, and review major findings with PAC members, and solicit their feedback on our collective understanding to date.

TOPICS

1. Introductions

Project staff and PAC members in attendance introduced themselves. The following were in attendance:

- Carl Springer- DKS Associates
- Kevin Chewuk- DKS Associates
- Carole Connell- City of Gearhart
- Chad Sweet- City of Gearhart
- David Helton- ODOT
- Patrick Wingard- DLCD
- Jeff Hazen- SETD
- Doug Dougherty- Seaside School District
- Gini Dideum- Gearhart Planning Commission

2. Review How the Transportation System Is Working Today and How it Will Serve Future Growth

The project team gave an overview of how the transportation system is working today and how the transportation system will serve future growth. Highlights of the discussion included:

- There is limited shoulder width along US 101 through Gearhart.
- There is an Automatic Traffic Recorder (ATR) just north of Gearhart that records traffic volumes along US 101.
- There is a high likelihood of a Cascadia event earthquake by 2060 that could significantly impact the transportation system.

- A PAC member questioned what it means for the plan: The plan needs to establish the transportation system to support tsunami evacuation.
 - It was noted that Gearhart has optional high ground evacuation areas that should be utilized only as a last resort option. However, the worst of the earthquakes could cause a tsunami that would still inundate these areas. A PAC member noted that you may not know the difference between the magnitude of the earthquake.
 - The TSP should plan for transportation facilities to both evacuation zones given the practical realities of Gearhart (cost to facilitate the evacuation and distance).
 - The plan should identify existing and new routes to the evacuation zones.
 - Street or pedestrian/bicycle connectivity is important to facilitate evacuation.
 - The plan should focus the effort on the hardening and construction of new pedestrian and bicycle facilities that will survive the earthquake.
 - It was noted that Gearhart and Seaside schools are in tsunami inundation zones.
 - Landslides will make evacuation to areas outside of the hazard area towards the east side of the City difficult.
 - Oregon DLCDC has a guidance document for tsunami evacuation (with financing options).
- Crashes near Bud's campground occur due to drivers turning left from the passing lane.
 - Drivers speed on F Street and Cottage Avenue.
 - Traffic circles, speed bumps or speed humps could be potential mitigations.
 - Drivers experience long delays (several minutes) when turning out of side streets to US 101 during the summer.
 - ODOT is working on a short term fix for pedestrian and bicyclists at US 101/Pacific Way to meet ADA requirements. The long term solution will be identified through the TSP.
 - Bus shelters could be funded by the City.

3. Feedback Received From First Public Events

The project team discussed feedback received from the first public event.

Walking Network:

- Highway 101 needs sidewalks and crossing improvements.
- S. Ocean Avenue sidewalks blocked by parked vehicles.
- Pacific Way (east of Highway 101) difficult to access with wheelchairs or strollers.
- Construct a path between Gearhart Lane and Highland Lane.
- Need for additional paths around the city.
- Maintain a soft surface on Ridge Path.

Biking Network:

- Highway 101 needs bike lanes.

- A path is needed between Gearhart Lane and Sheridan Ct.
- A path is needed between Pinehurst Road and Surf Pines Road, north of Gearhart.
- Improve wayfinding signage along the dunes.
- Additional bike parking is needed around the city.
- Prohibit bikes on the Ridge Path.
- The intersections of US 101/ Pacific Way and US 101/ Gearhart Lane are unsafe for bicyclists.

Transit Network

- Transit stops need shelters to protect riders from the elements.
- Sidewalk connections to bus stops needed along Highway 101.
- Consider local bus service through downtown.
- Consider adding a bus stop near the Pacific Way/ Cottage Avenue intersection.

Tsunami Evacuation

- Improved evacuation signage needed near beach accesses and along the dune paths.
- Provide a map for pedestrian evacuation.

Driving Network

- Highway 101/ Gearhart Lane intersection difficult to turn in/out of.
- Left-turns onto Highway 101 difficult from driveways.
- Reduce travel speed along Highway 101.
- Reduce travel speed along Cottage Avenue.
- Consider new street connection between Summit Avenue and Fifer Heights Road.
- Extend 5th Street east to McCormick Gardens Road.
- Extend McCormick Gardens Road south from Pacific Way to Oster Road.
- Provide a north/south connection east of US 101 between Hilla Road, north to the City limits.
- Provide a north/south connection between Gearhart Lane and 10th Street.

4. Discussion – Did we capture the key transportation issues? Do you have any additional comments?

Other issues the project team discussed include:

- East to west street connectivity needs to be improved.
- Trails/hardening of existing facilities to tsunami evacuation assembly points.
- Bikes on Ridge Path
 - Develop solutions to address concerns.

Gearhart TSP
Project Advisory Committee (PAC) Meeting #2 Summary

- Bordering to encourage people to stay on path alignments.
- Barriers to require cyclists to slow at streets.



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Gearhart Transportation System Plan

Project Advisory Committee (PAC) Meeting #3

Summary

MEETING DATE: November 10, 2016

MEETING TIME: 1:30 pm – 3:30 pm

MEETING LOCATION: Gearhart City Hall

MEETING PURPOSE: The purpose of this meeting was to review the draft transportation system improvements to address existing and future needs.

TOPICS

1. Introductions

Project staff and PAC members in attendance introduced themselves. The following were in attendance:

- Carl Springer- DKS Associates
- Doug Dougherty- Seaside School District
- Carole Connell- City of Gearhart
- Gini Dideum- Gearhart Planning Commission
- Chad Sweet- City of Gearhart
- Paulina Cockrum- Gearhart City Council
- David Helton- ODOT
- Jason Baingild- Highlands Golf Course
- Patrick Wingard- DLCD

2. Review Recommended Transportation Improvements

The project team gave an overview of key travel needs identified in the previous technical work and prior PAC meeting discussions. The general conversation focused first on solutions along Highway 101, then considered the local street system. Highlights of the discussion included:

US 101

- Primary highway issues to be addressed included: limited bike and walking facilities, higher than expected vehicle crashes around Gearhart Loop intersection, limited transit amenities, high vehicle speeds in 4-lane section of the highway.
- While the technical memo presented a variety of highway cross-section options, there was a preference for one common cross-section through the city.
- Existing US 101 right-of-way is about 80 feet through the city. City staff indicated that the eastern edge of the right-of-way is near the existing paved edge of the highway. Also, there is a water main

on this side of the highway. Future improvement projects would need to address the water main, as well as the roadway features.

- Walking / biking / access needs should address properties on the eastside of the highway, since that is generally much more developed than the westside. The concept of a shared use pathway along the eastside (Option 1b) and a dedicated bike lane on the westside, was noted as a useful solution to that end.
- Specific locations that would benefit from a center turn lane on the highway include: the driveway to Bud's RV Park, Bailey Lane and other eastside residential cul-de-sac streets.
- The existing 4-lane travel lane section, from just south of Pacific Way to Bailey Lane, a distance of about 1.3 miles. It was noted that this is the only section of highway where passing lanes are provided between Tillamook and Astoria (aside from the climbing lane north of Manzanita). PAC members have observed high vehicle speeds, difficulties for pedestrians to cross, and difficulties for vehicles to turn left from side streets.
- The highway segment from Shamrock Road to Gearhart Loop was identified as a candidate to convert to 3-lane, to provide a central turn lane area. This would address several identified access and safety issues.
- There was general support of the idea of converting all of the 4-lane section of Highway 101 to 3-lanes, with one noted opponent. The reallocation of paved space would allow more room for bike lanes and paved shoulders to better serve walking and bike, and address the need for left-turning vehicles on and off the highway.
- A 3-lane section would also provide opportunities for enhanced pedestrian crossing controls, away from the traffic signal at Pacific Way.
- It was also noted that any provision of a new signal on the highway would be provided only if conditions met the ODOT traffic volume warrants.

Local Street Circulation

- The group supported the proposed local street extension project (G27), between Pacific Way and Garden Terrace, as an important alternate route to Highway 101. Ideally, this would extend further north to Hillila Road, which is outside the UGB presently.
- Also supported proposed Pine Ridge Drive extension (C1), if urban development occurs and the city boundary is adjusted to include this area.
- Group supported concept of pedestrian only bike crossing Neacoxie Creek, possibly at 5th Street or at Shamrock Road (or both)

3. Next Steps / Follow-up

- Identify possible additional traffic study work to further evaluate conversion of 4-lane highway section to 3-lanes (ODOT and the consultant team).
- The next PAC meeting will be early 2017, to review draft development code and comprehensive plan amendments to support the TSP.

GEARHART TRANSPORTATION SYSTEM PLAN

PUBLIC EVENT #1 SUMMARY



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Date: Thursday, June 23, 2016

Time: 2:00 PM to 4:00 PM

Location: Gearhart Fire Department, 670 Pacific Way

Transportation Funding

There were no comments regarding transportation funding.

Walking

The public was asked to identify streets that could use sidewalks. The following is a summary of the response.

- US 101

The public was asked where in the city they feel uncomfortable to walk along or an intersection that is hard to cross. The following is a summary of the responses.

- Crossing US 101 (especially near Dooley Lane and Bud's RV Park & Campground)
- South Ocean (because there are too many cars on the sidewalk; suggests to make it one-way)
- Safe to walk on all streets because of the small community

The public was asked to identify streets that are inaccessible or difficult to access with wheelchairs or strollers. The following is a summary of the response.

- Pacific Way (east of US 101)

The public was asked if they like the landscaping along the street. The following is a summary of the responses.

- Yes
- Improve landscape maintenance of Pacific Way (between Ocean Avenue to Dairy Queen (US 101); especially the overgrown brush between Summit Court to Woodland Avenue)
- Need to add wood chips or sand on Ridge Path, no gravel
- Encourage native plants including wild (small) OR blackberry and remove ivy and holly on Ridge Path.

The public was asked to identify the streets within the City that they walk along to commute or for recreational purposes. The following is a summary of the response.

- Ridge Path

Other walking comments from the public event:



- Improve beach access on paths, specifically Gearhart Ocean View Condo and 13th Street Path
- Hold property owners responsible for sidewalks (e.g. tripping hazards and condition)
- Prohibit bikes on Ridge Path
- Maintain a soft surface on Ridge Path
- Drop-off in landscape on Pacific Way at Marion Avenue in front of the recreation center.
- Construct a N/S path between Marion Avenue/Gearhart Lane and Highland Lane.
- Improve emergency vehicle access on South Ocean (vehicle traffic and parking congestion)
- Provide a connection from Hager Avenue to Neawanna Creek
- Provide a connection between Pinehurst Road and Surfpines Road
- Add a pedestrian crosswalk and sign for golfer's crossing along Gearhart Lane near the golf course
- Add a pedestrian crosswalk along Marion Avenue from McMenamins to Gearhart House
- More sidewalks are not needed in Gearhart

Biking

The public was asked to identify streets that could use a bike lane. The following is a summary of the responses.

- US 101
- Path/Connection between Gearhart Lane and Sheridan Court
- Path/Connection between Pinehurst Road and Surfpines Road
- Marion Avenue next to west sidewalk
- Gearhart Lane
- Pacific Way between Highway 101 and Marion Avenue

The public was asked where in the city they feel that wayfinding signage could be improved. The following is a summary of the response.

- In the dunes; specifically west of South Ocean Avenue

The public was asked to identify the streets within the City that they bike along to commute or for recreational purposes. The following is a summary of the response.

- In the dunes (between Necanicam River to Del Ray Beach)

The public was asked where in the city they feel that bicycle parking could be improved. The following is a summary of the response.

- Little Beach



- Wellington
- South Ocean Avenue
- 13th Street (both ends)

Other biking comments from the public event:

- Prohibit bikes on Ridge Path
- More bike lanes are not needed in Gearhart
- US 101 @ Pacific Way and US 101 @ Gearhart Loop need improvements.

Transit

The public was asked if they would like increased public transit amenities or how the transit service could be improved. The following is a summary of the response.

- Provide transit covers and booths for weather protection
- Make schedules more obvious and easy to find
- Increase bus frequency

The public was asked where in the city they feel need sidewalk or bicycle connections to transit stops. The following is a summary of the response.

- Provide sidewalks and school bus stops along US 101

The public was asked where in the city they feel transit service should be expanded. The following is a summary of the responses.

- Provide local bus service through Downtown
- Provide a transit stop at Pacific Way and Cottage Avenue (at Gearhart Market)

Driving

The public was asked to identify the streets or intersections that have the greatest need for improvements to make traveling by car safer and easier. The following is a summary of the responses.

- US 101 at Gearhart Lane (install a traffic signal, add crosswalks)
- Left-turns onto US 101
- US 101, specifically reducing the speed southbound sooner (because some drivers speed up when the road widens to two southbound lanes)
- South Ocean Street @ G Street, specifically to improve the visibility of the 'Dead End' sign
- Wellington Avenue
- Cottage Avenue (reduce speeding)



The public was asked where in the city would new street connections benefit the city. The following is a summary of the responses.

- Nita Avenue and A Street
- Summit Avenue and Fifer Heights Road (2 comments)
- 5th Street, extend east to McCormick Garden Road
- McCormick Garden Road, extend south from Pacific Way to Oster Road
- Provide a north/south connection east of US 101 between Hilla Road and north to the City limits
- Provide a north/south connection between Gearhart Lane and 10th Street
- Provide a connection between Fifer Heights Road and Summit Avenue to add a north/south connection from Pacific Way and Gearhart Lane

The public was asked where in the city they feel is unsafe. The following is a summary of the responses.

- Eastbound left-turn at Gearhart Lane and US 101 (3 comments)

Other driving comments from the public event:

- Improve storm drainage on the west-east streets between Cottage Avenue and Neacoxie Creek
- Need a 'No Outlet' sign on Pinehurst Road (outside City limits)

Tsunami Evacuation

The public was asked to identify evacuation routes that they feel need improved signage. The following is a summary of the responses.

- Beach accesses
- Dune paths

Other tsunami evacuation comments from the public event:

- Provide vehicle access along high ground from Gearhart Greens Condos to High Ridge
- Provide a map of the golf course for pedestrian evacuation
- Encourage/allow parking on only one side of South Ocean Avenue
- Add additional north/south connection to get to the tsunami evacuation zone
- Maintain 10th street exit from beach so cars don't get stuck in the sand
- Connect Summit Avenue and Fifer Heights Road to provide additional tsunami evacuation access
- Remove gated communities to allow as many paths as possible to connect areas in Gearhart for evacuation purposes



Community Event Posters

Welcome to the Public Event for the Gearhart TSP!



What is a Transportation System Plan?

Gearhart's Transportation System Plan (TSP) provides a long-term guide to city transportation investments. The plan evaluates the current transportation system and determines how it could be improved to make travel in Gearhart better.

Gearhart is beginning to identify opportunities to improve our current transportation system and forecast what it may look like through 2040. We need your help discussing priorities given limited transportation funding.

Major Components of a TSP

We are at this step!

Background Information	Transportation Conditions	Transportation System Improvements	Draft TSP	Final TSP
Review relevant state and local plans, policies, and regulations.	Review the transportation system to identify current conditions and problems, and determine future needs through 2040.	Identify and evaluate solutions and projects for the identified needs of the transportation system through 2040.	The solutions and projects that best meet the needs of the city will be incorporated into a Draft TSP.	Planning Commission/ City Council Public Hearings, and city adoption of Final TSP.
	Public Event #1	Public Event #2		Public Hearings

Get Involved

We are gathering information and ideas from residents, business owners, visitors, and stakeholders in Gearhart. We want to hear from you!

- Review the draft documents at <http://gearharttsp.org>
- Provide your comments at <http://gearharttsp.org>
- Attend public events

Purpose of Today's Public Event

Tell us what you think about the transportation system in Gearhart! As you walk around the room you will notice 6 stations covering different transportation related topics. As you visit these stations, consider the topics below when providing your feedback. Place a sticky note or write directly on the map near the area(s) where you have a suggestion, comment, question, concern, or compliment. It's your transportation system; let us know what you think!

Transportation Funding

- How should the city address transportation system needs considering the limited transportation funding?

Transit Facilities, and Pedestrian and Bicycle Connectivity

- Are more sidewalk or bike connections needed to transit stops?
- Do you think service should be expanded to an area of the city?
- Do you want increased transit stop amenities?

Walking Network Conditions

- Is there a street that could use sidewalks?
- Is there an intersection that is hard to cross?
- Are there any streets that are uncomfortable to walk along?
- Are there any streets that are inaccessible or difficult to access with wheelchairs or strollers?

Biking Network Conditions

- Is there a street that could use bike lanes?
- Are there any streets that are uncomfortable to bike on?
- Do you know of an area that could benefit from enhanced or separated bike facilities?

Driving Conditions

- Is there a particular intersection that you feel is congested?
- Is there a roadway that could be improved?
- Are there any new street connections that you feel would benefit the city?

Freight, Tsunami Evacuation, or Other Mode

- Are there any constraints to large-vehicle travel in the city?

Transportation Funding



The Cost of Transportation in Gearhart

Maintaining and operating city roadways requires nearly all of the current city revenue for transportation uses. These costs will continue to increase over time, leaving little to no funding for the construction of new facilities.

Gearhart's Current Transportation Revenue Sources

- Total Current Revenue: **\$141,000 per year (on average)**
- Motor Vehicle Fees: \$74,000 per year
- Federal or State Funding/Grants: \$41,000 per year
- Road District: \$26,000 per year

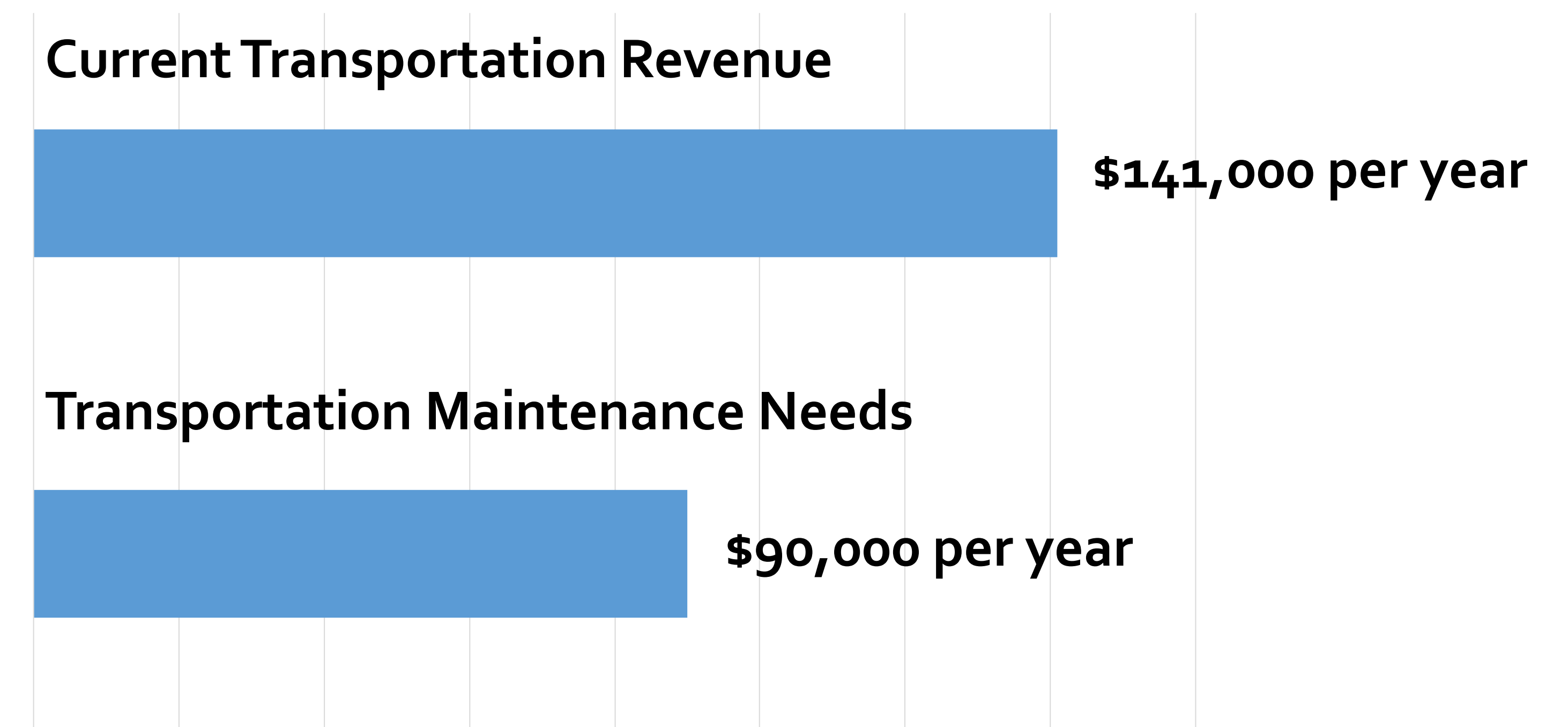
Gearhart's Maintenance Needs

- To maintain roadways at status quo: **\$90,000 per year**

Did you know? Maintenance includes more than just patching roadways. It also includes roadway striping, traffic control, vegetation trimming, storm preparation and damage clearing, sign maintenance, and roadway engineering.

Expected Transportation Funding : \$1.2 million

Gearhart is expected to have \$1.2 million for transportation projects through 2040.



Walking Network Conditions

Please place a sticky note or write directly on the map near the area(s) of which you have a suggestion, comment, question, concern or compliment. It's your transportation system, let us know what you think!

- . Is there a street that could use sidewalks?
- . Is there an intersection that is hard to cross?
- . Are there any streets that are uncomfortable to walk along?
- . Are there any streets that are inaccessible or difficult to access with wheelchairs or strollers?
- . Do you like the landscaping along a street?
- . Are there streets or destinations that could use improved wayfinding signage?
- . What streets do you walk along (e.g., to school, for recreation)?

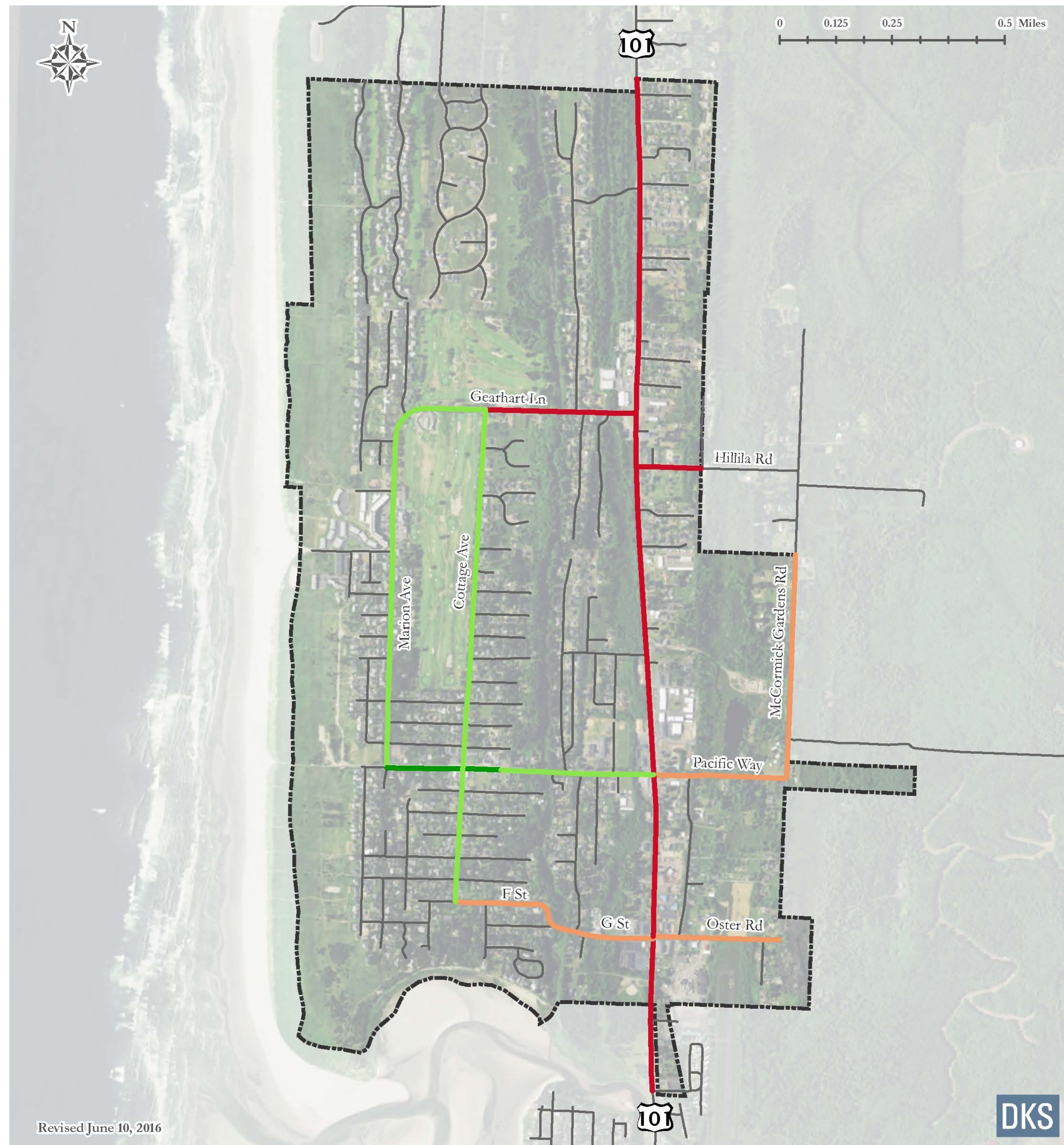
Legend:

Qualitative Pedestrian Assessment:

 Excellent	 Fair
 Good	 Poor

Note:

Rating is based on a combination of sidewalk presence, speed limit, presence of buffers, roadway volume, number of lanes, shoulder widths and presence of lighting. Rating calculated on Collectors and Arterials.



Biking Network Conditions

Please place a sticky note or write directly on the map near the area(s) of which you have a suggestion, comment, question, concern or compliment. It's your transportation system, let us know what you think!

- . Is there a street that could use bike lanes?
- . Are there any streets that are uncomfortable to bike on?
- . Do you know of an area that could benefit from enhanced or separated bike facilities?
- . Are there streets or destinations that could use improved wayfinding signage?
- . What locations would benefit from bike parking?
- . What streets do you bike on (e.g., to school, for recreation)?

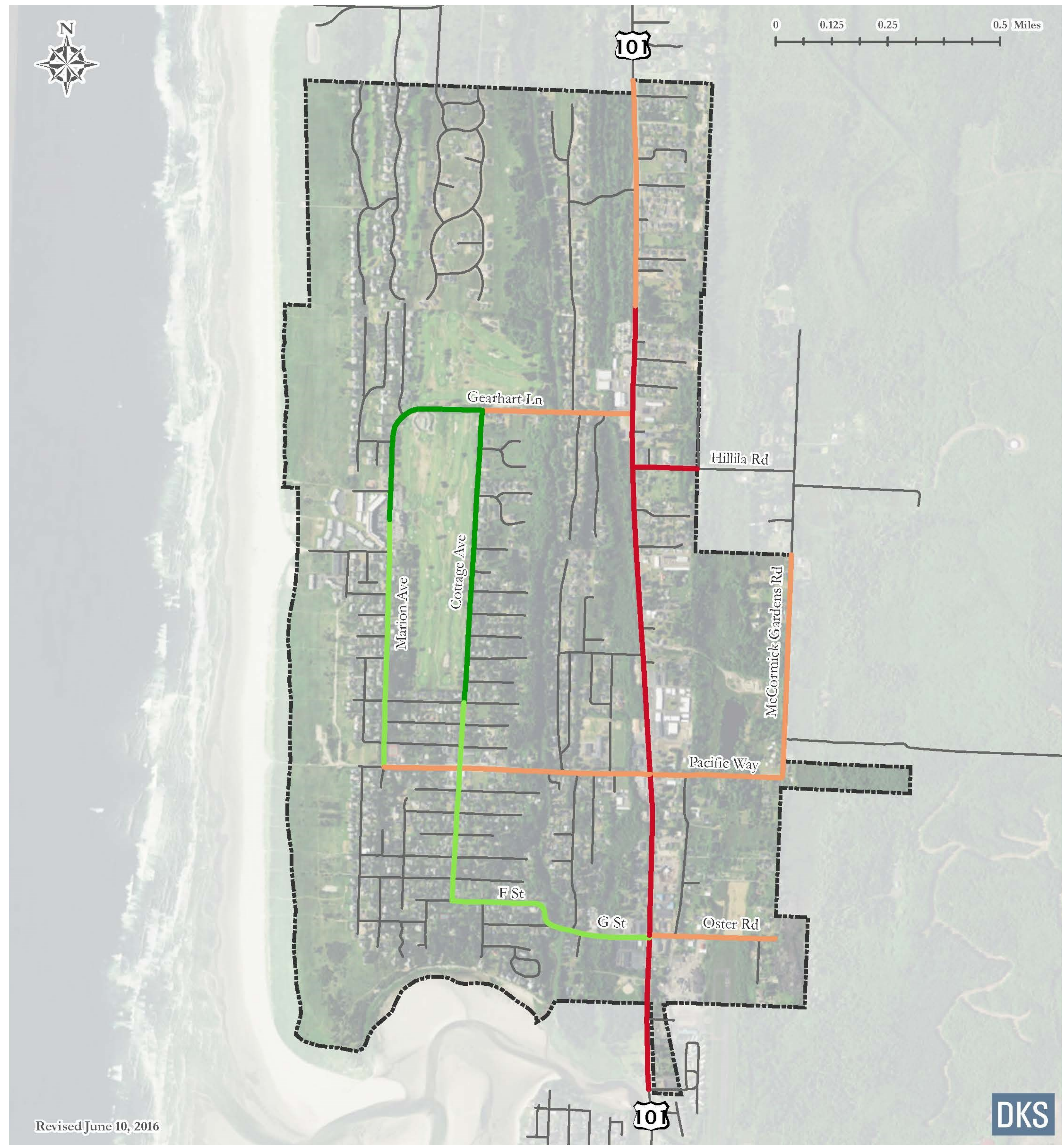
Legend:

Qualitative Bicycle Assessment:

 Excellent	 Fair
 Good	 Poor

Note:

Rating is based on a combination of speed limit, presence of bicycle facilities, presence of buffers, on-street parking, access and other street characteristics. Rating calculated on Collectors and Arterials.









Transit Facilities, and Pedestrian and Bicycle Connectivity

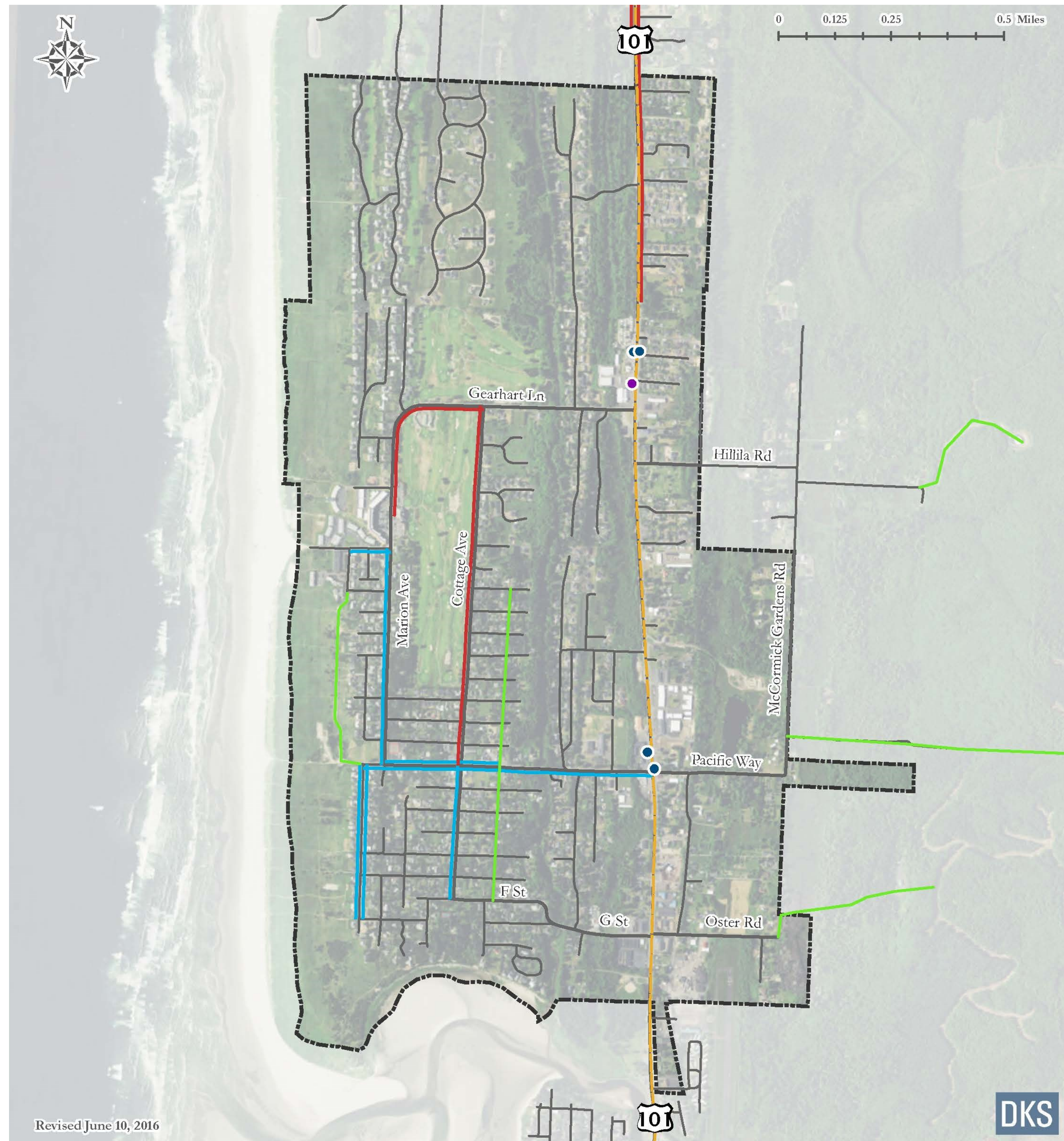
Please place a sticky note or write directly on the map near the area(s) of which you have a suggestion, comment, question, concern or compliment. It's your transportation system, let us know what you think!

- . Are more sidewalk or bike connections needed to transit stops?
- . How is the transit service in the city?
- . Do you think service should be expanded to an area of the city?
- . Do you want increased transit stop amenities?
- . Would you like to see expanded service hours?

Legend:

Pedestrian, Bicycle, and Transit Facilities:

- | | |
|---|--|
|  Sidewalk |  Bus Route |
|  Bike Lane or Shoulder Bikeway (> 5 feet) |  SETD Bus Stop |
|  Trails |  NorthWest POINT Bus Stop |



Revised June 10, 2016

Driving Conditions

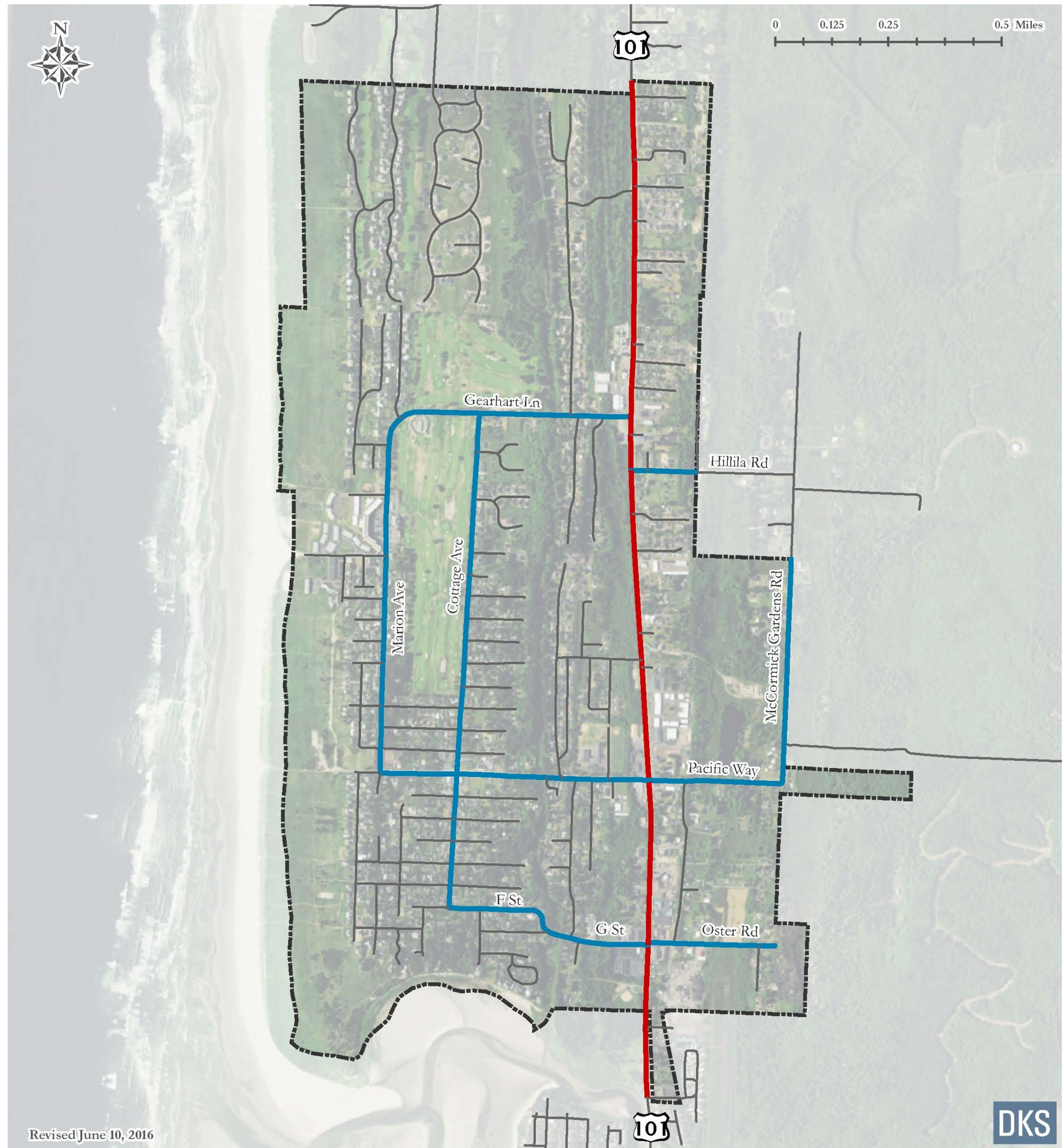
Please place a sticky note or write directly on the map near the area(s) of which you have a suggestion, comment, question, concern or compliment. It's your transportation system, let us know what you think!

- . Is there a particular intersection that you feel is congested?
- . Is there a roadway that could be improved?
- . Are there any new street connections that you feel would benefit the city?
- . Is there a location that you feel is unsafe?

Legend:

Functional Classification

- Principal Arterial
- Collector
- Local Streets



Tsunami Evacuation

Please place a sticky note or write directly on the map near the area(s) of which you have a suggestion, comment, question, concern or compliment. It's your transportation system, let us know what you think!

- Do you know your evacuation route?
- Are you familiar with the tsunami assembly area?
- Are there routes that could use improved signage?

IF YOU FEEL AN EARTHQUAKE:

- Drop, cover, and hold
- Move immediately inland to higher ground
- Do not wait for an official warning

SI USTED SIENTE EL TEMBLOR:

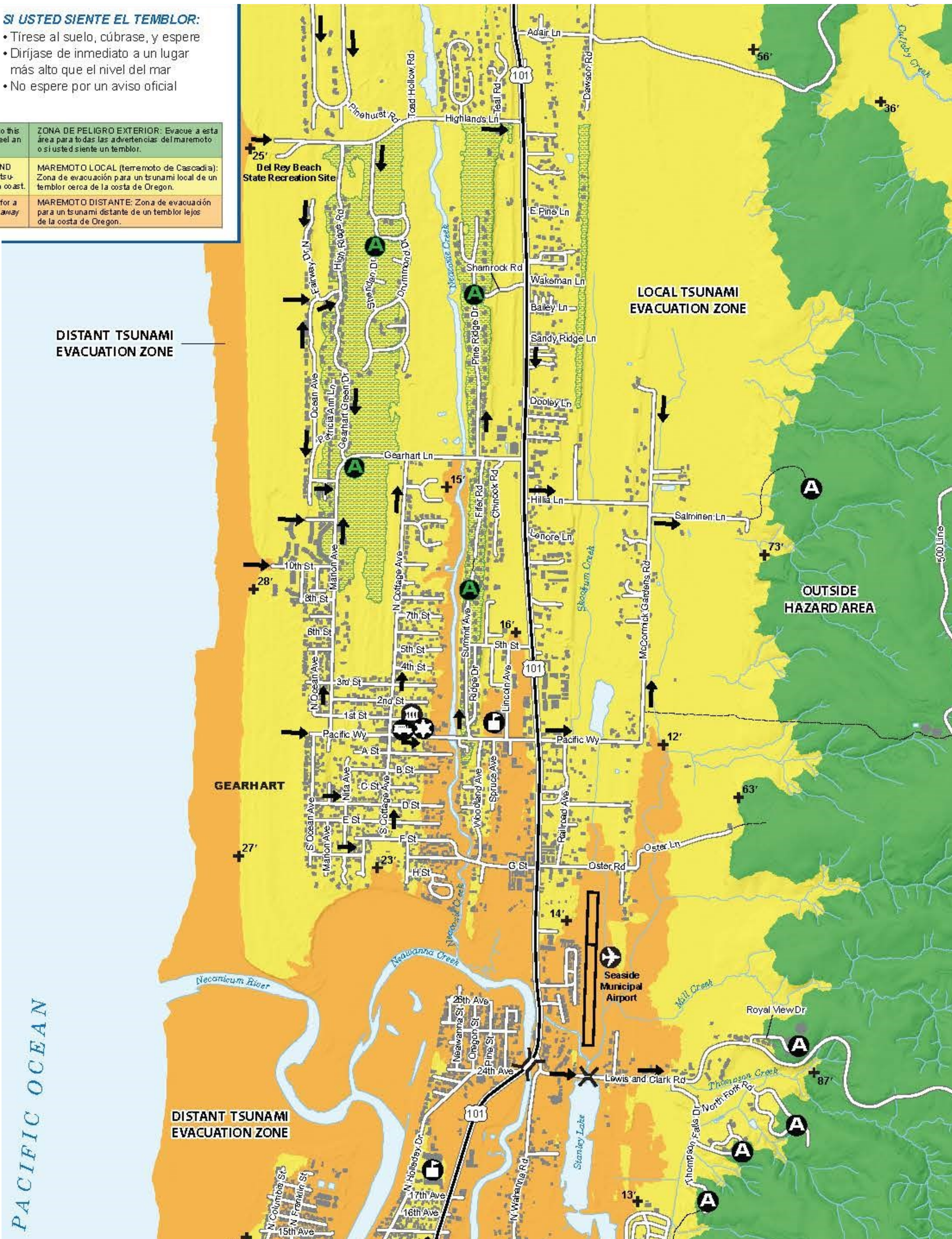
- Tírese al suelo, cúbrase, y espere
- Diríjase de inmediato a un lugar más alto que el nivel del mar
- No espere por un aviso oficial

	OUTSIDE HAZARD AREA: Evacuate to this area for all tsunami warnings, or if you feel an earthquake.	ZONA DE PELIGRO EXTERIOR: Evacue a esta área para todas las advertencias del maremoto o si usted siente un temblor.
	LOCAL CASCADIA EARTHQUAKE AND TSUNAMI: Evacuation zone for a local tsunami from an earthquake at the Oregon coast.	MAREMOTO LOCAL (terremoto de Cascadia): Zona de evacuación para un tsunami local de un temblor cerca de la costa de Oregon.
	DISTANT TSUNAMI: Evacuation zone for a distant tsunami from an earthquake far away from the Oregon coast.	MAREMOTO DISTANTE: Zona de evacuación para un tsunami distante de un temblor lejos de la costa de Oregon.

MAP SYMBOLS / SÍMBOLOS DEL MAPA

- Evacuation route / Ruta de evacuación
- Assembly area / Área reunión
- Bridge / Puente
- School / Escuela
- City Hall / Municipalidad
- Fire Department / Bomberos
- Law enforcement / Policía
- Hospital / Hospital
- Airport/Aeropuerto
- Trail / Sendero
- Elevation, in feet / Elevación, en pies
- SCALE / ESCALA**
0.25 mile
0.25 km
- City of Gearhart Optional High Ground* - Evacuate to this area only as a last resort (if you cannot get outside the hazard area before the first tsunami wave arrives).
- City of Gearhart Optional Tsunami Assembly Area*

*The local and distant tsunami evacuation zones shown on this map are worst-case scenarios. Optional high ground areas for the City of Gearhart are being shown in case you are physically unable to get outside the hazard area or if there are impassable obstacles in your way (such as wetlands, rivers, lakes, or earthquake debris). This optional high ground remains dry in 95 percent of tsunami scenarios analyzed.



PACIFIC OCEAN

GEARHART TRANSPORTATION SYSTEM PLAN

PUBLIC EVENT #2 SUMMARY



720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500
www.dksassociates.com

Date: Thursday, October 13, 2016

Time: 2:00 PM to 4:00 PM

Location: Gearhart City Hall, 698 Pacific Way

Aspirational Transportation Improvement Projects: Walking and Biking

The public was asked to comment on proposed walking and biking improvement projects. The following is a summary of the response.

- A shared-use path along Tressel Drive does not seem feasible (project G30).
- There is a need for pedestrian and bicycle connectivity on the east side of US 101. A potential connection to a trail to Tressel Drive could be between Sandy Ridge Road and Bailey Lane.
- There is a need for a walking and biking connection between the Reserve neighborhood and Gearhart Loop Road.
- With the school bond passing, Gearhart Elementary will be relocated above the tsunami inundation area.
- Consider adding a dedicated cycle for pedestrians at the US 101/Pacific Way traffic signal.
- Add bike detection at the US 101/Pacific Way traffic signal.
- The shoulder along US 101 south of Pacific Way is too narrow where the highway merges to one lane. Drivers often come into the shoulder.
- The following projects were voted as a favorite by meeting attendees:
 - Project C
 - Project G11
 - Project G14
 - Project G22

Aspirational Transportation Improvement Projects: Driving and Transit

The public was asked to comment on proposed motor vehicle and transit improvement projects. The following is a summary of the response.

- The bridge along Highlands Lane provides the only motor vehicle access to The Reserve neighborhood, which is in the City of Gearhart.
- Extend Marion Avenue from Pacific Way to D Street.
- Extend D Street to Ocean Avenue.



- Extend Neocoxie Boulevard south.
- Extend Ocean Avenue, Marion Avenue, Cottage Avenue to an extended Neocoxie Boulevard.
- The NorthWest Point bus to Portland is used often.
- A path or road connection is needed to connect the streets east of US 101.
- The following projects were voted as a favorite by meeting attendees:
 - Project G4 (2 votes)
 - Project G15 (2 votes)
 - Project G21
 - Project S6

US 101 Design Options

The public was asked to select which highway cross-section option they preferred between Shamrock Road and the north UGB (near Pine Lane).

- Option 1b, reconfiguring US 101 to provide bike lanes and widening for shared-use path was preferred with 9 votes.
- One attendee felt Option 1b should be a high priority given the amount of families and young children that walk along this segment of US 101.

The public was asked to select which highway cross-section option they preferred between Shamrock Road and Hillila Road.

- Option 2b, widening US 101 to five lanes, with a sidewalk and bike lanes was preferred with 11 votes.
- Option 2d, reconfiguring US 101 to three lanes and buffered bike lanes, and widening for a sidewalk received 5 votes.

The public was asked to select which highway cross-section option they preferred between Hillila Road and Pacific Way.

- Option 3b, widening US 101 to five lanes, with sidewalks and bike lanes, and Option 3d, reconfiguring US 101 to three lanes and buffered bike lanes, and widening for a sidewalk were preferred with 5 votes.

The public was asked to select which highway cross-section option they preferred between Pacific Way and G Street-Oster Road.

- Option 4b, reconfiguring US 101 to provide bike lanes and widening for sidewalks was preferred with 7 votes.
- One attendee preferred option 4b, but with a sidewalk on one side only.

The public was asked to select which highway cross-section option they preferred between G Street-Oster Road and the south UGB (near Seaside Airport Lane).



- Option 5b, reconfiguring US 101 to provide bike lanes and widening for shared-use path was preferred with 7 votes.

S. Ocean Avenue Design Options

The public was asked to select which design option they preferred for S. Ocean Avenue between Pacific Way and G Street.

- Option 4, removing the sidewalk along the east-side of the street, allow on-street parking along one-side and make S. Ocean Avenue one-way southbound, was preferred with 7 votes.
- Option 1, prohibit on-street parking, and Option 3, removing the sidewalk along the east-side of the street, allow on-street parking along one-side and make S. Ocean Avenue one-way northbound, each received 1 vote.



Community Event Posters

Welcome to the Public Event for the Gearhart TSP!



What is a Transportation System Plan?

Gearhart’s Transportation System Plan (TSP) provides a long-term guide to city transportation investments. The plan evaluates the current transportation system and determines how it could be improved to make travel in Gearhart better.

The project team has identified transportation system investments recommended to serve travel in Gearhart. The preliminary list of projects addresses the gaps and deficiencies identified in Technical Memorandum #4 (Transportation System Conditions, Deficiencies and Needs) and discussed at the first public event.

Purpose of Today’s Public Event

This is your opportunity to review and comment on projects for walking, biking, driving, and transit. Refer to the posters and a handout that summarizes the displayed projects. As you visit these displays, consider the topics below when providing your feedback. Place a sticky note or write directly on the map near the project(s) where you have a suggestion, comment, question, concern, or compliment.

Transportation Funding

- The City likely will have about \$1.2 million to spend on transportation projects over the next 20 years. ODOT (Oregon Department of Transportation) may contribute \$1 million for investments that would benefit the US 101 corridor. The full TSP project list, however, includes 57 projects, with costs likely to exceed the expected revenue. Because our needs will likely exceed the money we have to spend, the TSP will need to prioritize projects. This is also a good time to explore new revenue sources to help fund additional improvements.

Major Components of a TSP

We are at this step!

Background Information	Transportation Conditions	Transportation System Improvements	Draft TSP	Final TSP
Review relevant state and local plans, policies, and regulations.	Review the transportation system to identify current conditions and problems, and determine future needs through 2040.	Identify and evaluate solutions and projects for the identified needs of the transportation system through 2040.	The solutions and projects that best meet the needs of the city will be incorporated into a Draft TSP.	Planning Commission/ City Council Public Hearings, and city adoption of Final TSP.
	Public Event #1	Public Event #2		Public Hearings

Draft Aspirational Transportation Improvement Projects and Programs

- The full list includes 57 projects.
- Each project was assigned a primary source of funding for planning purposes (City, State, County, or SETD), although such designations do not create any obligation for funding.
- The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes.

Financially Constrained Projects (Technical Memo #6)

- A prioritized list of “City” projects (where the City is assumed to be the primary contributor of funding) that is constrained to a 20-year funding estimate will be provided in Technical Memorandum #6 (Recommended Transportation Improvements).
- Will also provide a prioritized list of “State” projects that the City could use to make decisions for applying for grants or other funding mechanisms.

Aspirational Transportation Improvement Projects: Walking and Biking

Please place a sticky note or write directly on the map near the project(s) of which you have a suggestion, comment, question, concern or compliment.

Project ID	Project Description	Project Elements*	Project Purpose	Primary Funding Source
B	Tsunami Evacuation Route Identification	Enhance tsunami evacuation route wayfinding throughout the City.	Tsunami evacuation	City
C	Bike Parking Program	Install new bike parking at key activity centers around the City.	Increase bike parking	City
D	Wayfinding Signage Program	Install wayfinding signage to assist pedestrians and bicyclists in choosing comfortable routes and to help visitors navigate through the City.	Improve wayfinding signage	City
E	Ridge Path Enhancements	Implement improvements along the Ridge Path alignment and at Ridge Path street crossings. Key areas for street crossing improvements include at Pacific Way, and F Street.	Ridge Path enhancements	City
G1	Pine Ridge Drive Improvements from Shamrock Road north to the end of the street	Add pedestrian and bicycle improvements to Pine Ridge Drive from Shamrock Road north to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	City
G2	Shamrock Road Improvements from US 101 to Pine Ridge Drive	Add pedestrian and bicycle improvements to Shamrock Road from US 101 to Pine Ridge Drive (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	City
G3	Pine Ridge Drive Improvements from Gearhart Loop Road to Shamrock Road	Add pedestrian and bicycle improvements to Pine Ridge Drive from Gearhart Loop Road to Shamrock Road (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	City
G5	Gearhart Loop Road Improvements from US 101 to Cottage Avenue	Add pedestrian and bicycle improvements to Gearhart Loop Road from US 101 to Cottage Avenue (e.g., shared-use path on the north side, and sidewalk or path on the south side).	Walking and biking facility gap; tsunami evacuation	City
G6	Gearhart Loop Road Improvements from Cottage Avenue to 10th Street	Add pedestrian and bicycle improvements to Gearhart Loop Road from Cottage Avenue to 10th Street (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	City
G7	Marion Avenue Improvements from Pacific Way to 10th Street	Add bicycle improvements to Marion Avenue from Pacific Way to 10th Street (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	City
G8	Fifer Heights Road Improvements from Gearhart Loop Road to the end of the street	Add pedestrian and bicycle improvements to Fifer Heights Road from Gearhart Loop Road to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	City
G9	Shared-use path connection between Summit Avenue and Fifer Heights Road	Create a shared-use path connection between Summit Avenue and Fifer Heights Road.	Walking and biking facility gap; tsunami evacuation	City
G10	Shared-use path connection over Neacoxie Creek, between the 8th Street and Summit Avenue. The connection to Summit Avenue is via a vacant lot (right-of-way is needed).	Create a shared-use path connection over Neacoxie Creek, between the 8th Street and Summit Avenue. The connection to Summit Avenue is via a vacant lot (right-of-way is needed).	Walking and biking facility gap; tsunami evacuation	City
G11	Summit Avenue Improvements from 5th Street north to the end of the street	Add pedestrian and bicycle improvements to Summit Avenue from 5th Street north to the end of the street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	City
G12	Summit Avenue Improvements from Pacific Way to 5th Street	Add pedestrian and bicycle improvements to Summit Avenue from Pacific Way to 5th Street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	City
G13	5th Street Improvements from US 101 to Summit Avenue	Add pedestrian and bicycle improvements to 5th Street from US 101 to Summit Avenue (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	City
G14	Pacific Way Improvements from US 101 to the Ridge Path	Add pedestrian and bicycle improvements to Pacific Way from US 101 to the Ridge Path (e.g., sidewalk or path on the north side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	City
G16	Pacific Way Improvements from Marion Avenue to the Ridge Path	Add bicycle improvements to Pacific Way from Marion Avenue to the Ridge Path (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	City
G18	F Street-G Street Improvements from Ocean Avenue to Cottage Avenue	Add pedestrian improvements to F Street-G Street from Ocean Avenue to Cottage Avenue (e.g., sidewalk or path on the south side).	Walking facility gap; tsunami evacuation	City
G19	Cottage Avenue Improvements from Pacific Way to F Street	Add bicycle improvements to Cottage Avenue from Pacific Way to F Street (e.g., pavement markings/ signage designating it as a shared street for bikes).	Biking facility gap	City
G20	F Street-G Street Improvements from US 101 to Cottage Avenue	Add pedestrian and bicycle improvements to F Street-G Street from US 101 to Cottage Avenue (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	City
G22	Woodland Avenue Improvements from Pacific Way to G Street	Add pedestrian and bicycle improvements to Woodland Avenue from Pacific Way to G Street (e.g., sidewalk or path on the west side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	City
G23	Oster Road Improvements from US 101 to the end of the street	Add pedestrian and bicycle improvements to Oster Road from US 101 to the end of the street (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	City
G24	McCormick Gardens Road extension from Pacific Way to Oster Road	Extend McCormick Gardens Road from Pacific Way to Oster Road. This street should be constructed as a Collector, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	City
G25	Railroad Avenue Improvements from Pacific Way to Oster Road	Add pedestrian and bicycle improvements to Railroad Avenue from Pacific Way to Oster Road (e.g., sidewalk or path on the east side, and pavement markings/ signage designating it as a shared street for bikes).	Walking and biking facility gap; tsunami evacuation	City
G26	Pacific Way Improvements from US 101 to McCormick Gardens Road	Add pedestrian and bicycle improvements to Pacific Way from US 101 to McCormick Gardens Road (e.g., shared-use path on the south side).	Walking and biking facility gap; tsunami evacuation	City
G27	Railroad Avenue extension from Pacific Way to Park Lane	Extend Railroad Avenue from Pacific Way to Park Lane. This street should be constructed as a Local Street, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	City
G28	Shared-use path connection between 5th Street and McCormick Gardens Road	Create a shared-use path connection between 5th Street and McCormick Gardens Road.	Walking and biking facility gap; tsunami evacuation	City
G29	Tressel Drive extension from Hillila Road to Park Lane	Extend Tressel Drive from Hillila Road to Park Lane. This street should be constructed as a Local Street, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	City
G30	Tressel Drive Improvements from Hillila Road to the end of the street	Add pedestrian and bicycle improvements to Tressel Drive from Hillila Road to the end of the street (e.g., shared-use path on the east side).	Walking and biking facility gap; tsunami evacuation	City
G31	Shared-use path connection between Shamrock Road and Tressel Drive	Create a shared-use path connection between Shamrock Road and Tressel Drive.	Walking and biking facility gap; tsunami evacuation	City
C1	Pine Ridge Drive extension to Highlands Lane	Extend Pine Ridge Drive to Highlands Lane. This street should be constructed as a Local street, with a shared-use path on the west side. This project is located outside of the UGB.	Street connectivity; walking and biking facility gap	County
C2	Hillila Road Improvements from US 101 to Tressel Drive	Add pedestrian and bicycle improvements to Hillila Road from US 101 to Tressel Drive (e.g., shared-use path on the north side).	Walking and biking facility gap; tsunami evacuation	County
C3	Hillila Road Improvements from Tressel Drive to McCormick Gardens Road	Add pedestrian and bicycle improvements to Hillila Road from Tressel Drive to McCormick Gardens Road (e.g., shared-use path on the north side). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	County
C4	Salminen Road Improvements from McCormick Gardens Road to the end of the street	Add pedestrian and bicycle improvements to Salminen Road from McCormick Gardens Road to the end of the street (e.g., shared-use path). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	County
C5	McCormick Gardens Road Improvements from Hillila Road to the UGB	Add pedestrian and bicycle improvements to McCormick Gardens Road from Hillila Road to the UGB, 0.15 miles south of Salminen Road (e.g., shared-use path on the east side). This project is located outside of the UGB.	Walking and biking facility gap; tsunami evacuation	County
C6	McCormick Gardens Road Improvements from Pacific Way to the UGB	Add pedestrian and bicycle improvements to McCormick Gardens Road from Pacific Way to the UGB, 0.15 miles south of Salminen Road (e.g., shared-use path on the east side).	Walking and biking facility gap; tsunami evacuation	County

Note: * The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change, and will ultimately be determined through a preliminary and final design process, and are subject to City and/or ODOT approval.

Legend:

Pedestrian, and Bicycle Facilities:

		Sidewalk		Urban Growth Boundary
		Bike Lane or Shoulder Bikeway (> 5 feet)		Arterial or Collector Street
		Trails		Project ID
		Planned Shared Street		



Revised October 11, 2016

DKS

Aspirational Transportation Improvement Projects: Motor Vehicle and Transit

Please place a sticky note or write directly on the map near the project(s) of which you have a suggestion, comment, question, concern or compliment.

Project ID	Project Description	Project Elements*	Project Purpose	Primary Funding Source
A	Neighborhood Traffic Calming Program	Implement program to process community requests for neighborhood traffic calming, investigate options, and implement improvements. Key areas for traffic calming investigations include: Cottage Avenue, F Street, G Street, and Pine Ridge Drive.	Reduce motor vehicle travel speeds along residential streets	City
G4	Gearhart Loop Road bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the Gearhart Loop Road bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	City
G15	Pacific Way bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the Pacific Way bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	City
G17	Ocean Avenue Improvements from Pacific Way to G Street	Improvements to be determined through alternatives evaluation.	Emergency vehicle access	City
G21	G Street bridge/ culvert over Neacoxie Creek Improvements	Provide seismic retrofits to the G Street bridge/ culvert over Neacoxie Creek.	Walking and biking facility gap; tsunami evacuation	City
G24	McCormick Gardens Road extension from Pacific Way to Oster Road	Extend McCormick Gardens Road from Pacific Way to Oster Road. This street should be constructed as a Collector, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	City
G27	Railroad Avenue extension from Pacific Way to Park Lane	Extend Railroad Avenue from Pacific Way to Park Lane. This street should be constructed as a Local Street, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	City
G29	Tressel Drive extension from Hillila Road to Park Lane	Extend Tressel Drive from Hillila Road to Park Lane. This street should be constructed as a Local Street, with a shared-use path on the east side.	Street connectivity; walking and biking facility gap	City
S1	US 101 Improvements between Shamrock Road and the north UGB (near Pine Lane)	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	State
S2	US 101 Improvements between Shamrock Road and Gearhart Loop Road	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	State
S3	US 101/ Gearhart Loop Road Intersection Improvements	Intersection improvements (e.g., possible installation of a traffic signal, if warranted; upgrade the intersection to current ADA standards).	Motor vehicle congestion; walking and biking highway crossing	State
S4	US 101 Improvements between Gearhart Loop Road and 5th Street	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	State
S5	US 101 Improvements between 5th Street and Pacific Way	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	State
S6	US 101/ Pacific Way Intersection Improvements	Intersection improvements (e.g., upgrade the intersection to current ADA standards).	Walking and biking highway crossing	State
S7	US 101 Improvements between Pacific Way and G Street-Oster Road	Improvements to be determined through alternatives evaluation.	Motor vehicle safety; walking and biking facility gap	State
S8	US 101 Improvements between G Street-Oster Road and the south UGB (near Seaside Airport Lane)	Improvements to be determined through alternatives evaluation. This project should connect with the planned shared-use path in Seaside.	Motor vehicle safety; walking and biking facility gap	State
S9	US 101 bridge over Mill Creek in Seaside Improvements	Support the replacement of the US 101 bridge over Mill Creek (Bridge No. 03079A) in Seaside, to include seismic retrofits and pedestrian and bicycle facilities.	Walking and biking facility gap; tsunami evacuation	State
S10	US 101 bridge over Neawanna Creek in Seaside Improvements	Support the replacement of the US 101 bridge over Neawanna Creek (Bridge No. 01305) in Seaside (Seaside TSP Project 1b), to include seismic retrofits and pedestrian and bicycle facilities.	Walking and biking facility gap; tsunami evacuation	State
C1	Pine Ridge Drive extension to Highlands Lane	Extend Pine Ridge Drive to Highlands Lane. This street should be constructed as a Local street, with a shared-use path on the west side. This project is located outside of the UGB.	Street connectivity; walking and biking facility gap	County
T1	Bus stop along northbound US 101 near Wild Rose Lane Upgrades	Upgrade amenities at the SETD bus stop along northbound US 101 near Wild Rose Lane, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	City/ SETD
T2	Bus stop along southbound US 101 near Wild Rose Lane Upgrades	Upgrade amenities at the SETD bus stop along southbound US 101 near Wild Rose Lane, to include sheltered stops with seating, route information, bicycle parking, and improved lighting. The NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane should be relocated to this location (see project 11).	Transit facility improvements	City/ SETD
T3	NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane Relocation	Relocate the NorthWest POINT bus stop along southbound US 101 near Cottonwood Lane to share the location with the SETD bus stop along southbound US 101 near Wild Rose Lane.	Transit facility improvements	City/ SETD
T4	Bus stop along southbound US 101 near Pacific Way Upgrades	Upgrade amenities at the SETD bus stop along southbound US 101 near Pacific Way, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	City/ SETD
T5	Bus stop along northbound US 101 near Pacific Way Upgrades	Upgrade amenities at the SETD bus stop along northbound US 101 near Pacific Way, to include sheltered stops with seating, route information, bicycle parking, and improved lighting.	Transit facility improvements	City/ SETD

Note: * The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change, and will ultimately be determined through a preliminary and final design process, and are subject to City and/or ODOT approval.

Legend:

- Planned Street Improvement
- - - Planned Street Extension
- Planned Intersection Improvement
- Planned Bus Stop Improvement
- Planned Bridge or Culvert Improvement
- Urban Growth Boundary
- Arterial or Collector Street
- # Project ID

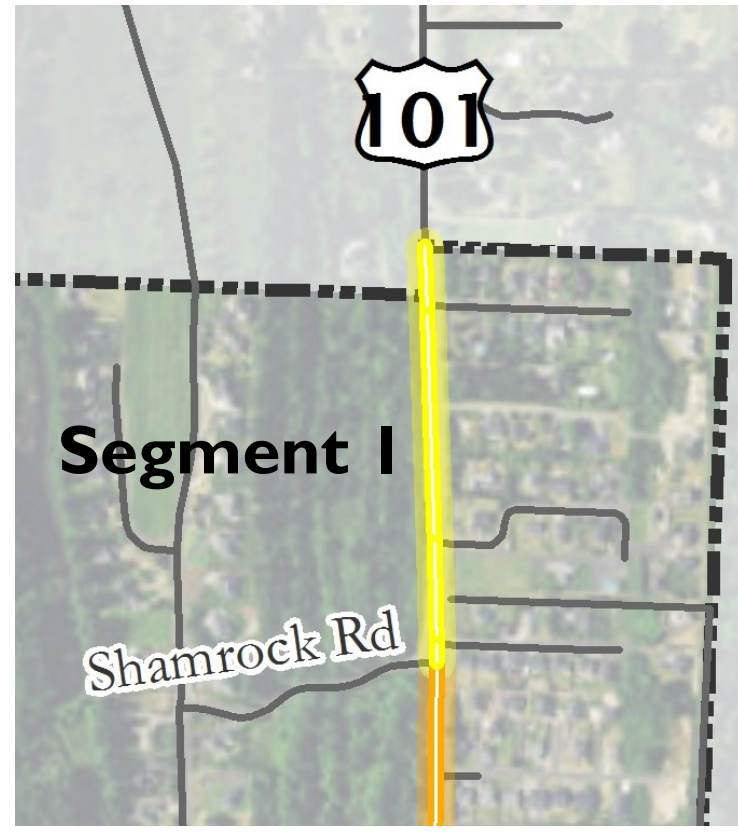


Revised October 11, 2016

US 101 Design Options

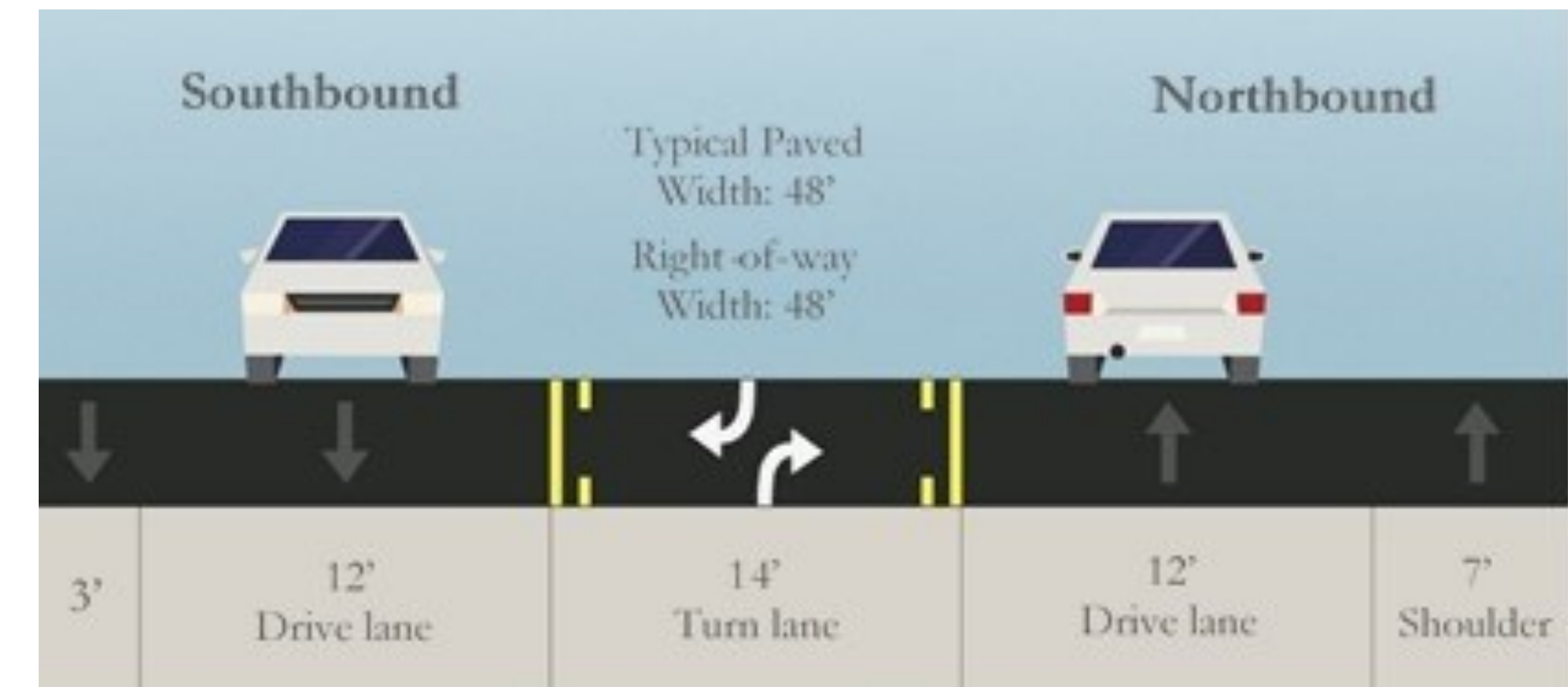
Segment I: Shamrock Road to the north UGB (near Pine Lane)

- Includes three travel lanes, a seven-foot shoulder in the northbound direction, and a narrow shoulder in the southbound direction to accommodate those bicycling.
- It lacks adequate pedestrian facilities.



Option 1a: Do Nothing

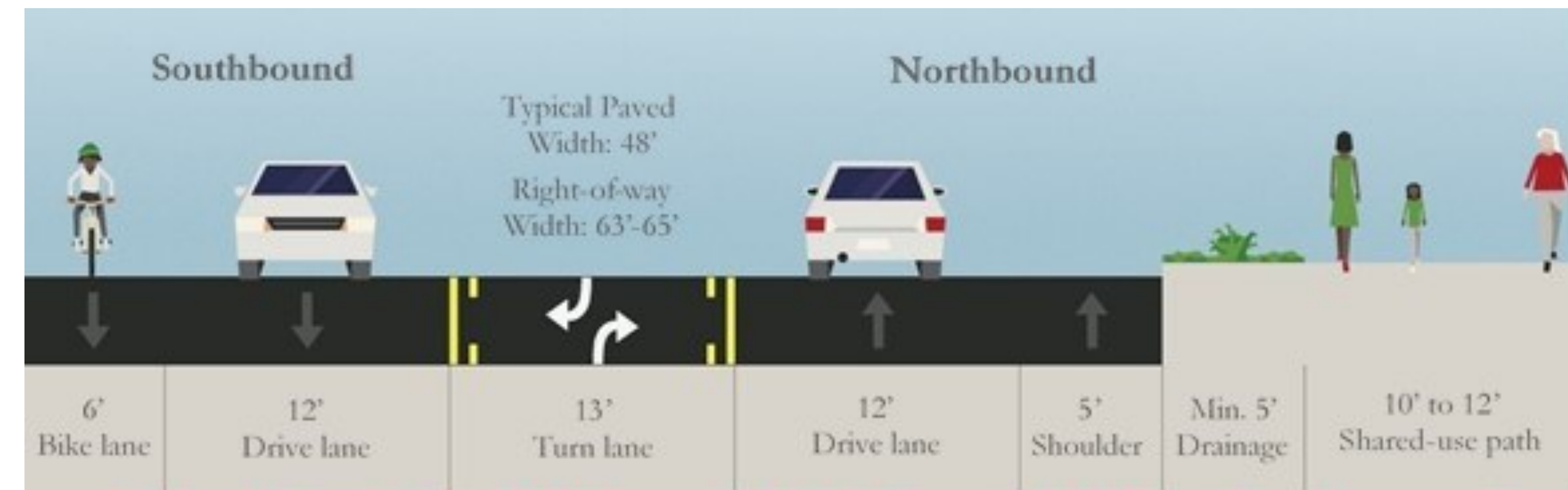
- No improvements are constructed
- US 101 retains three travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Design option is preliminary and subject to change

Option 1b: Reconfigure US 101 to provide bike lanes and widen for a shared-use path

- Improvements will reconfigure the existing paved width of US 101 (i.e., center turn lane width reduced by one foot, and northbound shoulder width reduced by two feet) to provide a southbound bike lane.
- A separated shared-use path will be constructed along the east side of the highway to accommodate those walking and bicycling.
- A buffer will be between the highway and path to treat storm water.



Design option is preliminary and subject to change

Evaluation of Segment 1 Design Options

Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 1a	😊	😞	😞	😊	N/A
Option 1b	😊	😊	😊	😊	\$\$

US 101 Design Options

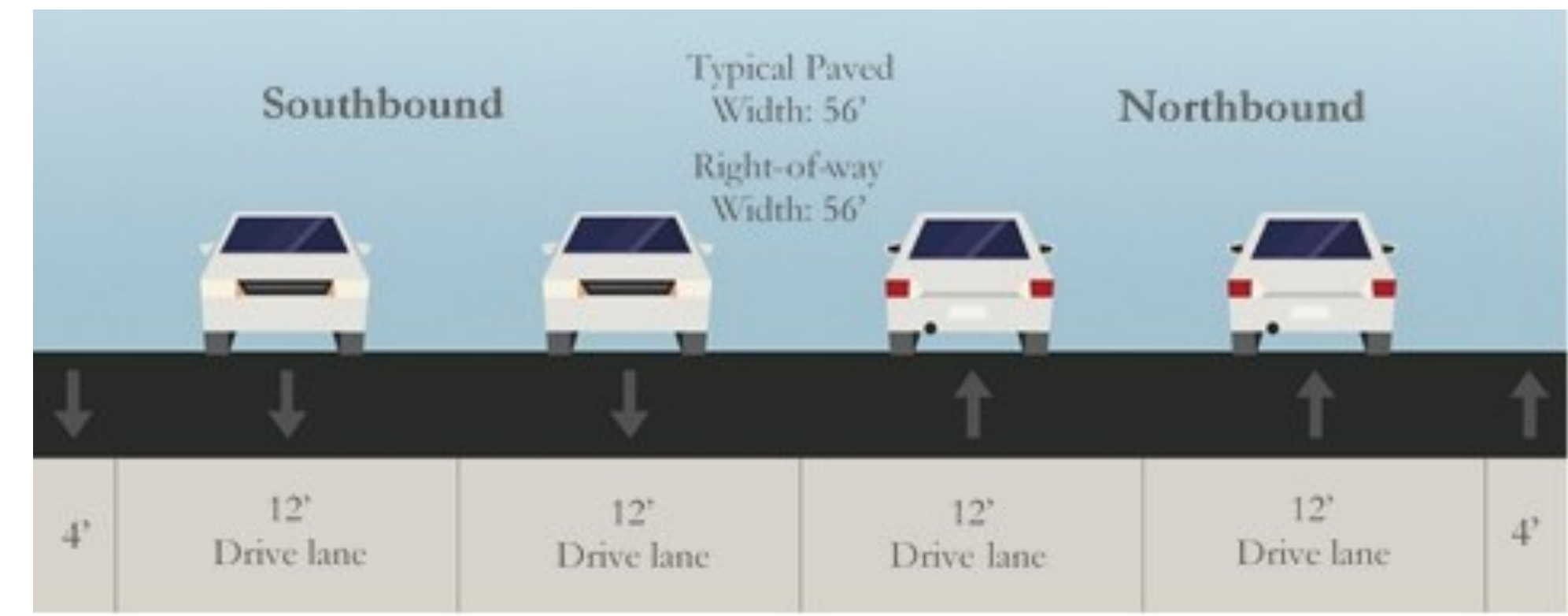
Segment 2: Shamrock Road to Hillila Road



- The segment of US 101 includes four travel lanes with only narrow shoulders to accommodate those walking or bicycling.
- This segment has several driveway and street connections to US 101, and lacks a center turn lane for decelerating left turning vehicles to move out of the path of through traffic.
- This segment was identified as a hazardous section of highway.
- This segment has bus stops on both sides of US 101 near Wild Rose Lane.
- Flooding has been noted to occur due to curbs along the edge of the highway and lack of drainage.

Option 2a: Do Nothing

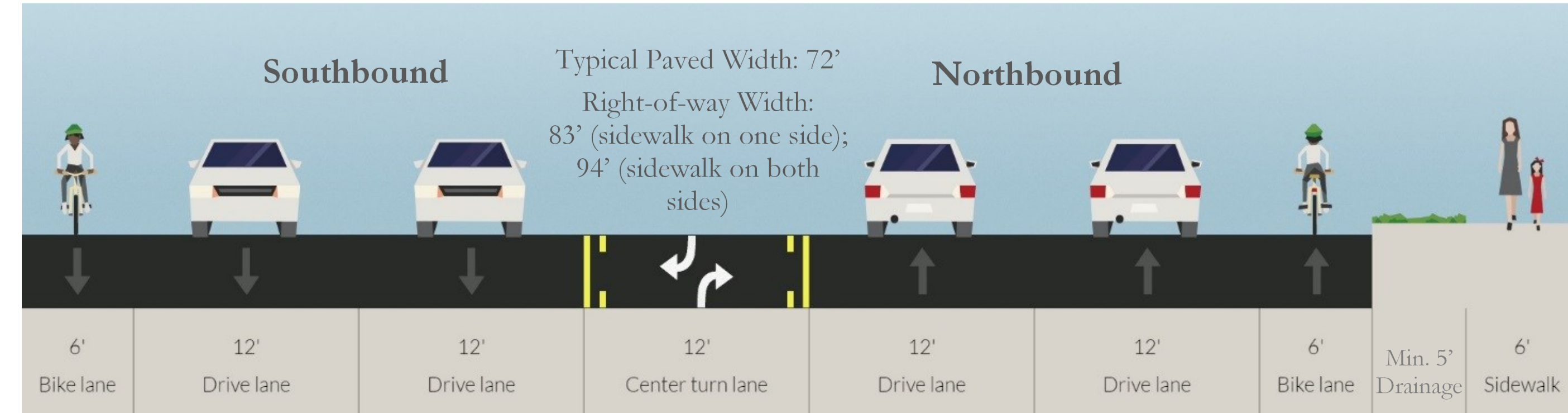
- No improvements are constructed.
- US 101 retains four travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Design option is preliminary and subject to change

Option 2b: Widen US 101 to five lanes, with a sidewalk and bike lanes

- US 101 widened to provide five lanes, in addition to the needed bike lanes and a sidewalk.
- This option will not fit within existing right-of-way and could impact adjacent development.



Design option is preliminary and subject to change

Option 2c: Reconfigure the street width of US 101 to include a center turn lane/median and bike lanes, and widen for a sidewalk

- US 101 will lose one travel lane in the northbound direction for a center turn lane and will be widened to provide bike lanes and a sidewalk.
- The elimination of one northbound travel lane for motor vehicles will increase congestion somewhat.
- Motor vehicle passing opportunities will still be available along the segment with two northbound travel lanes.



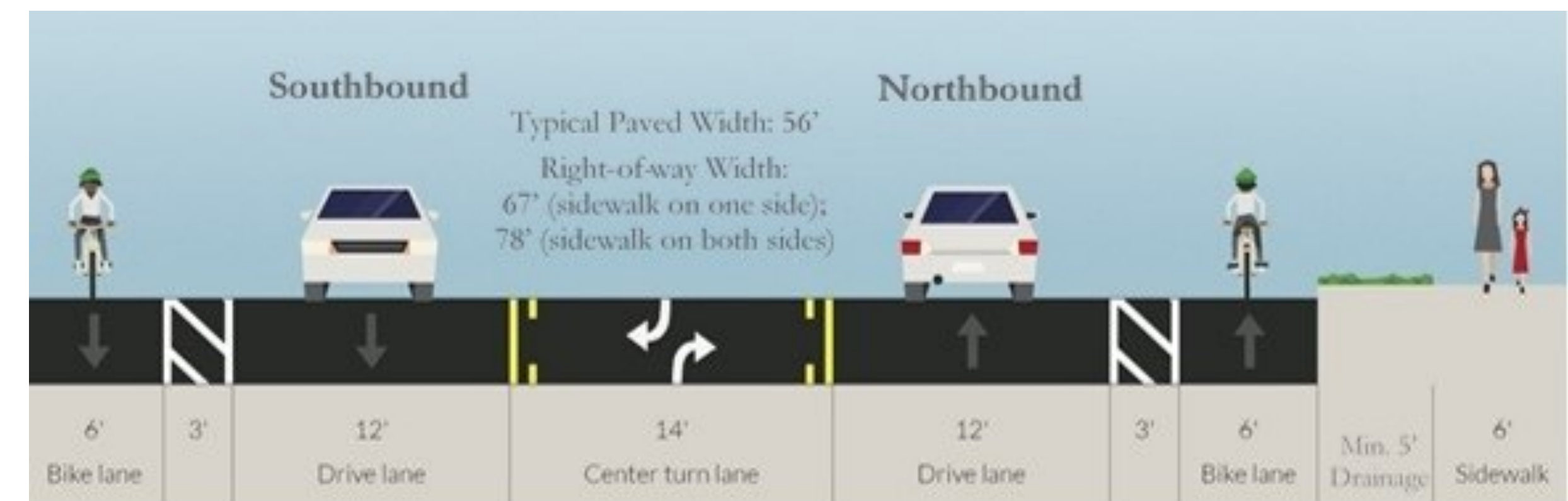
Design option is preliminary and subject to change

Evaluation of Segment 2 Design Options

Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 2a	😊	😞	😞	😊	N/A
Option 2b	😞	😊	😊	😊	\$\$\$\$\$
Option 2c	😊	😊	😊	😟	\$\$\$\$
Option 2d	😊	😊	😊	😞	\$\$

Option 2d: Reconfigure US 101 to three lanes and buffered bike lanes, and widen for a sidewalk

- US 101 will lose one travel lane in each direction and add bike lanes and striped buffers between the bike lane and travel lane.
- The elimination of travel lanes for motor vehicles will increase congestion somewhat.
- Will eliminate the existing motor vehicle passing opportunities along US 101 through Gearhart.

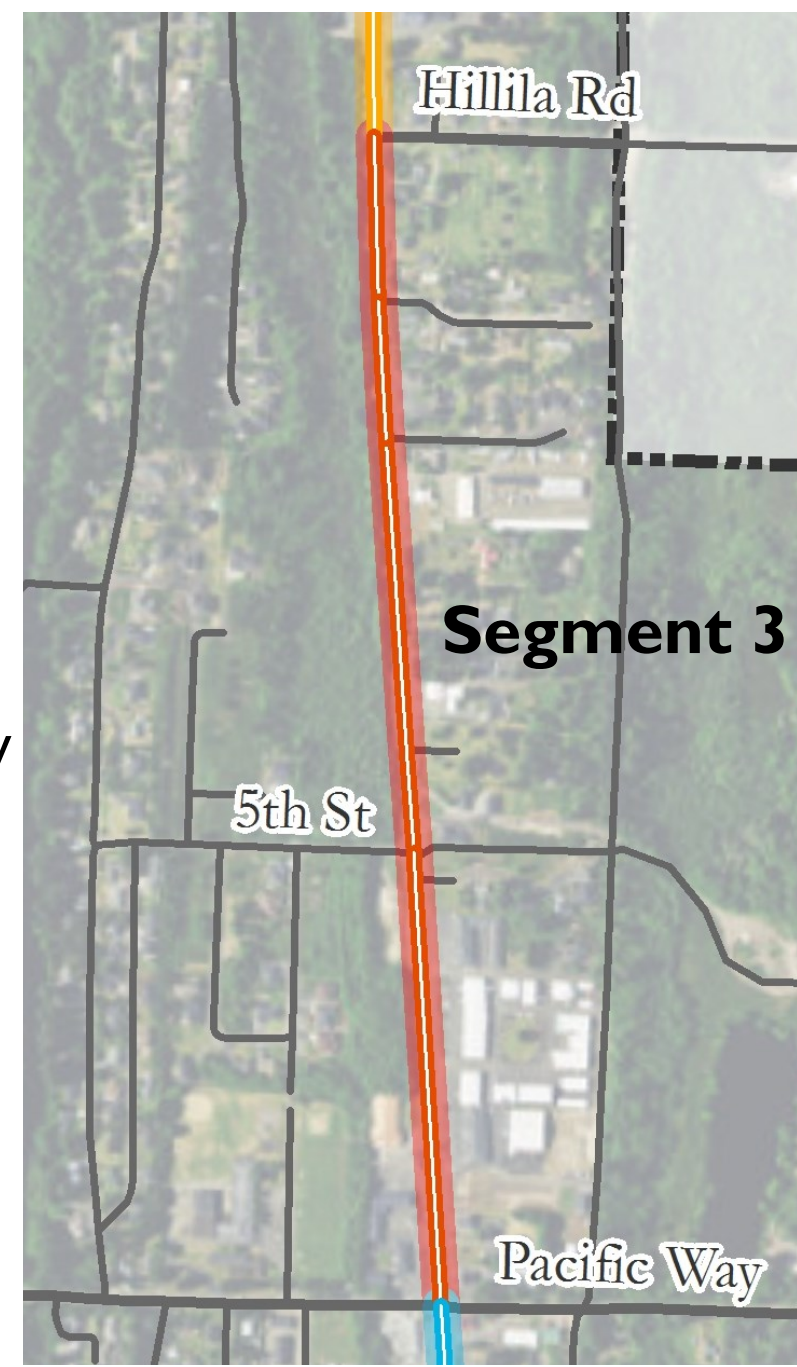


Design option is preliminary and subject to change

US 101 Design Options

Segment 3: Hillila Road to Pacific Way

- This segment of US 101 includes four travel lanes with only narrow shoulders to accommodate those walking or bicycling.
- This segment has several driveway and street connections to US 101, and lacks a center turn lane for decelerating left turning vehicles to move out of the path of through traffic.
- This segment has bus stops on both sides of US 101 near Pacific Way.



Option 3a: Do Nothing

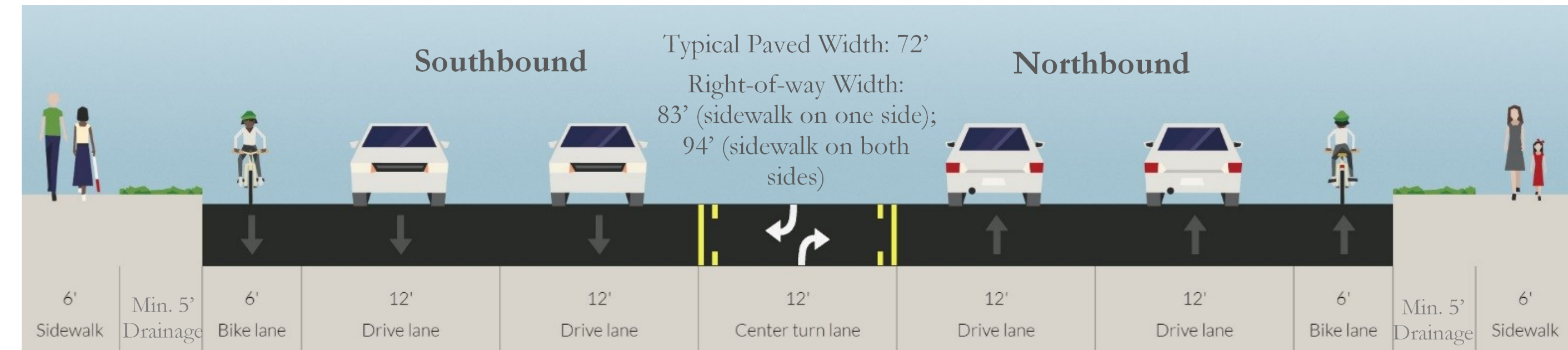
- No improvements are constructed.
- US 101 retains four travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Design option is preliminary and subject to change

Option 3b: Widen US 101 to five lanes, with sidewalks and bike lanes

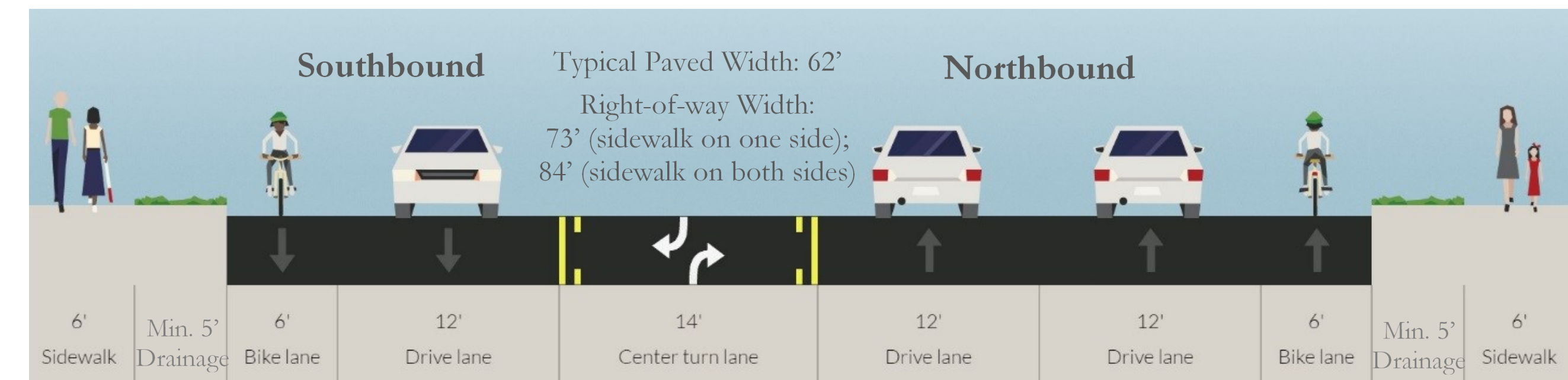
- US 101 widened to provide five lanes, in addition to the needed bike lanes and a sidewalk.
- This option will not fit within existing right-of-way and could impact adjacent development.



Design option is preliminary and subject to change

Option 3c: Reconfigure the street width of US 101 to include a center turn lane/median and bike lanes, and widen for sidewalks

- US 101 will lose one travel lane in the southbound direction for a center turn lane and will be widened to provide bike lanes and sidewalks.
- The elimination of one southbound travel lane for motor vehicles will increase congestion somewhat.
- Motor vehicle passing opportunities will still be available along the segment with two southbound travel lanes.



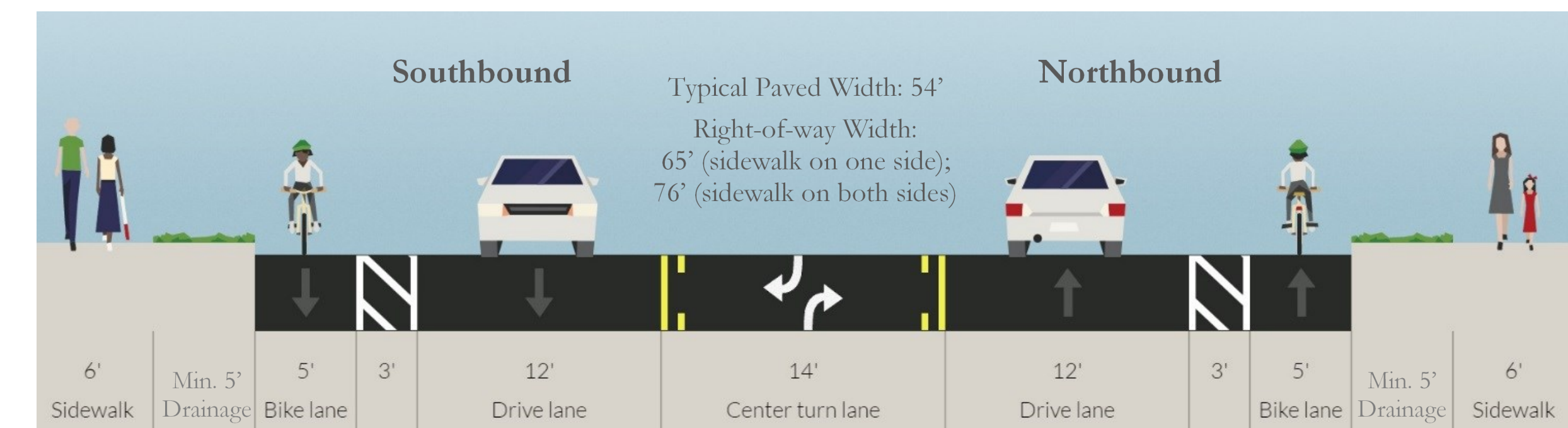
Design option is preliminary and subject to change

Evaluation of Segment 3 Design Options

Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 3a	😊	😞	😞	😊	N/A
Option 3b	😞	😊	😊	😊	\$\$\$\$\$
Option 3c	😊	😊	😊	😐	\$\$\$\$
Option 3d	😊	😊	😊	😞	\$\$

Option 3d: Reconfigure US 101 to three lanes and buffered bike lanes, and widen for sidewalks

- US 101 will lose one travel lane in each direction and add bike lanes and striped buffers between the bike lane and travel lane.
- The elimination of travel lanes for motor vehicles will increase congestion somewhat.
- Will eliminate the existing motor vehicle passing opportunities along US 101 through Gearhart.

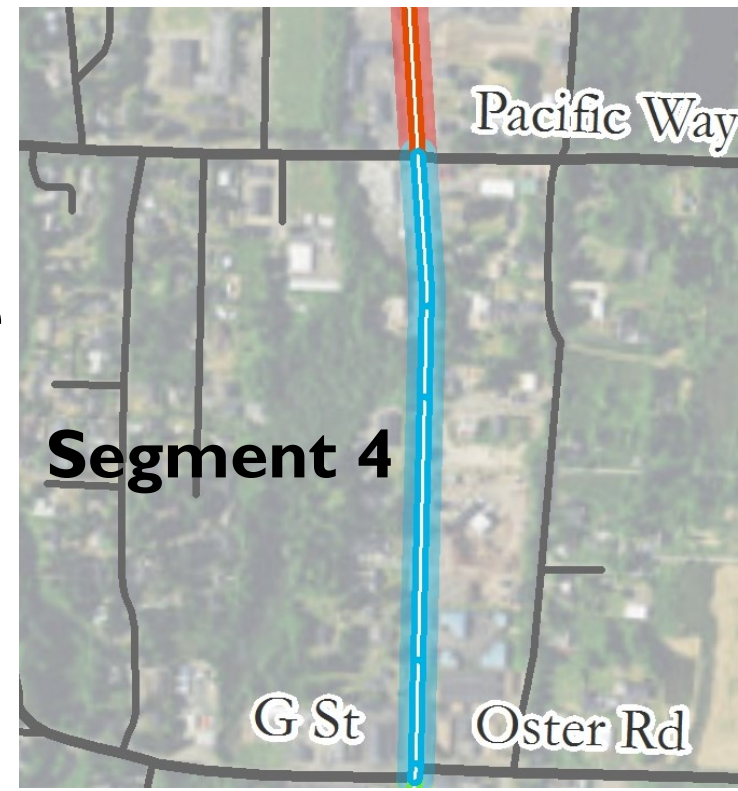


Design option is preliminary and subject to change

US 101 Design Options

Segment 4: Pacific Way to G Street-Oster Road

- The segment of US 101 includes three travel lanes .
- Has narrow shoulders to accommodate those walking or bicycling.



Option 4a: Do Nothing

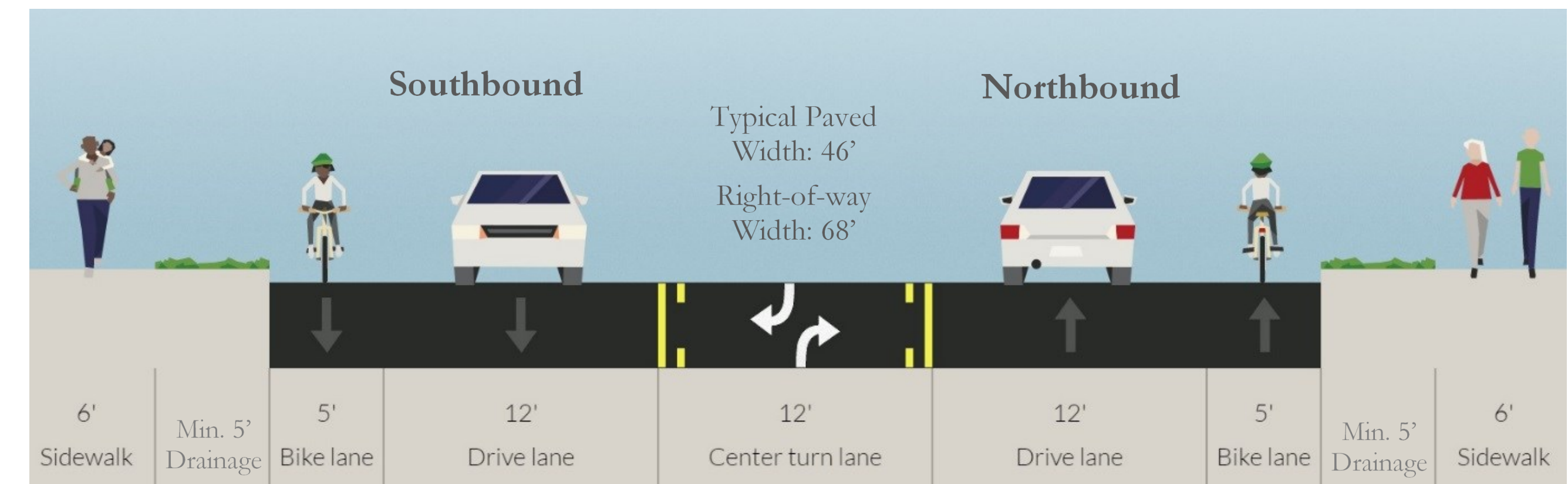
- No improvements are constructed
- US 101 retains three travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Design option is preliminary and subject to change

Option 4b: Reconfigure US 101 to provide bike lanes and widen for sidewalks

- Improvements will reconfigure the existing paved width of US 101 to provide bike lanes (i.e., center turn lane width reduced by two feet).
- Sidewalks will be constructed along both sides of the highway to accommodate those walking.
- A buffer will be between the highway and sidewalk to treat storm water.



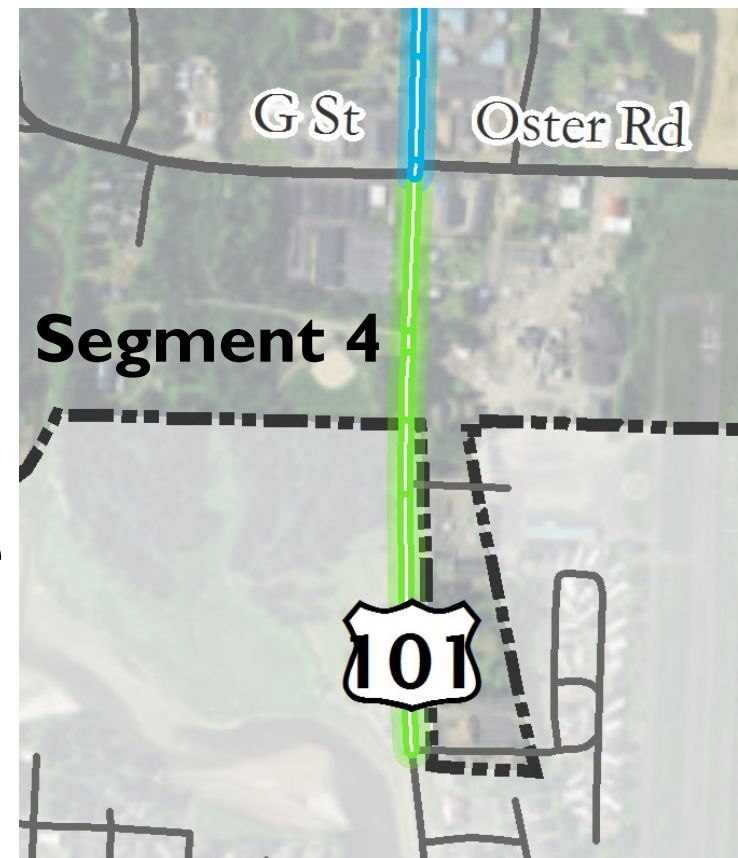
Design option is preliminary and subject to change

Evaluation of Segment 4 Design Options

Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 4a	😊	😞	😞	😊	N/A
Option 4b	😊	😊	😊	😊	\$\$

US 101 Design Options

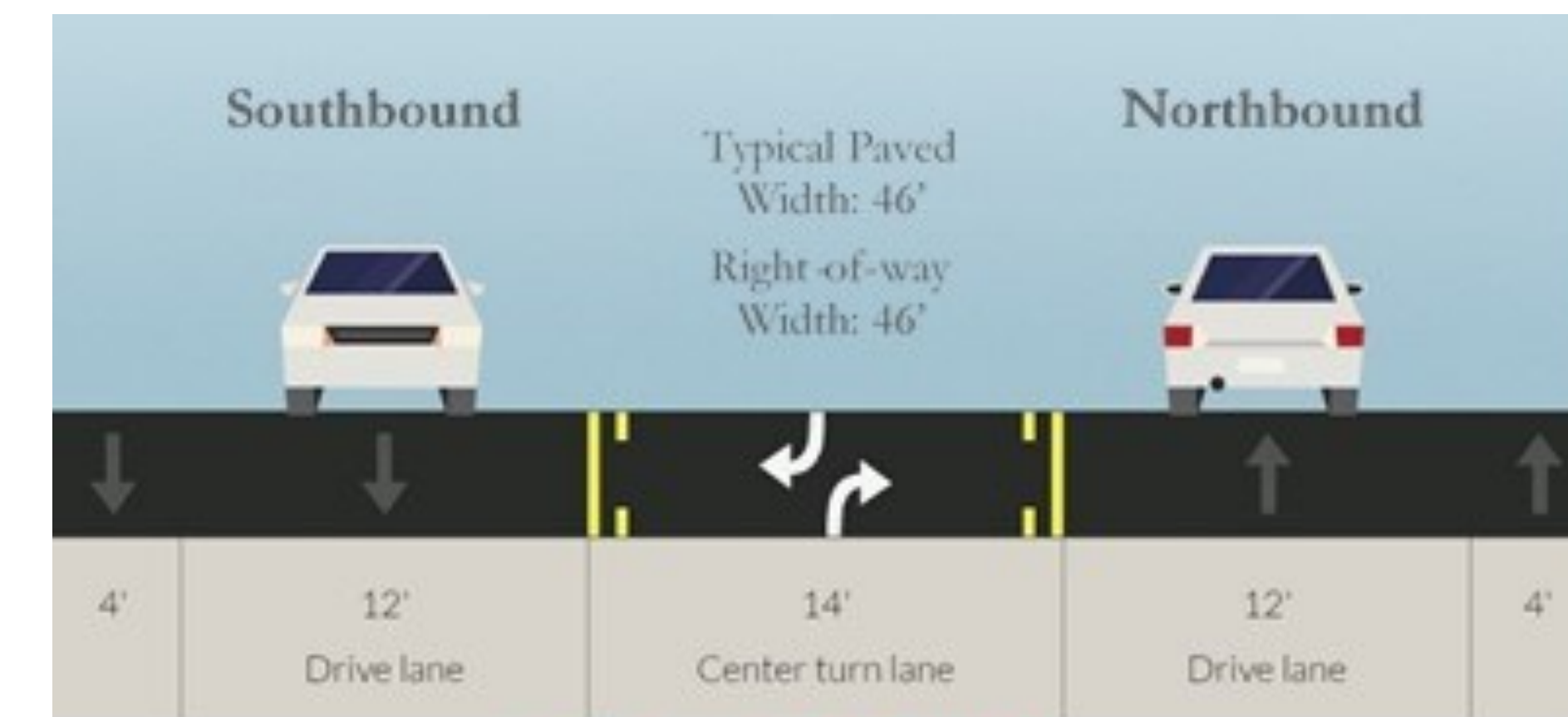
Segment 5: G Street-Oster Road to the south UGB (near Seaside Airport Lane)



- The segment of US 101 includes three travel lanes and narrow shoulders to accommodate those walking or bicycling.
- It lacks adequate pedestrian facilities.
- This segment should provide connectivity to a planned shared-use path on the east side of US 101 in Seaside.

Option 5a: Do Nothing

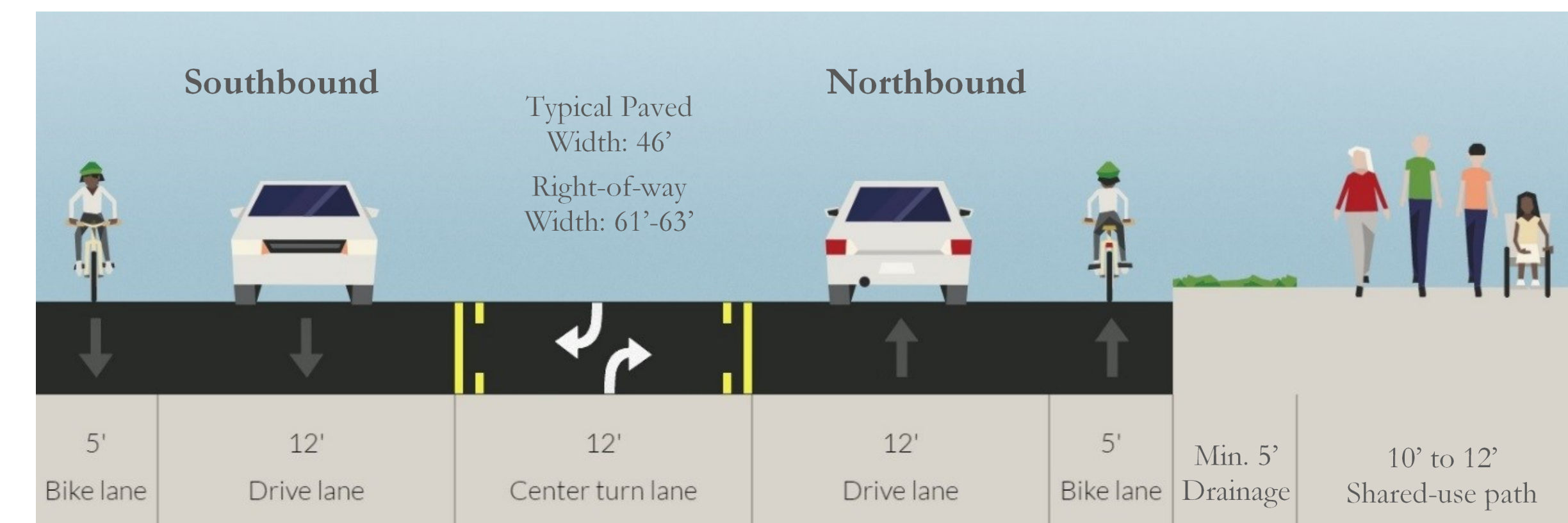
- No improvements are constructed
- US 101 retains three travel lanes with only a narrow shoulder to accommodate those walking or bicycling.



Design option is preliminary and subject to change

Option 5b: Reconfigure US 101 to provide bike lanes and widen for a shared-use path

- Improvements will reconfigure the existing paved width of US 101 to provide bike lanes (i.e., center turn lane width reduced by two feet).
- A separated shared-use path will be constructed along the east side of the highway to accommodate those walking and bicycling.
- A sidewalk will also be constructed along the west side of US 101 between G Street-Oster Road and Sons of Norway Road.
- A buffer will be between the highway and path/sidewalk to treat storm water.



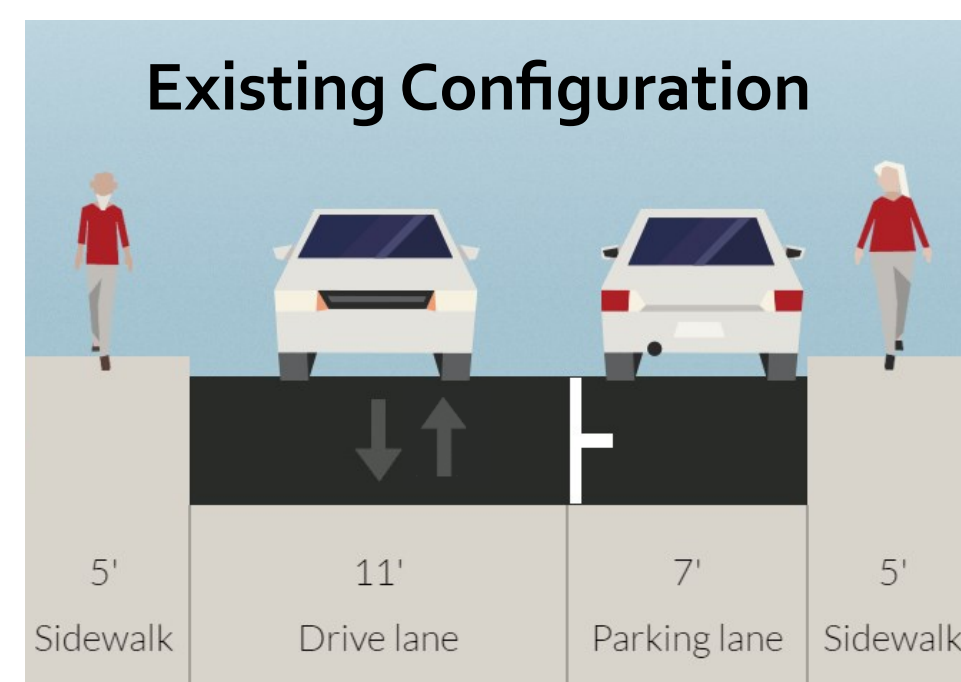
Design option is preliminary and subject to change

Evaluation of Segment 5 Design Options

Design Options	Fits in Existing Right-of-way	Improves Pedestrian and Bicycle Facilities	Improves Safety	Impact to Motor Vehicle Operations	Expected Cost
Option 5a	😊	😞	😞	😊	N/A
Option 5b	😊	😊	😊	😊	\$\$

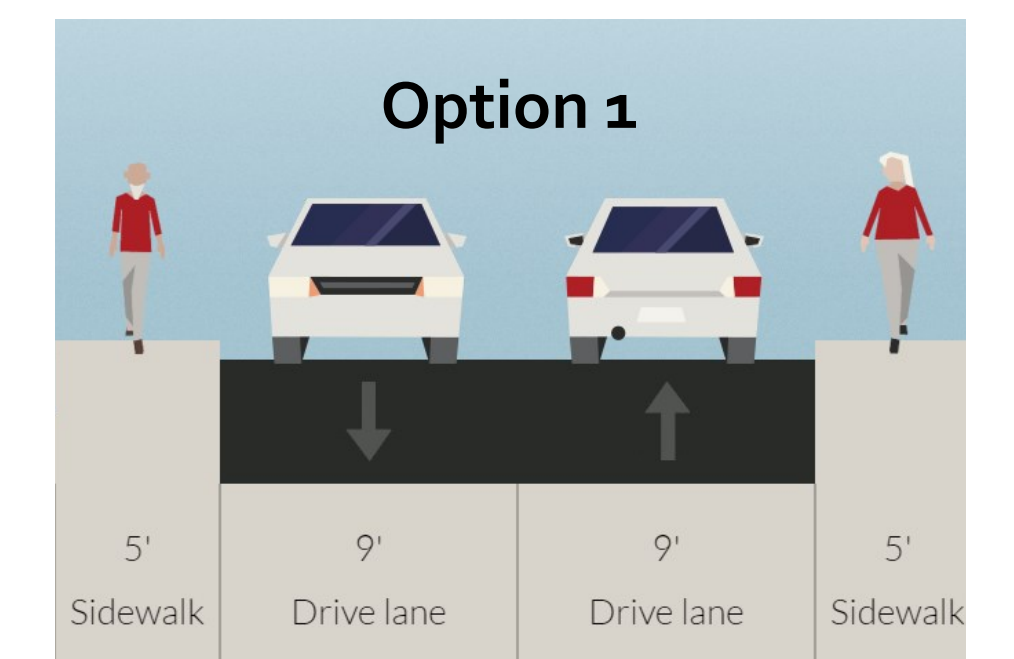
S. Ocean Avenue Design Options

- S. Ocean Avenue has a paved street width of approximately 18 feet.
- On-street parking is currently permitted along the east side of the street, where drivers often park on the sidewalk to allow more clearance for passing vehicles.
- This does not allow enough clearance for emergency vehicles to travel down the street.
- To allow on-street parking on one side and accommodate emergency vehicle access, a through lane of 14 feet is needed.



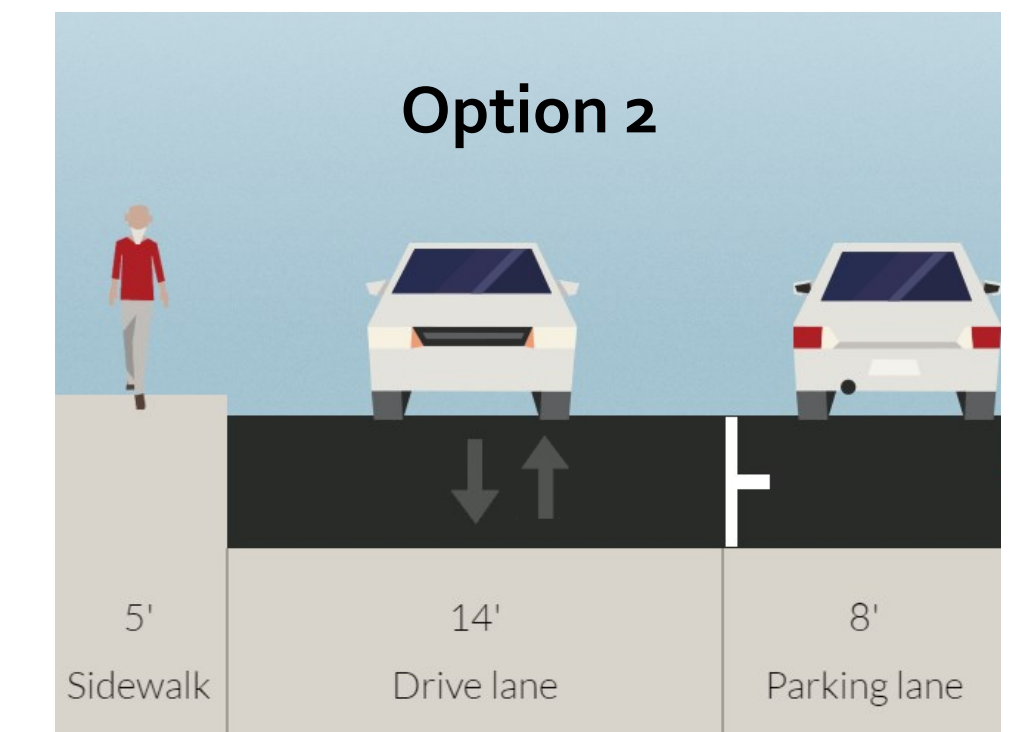
Option 1: Prohibit on-street parking

- Parking is prohibited on both sides of S. Ocean Avenue.
- It remains a two-way street, with a through lane width of approximately 18 feet.



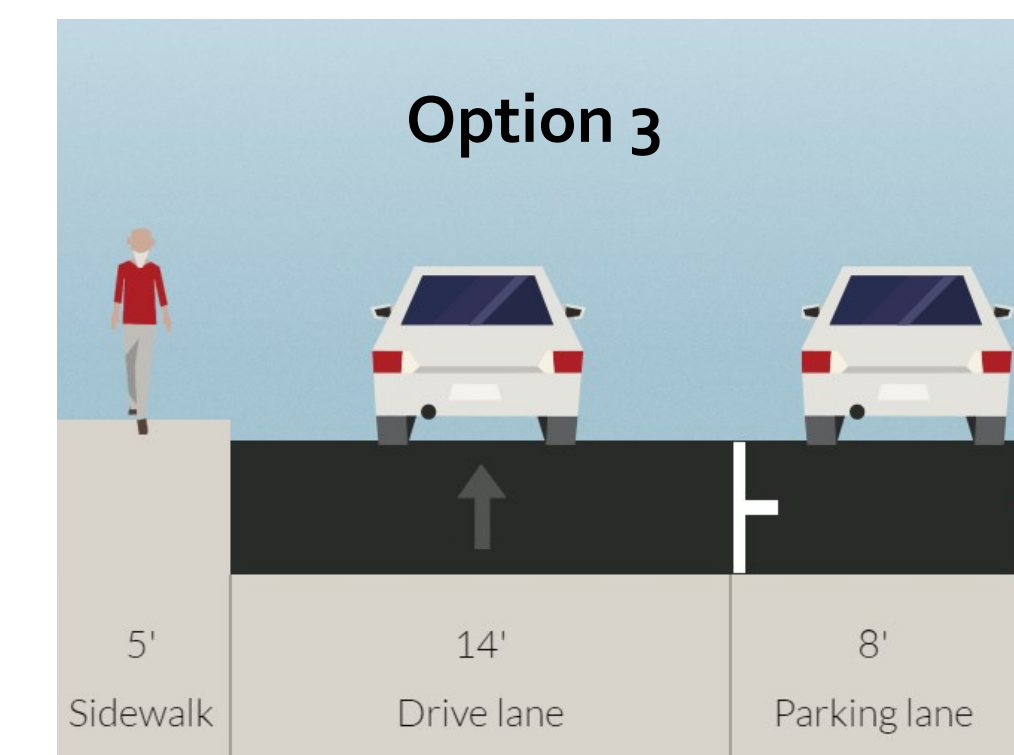
Option 2: Remove the sidewalk along the east-side of the street, and allow intermittent on-street parking

- The sidewalk on the east-side of the street is removed and intermittent on-street parking is allowed on the east side.
- Approximately eight feet of width will be available for on-street parking and 14 feet for a through lane.
- It remains a two-way street, with the breaks in the on-street parking stalls allowing for vehicles to pass.



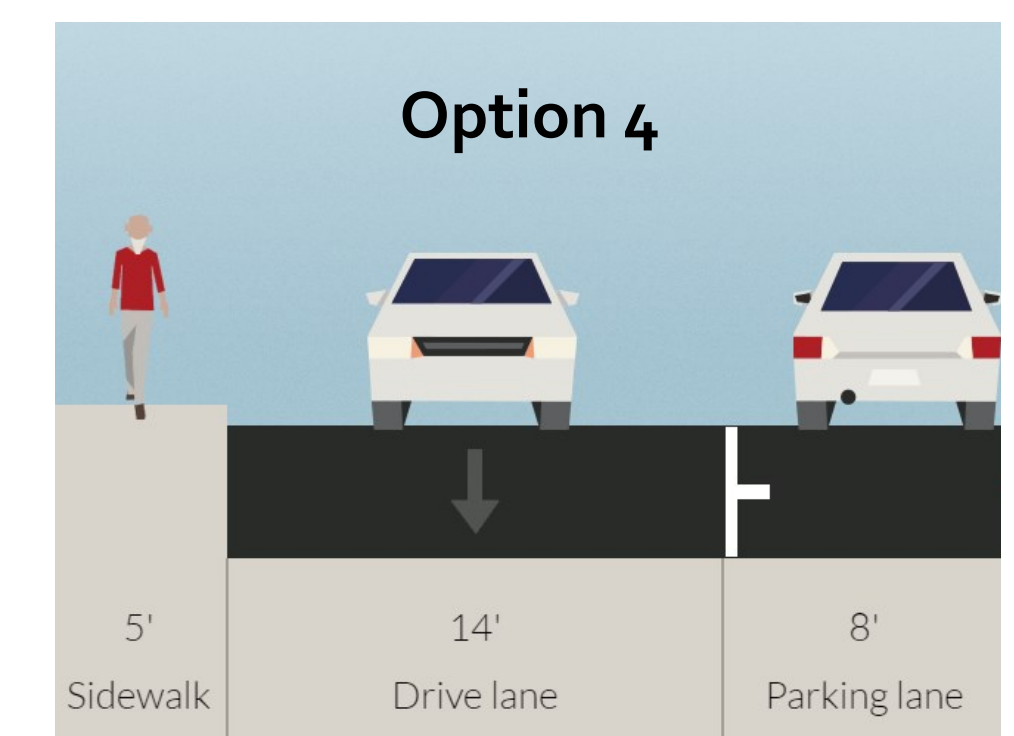
Option 3: Remove the sidewalk along the east-side of the street, allow on-street parking and make S. Ocean Avenue one-way northbound

- The sidewalk on the east-side of the street is removed and on-street parking is allowed on the east side.
- It becomes a one-way street northbound, with approximately eight feet of width available for on-street parking and 14 feet for a through lane.



Option 4: Remove the sidewalk along the east-side of the street, allow on-street parking and make S. Ocean Avenue one-way southbound

- The sidewalk on the east-side of the street is removed and on-street parking is allowed on the east side.
- It becomes a one-way street southbound, with approximately eight feet of width available for on-street parking and 14 feet for a through lane.



Section J

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Section K

Traffic Impact Analysis Guidelines

The contents of Volume 2 represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. In all cases, the contents of Volume 1 supersede those in Volume 2.



Gearhart

Guidelines for Transportation Impact Analysis

July 2017



This document describes the city’s required content for a Transportation Impact Analysis (TIA). In general terms, TIA applies to developments that are presumed to have a transportation impact.

A professional engineer must prepare the TIA and must use appropriate data, methods, and standards as documented in the Gearhart Guidelines for Transportation Impact Analysis.

Purpose

The purpose of this section is to implement Sections 660-012-0045(2)(b) and -0045(2)(e) of the State Transportation Planning Rule (TPR), which require the city to adopt performance standards and a process to apply conditions to land use proposals in order to minimize impacts on and protect transportation facilities.

The preparation of the TIA report is the responsibility of the land owner or applicant. Gearhart assumes no liability for any costs or time delays (either direct or inconsequential) associated with the TIA report preparation and review. The applicant can choose any qualified professional engineer. All TIA reports shall be reviewed by the city Planning and Public Works Department (referred to as “city” in this document). Studies that do not address these guidelines adequately shall be returned to the applicant for modification. It is the responsibility of the applicant to coordinate with local agencies and/or the Oregon Department of Transportation (ODOT) for any potential impacts to county roadways or state highways.

When is this Analysis Required?

A TIA may be required to be submitted to the city with a land use application at the request of the city or if the proposal is expected to involve one (1) or more of the following:

1. Changes in land use designation, or zoning designation that will generate more vehicle trip ends.
2. Projected increase in trip generation of 25 or more trips during either the AM or PM peak hour, or more than 300 daily trips.
3. Potential impacts to intersection operations.
4. Potential impacts to residential areas or local roadways, including any non-residential development that will generate traffic through a residential zone.
5. Potential impacts to pedestrian and bicycle routes, including, but not limited to school routes and multimodal roadway improvements identified in the TSP.
6. The location of an existing or proposed access driveway does not meet minimum spacing or sight distance requirements, or is 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, thereby creating a safety hazard.
7. A change in internal traffic patterns may cause safety concerns.
8. A TIA is required by ODOT pursuant with OAR 734-051.
9. Projected increase of five trips by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) per day, or an increase in use of adjacent roadways by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) by 10 percent.

Process

A landowner or developer seeking to develop/redevelop property shall contact the city at the project's outset. The city will review existing transportation data to establish whether a TIA is required. It is the responsibility of the applicant to provide enough detailed information for the city to make a determination. An applicant should have the following prepared, preferably in writing:

- Type of uses within the development
- The size of the development
- The location of the development
- Proposed new accesses or roadways
- Estimated trip generation and source of data
- Proposed study area

If the city cannot properly evaluate a proposed development's impacts without a more detailed study, a TIA will be required. Within a reasonable time following the initial contact, the city will establish whether a TIA is required. The city will provide a scoping summary detailing the study area and any special parameters or requirements beyond the requirements set forth in this document when preparing the TIA.

Requirements

The following sections detail the TIA requirements.

TIA Requirements

The following requirements shall be included in each TIA submitted to the city. Additional information specified by the city in the scoping summary or through other project meetings shall also be included.

1. The TIA shall be prepared by or prepared under the direct supervision of a Registered Professional Engineer who shall sign and stamp the TIA.
2. Study Area: The TIA should include all roadways adjacent to and through the site (e.g., all roadways used to access the site), and any roadway with a functional classification of collector and above within a quarter-mile of the site. Study intersections will generally include site-access points, and intersections of two roadways with a functional classification of collector and above within one-mile of the site with an expected increase of 20 peak hour trips generated from the proposed project. The intersection with US 101 closest to the site should also be included (if not already required), regardless of the distance or generated trip thresholds identified above.
3. The TIA should include the following horizon years:
 - Existing Year
 - Background Conditions in Project Completion Year. The conditions in the year in which the proposed project will be completed and occupied, but without the expected traffic from the proposed project.
 - Full Build-out Conditions in Project Completion Year. The background condition plus traffic from the proposed project assuming full build-out and occupancy.
 - Phased Years of Completion. If the project involves construction or occupancy in phases, the applicant shall assess the expected roadway and intersection conditions resulting from major development phases.
4. Analysis Periods: The TIA should analyze the weekday (Tuesday through Thursday) AM and/or PM peak periods in which the proposed project is expected

to generate 25 or more trips. Additional periods may be required depending upon the proposed project and/or surrounding land uses. Turning movement counts during the weekday AM peak period should typically be between 7:00 AM and 9:00 AM, and 4:00 PM and 6:00 pm during the weekday PM peak period. Historical turning movement counts may be used if the data is not more than 12 months old. Historical counts shall be factored accordingly to meet the existing traffic conditions.

5. Trip Generation: The proposed trip generation should be based on similar land uses reported in the latest version of the ITE Trip Generation Manual.
6. Trip Distribution and Assignment: Estimated site generated traffic for the proposed project should be distributed and assigned to the existing or proposed arterial and collector roadway network. Trip distribution methods should be based on a reasonable assumption of local travel patterns and the locations of off-site origin/destination points within the site vicinity. An analysis of local traffic patterns and intersection turning movement counts can be used as long as the data has been gathered within the previous 12 months.
7. Background Traffic Growth Rate: A 1.5 percent annual traffic growth rate shall be applied to all movements at study intersections to develop background traffic growth for the horizon years. An applicant may propose an alternative background growth rate with appropriate documentation and references.
8. In-Process Developments: The TIA should include the trips generated at study intersections from approved, but un-occupied developments at the time traffic count data was collected. The city will provide the applicant with approved developments in the scoping summary. Should the completed TIA not be submitted to the city within 12 months of the scoping summary, additional approved developments could be required.

TIA Content

The following content should typically be included in each TIA submitted to the city. Additional information specified by the city in the scoping summary or through other project meetings shall also be included.

Section 1: Introduction

- Proposed project summary, including site location, zoning, project size, and project scope. This should include a figure showing the project site and vicinity map, including any roadway with a functional classification of collector and above within a quarter-mile of the site and all study intersections.

Section 2: Existing Conditions

- Study area description, including a figure showing the project site, key roadways, and study intersections.
- Existing site conditions, current zoning, and adjacent land uses.
- Roadway characteristics of important transportation facilities and modal opportunities located within the study area, including roadway functional classifications, roadway cross-section (e.g., lane width, shoulder width, surface type, drainage), roadway condition, posted speeds, bicycle and pedestrian facilities, and transit facilities.
- Existing lane configurations and traffic control devices at the study area intersections.
- Existing traffic volumes and operational analysis of the study area roadways and intersections. This should include a figure of existing peak hour turn movement volumes.
- Roadway and intersection crash history analysis (most recent five years).

Section 3: Assumptions and Methodologies

- Project description, including site location, zoning, project size, and project scope, and map showing the proposed site, building footprint, access driveways, and parking facilities.
- Transportation standards (e.g., roadway and access spacing standards, mobility targets). These can be found in the Gearhart Transportation System Plan,

Volume 1.

- Site access, including access spacing and site distance review at site driveways, and summary of roadway grades and other vertical or horizontal obstructions.
- Site frontage improvements, including provisions for pedestrians and bicyclists.
- Trip generation summary. This section should also include a summary of the expected vehicles exceeding 26,000-pound gross vehicle weight (13 tons) that the proposed project will generate.
- Trip distribution assumptions, including a figure showing the trip distribution percentages.
- Background traffic growth.
- In-process developments, if applicable.
- Funded transportation improvements in the study area, if applicable.
- Future analysis years and scenarios (Background Conditions in Project Completion Year, Full Build-out Conditions in Project Completion Year, and Phased Years of Completion, if necessary).
- Future traffic volumes. This should include a figure showing the future traffic volumes broken down by existing traffic volumes, background traffic growth, in-process trip growth (if applicable), project traffic growth, and total traffic volumes.

Section 4: Future Conditions

- Background traffic volumes and operational analysis.
- Full buildout traffic volumes and intersection operational analysis. This should also include a summary of roadway segment conditions with full buildout traffic volumes (e.g., roadway volumes, roadway condition and width).
- Signal and turn lane warrant analysis at site access points, if applicable.
- Intersection and site-access driveway queuing analysis.
- Impacts of non-residential traffic through a residential zone.
- Impacts from vehicles exceeding 26,000-pound gross vehicle weight (13 tons), including turning movements.
- Site circulation and parking.

Section 5: Recommendations

- Recommended roadway and intersection improvements (if necessary).
- Pedestrian, bicycle, and transit improvements.

Appendix

- Traffic count data.
- Crash analysis data.
- Traffic operational analysis worksheets, with detail to review capacity calculations.
- Signal, left-turn, and right-turn lane warrant evaluation calculations.
- Other analysis summary sheets, such as queuing.

Section K

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