2017 Columbia County Transportation System Plan: Volume I

February 2017

Columbia County
Transportation System Plan

Prepared for:

Columbia County

Oregon Department of Transportation

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Volume 2 Contents

Figures and Tables

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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The Context

Bordered by 62 miles of Columbia River shoreline, Columbia County is home to several cities, including Scappoose, St. Helens, Columbia City, Prescott, Rainier, Clatskanie and Vernonia (see Figure 1). The County provides a convenient location for both commuters and recreational activities, with residents in the south part of the County generally within a one-hour drive of the Portland metropolitan area, and residents near the western County line generally within a one-hour drive of the Pacific Ocean.

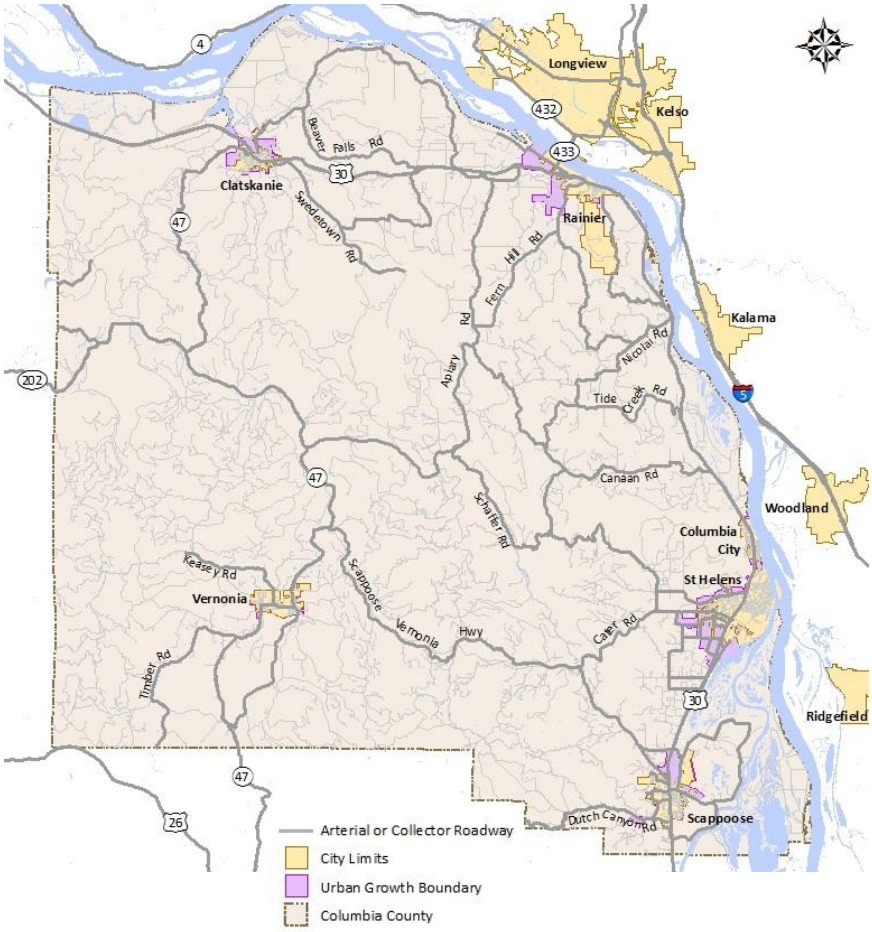


Figure 1: Columbia County

The major transportation routes through the County include US 30, OR 47, OR 202, Scappoose Vernonia Highway, and Apiary Road. US 30 runs along the Columbia River, connecting the County to Astoria and the Portland metropolitan area. OR 47 runs north-to-south through the County, connecting US 30 and US 26, while OR 202 runs east-to-west, connecting OR 47 to Astoria. Scappoose Vernonia Highway and Apiary Road are County facilities, providing connections between OR 47 and US 30.

The Challenge

Columbia County, along with many other agencies throughout Oregon, face the challenge of addressing aging transportation infrastructure with escalating maintenance costs and very little funding. The County must balance its investments to ensure that it can develop and maintain the transportation system adequately to serve the County and everyone who travels in it. To address this challenge, the County maintains an up to date Transportation System Plan (TSP).

Engaging Seniors, Non-English Speakers, and Low Income Populations

As part of the outreach to engage citizens and stakeholders in the TSP project, the County made special efforts to involve seniors, minority and low income groups (For more information on the public involvement plan for the TSP, see Volume 2, Section B).

According to the 2010 Census, nearly 90 percent of the population of Columbia County is White and five percent of the population is of Hispanic or Latino origin.

Given the considerable size of the Hispanic or Latino community in Columbia County, written materials and translation service were available in Spanish upon request.

To assist those that cannot drive, and help engage senior citizens, public meetings were held at locations accessible via transit, walking or biking when feasible. Materials on the project website were downloadable; hard copies of project documents were available upon request for those without internet access.

Project advertisements were posted in locations where senior citizens, Hispanic or Latino community members, and representatives or members of Native American tribes in the region were likely to see them.

The Context

The Transportation System Plan

The 2017 TSP prepares Columbia County for accommodating traffic within the County in the best manner possible through 2035. The TSP's big picture view allows it to guide the County in developing and maintaining acceptable transportation network performance more efficiently than a piecemeal or unorganized approach.

As the transportation element of the County's Comprehensive Plan, the TSP embodies the community's vision for an efficient, safe, and diverse transportation system. The TSP attempts to balance the needs of walking, bicycling, driving, transit and freight with strategies and projects that are important for protecting and enhancing the quality of life in Columbia County through the next 20 years. The TSP is a collection of current inventory, forecasts, past and current project ideas, decisions, and standards housed in a single document. The County, local Cities, private developers, and state (e.g., Oregon Department of Transportation) or federal agencies all have a role in implementing elements of the TSP.

By setting priorities for available and anticipated funds in the 20-year planning period, the TSP provides a foundation for budgeting, grant writing, and requiring public improvements of private development. It also identifies and advocates for the projects and services that the County would like to implement, but cannot reasonably expect to fund during the next 20 years.

This plan is primarily intended to serve areas of the County outside of the urban growth boundaries of Clatskanie, Columbia City, Prescott, Rainier, Scappoose, St. Helens, and Vernonia. These cities have their own TSPs and the County has intergovernmental agreements to apply City standards (i.e., mobility targets and roadway cross-section, walking and biking, and roadway and access spacing standards) to any street under the County's jurisdiction within these cities.

The Context

The State of Oregon requires a TSP to integrate the County's transportation investment plans (including projects along State highways) into the statewide transportation system. The Oregon Department of Transportation (ODOT) typically relies on local agencies to identify needed investments along State highways within their planning area. This plan identifies needed investments along US 30, OR 47 and OR 202 in Columbia County.

The Process

The Columbia County TSP is the result of a collaboration among various public agencies, key stakeholders, the community, and the project team of County staff, ODOT, and consultants. Throughout this process, the project team took time to understand multiple points of view, obtain fresh ideas, and encourage broad participation, as it collected and analyzed data and possible solutions. The project timeline and key meetings are illustrated in Figure 2.

The Transportation Road Advisory Committee (TRAC), comprised of local residents, business representatives, and agency technical staff 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. The project team met with the TRAC five times, and held two meetings with the Board of Commissioners (For a summary of the meetings, see Volume 2, Section O). The team held four public events at key stages, and interviewed 16 local stakeholders to give residents an opportunity to learn more about the project and express their thoughts on how to improve the transportation system (For a summary of the stakeholder interviews, see Volume 2, Section C).

Goals and Objectives	Transportation Conditions	Transportation Solutions	Draft TSP	Final TSP
Develop project goals, objectives and evaluation criteria.	Review the transportation system to identify current conditions and problems, and determine future needs through 2035.	Identify and evaluate solutions and projects for the identified needs of the transportation system through 2035.	Incorporate the solutions and projects that best meet the project goals and associated evaluation criteria into a Draft TSP.	Adopt Final TSP.
• **TRAC Meeting #1** • **Stakeholder Interviews**	• **TRAC Meeting #2** • **Public Event #1 and #2**	• **TRAC Meeting #3 & #4** • **Public Event #3 and #4**	• **TRAC Meeting #5**	• **Public Hearings**

Figure 2: The TSP Process

The Public Review Process

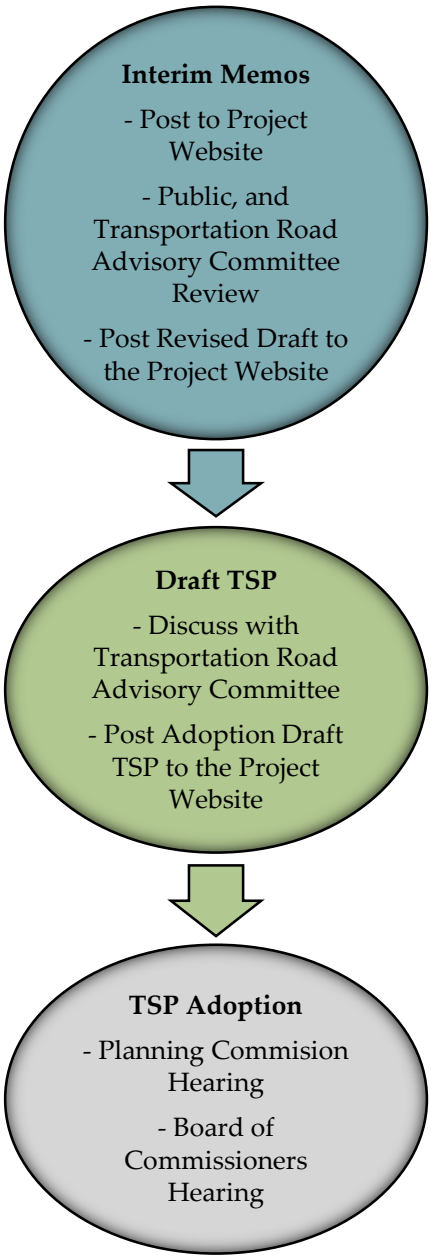


Figure 3: Public Review Process

The five-stage process in Figure 2 included a series of technical memoranda that discussed specific topics ranging from existing conditions to funding assumptions to transportation solutions. The project website (www.columbiacountytsp.org) linked to each memorandum, giving the community opportunity to provide feedback and keep up to date with the project. The TRAC reviewed and commented on each memorandum and worked with the project team to find agreement on issues and alternatives. The project team revised the draft memoranda based on the feedback from the TRAC, the public, and the Board of Commissioners. These memoranda, as revised, ultimately became part of the Draft TSP. Public hearings with the Planning Commission and Board of Commissioners on the Draft TSP led to the adoption of the 2017 Columbia County Transportation System Plan on April 2017. This process is illustrated in Figure 3.

Throughout the planning effort, the project website linked to all project news, documents, and meeting notices. Its interactive map allowed residents to comment about the transportation system and identify locations of problems and opportunities for improvement.

The Vision

Columbia County could not properly maintain or improve its transportation system without a vision for what it could or should be. The planning process avoided the tendency to focus immediately on congestion, and dollars available to fix it by first talking about the ideal transportation system for the County. The TRAC, in initial discussions, expressed desire for a diverse transportation system that accommodates residents in a safe, and affordable way (See Volume 2, Section F).

Transportation Vision Statement

The vision statement provides direction for the future of the transportation system in Columbia County.

> *The creation of an efficient, safe, and diverse transportation system to serve the needs of Columbia County residents, where existing transportation infrastructure and assets are managed and maintained, and investments to the transportation system use available funding efficiently.*

The vision statement and nine goals describe the desires of the community with regard to its transportation system.

TSP Goals

The nine transportation goals set priorities for transportation solutions and plan implementation. Objectives provide manageable stepping-stones for achieving the TSP's vision and goals.

- **Goal 1: Provide for efficient and convenient motor vehicle travel.**

  Objective 1a: Establish and maintain mobility standards to maintain the minimum level of motor vehicle travel efficiency. State and City standards for mobility will be supported on facilities under the respective jurisdiction.

  Objective 1b: Provide a mechanism to address the impacts of a proposed development and to fairly impose mitigation provisions.

  Objective 1c: Maintain the existing system of roads and bridges to a level suitable to the function of the road, allowing for smooth and comfortable travel, and reducing vehicle maintenance costs, through the preservation of pavements, and prevention of damage by overweight vehicles.

  Objective 1d: Keep County roads and bridges maintained and operable so that they continue to provide the primary function of connecting the transportation system, and coordinate with the State to ensure proper maintenance of their facilities.

  Objective 1e: Incorporate new technologies such as Intelligent Transportation System (ITS) elements, as appropriate, to maximize the use of the existing transportation system

  Objective 1f: Establish and maintain a functional classification system that provides a plan for system purpose and design.

The Vision

Objective 1g: Manage access to arterials and highways where practical to reduce congestion and conflicting travel patterns.

- **Goal 2: Provide for the safety and security of all transportation modes.**

Objective 2a: Identify improvements to address high collision locations to enhance safety for all modes.

Objective 2b: Identify locations in the County where enhanced street crossings, shoulder improvements or road widening is needed for the safety of walking and biking users.

Objective 2c: Support measures that enhance the safety at railroad crossings.

Objective 2d: Identify investments needed along Lifeline Routes to enhance the safety and security of County residents, and preserve emergency response access and mobility.

Objective 2e: Identify strategies to enhance emergency response to incidents.

- **Goal 3: Provide an equitable, and connected multi-modal transportation system.**

Objective 3a: Provide facilities for all modes of transportation.

Objective 3b: Distribute the benefits and impacts of transportation decisions fairly and address the transportation needs and safety of all users, including youth, the elderly, people with disabilities, and people of all races, ethnicities and income levels.

Objective 3c: Provide connections for all modes that meet applicable County and Americans with Disabilities Act (ADA) standards.

- **Goal 4: Increase the quality and availability of pedestrian and bicycle facilities.**

Objective 4a: Consider walking and biking user needs that complement the basic provision of services to encourage higher levels of usage (e.g., street lighting, bike parking, and wayfinding signage).

Objective 4b: Identify necessary changes to the land development code to support connectivity between compatible land uses and to provide internal site access and connections for pedestrian and bicycle travel.

Objective 4c: Provide pedestrian and bicycle access to key activity centers such as transit facilities, employment centers, schools, parks and community facilities.

Objective 4d: Promote walking, bicycling, and sharing the road through public information and organized events.

Objective 4e: Identify new or improved transportation connections to improve compatibility and transfer between modes and system efficiency.

Objective 4f: Improve bicycle access along all major corridors to provide intercity bicycle connectivity, including high quality bicycle access along Highway 30. Support the development of the CZ Trail and connection to the Banks-Vernonia Trail.

- **Goal 5: Work with transit service providers to provide transit service and amenities that encourage and increase ridership.**

Objective 5a: Identify areas that support additional transit services, and coordinate with transit providers and transit plans (e.g., the 2009 Columbia County Community-Wide Transit Plan and US 30 Transit

Access Plan) to improve the coverage, reliability and frequency of services.

Objective 5b: Promote transit accessibility to transportation-disadvantaged groups.

Objective 5c: Support efforts to make transit more time-competitive with automobile travel, where feasible, for high-demand connections.

Objective 5d: Enhance intercity transit connectivity.

Objective 5e: Implement bus stops, park-and-ride lots, and transit centers that are identified for Columbia County in the 2009 Columbia County Community-Wide Transit Plan and US 30 Transit Access Plan.

Objective 5f: Identify needs for services to regional employment and activity centers.

Objective 5g: Consider transit user needs that complement the basic provision of service to encourage higher levels of usage (e.g., sidewalk and bicycle connections, shelters, benches). Implement projects addressing these needs that are identified for Columbia County in the 2009 Columbia County Community-Wide Transit Plan and US 30 Transit Access Plan.

- **Goal 6: Manage the transportation system to support a prosperous and competitive economy.**

Objective 6a: Enhance access to major employment and industrial centers.

Objective 6b: Enhance the freight system efficiency, access, capacity and reliability.

Objective 6c: Enhance access to intermodal facilities such as ports, airports, and transit centers.

Objective 6d: Increase the distribution of travel information to maximize the reliability and effectiveness of

highways, which serve as the primary freight corridors.

- **Goal 7: Provide transportation facilities and services that are fiscally responsible and economically feasible.**

Objective 7a: Plan for an economically viable and cost-effective transportation system that makes the best use of limited transportation funds.

Objective 7b: Identify and develop diverse and stable funding sources to implement recommended projects in a timely fashion and ensure sustained funding for road maintenance and transportation improvement projects.

Objective 7c: Actively seek State and Federal Transportation funds to finance programs and improvements.

- **Goal 8: Provide a transportation system that conserves energy, and protects and improves the environment.**

Objective 8a: Support alternative vehicle types and identify potential electric vehicle plug-in stations and develop implementation code provisions.

Objective 8b: Minimize impacts to preserve the natural, scenic, and cultural resources in the County.

Objective 8c: Provide public access to designated public water bodies, natural resource areas, scenic and cultural resources.

Objective 8d: Work with watershed councils for the priority replacement of barriers to migrating fish species.

- **Goal 9: Coordinate with local and state agencies and transportation plans.**

Objective 9a: Work with the Northwest Area Commission on Transportation (NWACT) to promote projects that improve regional linkages.

Objective 9b: Coordinate with the Oregon Transportation Plan and associated modal plans.

Objective 9c: Coordinate with local agency Transportation System Plans for communities within Columbia County.

Objective 9d: Coordinate with local agencies and entities within Columbia County including major employers, incorporated and unincorporated communities, Port of St. Helens, and other stakeholders or groups, as appropriate, for transportation matters involving areas that impact such entities.

Objective 9e: Coordinate with ODOT, Clatsop County, Washington County, and Multnomah County on projects that improve and impact regional connections within Oregon.

Objective 9f: Coordinate with ODOT, WSDOT, Rainier, Longview, Cowlitz County, and FHWA on matters regarding the Lewis and Clark Bridge and connections to Washington.

Objective 9g: Coordinate with Cities and ODOT to review and assess potential impacts and appropriate mitigation of proposed development applications.

To determine needed investments for the County's transportation system, the project team reviewed current travel conditions and forecasted future growth and travel trends through 2035 (see Volume 2, Section G, H, and I for more information). Initial analysis assumed that only the transportation projects with committed funding would be built and that no further investments would be made to the transportation system during the planning period.

Projects with committed funding included:

- Improvements on US 30 between Old Portland Road and Millard Road (Project ID #43, shown in Table 1 on page 31).

Columbia County in 2035

Today, Columbia County is home to 50,000 residents and about 10,000 jobs. Between now and 2035, population and employment growth likely will increase about one percent per year. By 2035, Columbia County will have about 64,000 residents and about 13,000 jobs, a 30 percent increase from 2013. With more people and jobs in Columbia County and increased highway through traffic, the transportation network will face growing demand through 2035.

Aging Population

Age plays a key role in determining the use of modes of transportation for Columbia County residents. The youngest and oldest residents often account for more trips via walking, biking, and public transportation. Today, school-age children and residents over 65 make up about 40 percent of the population in the County. By 2035, this number is expected to increase nearly seven percent, accounting for nearly half of all County residents. The most notable change is expected to be the amount of residents over the age of 65, which is expected to increase from 14 percent to 23 percent by 2035. This could indicate that more residents in the County may become dependent on public transportation and the associated walking infrastructure on either end of the trip (e.g., sidewalk connecting a bus stop to their neighborhood or nearest activity generator).

The Trends

More Travel

Assuming Columbia County does not change its mode split, and adds more jobs, residents, and highway through traffic, the roadway network in 2035 must accommodate hundreds of additional motor vehicle trips during the evening peak hour. Today, the Columbia County roadway network generally is able to handle the evening peak hour motor vehicle trips; however, they likely will increase over 40 percent at intersections along US 30, OR 47, and OR 202 by the end of 2035. Much of the increased travel will begin or end in major residential and/or employment growth areas in urbanized parts of the County.

More Congestion

An increase in motor vehicle travel leads to an increase in congestion. Travel activity, as reflected by evening peak hour motor vehicle trips beginning or ending in Columbia County, is expected to increase significantly through 2035, especially along US 30. Through trips (trips that neither begin nor end in Columbia County) also are likely to increase through 2035, due to increased tourism activity at the coast and growth in Oregon generally. Figure 4 shows that the most congested locations will be along US 30 between the Multnomah County border and the south Scappoose urban growth boundary, from the north Columbia City urban growth boundary to the east Rainier urban growth boundary and from the west Rainier urban growth boundary to the east Clatskanie urban growth boundary (see TSP Volume 2, Sections H and I). US 30 within the Scappoose urban growth boundary and the Lewis and Clark Bridge between Rainier and Longview, Washington will also continue to be congested.

Safety Concerns

Several locations along US 30, OR 47, OR 202 and Scappoose Vernonia Highway have been identified as high collision locations. With growing traffic volumes, these problematic areas likely will persist, and may even become progressively worse. The safety of travel along Cornelius Pass Road and across substandard bridges (e.g., in Clatskanie) is also of concern to the County.

Columbia County Transportation System Plan

DKS

Figure 4 - 2035 Motor Vehicle Operating Conditions (Summer P.M. Peak)

Legend

Roadway Level of Service (LOS)

- Free-Flowing Conditions (LOS A)
- Reasonably Unimpeded Conditions (LOS B)
- Slowing Conditions (LOS C)
- Unstable Conditions (LOS D)
- Congested Conditions (LOS E/F)

Intersection Operations (V/C Ratio)

- Good
- Approaching Target
- Does Not Meet Target

- Urban Growth Boundary
- Columbia County

0 1 2 4 6 Miles

The Investments

Columbia County must make investment decisions to implement a set of transportation improvements that meet identified needs through 2035. Transportation funding is limited, so a fiscally responsible approach to enhancing and maintaining the transportation system is imperative.

Developing the TSP Investments

Columbia County's approach to developing the TSP emphasized investments in cost-effective solutions for the transportation system. A four-tiered process (Figure 5) considered alternatives from highest to lowest priority until identifying a viable solution. This process allowed the County to maximize use of available funds, minimize impacts to the natural and built environments, and balance investments across all modes of travel (see Volume 2, Section J and M for more information).

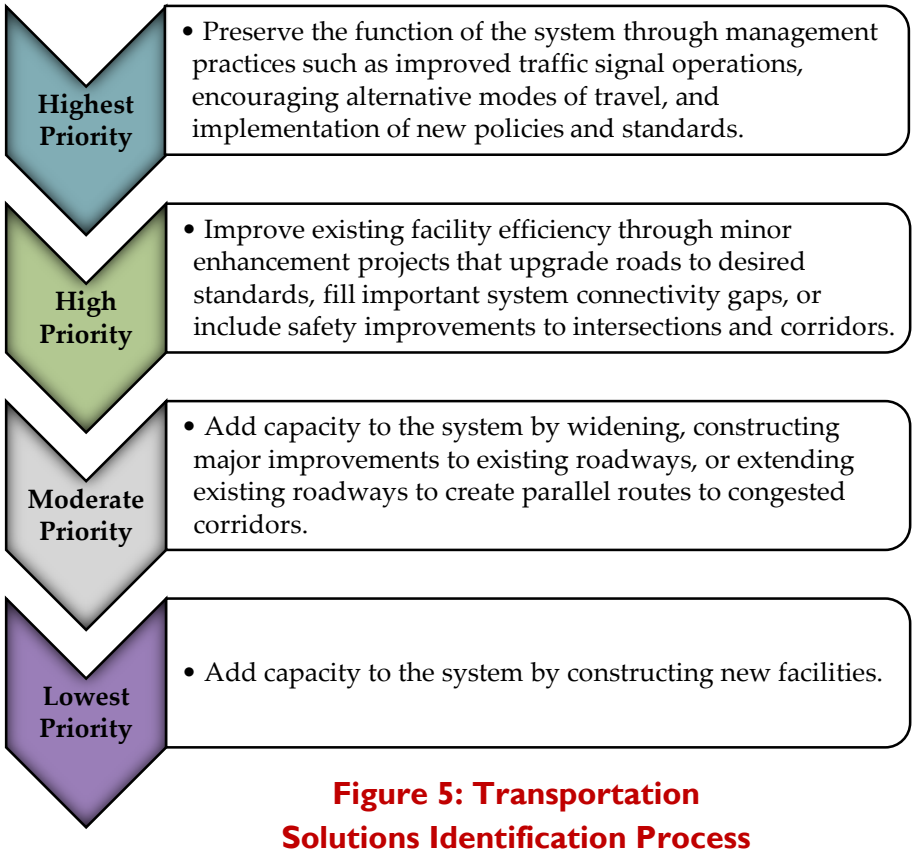


Figure 5: Transportation Solutions Identification Process

The TSP used measurable evaluation criteria (see Volume 2, Section F) based on the goals and objectives (developed in coordination with the Transportation Road Advisory Committee) to screen and prioritize transportation solutions (Figure 6). Projects deemed to contribute more towards achieving the transportation goals of Columbia County ranked higher and the plan assigned higher priority to their implementation. Solutions recommended in the TSP, consequently, are consistent with the goals and objectives.

TSP Investments

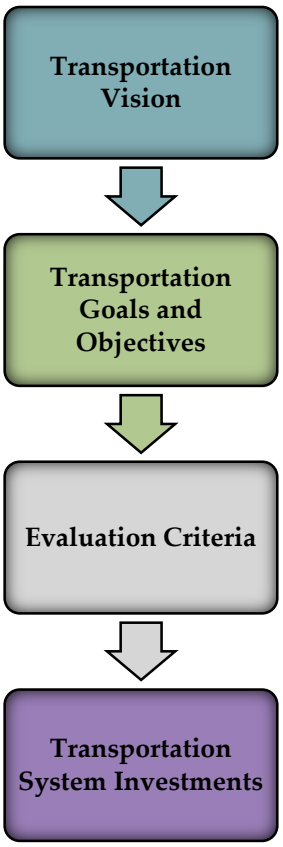


Figure 6: Reflecting the Vision in the Plan

Constrained projects are those projects that the County and ODOT believe are reasonably likely to be funded during the 20-year planning horizon based on the constrained funding threshold established through County and ODOT funding analysis. Aspirational projects (projects which the County supports and would like to implement) include all identified projects for improving Columbia County's transportation system, regardless of their primary funding source and priority. In contrast to constrained projects, they are not reasonably likely to be funded during the 20-year planning horizon, but do address an identified problem and are supported by the County and ODOT.

The full list of constrained and aspirational projects, shown in Table 1 on page 26, includes those proposed in previous plans and studies as well as those added through the TSP planning process. The full list includes 67 projects, totaling an estimated $477 million worth of investments (see Volume 2, Section J and M for more information on the development of the TSP project list).

The TSP's multi-modal, network-wide approach to identifying transportation system solutions assigns the projects to one of several categories:

- **Roadway** projects would improve safety and mobility throughout the County for motorists. Columbia County identified 22 projects to improve rural roadway segments and intersections that, as originally proposed, would cost an estimated $79 million to complete.

  The roadway improvements do not include US 30 widening projects for passing lanes or local roadway extensions between Scappoose and St. Helens. These projects would have significant community, environmental, and right-of-way impacts and would require further environmental and technical analysis. Consequently, these

were included on the aspirational project list as further studies.

- **Freight** projects would improve truck access throughout the County. A total of six freight projects, as originally proposed, would cost an estimated $54 million.

- **Bridge** projects would replace those that are weight restricted or substandard in the County. Columbia County identified 11 bridge replacement projects that, as originally proposed, would cost an estimated $310 million to complete. The bridge projects include County support for replacement of the Lewis and Clark Bridge between Rainier and Longview, Washington or construction of a new bridge over the Columbia River, at an estimated cost of $300 million.

- **Pedestrian and Bicycle** projects include an integrated network of roadway shoulders and shared-use paths to facilitate safe and convenient travel Countywide. Columbia County identified 13 pedestrian and bicycle projects that, as originally proposed, would cost an estimated $31 million to complete.

  The aspirational project list combines a number of pedestrian and bicycle projects with roadway projects and vice-versa. Like potential highway widening projects, several large-scale pedestrian and bicycle projects identified have an associated cost that is well beyond the current financial constraint threshold.

- **Transit** projects would enhance the quality and convenience for passengers. A total of six transit projects, as originally proposed, would cost an estimated $1 million.

- **Rail** projects to improve safety at railroad crossings. A total of nine projects, as originally proposed, would cost an estimated $2 million.

Funding Gap

The County has no local funds to complete the $144 million total cost of the 40 identified County-funded transportation system projects. The County uses four general funding sources for transportation, including funds from:

County Funding Gap:

The County has no local funds to complete the $144 million total cost of the 40 identified County-funded transportation system projects.

- **The Surface Transportation Program (STP).** Federal Highway Trust Funds are received from federal motor vehicle fuel tax and truck-related weight-mile charges. The six-year Federal Transportation Authorization Act allocates funds through various programs. Federal Highway Trust Funds from the STP flow to the states that use them primarily for safety, highway, and bridge projects. Columbia County receives a portion of these funds based partially upon rural roadway mileage and population.

- **The State Highway Trust Fund.** The State Highway Trust Fund makes distributions from the state motor vehicle fuel tax, vehicle registration and title fees, driver license fees, and truck weight-mile taxes. Cities and counties receive a share of State Highway Trust Fund monies based on registered vehicles, and by statute may use the money for any road-related purpose, including walking, biking, bridge, street, signal, and safety improvements.

  The state gas tax funds previously have failed to keep up with cost increases and inflation. With increased fuel efficiency of vehicles and the State's emphasis on reducing vehicle miles traveled, the real revenue collected gradually has eroded over time. In an effort to offset the relative decline in contribution of state funds, the 2009 legislature passed the Oregon Jobs and Transportation Act (Oregon House Bill 2001). It increases transportation-related fees including the state gas tax and vehicle registration fees as a fixed amount at the time a vehicle is registered with the Department of Motor Vehicles. Vehicle registration fees in

The Investments

Oregon 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, the first increase in the state gas tax since 1993.

- **A Natural Resource Depletion Fee.** Columbia County has collected a natural resource depletion fee since 1990. The fee is levied monthly at a rate of 15 cents per ton (as of July 2016) for depleting natural resources from the soils of the County, or transporting natural resources into the County for commercial, construction, or industrial uses.
- **A System Development Charge (SDC).** Columbia County collects SDCs from new development, which are a funding source for all capacity adding projects for the transportation system. The funds collected can pay for constructing or improving portions of roadways impacted by applicable development. The SDC is a one-time fee. The transportation facilities SDC rate within the unincorporated areas of the County is currently $2,272.50 for rural residential uses, and $2,250 per peak hour trip for other uses (as of July 2016).

Maintaining and operating existing roadways requires more revenue than the County is able to generate for transportation uses. Due to funding constraints, the County is deferring over $5 million per year in needed roadway maintenance and repair work (over $100 million over the next 20 years). These costs will continue to increase over time, leaving no local street funds to spend on locally-funded improvements over the next 20 years. Unless Columbia County develops additional revenue streams, very few of the $144 million worth of needed improvements (spread out over 40 projects) on the County roadway system will be completed.

Deferred Roadway Maintenance and Repair:

Due to funding constraints, the county is deferring over $5 million per year in needed roadway maintenance and repair work (over $100 million over the next 20 years).

The Investments

ODOT Funding for State Highways:

ODOT has indicated that $12 million in discretionary state and/or federal funds may be available to invest in the over $332 million worth of needed improvements (spread out over 21 projects) along state highways in Columbia County over the next 20 years.

The TSP has identified over $332 million worth of needed investments (spread out over 21 projects) along state highways. ODOT has indicated that only $12 million in discretionary state and/or federal funds, beyond what is currently programmed in the Statewide Transportation Improvement Program, may be available to invest in Columbia County over the next 20 years[1] for system modernization and enhancement.

The TSP has identified six projects estimated at $1 million for which the County transit division (CC Rider) would be the primary source of funding (for more information on the funding assumptions utilized for the TSP, see Volume 2, Section K).

[1] The State has not committed any future funding for projects in Columbia County. This assumption is for long-range planning purposes only. This estimate is based on assuming that Columbia County 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 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.

The Plan

Without additional funding sources, the County has no funding to cover the costs of projects for which it will be the primary source of funding over the next 20 years. The state might contribute $12 million for investments along state highways. The TSP sets priorities for spending anticipated funds and identifies projects that would be possible with additional funding.

Prioritizing Investments

Unless the County expands its funding options, very few (if any) of the desired transportation system projects on the County roadway system, and only a few of the projects along state highways, are likely to happen before 2035. For this reason, the TSP splits transportation solutions into improvement packages. Package 1 is financially constrained, meaning it includes an estimate of how the County would use the $12.0 million in revenue from various state and/or federal sources. Package 2 is comprised of the aspirational projects, those remaining projects that likely would not have County or state funding by 2035.

The TSP evaluated and compared all proposed projects using the nine TSP goals (detailed in the "Vision" section of the TSP). Based on a project's contribution to achieving the transportation goals of Columbia County, 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 Countywide.

Although the TSP identifies priorities for the investments, the County does not have to implement the projects in that order. Future circumstances could allow or require the County 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 County prioritizes for funding and implementation by 2035, presented in Table 1 and Figures 7, 8, 9, and 10.

County-funded Projects:

None of the County-funded transportation system projects are included in the financially constrained plan since the county has no local funds to complete the projects over the next 20 years.

ODOT has projected that the County could receive up to $12 million from various state and/or federal sources over the next 20 years. Based on current needs, Table 1 and Figures 7, 8, 9, and 10 show how the County 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 state highway project in the County's list. The County 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 state highways in response to any opportunity or issue that may arise during the planning horizon.

None of the County-funded transportation system projects are included in the financially constrained plan since the County has no local funds to complete the projects over the next 20 years.

The Aspirational Plan

The aspirational transportation system identifies valuable solutions that will not have funding by 2035, unless additional sources become available. Some of the projects require County funding and resources beyond what is available in the time frame of this plan. Others are contingent upon grants. The aspirational projects are shown in Table 1 and in Figures 7, 8, 9, and 10.

Financially Constrained and Aspirational Projects

The following pages include the financially constrained and aspirational projects in chart form and on accompanying maps. The projects are listed in geographical order and not by priority, starting in the northwest portion of the County. Improvement Package 1, Financially Constrained Plan, totals the $12.0 million expected to be available through various state and/or federal sources. Improvement Package 2, Aspirational Plan, includes projects that likely would not have County or state funding by 2035. 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 County and/or ODOT approval.

Improvement Packages:

- **Improvement Package 1**, Financially Constrained Plan totals the $12.0 million expected to be available through various state and/or federal sources.
- **Improvement Package 2,** Aspirational Plan includes projects that likely would not have county or state funding by 2035.

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
1	US 30 / Woodson Road railroad crossing	Improve the US 30 / Woodson Road intersection and railroad crossing, which would include widening of US 30 to provide capacity improvements (e.g., eastbound and westbound left-turn lanes) and a wider shoulder on the north side of the highway (65 feet in length) to allow southbound traffic to clear the railroad crossing when a train approaches, installing flashing railroad crossing lights and gates, and improving railroad crossing signage and markings.	$2,400,000	State	2	US 30: 7,359/ Woodson Road: 270
2	Woodson transit stop	Improve the Woodson transit stop, to include shoulder widening, improved lighting, a sheltered stop with seating, and route information. Improvements should not impact the highway clear zone.	$50,000	CC Rider	2	N/A
3	Marshland transit stop	Improve the Marshland transit stop, to include shoulder widening, improved lighting, a sheltered stop with seating, and route information. Improvements should not impact the highway clear zone.	$50,000	CC Rider	2	N/A
4	US 30 / Marshland Road (east) railroad crossing	Improve the US 30 / Marshland Road (east) railroad crossing, to include new railroad crossing signs on Marshland Road, and vegetation removal to enhance sight distance at the railroad crossing.	$5,000	County	2	N/A
5	US 30 / Point Adams Road railroad crossing	Improve the US 30 / Point Adams Road railroad crossing, to include replacement of the existing flashing railroad crossing lights, and new shelter grounding equipment and circuitry.	$350,000	State	2	271
6	Swedetown Road from the Clatskanie UGB to Cedar Grove Road.	Improve Swedetown Road to Major Collector standard from the Clatskanie UGB to Cedar Grove Road, to include wider shoulders.	$4,475,000	County	2	1,830

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
7	US 30 from the east Clatskanie UGB to the west Rainier UGB	Improve US 30 from the east Clatskanie UGB to the west Rainier UGB, to include centerline rumble strips with delineation to address head-on crashes.	$125,000	State	1	11,476
8	Beaver Falls Road from the Clatskanie UGB to Delena Road	Improve Beaver Falls Road to Major Collector standard from the Clatskanie UGB to Delena Road, to include wider shoulders, upgraded bridges, and additional guardrail.	$24,450,000	County	2	West end: 2,821 / East end: 880
9	Hermo Road from Quincy Mayger Road to Port Westward.	Improve and extend the existing segment of Hermo Road from Quincy Mayger Road to Port Westward. This roadway should be reconstructed / constructed as a Local roadway resource route.	$12,500,000	County	2	N/A
10	Hermo Road railroad crossing	Improve the Hermo Road railroad crossing, to include installation of flashing railroad crossing lights and gates.	$350,000	State	2	N/A
11	Kallunki Road / Quincy Mayger Road railroad crossing	Improve the railroad crossing at the Kallunki Road / Quincy Mayger Road intersection, to include installation of flashing railroad crossing lights and gates.	$350,000	State	2	N/A
12	Alston Mayger Road / Quincy Mayger Road from US 30 to Kallunki Road.	Improve Alston Mayger Road / Quincy Mayger Road to Major Collector standard, as a resource route, from US 30 to Kallunki Road, to include wider shoulders, and upgraded bridges.	$6,000,000	County	2	1,660
13	Delena Mayger Road from Alston Mayger Road to Cox Road	Improve Delena Mayger Road to Local roadway standard from Alston Mayger Road to Cox Road, to include roadway surface enhancements, and wider shoulders.	$3,200,000	County	2	380
14	Beaver Falls Road Bridge (County Bridge 076)	Replace the Beaver Falls Road Bridge (County Bridge 076).	$1,630,000	County	2	880
15	Beaver Falls Road Bridge (County Bridge 075)	Replace the Beaver Falls Road Bridge (County Bridge 075).	$1,440,000	County	2	880

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
16	Alston Store transit stop	Improve the Alston Store transit stop, to include a sheltered stop with seating, and route information.	$10,000	CC Rider	2	N/A
17	Wonderly Road transit stop	Construct a new park-and-ride along Wonderly Road, to include a sheltered stop with seating, and route information.	$200,000	CC Rider	2	N/A
18	Old Rainier Road from US 30 to the Rainier UGB	Improve Old Rainier Road to Major Collector roadway standard from US 30 to Apiary Road, Old Rainier Road to Minor Arterial roadway standard from Apiary Road to Larson Road, and Old Rainier Road to Local roadway standard from Larson Road to the Rainier UGB, to include wider shoulders.	$4,000,000	County	2	535
19	Larson Road from US 30 to Parkdale Road	Improve Larson Road to Minor Arterial roadway standard between US 30 and Old Rainier Road, and to Local roadway standard between Old Rainier Road and Parkdale Road, to include wider shoulders.	$1,700,000	County	2	N/A
20	Apiary Road / Old Rainier Road intersection	Realign Old Rainier Road to the west of the existing Apiary Road intersection, to form a new "T" intersection. This roadway should be constructed as a Major Collector resource route.	$1,725,000	County	2	1,250
21	Apiary Road from OR 47 to Old Rainier Road.	Improve Apiary Road to Minor Arterial standard (as a resource route) from OR 47 to Old Rainier Road, to include spot roadway surface and shoulder widening, and improved curve delineation.	$6,500,000	County	2	1,250
22	Apiary Road / Fern Hill Road intersection	Improve the Apiary Road / Fern Hill Road intersection, to include vegetation removal to enhance sight distance.	$25,000	County	2	1,250
23	Longview to Rainier Bridge	Replace the existing Longview to Rainier Bridge, or support an additional Columbia River crossing.	$300,000,000 ****	ODOT/ WSDOT	2	18,000

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
24	US 30 between the east Rainier UGB and the west Columbia City UGB	Improve US 30 between the east Rainier UGB and the west Columbia City UGB, to include centerline rumble strips with delineation to address head-on crashes.	$150,000	State	1	8,930
25	Graham Road from US 30 to Blakely Street.	Improve Graham Road to Local roadway standard from US 30 to Blakely Street, to include wider shoulders.	$1,000,000	County	2	313
26	Graham Road railroad crossing	Improve the Graham Road railroad crossing, to include installation of flashing railroad crossing lights and gates.	$350,000	State	2	313
27	Trojan Park to Prescott Beach County Park	Create an off-street shared-use path connection between Trojan Park and Prescott Beach County Park.	$400,000	County	2	N/A
28	US 30 / Neer City Road intersection	Provide capacity improvements at the US 30 / Neer City Road intersection (e.g., northbound left-turn lane).	$1,800,000	State	1	US 30: 8,901/ Neer City Road: 306
29	US 30 / Nicolai Road intersection	Provide capacity improvements at the US 30 / Nicolai Road intersection (e.g., northbound and southbound left-turn lanes), a shoulder on the east side of the highway (75 feet in length) for westbound traffic to clear the railroad crossing when a train approaches, and improved alignment of the east and west approaches.	$3,500,000	State	1	US 30: 8,901/ Nicolai Road: 1,021
30	US 30 / Nicolai Road railroad crossing	Improve the US 30 / Nicolai Road railroad crossing, to include improved signage and pavement markings at the grade crossing, replacing old tracks, repairing/replacing crossing surface, and installing flashing railroad crossing lights and gates.	$400,000	State	2	1,021
31	Beaver Homes Road Bridge (County Bridge 044)	Replace the Beaver Homes Road Bridge (County Bridge 044).	$600,000	County	2	N/A

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
32	Beaver Homes Road Bridge (County Bridge 046)	Replace the Beaver Homes Road Bridge (County Bridge 046).	$600,000	County	2	N/A
33	US 30 / Nicolai Cutoff Road intersection	Provide capacity improvements at the US 30 / Nicolai Cutoff Road intersection (e.g., northbound left-turn lane).	$1,800,000	State	1	US 30: 8,930
34	US 30 / Tide Creek Road intersection	Provide capacity improvements at the US 30 / Tide Creek Road intersection (e.g., northbound left-turn lane), and a new bridge with improved horizontal curve radaii and width. The Tide Creek Bridge is an existing freight pinch point, and with improvements could accommodate wider loads.	$6,500,000	State	2	US 30: 8,930/ Tide Creek Road: 489
35	Anliker Road from Meissner Road to Nicolai Road.	Improve Anliker Road to Minor Collector standard from Meissner Road to Nicolai Road, to include roadway surface enhancements, and wider shoulders.	$4,600,000	County	2	N/A
36	Canaan Road transit stop	Improve the Canaan Road transit stop, to include a new park-and-ride, sheltered stop with seating, and route information.	$50,000	CC Rider	2	N/A
37	US 30 at spur railroad crossing north of Columbia City	Upgrade the US 30 spur track crossing north of Columbia City by replacing the control circuitry, to include new activation equipment, shunt-enhancing equipment, track leads, batteries, and battery charging equipment.	$100,000	State	2	10,598
38	Pittsburg Road from the St. Helens UGB to West Kappler Road.	Improve Pittsburg Road to Major Collector standard from the St. Helens UGB to West Kappler Road, to include wider shoulders.	$3,650,000	County	2	1,850
39	Pittsburg Road / West Kappler Road intersection	Realign the northbound West Kappler Road approach or southbound Pittsburg Road approach to form a single intersection at Brinn Road. This roadway should be constructed as a Major Collector.	$600,000	County	2	1,850

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
40	Anderson Road Bridge (County Bridge 039)	Replace Anderson Road Bridge (County Bridge 039).	$500,000	County	2	N/A
41	Sykes Road from the St. Helens UGB to West Kappler Road	Improve Sykes Road to Major Collector standard from the St. Helens UGB (near Benjamin Lane) to West Kappler Road, to include wider shoulders.	$2,600,000	County	2	N/A
42	Bachelor Flat Road, Bennett Road, Hazen Road, and Berg Road from the St. Helens UGB to US 30	Improve Bachelor Flat Road, Bennett Road, Hazen Road, and Berg Road to Major Collector roadway standard from the St. Helens UGB to US 30, to include wider shoulders.	$4,300,000	County	2	900
43	US 30 from Old Portland Road to Millard Road	Improve US 30 between Old Portland Road and Millard Road. This project includes increasing the turning radius of the right-turn lane onto Bennett Road by widening and restriping the roadway near the intersection, restricting access to Bennett Road to right-in, right-out, left-in only, and adding a traffic signal at the Millard Road intersection with US 30.	Funded ($5,550,000) *****	State	1	27,058
44	Old Portland Road from the St. Helens UGB to US 30	Improve Old Portland Road to Major Collector roadway standard from the St. Helens UGB to US 30, to include wider shoulders.	$2,500,000	County	2	N/A
45	US 30 / Berg Road intersection	Provide capacity improvements at the US 30 / Berg Road intersection (e.g., left-turn and right-turn lane on the Berg Road approach).	$425,000	State	2	US 30: 27,058/ Berg Road: 874
46	US 30 Local Connectivity Study	Study for the feasibility of improved multi-modal connectivity between Scappoose and St. Helens. This could include a shared-use path in the US 30 corridor.	$175,000	County	2	N/A

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
47	Reeder Road from Multnomah County to the northern terminus	Improve Reeder Road to Local roadway standard from Multnomah County to the northern terminus, to include wider shoulders.	$400,000	County	2	N/A
48	US 30 / West Lane Road railroad crossing	Widen US 30 at the West Lane Road intersection, to include a shoulder on the east side of the highway (75 feet in length) for westbound traffic to clear the railroad crossing when a train approaches.	$275,000	State	2	1,180
49	Wikstrom Road from Scappoose Vernonia Highway to US 30	Improve Wikstrom Road to Major Collector standard from Scappoose Vernonia Highway to US 30, to include wider shoulders.	$3,950,000	County	2	980
50	US 30 / Johnson's Landing Road railroad crossing	Upgrade the railroad crossing equipment at the US 30 / Johnson's Landing Road crossing, to include new constant warning time activation equipment, standby battery, and rectifier.	$100,000	State	2	N/A
51	US 30 Ride Share Parking	Ride Share parking- provide parking for 25 spaces next to truck scale near the County line. Project to be coordinated with ODOT, Multnomah and Columbia County.	$375,000	CC Rider	2	N/A
52	Dutch Canyon Road Bridge (County Bridge 002)	Replace the Dutch Canyon Road Bridge (County Bridge 002).	$600,000	County	2	N/A
53	Scappoose Vernonia Highway / Wikstrom Road intersection	Realign Wikstrom Road to the south of the existing Scappoose Vernonia Highway intersection, to form a new "T" intersection. This roadway should be constructed as a Major Collector.	$600,000	County	2	2,419
54	Reid Road Bridge (County Bridge 128)	Replace the Reid Road Bridge (County Bridge 128).	$480,000	County	2	N/A

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
55	Cater Road from Scappoose Vernonia Highway to Sykes Road.	Improve Cater Road to Major Collector standard from Scappoose Vernonia Highway to Sykes Road, to include wider shoulders, and improved curve delineation.	$4,250,000	County	2	N/A
56	Scappoose Vernonia Highway / Cater Road intersection	Widen Scappoose Vernonia Highway at the Cater Road intersection, to include an eastbound left-turn lane.	$400,000	County	2	2,419
57	Scappoose Vernonia Highway from OR 47 to US 30	Improve Scappoose Vernonia Highway to Minor Arterial standard (as a resource route) from OR 47 to US 30, to include spot roadway surface and shoulder widening, better curve delineation, and additional guardrail.	$6,650,000	County	2	2,419
58	Crown-Zellerbach Trail from the Multnomah Slough to Vernonia	Improve the Crown-Zellerbach Trail from the Multnomah Slough to Vernonia, to include parking facilities, an improved trail surface, and enhanced amenities.	$500,000	County	2	N/A
59	Banks-Vernonia Trail to Crown-Zellerbach Trail	Create an off-street shared-use path connection between the end of the Banks-Vernonia Trail near Vernonia Lake, and the Crown-Zellerbach Trail.	$1,900,000	County	2	N/A
60	Scappoose Vernonia Highway Bridge (County Bridge 020)	Replace the Scappoose Vernonia Highway Bridge (County Bridge 020).	$2,250,000	County	2	540
61	OR 47 from OR 202 to the north Vernonia UGB.	Improve OR 47 between OR 202 and the north Vernonia UGB (14 mile segment), to include spot improvements, and general roadway widening to address lane departure crashes.	$5,000,000	State	1	1,499
62	Freeman Road Bridge (County Bridge 119)	Replace the Freeman Road Bridge (County Bridge 119).	$1,200,000	County	2	N/A
63	Flack Road Bridge (County Bridge 126)	Replace the Flack Road Bridge (County Bridge 126).	$1,080,000	County	2	N/A

Table 1: Financially Constrained and Aspirational Project List

Project ID	Project Description	Project Elements*	Estimated Cost (2015 Dollars)	Primary Funding Source**	Package ***	Average Daily Traffic (2014)
64	Timber Road from OR 47 to the Washington County line.	Improve Timber Road to Major Collector standard from OR 47 to the Washington County line, to include wider shoulders, and improved curve delineation.	$6,125,000	County	2	825
65	US 30 Lewis and Clark Bridge Overpass	Improve the vertical clearance at the Lewis and Clark Bridge overpass. This is an existing freight pinch point, with a vertical clearance one foot lower than the design standard. With improvements, this segment could accommodate taller loads.	$2,500,000	State	2	11,476
66	US 30 Passing Lane Study	Study for the feasibility of adding passing lanes along various segments of US 30, between Columbia City and Clatsop County.	$200,000	State	2	N/A
67	Scappoose Alternate Route	Create an alternate route to US 30 through Scappoose. This roadway should be reconstructed / constructed as a Minor Collector resource route.	$25,000,000	County	2	N/A
		Estimated Cost for all Projects	**$477,520,000** ****			

*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 County 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 (Includes a reasonable estimate of how the County would use revenue from various state and/or federal sources. Totals 12.0 million.).

Improvement Package 2: Comprised of the aspirational projects, those remaining projects that likely would not have County or state funding by 2035.

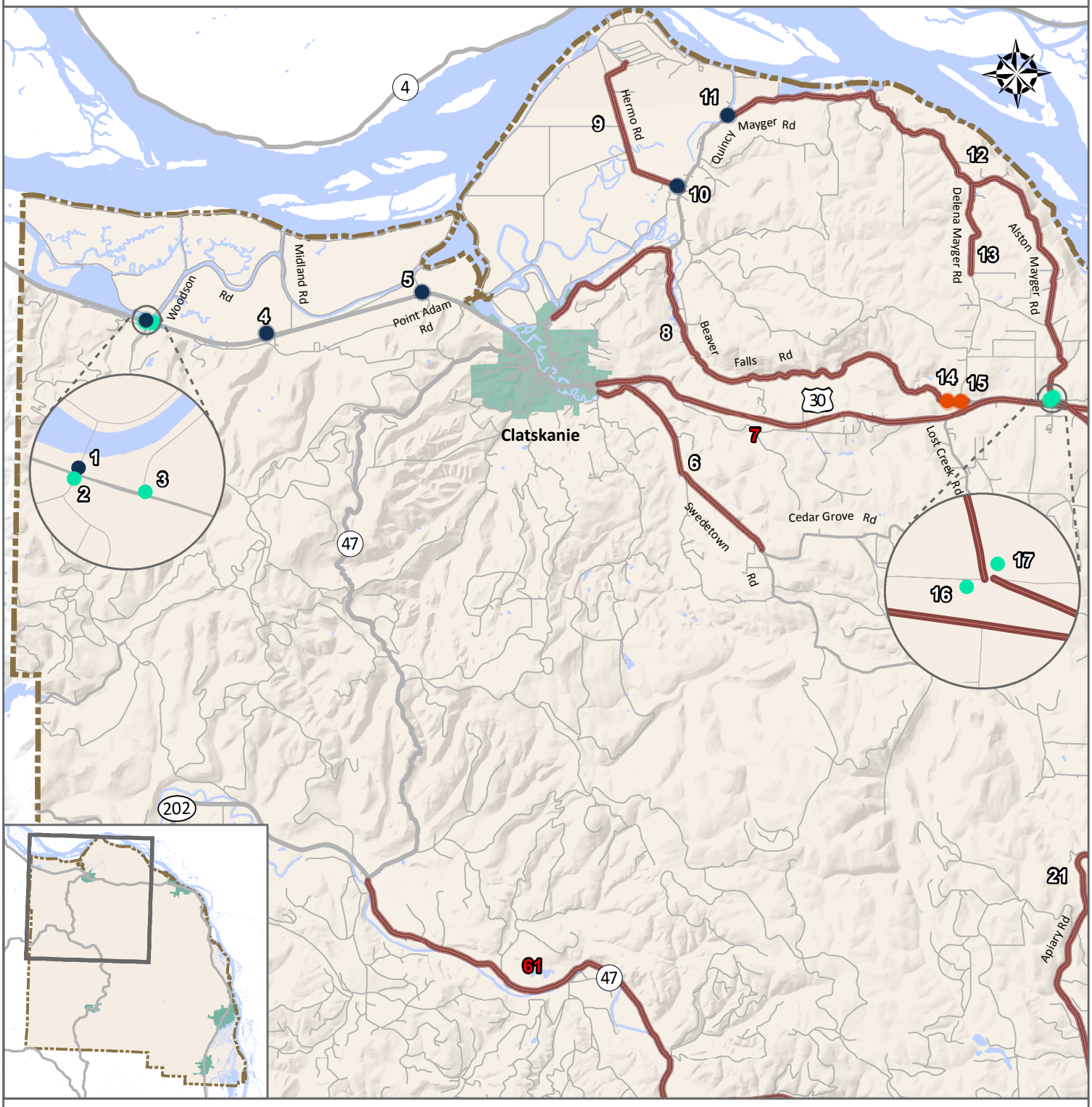
****The estimated cost of Project ID #23, shown on page 28, represents over 60 percent of the total plan investments ($300 million of the $477 million in investments).

*****Project ID #43, shown on page 31, is funded through a combination of the ODOT Highway Safety Improvement Program and ODOT Statewide Transportation Improvement Program modernization money. It does not count against the $12 million in discretionary state and/or federal funds that may be available for needed investments along state highways in Columbia County over the next 20 years.

Columbia County Transportation System Plan

DKS

Figure 7 - Planned Investments in NW Columbia County



Legend

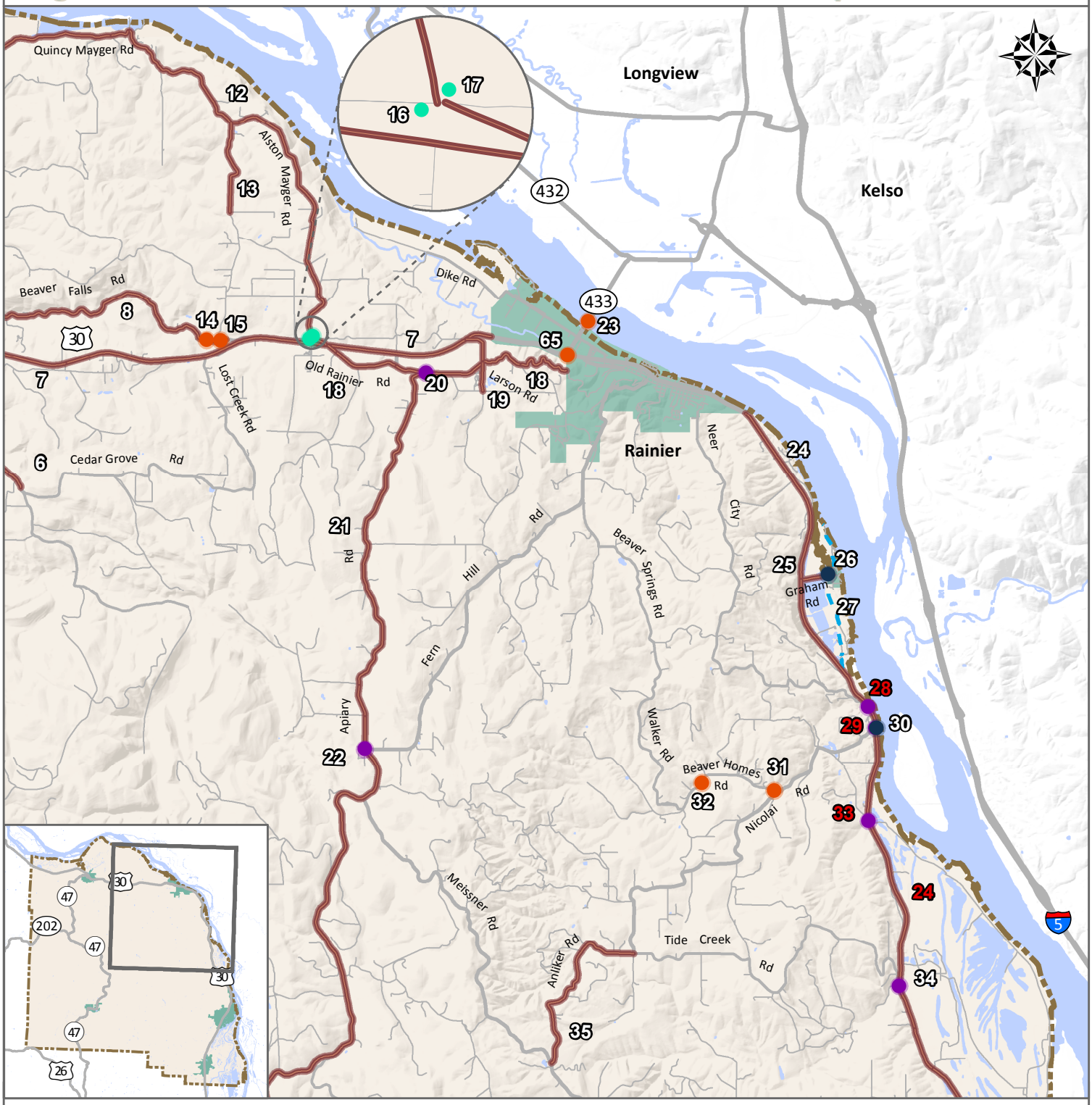
- Planned Roadway Improvement
- Planned Rail Improvement
- Planned Transit Improvement
- Planned Bridge Improvement
- # Project included in the Financially Constrained Plan (Package 1)
- # Project included in the Aspirational Plan (Package 2)
- Urban Growth Boundary
- Columbia County

0 0.5 1 2 3 Miles

Columbia County Transportation System Plan

DKS

Figure 8 - Planned Investments in NE Columbia County



Legend

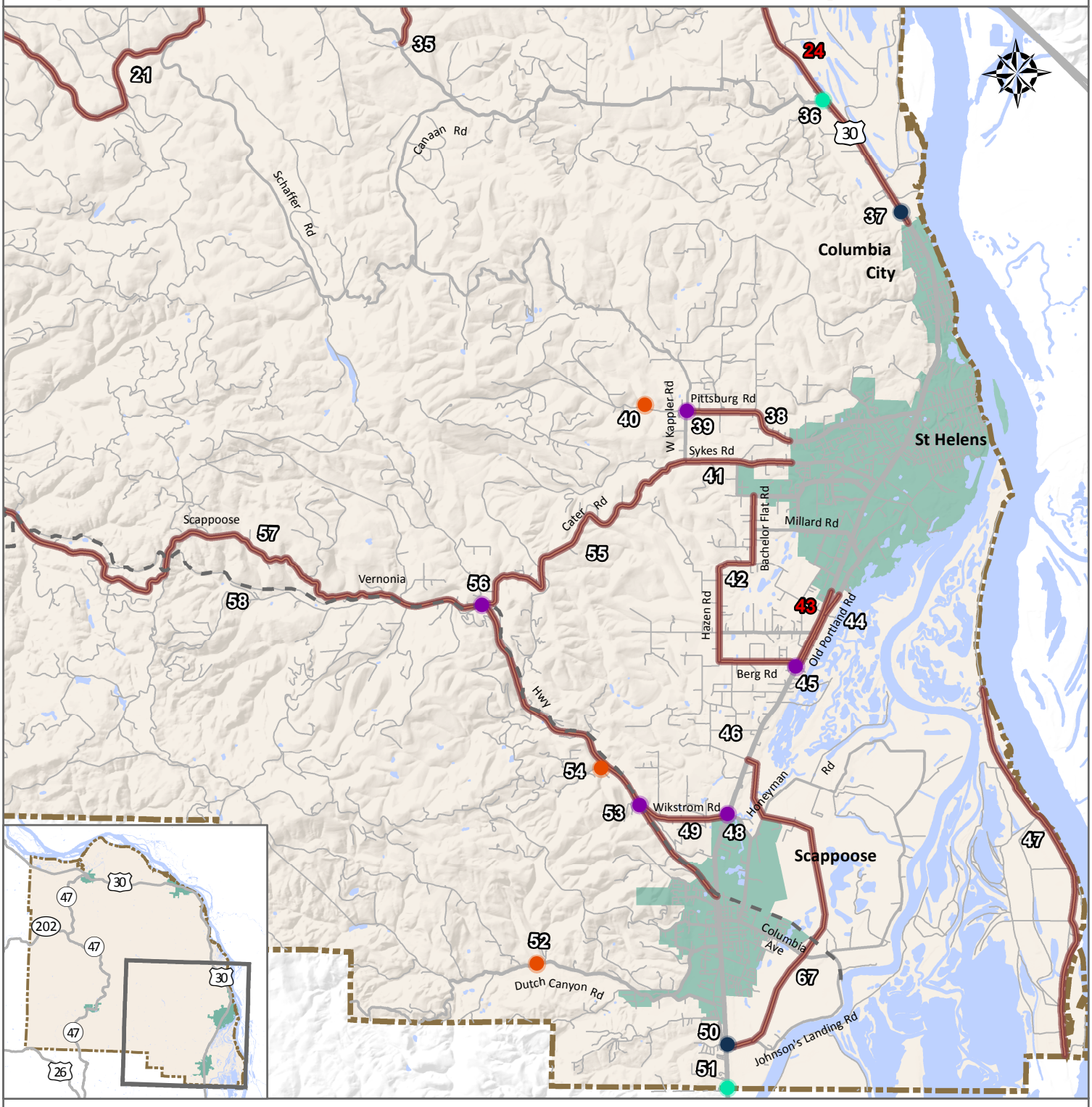
- Planned Roadway Improvement
- Planned Shared Use Path
- Planned Intersection Improvement
- Planned Rail Improvement
- Planned Transit Improvement
- Planned Bridge Improvement
- # Project included in the Financially Constrained Plan (Package 1)
- # Project included in the Aspirational Plan (Package 2)
- Urban Growth Boundary
- Columbia County

0 0.5 1 2 3 Miles

Columbia County Transportation System Plan

DKS

Figure 9 - Planned Investments in SE Columbia County



Legend

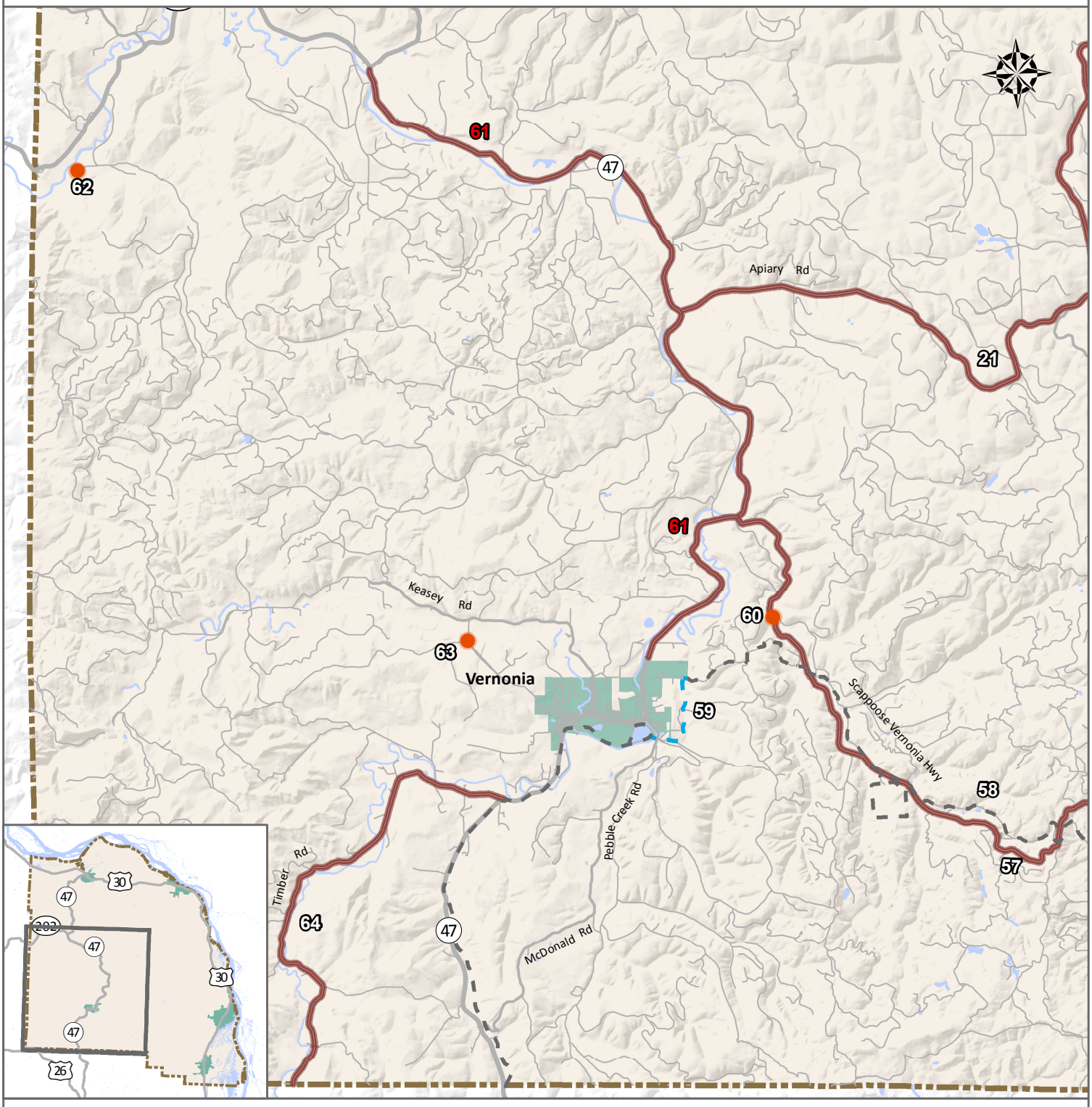
- Planned Roadway Improvement
- Planned Local Connectivity Study
- Planned Intersection Improvement
- Planned Rail Improvement
- Planned Transit Improvement
- Planned Bridge Improvement
- # Project included in the Financially Constrained Plan (Package 1)
- # Project included in the Aspirational Plan (Package 2)
- Existing Shared Use Path
- Urban Growth Boundary
- Columbia County

0 0.5 1 2 3 Miles

Columbia County Transportation System Plan

DKS

Figure 10 - Planned Investments in SW Columbia County



Legend

- Planned Roadway Improvement
- Planned Shared Use Path
- Existing Shared Use Path
- Planned Bridge Improvement
- # Project included in the Financially Constrained Plan (Package 1)
- # Project included in the Aspirational Plan (Package 2)
- Urban Growth Boundary
- Columbia County

0 0.5 1 2 3 Miles

The Standards

The TSP sets standards and regulations to ensure future development or redevelopment of property is consistent with the County's transportation vision and goals (see Volume 2, Sections L and N for more information).

Functional Classification

The functional classification of a roadway (shown in Figure 11) determines the level of mobility for all travel modes for anticipated level of access and usage. The functional classification system recognizes that individual streets do not act independently of one another, but instead form a network that serves travel needs on a local and regional level. From highest to lowest intended usage, the functional classifications are: principal arterial, minor arterial, major collector, minor collector, and local roads. Roadways 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. The functional classifications are described below:

- **Principal Arterials** are state roadways. These roadways serve the highest volume of motor vehicle traffic and are primarily used for longer distance regional trips.
- **Minor Arterials** are intended to move traffic between principal arterials and major collector roadways. These roadways generally experience higher traffic volumes and often act as a corridor connecting many parts of the County.

- **Major Collectors** are intended to serve local traffic traveling to and from principal arterial or minor arterial roadways. These roadways provide greater accessibility to neighborhoods, often connecting to major activity generators and providing efficient through movement for local traffic.

- **Minor Collectors** often connect the neighborhoods to the major collector roadways. These roadways serve as major neighborhood routes and generally provide more direct access to properties or driveways than arterial or major collector roadways.
- **Local Roads** provide more direct access to residences. These roadways are often lined with homes and are designed to serve lower volumes of traffic.

Figure 11 - Functional Classification

Legend

Functional Classification

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Road

- Urban Growth Boundary
- Columbia County

0 1 2 4 6 Miles

Freight and Resource Routes

Figure 12 shows roadways designated to help ensure trucks can efficiently travel through and access major destinations in Columbia County. These routes play a vital role in the economical movement of raw materials and finished products, while maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system.

Freight Routes

ODOT has classified US 30 as a freight route and a reduction review route through Columbia County. Reduction review routes are highways that require review with any proposed changes to determine if there will be a reduction of vehicle-carrying capacity. It is also designated as a truck route by the federal government. Federal truck routes generally require 12-foot travel lanes.

Resource Routes

Columbia County has designated "resource routes" to facilitate the movement of truck freight between major destinations (e.g., ports and harbors) and state highways. These roadways serve an important role in the County roadway network and should be designed and managed to safely accommodate the movement of goods. These routes require a minimum of 12-foot travel lanes with five-foot shoulders and are considered priority routes for maintenance.

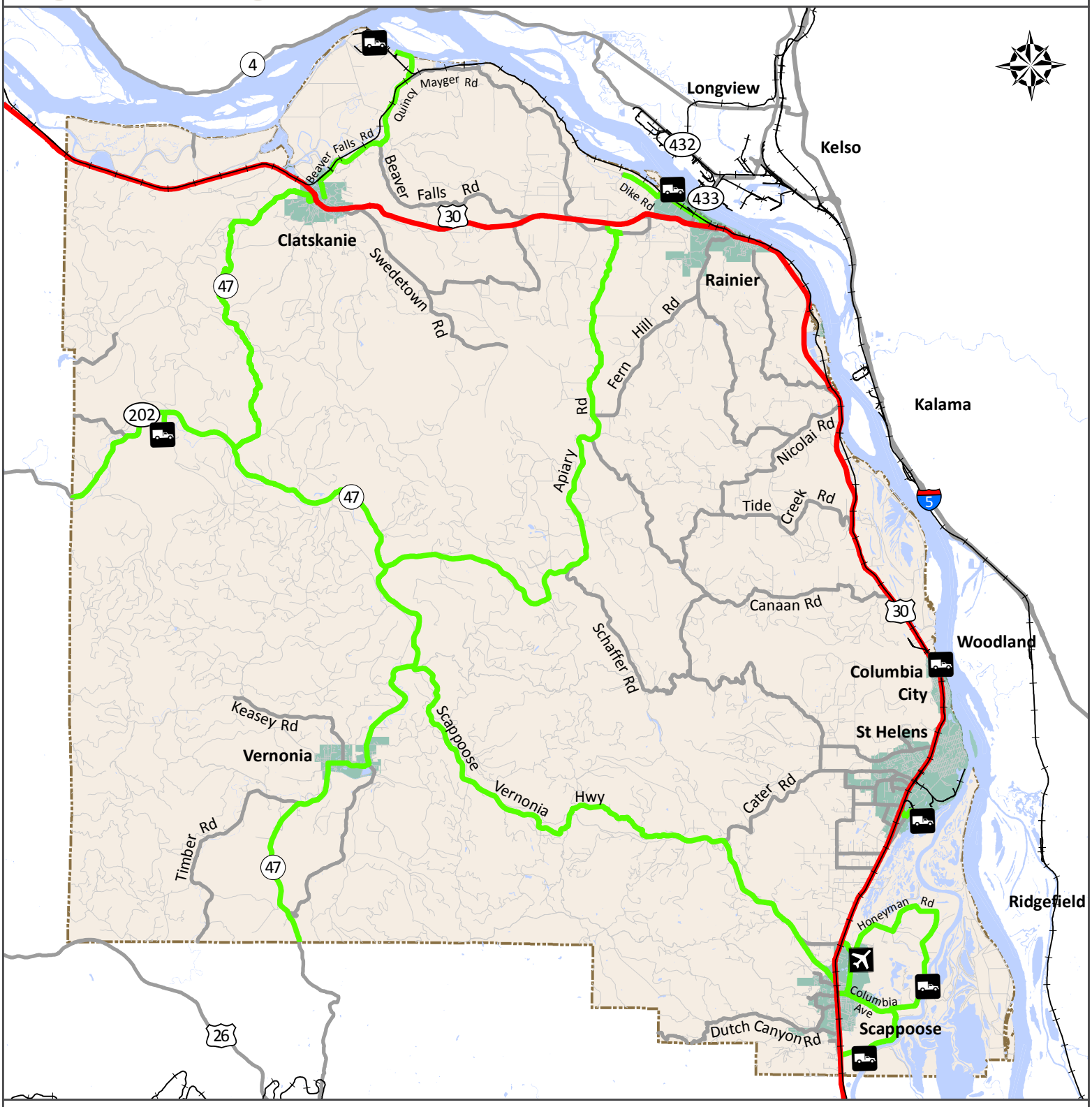
County Resource Routes:

These routes require a minimum of 12-foot travel lanes with five-foot shoulders and are considered priority routes for maintenance.

Designated resource routes include portions of:

- NW 5th Street-Beaver Falls Road, Quincy Mayger Road, and Kallunki Road near Clatskanie;
- Dike Road and Rock Crest Street near Rainier;
- Millard Road and Old Portland Road near St. Helens;
- E Columbia Avenue, Honeyman Road, W Lane Road, Johnson's Landing Road, and Dike Road near Scappoose; and
- Banzer Road, Apiary Road, Scappoose Vernonia Highway, OR 202, and OR 47.

Figure 12 - Freight and Resource Routes



Legend

- ODOT Freight Route and Federal Truck Route
- County Resource Route
- Railroad
- Airport
- Major Truck Origin/Destination
- Urban Growth Boundary
- Columbia County

0 1 2 4 6 Miles

Emergency Response Routes

Figure 13 shows designated Emergency Transportation and Lifeline Routes in Columbia County, along with current bridge locations and conditions.

The County, in coordination with other agencies in the Portland/Vancouver metropolitan area, has identified major roadways as Emergency Transportation Routes (ETR). These routes are needed during a major regional emergency or disaster to move response resources such as personnel, supplies, and equipment to heavily damaged areas. Designated routes in Columbia County include US 30, OR 47, OR 202, Timber Road, Apiary Road, and Scappoose Vernonia Highway. Investments are prioritized along these routes to preserve the function for emergency response.

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. US 30 is the only Lifeline Route in Columbia County, designated as Tier 1.

Figure 13 - Emergency Response Routes

Legend

Emergency Response Routes
- Tier 1 Lifeline Route
- Tier 2 Lifeline Route
- Emergency Transportation Route

Bridge Condition
- Not Structurally Deficient
- Structurally Deficient
- Bridge with Load Limits

- Urban Growth Boundary
- Columbia County

Miles: 0 1 2 4 6

Typical Roadway Cross-section Standards

Figures 14a to 14c include three typical standard cross-section types for County roadways outside of an UGB, with guidelines for constrained areas where design elements may need to be reduced shown in Table 2. County roadways inside an UGB are subject to the roadway design standards from the respective City's TSP (e.g., Clatskanie, Columbia City, Rainier, Scappoose, St. Helens, or Vernonia).

State highways (US 30, OR 47 and OR 202), the County's only principal arterials, are subject to the design criteria in the state's Highway Design Manual.

Constrained Roadway Option

The construction of some roadways may be constrained by challenging topography or environmentally sensitive, historic, or developed areas. These roadways may require modified designs to allow for reasonable construction costs. Guidance for modifications to the standard designs is provided in Table 2. Any modification of a standard design requires approval of a variance prior to construction.

Table 2: Constrained Roadway Design Options

	Principal Arterial	Minor Arterial	Major Collector	Minor Collector	Local Roadway
Minimum Through Lane Width	N/A	11 feet*	10 feet*	10 feet*	10 feet*
Minimum Shoulder Width		4 feet	4 feet	4 feet	3 feet, if less than 3,000 ADT

* The minimum through lane width along a resource route should be maintained at 12 feet where feasible

Figure 14a: Minor Arterial Roadway, outside an UGB

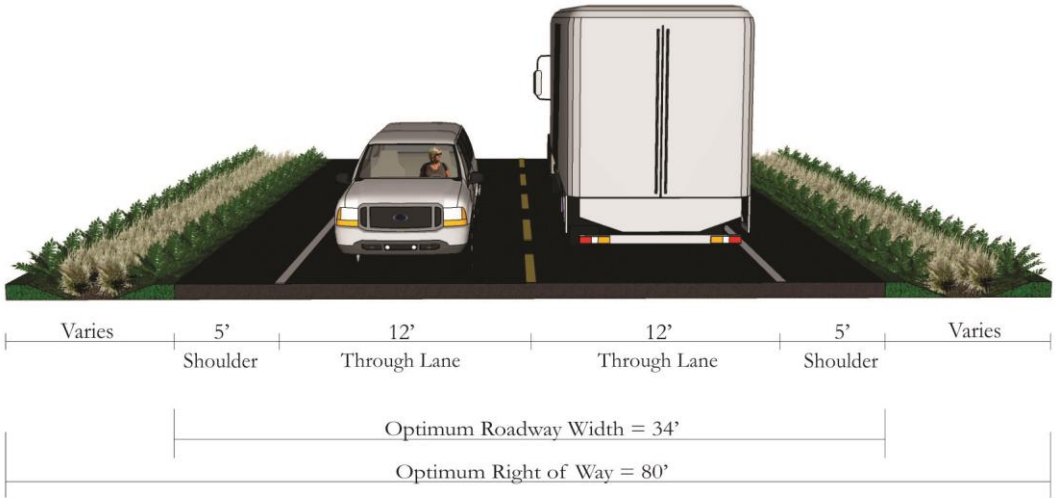


Figure 14b: Major and Minor Collector Roadway, outside an UGB

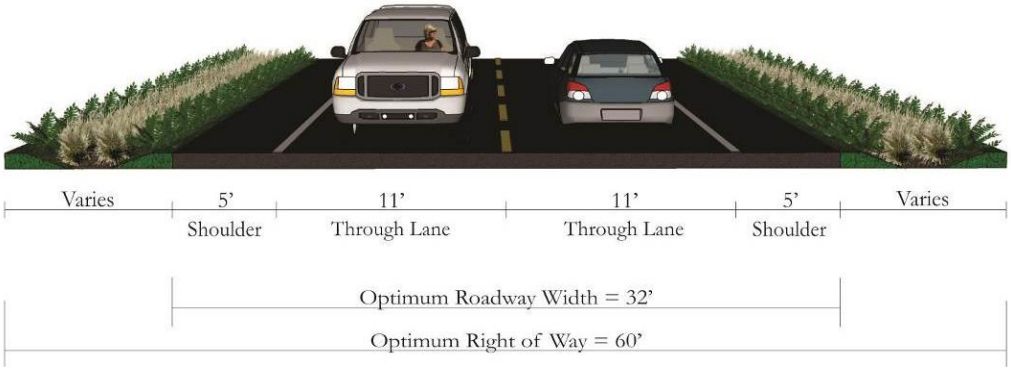
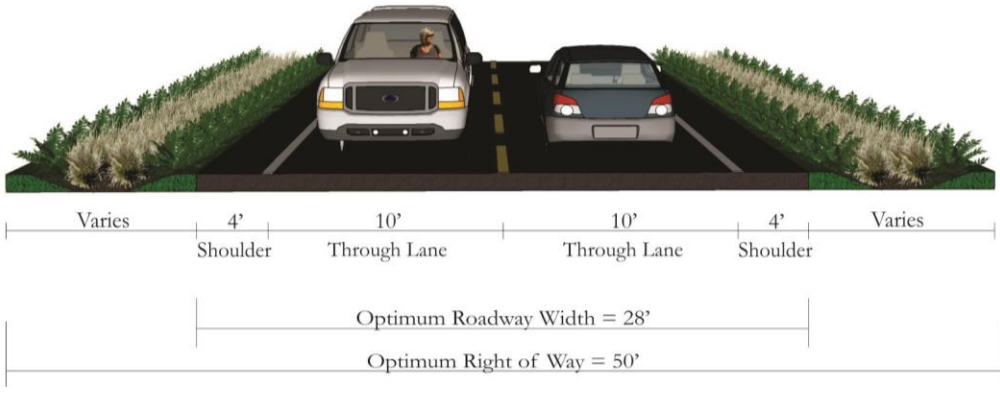


Figure 14c: Local Roadway, outside an UGB



Walking and Biking Design Standards

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

Walking and Biking Facilities

As shown in Figures 14a to 14c, the County roadway design standards require five-foot paved shoulders along minor arterial, major collector, and minor collector roadways, and four-foot paved shoulders along local roadways in unconstrained areas. Newly constructed roadways outside an UGB should provide these accommodations to walking and biking users.

County roadways within an UGB should include walking and biking facilities consistent with the roadway design standards from the respective City's TSP. In general, the design should include a minimum five-foot clear throughway for walking along all roadways, and a minimum five-foot striped bike lane along minor arterial and major collector roadways.

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 transportation needs. Shared-use path designs vary in surface types and widths. Hard surfaces are generally better for bicycle travel. Widths need to provide ample space for both walking and biking and should be able to accommodate maintenance vehicles.

Columbia County requires that a paved shared-use path be 12 feet wide in areas with significant walking or biking demand; otherwise, it should be 10 feet wide (see Figure 15). The Roads Department Director may reduce the width of the typical paved shared-use path to a minimum of eight feet in constrained areas (e.g., steep, environmentally sensitive, historic, or previously developed areas).

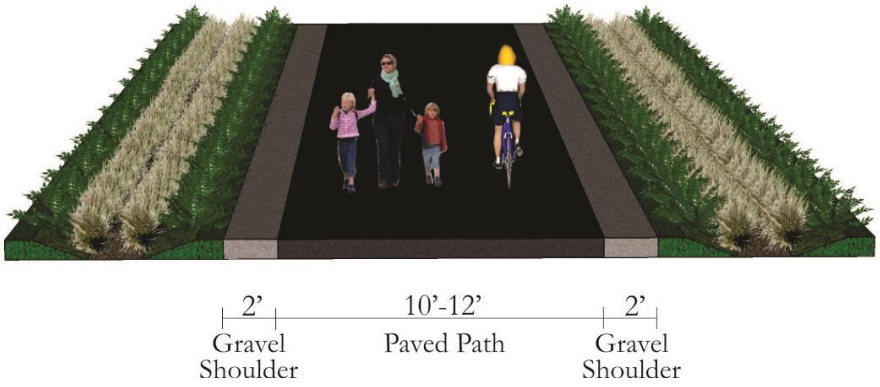


Figure 15: Design Standards for Shared-Use Paths

Roadway and Access Spacing Standards

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. Appropriate access management standards and techniques can reduce congestion and accident rates, and may lessen the need for construction of additional roadway capacity.

Table 3 identifies minimum public roadway intersection and minimum private access spacing standards for roadways in Columbia County. New roadways or redeveloping properties must comply with these standards to the extent practical, as determined by the Roads Department Director. As the opportunity arises through redevelopment, roadways 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 closure of unnecessary access points, as feasible.

Local agencies may apply their adopted roadway and access spacing standards to County owned roadways within an UGB, given that they are not less restrictive than the standards identified in Table 3. Like roadway design and mobility targets, access spacing standards for state highways are determined by ODOT. ODOT spacing standards are defined in the Oregon Highway Plan, OAR 734-051, and ODOT's Highway Design Manual.

Table 3: Roadway and Access Spacing Standards

	Principal Arterial	Minor Arterial	Major Collector	Minor Collector	Local Roadway
Minimum Block Size (Public Roadway to Public Roadway)	See Oregon Highway Plan	265 feet	265 feet	265 feet	265 feet
Minimum Driveway Spacing (Public Roadway to Driveway and Driveway to Driveway)		265 feet	130 feet	65 feet	30 feet

Note: all distances measured from center to center of adjacent approaches.

The Standards

Mobility Targets

Mobility targets for roadways and intersections in Columbia County provide a metric for assessing the impacts of new development on the existing transportation system and for identifying where capacity improvements may be needed. They are the basis for requiring improvements needed to sustain the transportation system as growth and development occur. 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 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.
- **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.

Mobility Targets for Columbia County

All roadways and intersections owned by Columbia County must operate at or below the following mobility targets. A local agency may choose to apply their adopted mobility targets to County owned roadways in an UGB, given that they do not allow for a lesser degree of mobility.

Signalized, All-way Stop, or Roundabout Controlled Intersections: The intersection as a whole must operate with a Level of Service (LOS) "E" or better and a volume to capacity (v/c) ratio not higher than 0.85 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).

Two-way Stop and Yield Controlled Intersections: All intersection approaches serving more than 20 vehicles 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) shall operate with a LOS "E" or better and a v/c ratio not higher than 0.90. Mobility targets do not apply to approaches at intersections serving 20 vehicles or fewer during the peak hour.

- **State-owned roadways** must comply with the mobility targets included in the Oregon Highway Plan.
- **City-owned roadways** should comply with the mobility targets included in local TSP's, as determined by the respective agencies.

Transportation Impact Analysis (TIA) Guidelines

Columbia County Transportation Impact Analysis (TIA) requirements implement Sections 660-012-0045(2)(b) and -0045(2)(e) of the State Transportation Planning Rule (TPR). These sections require the County to adopt mobility targets and a process to apply conditions to land use proposals in order to minimize impacts on and protect transportation facilities.

Volume 2, Section P includes the County's required content for a Transportation Impact Analysis (TIA). In general terms, the 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 Columbia County Guidelines for Transportation Impact Analysis.

Transportation Impact Analysis:

Columbia County Guidelines for Transportation Impact Analysis are included in TSP Volume 2, Section P.

The Outcome

How will the constrained investment recommendations in the TSP improve the performance of the transportation network in Columbia County? To answer this question, the TSP evaluated investment decisions and compared them to anticipated trends through 2035.

The Improved Transportation System

Columbia County expects the following results from the TSP by 2035:

- **Safer Streets:** Added turn lanes, improved intersection geometrics and traffic control, and managed travel speeds will make roadways in Columbia County safer.
- **Increased congestion on state highways:** While streets in 2035 will have available capacity to support growth, traffic volumes will be higher, and congestion will be worse than it is now. That said, strategic improvements will make the highways safer and more accommodating.

- **Enhanced transit stop amenities:** Increased amenities at bus stops will enhance travel convenience and comfort via transit.

To the Planning Horizon and Beyond

The 2017 Columbia County TSP has not resolved all the of the County's transportation issues. The following require additional exploration:

Potential Additional Funding Sources

Based on the identified funding gap, Columbia County may wish to consider expanding its funding options in order to fund more of the desired improvements in a timely manner. Other counties and cities use one or more of the following sources to fund the

capital and maintenance aspects of their transportation programs. A variety of factors affect use of these sources, including the willingness of local leadership and the electorate to burden citizens and businesses with taxes or fees, the availability of local funds the County can dedicate or divert to transportation issues from other competing County programs, and the availability of state and federal funds. The County should consider opportunities for providing or enhancing funding for the transportation improvements included in the TSP.

- **County Natural Resource Depletion Fee:** Columbia County has collected a natural resource depletion fee since 1990. The fee is levied monthly at a rate of 15 cents per ton (as of July 2016) for depleting natural resources from the soils and waters of the County, or transporting natural resources into the County for commercial, construction or industrial uses. Revenue from the fee can be utilized for the construction, reconstruction, improvement, repair and maintenance of roadways in the County. The County currently receives approximately $370,000 annually from the fee. As an example, a 10 cents per ton increase could provide an additional $250,000 annually for road improvements and maintenance.

County Natural Resource Depletion Fee:

A 10 cents per ton increase to this fee could provide an additional $250,000 annually for road improvements and maintenance.

- **County System Development Charges:** System development charges (SDC) are fees collected from new development and used as a funding source for all capacity adding projects for the transportation system. The fee is based on the proposed land use and size, and is proportional to each land use's potential PM peak hour vehicle trip generation.

  The County currently collects an SDC of $2,272.50 for rural residential uses, and $2,250 per peak hour trip for other uses for transportation facilities (as of July 2016). The County may wish to update the current SDC rate for transportation facilities and/or pursue a pedestrian and bicycle SDC based on the transportation needs established

in the TSP. As an example, an SDC rate of $3,250 per peak hour trip (and assuming similar growth as the previous years) would provide the County with an additional $25,000 annually. If an SDC update is desired, a rate study would be required to determine appropriate fees based on capacity projects costs, growth potential, and local preferences.

- **County Transportation Utility Fee:** A transportation utility fee is a recurring monthly charge that could be paid by all residences and businesses within the County. The County can base the fee on the estimated number of trips a particular land use generates or as a flat fee per residence or business. This fee is typically collected through regular utility billing, however, it could be collected as a separate stand-alone bill. 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 local agencies utilize the revenue for any transportation related project, including construction, improvements and repairs; however, many choose self-imposed restrictions or parameters on the use of the funds.

  For every $1.00 per month in charged rates for residential and commercial uses in unincorporated areas of the County, the County could expect to collect nearly $200,000 annually.

County Transportation Utility Fee:

For every $1.00 per month in charged rates for residential and commercial uses in unincorporated areas of the county, the county could expect to collect nearly $200,000 annually.

- **County Fuel Tax:** Twenty-two cities and two counties (including Multnomah and Washington Counties) in Oregon have adopted local fuel taxes ranging from one to five cents per gallon. The fuel distributers pay collected taxes to the jurisdictions monthly.

  If Columbia County, for example, adopts a local fuel tax of one cent per gallon could bring an additional, the County could expect to generate around $16,000 monthly, $192,000 annually or $3.8 million through 2035. The process for

presenting such a tax to voters will need to be consistent with Oregon State law as well as the laws of the County.

- **County Vehicle Registration Fee:** The State of Oregon currently requires vehicle owners to register their vehicles and then renew their registration on a biennial basis. In addition to the State fee, Multnomah County is the only County that also has a vehicle registration fee. Vehicle registration fees for counties in Oregon can be enacted by ordinance, but if a County has a population less than 350,000 residents (like Columbia County), then the ordinance requires voter approval. Under State law, 40 percent of the collected fee must go to the cities within a County, unless they agree to a different percentage.

  As an example, with a registration fee of $20 for passenger cars, and $11 for motorcycles, the County could expect to collect over $1 million annually, with $600,000 going to the County, and $400,000 distributed to cities.

- **County Service District for Roads:** Counties can also form service districts, which are areas within a County where it provides special services that can be financed by service or user charges, connection charges, district ad valorem taxes, bonds, local option tax levies, or any combination thereof. Voter approval would be required to form such a district, and the district would include a permanent tax rate. Incorporated cities must consent to be included within a service district, or the district boundary could be drawn to include unincorporated areas of the County only.

  Counties around Oregon, including Clatsop and Washington Counties, charge up to $4 per $1,000 in assessed value. The funds are utilized to provide preventive maintenance and safety improvements along public roads within the maintenance district boundaries. Assuming the Clatsop County rate for unincorporated areas of the County ($1.0175 per $1,000 in assessed value), the County could expect to collect around $2.6 million

County Vehicle Registration Fee:

As an example, with a registration fee of $20 for passenger cars, and $11 for motorcycles, the county could expect to collect over $1 million annually.

annually. Assuming the Washington County rate ($0.2456 per $1,000 in assessed value) for unincorporated areas of the County, the County could expect to collect around $630,000 annually.

- **County Property Tax Levy:** Countywide property tax levies are another funding option available to Oregon counties. Voter approval is required to enact a local option tax, and the tax may be imposed for up to five years at a time, at which time a County will need voter approval if it desires to renew the levy. The only exception is that a levy for a specific capital project may be imposed for the expected useful life of the capital project up to a maximum of 10 years. Cities have a legal right to 50 percent of any County road property tax levied within their boundaries, unless they agree to a different percentage. Cities also have the option to adopt charter amendments that exempt property within their boundaries from County road levies altogether. Assuming the Washington County rate ($0.2456 per $1,000 in assessed value) as a five year levy for unincorporated areas of the County, the County could expect to collect around $3.1 million over five years.

County Property Tax Levy:

As an example, with a levy of $0.2456 per $1,000 in assessed value for five years for unincorporated areas of the county, the county could expect to collect around $3.1 million over five years.

- **Local Improvement District:** Local improvement districts (LIDs) can fund capital transportation projects that benefit a specific group of property owners. LIDs require owner/voter approval and a specifically defined project. Benefiting properties pay for the improvements through assessments. LID projects that benefit more than the adjacent properties can serve as match for other funds. Property owners pay fees through property tax bills over a specified number of years.
- **Debt Financing:** While not a direct funding source, debt financing is another funding method. Through debt financing, available funds can be leveraged and the cost can be spread over the projects useful life. Though interest costs are incurred, the use of debt financing can serve not only as

a practical means of funding major improvements, but it is also viewed as an equitable funding source for larger projects because it spreads the burden of repayment over existing and future customers who will benefit from the projects. One caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations.

- **ODOT Statewide Transportation Improvement Program (STIP) Enhance Funding:** The Oregon Transportation Commission selects projects proposed by ODOT and local jurisdictions for STIP funding. Historically, only projects on the state highways were eligible for funding. ODOT has modified the selection process to allow funding for projects off the state system that enhance system connectivity and improve multi-modal travel options. The TSP prepares the County to apply for STIP funding.

- **ODOT Highway Safety Improvement Program (HSIP) Funding:** With significantly more funding under the HSIP and direction from the Federal Highway Administration to address safety challenges on all public roads, ODOT will increase the amount of funding available for safety projects on local roads. ODOT will distribute safety funding to each ODOT region, which will collaborate with local governments through the All Roads Transportation Safety (ARTS) Program to select projects that can reduce fatalities and serious injuries, regardless of whether they lie on a local road or a state highway.

Technology Advancements

The TSP is a plan for conditions 20 years into the future; however, it cannot anticipate all advancements in technology or their impact on the way people travel to and within Columbia County. Advancements may include alternative fuel sources that lower the cost of driving and operating transit service, connected vehicle technology that improves the safety and efficiency of roadways, proliferation of electric-assisted bicycles that take the effort out of

traveling across hilly topography and expand the number of travelers who can make that choice of mode. The TSP recommends that the County continue to monitor opportunities arising from innovations in transportation technology and anticipate their impact on investment priorities.

Detailed Analysis of Physical Constraints

All proposed improvements in this plan are conceptual. The plan has not analyzed these improvements for hydrologic, topographic, or other geological constraints, which could require substantial modifications. Detailed surveys need to precede construction of these improvements.