

BENTON COUNTY

DRAFT

Transportation System Plan

OCTOBER 2018

VOLUME ONE

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The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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Volume 2 of the Benton County Transportation System Plan includes all background memoranda, meeting summaries, and technical data that were the basis for its development. 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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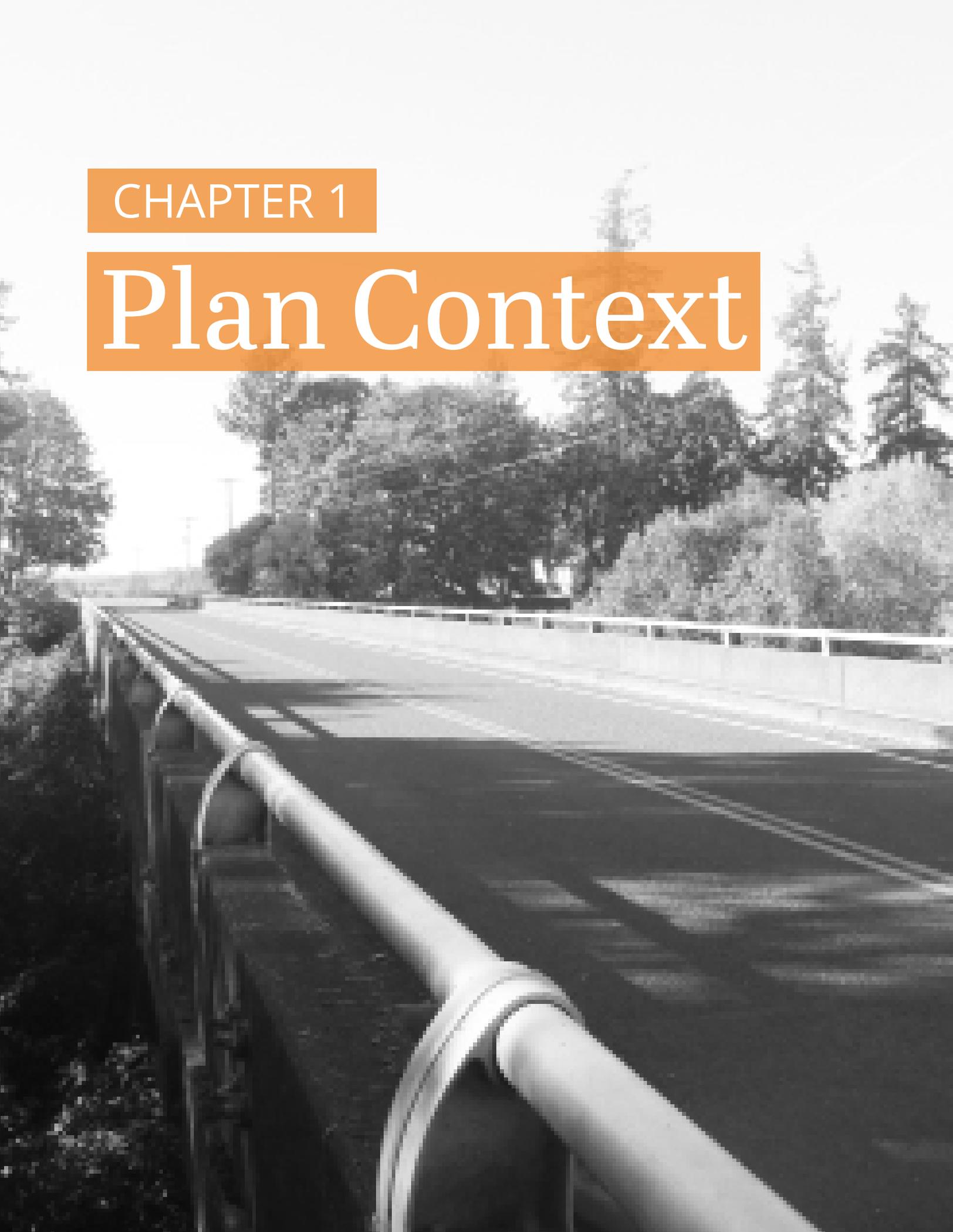
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CHAPTER 1

Plan Context



Why Create a Transportation System Plan?

A Transportation System Plan (TSP) is a long-range plan that sets the vision for the County's transportation system for the next 20 years and beyond. This Plan was developed through community and stakeholder input and is based on the system's needs, opportunities, and anticipated funding.

IMPORTANCE OF A TRANSPORTATION SYSTEM PLAN

The TSP strives to align future transportation investments to support and advance the Benton County goals and values articulated during the plan update process. The TSP is the County's primary tool for implementing transportation investments that address existing County needs and lays out the improvements required to reasonably serve expected local and regional growth.

A TSP is required by the State of Oregon. This TSP update will replace the County's previous plan which was adopted in 2001 and amended most recently in 2006. It establishes a new 2017 baseline condition and identifies transportation strategies and improvements that will be necessary to address existing system deficiencies and accommodate growth through 2040.

HOW THE TSP WILL BE USED?

The Benton County TSP is the guiding document for identifying the type, location and priority of transportation investments. The focus of the TSP is the County's transportation system that includes streets, shared-use paths and transit services. The plan also identifies possible needs and suggested solutions on ODOT transportation facilities that serve the county.

The TSP will be used in a variety of ways, including the following examples.

- Identify priority for transportation investments
- Provide background information to assist in pursuing grant applications to supplement County funds
- Establish standards for application during the review of proposed land development applications
- Serve as the basis for the facility standards applied for new or upgraded system improvements
- Demonstrate that the County understands the resources required to provide a transportation system that is capable of supporting the growth that it expects

Regulatory Framework

REQUIREMENTS OF A TSP

The Benton County TSP must be consistent with transportation elements of the Corvallis Area Metropolitan Planning Organization (CAMPO) and Albany Area Metropolitan Planning Organization (AAMPO) Regional Transportation Plans, local city Transportation System Plans in Philomath, Albany, Corvallis, the Benton County Coordinated Human Services – Public Transportation Plan, and relevant ODOT plans and policies including the Oregon Transportation Plan and its modal and topic plans. As part of the TSP update process, separate TSP elements were developed for the cities of Adair Village and Monroe. Other unincorporated areas, like Bellfountain and Blodgett do not have TSPs, and rely on the County's TSP for guidance on the regional system. TSPs are required by the State's Transportation Planning Rule (TPR) documented in the Oregon Administrative Rule 660-012-0015, which explains the primary elements of the TSP. The TPR expects that a county TSP will include the following components:

- A comprehensive understanding of the existing multimodal transportation system that serves the rural and urban areas of the county and how well that system performs its expected function today
- A reasonable basis for estimating how the urban areas and the surrounding region might grow in its population and employment over the next 20 or more years
- An evaluation of how the expected growth could change system performance
- A set of goals, policies and transportation system improvements that address travel needs
- An understanding of the on-going funding required to build and maintain the transportation system as cities grow.

HOW THE TSP FITS WITH LOCAL PLANS

The Benton County TSP is the primary long-range planning document for the County's transportation investments. The growth forecasts made for the 2040 plan horizon year are based on the regional projections and the local cities' adopted Comprehensive Plans, which define the extent and type of growth that could be permitted during that planning period. The pace of local growth typically varies year to year, and if the overall population and employment growth falls below the 2040 forecast then the associated improvement needs may be deferred.

The core of the TSP process is to imagine a transportation system that can serve local travel needs in a way that is consistent with the County's policies and values. The primary work products are updated multimodal project lists and design standards that inform the priority and type of improvements that the County desires. There are two basic types of roadway improvements: upgrades to existing facilities and new facilities on vacant or undeveloped land. The Public Works Department will use this information to periodically update the County's pursuit of state and federal grant funding and to prioritize the capital improvement list for County facilities.

Any recommended changes from past practices in the transportation design standards will require coordination and updates, as appropriate, to the County's Development Code to ensure future improvements are consistent with the updated TSP. This could include street cross-section dimensions and the required street right-of-way, provisions for pedestrians, bicycles, transit vehicles and motor vehicles, as well as spacing standards for driveways and cross-streets onto County facilities.



HOW THE TSP FITS WITHIN THE REGION AND STATE

It is important that the County's plan recognize regional routes and the role they plan in serving the community. The Benton County TSP transportation system designations and policies must be consistent with regional and state planning documents for this area. The state highways and regional routes are typically owned by either ODOT or the County. State facilities are not subject to the design standards or policies of the County. Project recommendations from this TSP provide the basis for ODOT improvements within the County. ODOT will consider recommended projects on state highways within Benton County when updating the State Transportation Improvement Program. However, ODOT is not committed to constructing any project recommendations in this TSP.

During the update to the Benton County TSP, several other agencies in this region also updated their transportation plans, which provided the opportunity for active coordination between the planning efforts. Transportation plan updates were initiated in Philomath, Corvallis, the Corvallis Area Metropolitan Planning Organization (CAMPO), and the Albany Area Metropolitan Planning Organization (AAMPO).

How Was the Plan Prepared?

The Transportation System Plan update was developed through a process that involved robust public engagement, structured review of technical analysis, and a formal decision-making structure.

PROJECT ROLES & DECISION-MAKING

The decision-making structure for the TSP update was developed to establish broad-based support for the project, as illustrated in the following figure. This approach ensured an open, inclusive process that is viewed as credible by stakeholders.

Figure 1. Benton County TSP Decision Making Structure



ROLE OF THE COUNTY BOARD OF COMMISSIONERS AND PLANNING COMMISSION

The Benton County Board of Commissioners (BOC) was the project’s final decision maker. They are elected to represent the interests of the citizens of Benton County. The Planning Commission provides review of all planning matters and recommended to the BOC that this plan be adopted. The Project Management Team (PMT) made recommendations to the Commissioners based on technical analysis and stakeholder input.

ROLE OF THE PROJECT TEAM

The PMT was comprised of staff from Benton County, ODOT, and the consultant project team. Benton County staff provided project oversight to ensure that the TSP update meets the requirements and objectives of affected community members and organizations within the project area. ODOT staff ensured that the update was developed effectively and consistent with statewide plans, policies, and objectives. The project consultant team led the TSP strategy and development, including the public involvement program outreach and communications. Project team members are listed in the acknowledgements section.

ROLE OF THE TECHNICAL ADVISORY COMMITTEE

The Technical Advisory Committee (TAC) was formed to provide guidance and review of the analysis and findings of the project team. TAC members generally consisted of affected agency representatives and are listed in the acknowledgements section.

ROLE OF THE STAKEHOLDER ADVISORY COMMITTEE

The purpose of the Stakeholder Advisory Committee (SAC) was to convene representatives of groups that may review policy issues, project lists and provide guidance to the project through a stakeholder lens. All SAC meetings were open to the public and included a public comment period. Committee members are listed in the acknowledgements section.

PUBLIC OUTREACH PURPOSE & STRATEGY

Public outreach was performed through a public involvement program developed by the TSP project team. The public involvement program was designed to share information and gather input on the needs and issues of the stakeholders in Benton County. The full public outreach report can be found in Volume 2 of the Benton County TSP.

The strategy for public involvement was designed to:

- Actively seek public input throughout the project and engage a broad and diverse audience through targeted outreach to all segments of the community, including underrepresented communities.
- Provide meaningful public involvement opportunities through the project website, including online surveys; interactive and visually-informative community events; targeted outreach to interest groups, advisory bodies, and other governments; and open public meetings.
- Seek participation of potentially affected and/or interested individuals, neighborhoods, businesses, and organizations.
- Communicate complete, accurate, understandable, and timely information.
- Document how input has been considered in the development and prioritization of proposed improvements.
- Comply with Civil Rights Act of 1964 Title VI requirements. Title VI and its implementing regulations provide that no person shall be subjected to discrimination on the basis of race, color or national origin under any program or activity that receives federal financial assistance.
- Ensure that the public involvement process is consistent with applicable state and federal laws and requirements, and is sensitive to local policies, goals, and objectives.

NOTIFICATION & OUTREACH TOOLS

A wide range of outreach tools were used to publicize the project and encourage public participation.

- The project website <https://www.co.benton.or.us/tsp> included announcements, news entries, a calendar of meetings and events, a comment form, informational posters from community workshops, and a document library.
- Two series of three community workshops were held at major project milestones. Meeting locations included Philomath, Corvallis, North Albany, Monroe, and Adair Village.
- Following community workshops, online surveys were provided to engage individuals that were not able to attend the in-person meetings.
- In addition, tabling at community events (i.e., Open Streets Corvallis 2018) was used to disseminate project information and solicit public input, along with project team presentations to organizations and interest groups.
- Each Stakeholder Advisory Committee meeting was open to the public with time reserved to provide for public comment. In addition, public comment was solicited at the Planning Commission and BOCC adoption hearings.

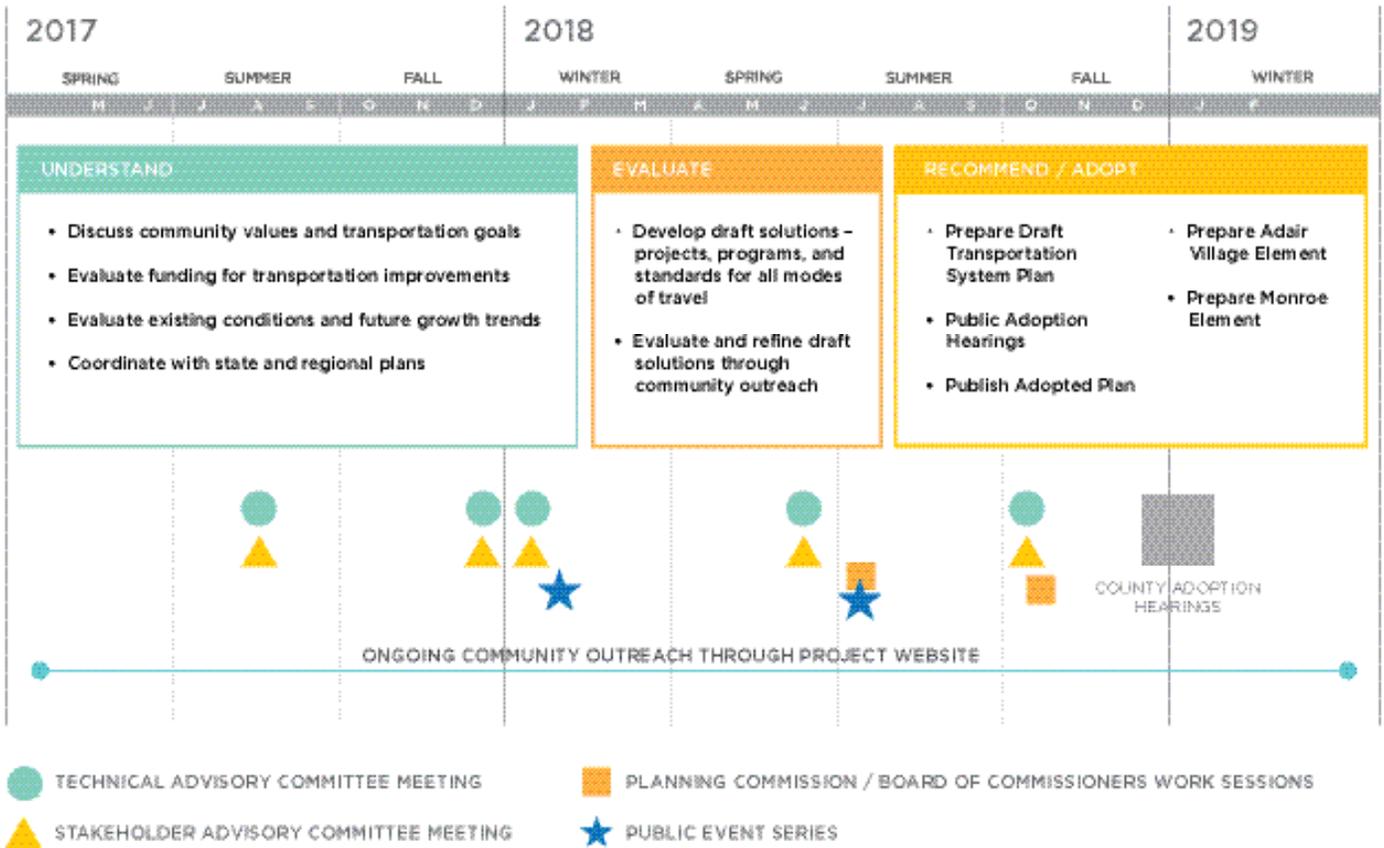
One goal of the public involvement program was to reach underrepresented community members. These efforts included the following outreach:

- **Engaging Low-Income and Non-English Speaking Communities:** The project team collaborated with the County's public health department to offer materials to reach typically underserved populations, such as low-income and Spanish-speaking community members. Spanish language translation was provided during both rounds of community workshops, with a Spanish language-only workshop held in Monroe during the second round.
- **Accessible locations:** All SAC meetings and open houses were ADA-accessible, with additional accommodations for persons with disabilities available upon request. All project information was also available in alternative formats upon request. Meetings were held in transit-accessible locations where feasible.
- **Older Adults:** The County posted project advertisements in locations where seniors would be likely to see them. Such locations included drugstores, grocery stores, and retirement and assisted living communities.

TECHNICAL DEVELOPMENT

Technical analysis for the TSP Update was performed by the project team. The analysis followed a process as illustrated in Figure 2.

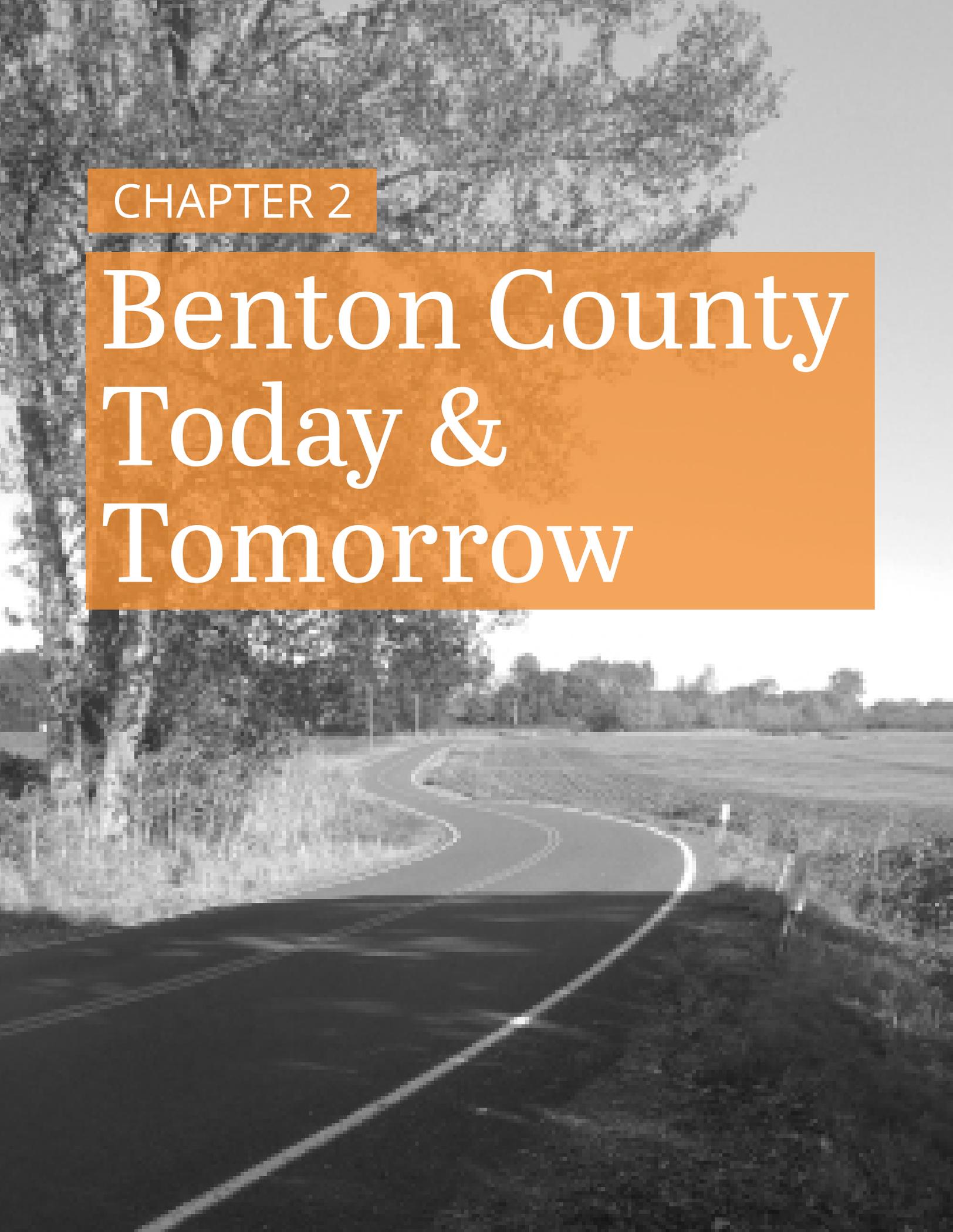
Figure 2. Technical TSP Development Process



The TSP update process was documented through a series of memoranda. These project documents were reviewed by the TAC, SAC, and other project stakeholders. They were also available for public review and comment.

The project documents reflect the development of the technical elements of the TSP and provide additional details and analysis not included in the core elements documented in the final TSP Report (Volume 1). The documents are included for reference, along with meeting summaries reflecting the public input received, in Volume 2 (Appendix). The memoranda developed to support the TSP update process are listed here:

- *Memorandum #1: Public Involvement Strategy*
- *Memorandum #2: Plan Assessment, Goals and Objectives*
- *Memorandum #3: Funding for Transportation System Improvements*
- *Memorandum #4: Existing Transportation System Conditions and Deficiencies*
- *Memorandum #5: Future Transportation Operation Conditions*
- *Memorandum #6: Proposed Transportation Standards*
- *Memorandum #7: Proposed Transportation System Improvements (Project list)*
- *Memorandum #8: County Comprehensive Plan and Development Code Amendments*



CHAPTER 2

Benton County Today & Tomorrow

This chapter describes the transportation system within Benton County, Oregon, and evaluates how well it works today and how that may change in the future. This performance review focuses on all County arterial and collector roadways and also looks at ODOT highways. The transportation conditions within the municipalities of Benton County can be found in each city's Transportation System Plans.

Travel demands are influenced by where land use development occurs and the proximity and quality of roadway systems that serve them. During this TSP update, the performance of the transportation system was reviewed for current conditions (as of 2017) and then re-evaluated based on how that might change with growth (2040). The Benton County Comprehensive Plan designates where land development is allowed throughout the County, outside of designated urban areas. Figure 3 shows the County's land use designations and the adjoining regional transportation systems that serve Benton County.

BENTON COUNTY FACTS

POPULATION	92,287 (2017)
LAND AREA	676 square miles
COUNTY SEAT	Corvallis

INCORPORATED CITIES:
Adair Village, Albany (north), Corvallis, Monroe, Philomath

CENSUS-DESIGNATED PLACES:
Alpine, Alsea, Bellfountain, Blodgett, Kings Valley, Summit

COUNTY MAINTAINED ROADWAY MILES: *Over 275 paved and 170 gravel centerline miles*

Expected Growth to 2040

Benton County population has grown by 18% since the year 2000, which is an annual growth rate of 1.06%. This growth trend is expected to continue, with a forecast of over 110,000 total residents by 2040, as shown in Table 1. Population growth has been in the urbanized areas, with Corvallis

seeing the highest total population increases and Adair Village, North Albany and Philomath seeing the highest growth rates. Refer to Memorandum #5 in Volume 2 for a complete description of expected growth.

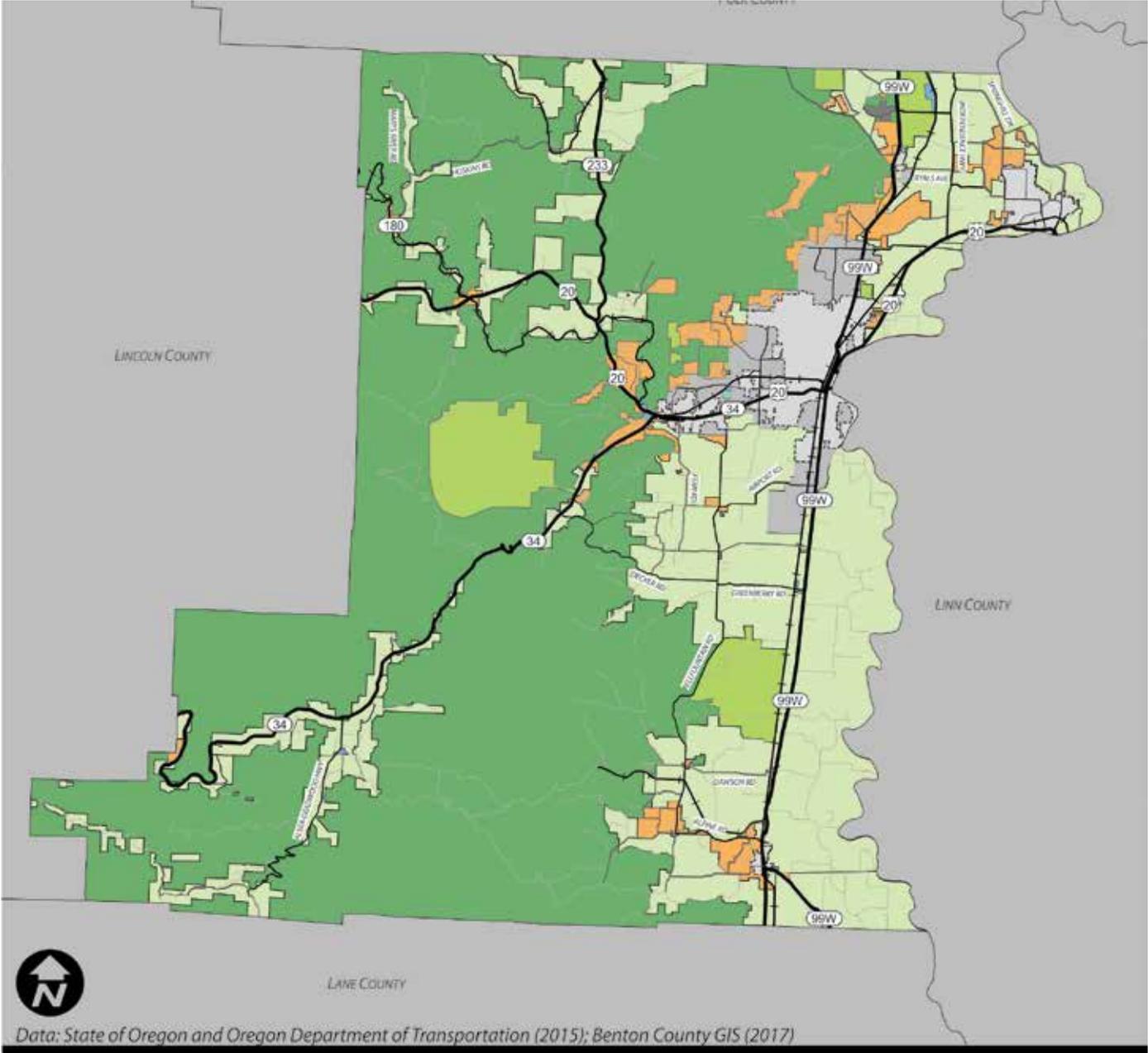
Table 1. Benton County Population Growth History and Forecast

Year	2000	2010	2017	2020	2030	2040
Benton County Total	78,153	85,579	92,287	95,818	106,498	113,169
Adair Village	536	840	928	1,127	1,934	2,075
North Albany	5,104	6,463	7,586	8,088	9,615	10,850
Corvallis	49,322	54,462	61,449	63,857	70,572	75,227
Monroe	607	617	637	643	660	675
Philomath	3,838	4,584	5,169	5,388	6,848	7,493
Unincorporated	18,746	18,613	16,517	16,715	16,868	16,849

Data from PSU Population Research Center. 2000-2010 Census Counts (incorporated areas) and population forecasts (Urban Growth Boundaries). This data may not completely reflect planned residential development in Adair Village or Monroe.



Figure 3. Comprehensive Plan Designations



Data: State of Oregon and Oregon Department of Transportation (2015); Benton County GIS (2017)

- Legend**
- Significant Public Lands
 - Special Use
 - Landfill Site
 - Commercial
 - Industrial
 - Rural Residential
 - Agriculture/MPA
 - Agriculture Industrial
 - Forestry
 - Principal Arterial
 - County Roadways
 - Railroad
 - River
 - Park
 - Airport
 - Urban Growth Boundary

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN



Transportation System Evaluation

The following transportation systems were evaluated to assess travel conditions. The assessment was made for existing travel conditions (2017). These findings were compared to expected performance levels, and cases where conditions fell below targets were identified as system needs. The assessment was made again for future conditions (2040), as appropriate, to identify any additional needs to serve growth. The performance categories that were used in this assessment were as follows:

- **Safety** – The reported crashes on the County and State roadway facilities were evaluated to determine if the rate and severity of crashes was higher than is expected for a given type of roadway or intersection. Cases that were significantly greater than the norm were flagged.
- **Mobility** – Intersection operations at key intersections selected by the Project Management Team were evaluated to determine how well they serve vehicles during the peak travel hours. Cases with excessively high travel delays were noted.

- **Active Transportation** – Biking and pedestrian facilities were evaluated to determine the quality and connectedness of travel routes.
- **Resiliency** – Bridge projects that address weight restrictions and better serve emergency response and recovery activities were included.
- **Transit** – Transit system service and improvements were evaluated through the County's 2018 Coordinated Human Services – Public Transportation Plan

The results of these system assessments were used to identify facility deficiencies for the Existing (2017) and Future (2040) conditions. These analytical findings were supplemented with input from County staff and the general public to form a complete list of system needs for Benton County. Recommendations regarding improvements to address these deficiencies are presented in Chapter 5: Improvements.

COMMITTED INFRASTRUCTURE IMPROVEMENTS EXPECTED BY 2040

Some of the County and State routes already have committed funding for improvements that were identified in previous plans and studies. For the purposes of this assessment, these improvements were assumed to be built by 2040, since the funding is programmed in the next five years. These committed projects include:

SAFETY

- **Region 2 (Central) Local Road Roadway Departure [along Springhill Drive]:** Improvements to reduce roadway departure crashes along Springhill Drive from Albany City Limits to Independence Highway.
- **City of Corvallis Signal Enhancements:** Safety improvement at OR 99W & Circle Boulevard.
- **US 20: Children’s Farm Home to Merloy Avenue:** A two-way left turn lane to improve accessibility and safety along US 20.
- **South Fork Road Comprehensive Corridor Plan:** A federal proposal to address critical safety deficiencies on South Fork Road.
- **53rd Street & Country Club Intersection:** Includes analysis and potential construction of a roundabout as an intersection improvement.
- **US 20 Safety Upgrades from Albany to Corvallis:** House Bill 2017 recently dedicated \$20 million in funding for safety improvements in this corridor.

ACTIVE TRANSPORTATION

- **Corvallis to Albany Trail:** Scenic Drive – Springhill Drive: This path will provide an off-street option for active transportation users in North Albany and recreational or commuting cyclists who use US 20.
- **Chapel Drive Bikeway Improvement:** This project will add 6-foot bike lanes on either side of the road, a raised tabletop intersection at 19th Street & Chapel Drive, and a designated pedestrian and school crossing.
- **Independence Highway Widening:** This project widens travel lanes and adds paved shoulder bikeways between Metge Avenue and Ryals Avenue. This project will tie into potential widening projects on Metge Avenue and Ryals Avenue.
- **Ryals Avenue:** This project would widen travel lanes and adds paved shoulders to Ryals Avenue from Arnold Avenue to Independence Highway.
- **Metge Avenue:** This project would widen travel lanes and add paved shoulders to Metge Avenue from Independence Highway to Oak Grove Drive.
- **Oak Grove Drive:** This project would add bike lanes to Oak Grove Drive from the existing bike lanes to Metge Avenue.
- **Crocker Lane Urbanization:** This project adds pedestrian and bicyclist amenities and urbanizes the northern part of Crocker Lane from Meadow Wood Drive to Valley View Drive.

RESILIENCE

- **Hubbard Road:** Long Tom River Bridge: The existing bridge, and Hubbard Road, is closed along this route. This project will replace the structure with a pre-stressed concrete girder bridge along the same alignment.
- **US 20: Willamette River (Ellsworth Street) Bridge:** This project will increase the truss span vertical clearance over the Willamette River.
- **NW Crescent Valley Drive Bridge:** Bridge rehabilitation project that includes strengthening and widening to accommodate pedestrians/cyclists.
- **OSU Campus Way Covered Bridge:** Preservation project that includes re-roofing, re-painting, and installation of a fire suppression system.
- **Alpine Road Bridge:** Timber bridge replaced with pre-stressed concrete slab bridge.
- **Marys River Road Bridge:** Timber bridge strengthening project to allow for continued access to timber resource land by logging equipment.
- **Starr Creek Road Extension:** This project connects Starr Creek Road to Hells Canyon Road with a proposed gated emergency access road to provide for two-way traffic in the case of emergency. This connects two roadway systems that currently have only one access/egress point with an emergency secondary access.
- **OR 34: Van Buren Bridge:** This project replaces the eastbound span of the OR 34 Willamette river crossing.

OTHER PROJECTS¹

- OR 99W: Monmouth – NE Elliot Circle Road Resurfacing
- Fern Road: Chapel Drive to Grange Hall Road Resurfacing
- Crescent Valley Drive Highland/Jackson Overlay
- 13th Street Grind & Overlay
- 53rd Street: Reservoir Road – Harrison Boulevard Resurfacing
- Springhill Drive Overlay: US 20 to Albany city limits

¹ These projects do not directly improve the active transportation system, but improvements to pavement condition will improve the experience of any cyclists and pedestrians that use these facilities.

Transportation System Needs

The system needs for Existing and Future conditions were evaluated and reported in Memoranda #4 and #5. Please refer to Volume 2 for complete details. The following sections provide an overview of the system needs within Benton County.

SAFETY

Safety is one of the most important considerations when assessing transportation system performance. The safety of Benton County roadways was evaluated by reviewing crash data and identifying patterns of motor vehicle, pedestrian, and bicyclist crashes. A few key safety statistics for Benton County include:

- Reported crashes averaged 863 events each year between 2011 and 2015 – the most recent years available
- 92% of these crashes involved property damage only
- 27 crashes had one or more fatalities
- Most fatalities (22) and injury crashes occurred on rural facilities outside of the Urban Growth Boundary
- Most crashes on rural roads involved speeding and/or roadway departure
- Most crashes inside urban area involved intersections
- Biking and pedestrian crashes were predominantly inside the urban area (87%)

High critical crash rates were identified at the following six study intersections:

- #5: OR 99W/NW Lewisburg Avenue./NE Granger Avenue
- #18: US 20/NE Granger Avenue
- #30: SW Country Club Drive/SW 53rd Street
- #35: NW Springhill Drive/NW Independence Highway
- #39: SW Airport Avenue/Bellfountain Road
- #48: NW Quarry Road/NE South Nebergall Loop/ NW Springhill Drive

The safety review revealed segments on 13 County roadways that had high crash rates and were candidates for safety improvements. These streets include Airport Avenue, Alpine Road, Alpine Cutoff, Camp Adair Road, Decker Road, Fern Road, Grange Hall Road, Llewellyn Road, Metge Avenue, Springhill Road, Pettibone Drive, Bellfountain Road, and Plymouth Drive.

In addition, several segments of state highways US 20 and OR 34 were flagged due to high crash rates. Key intersections and roadway segments that were flagged during the safety review are shown on Figure 4 on the following page.

Figure 4. Crash Summary for Study Roads



Data: State of Oregon and Oregon Department of Transportation (2015); Benton County GIS (2017)

Legend

- ✕ - Fatal Collision
- ◆ - Top 5% or 10% SP15 (2015) Location
- ⊗ - High Crash Rate Study Intersection
- - High Crash Rate County Segment
- - Principal Arterial
- - Collector
- - Local Roadway
- + + - Railroad
- - River
- - Park
- - Airport
- - Urban Growth Boundary
- ⊖ - City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN

MOBILITY

Intersection conditions were evaluated at 48 selected study locations during the peak hour of operation and then compared to mobility target for each facility type. Figure 5 illustrates the results for the Existing (2017) assessment. Locations that are marked with gold dots currently exceed the mobility targets. Figure 5 also illustrates the annual average daily traffic volumes on high class roadways and highways.

Moving ahead to 2040, the comparative results for these congested intersection are summarized in Table 2 below. In 8 of 10 cases, the poorly performing intersections are on state facilities. All of the County road intersections outside of the UGB were found to operate within expected levels of delay today and in 2040. Note that 6 of the 10 locations that fall below mobility targets in 2040 also do so in 2017. So, those locations are already very congested and will become even more so without system improvements.

Table 2. Congested Intersections in 2017 and 2040 (Weekday P.M. Peak Hours)

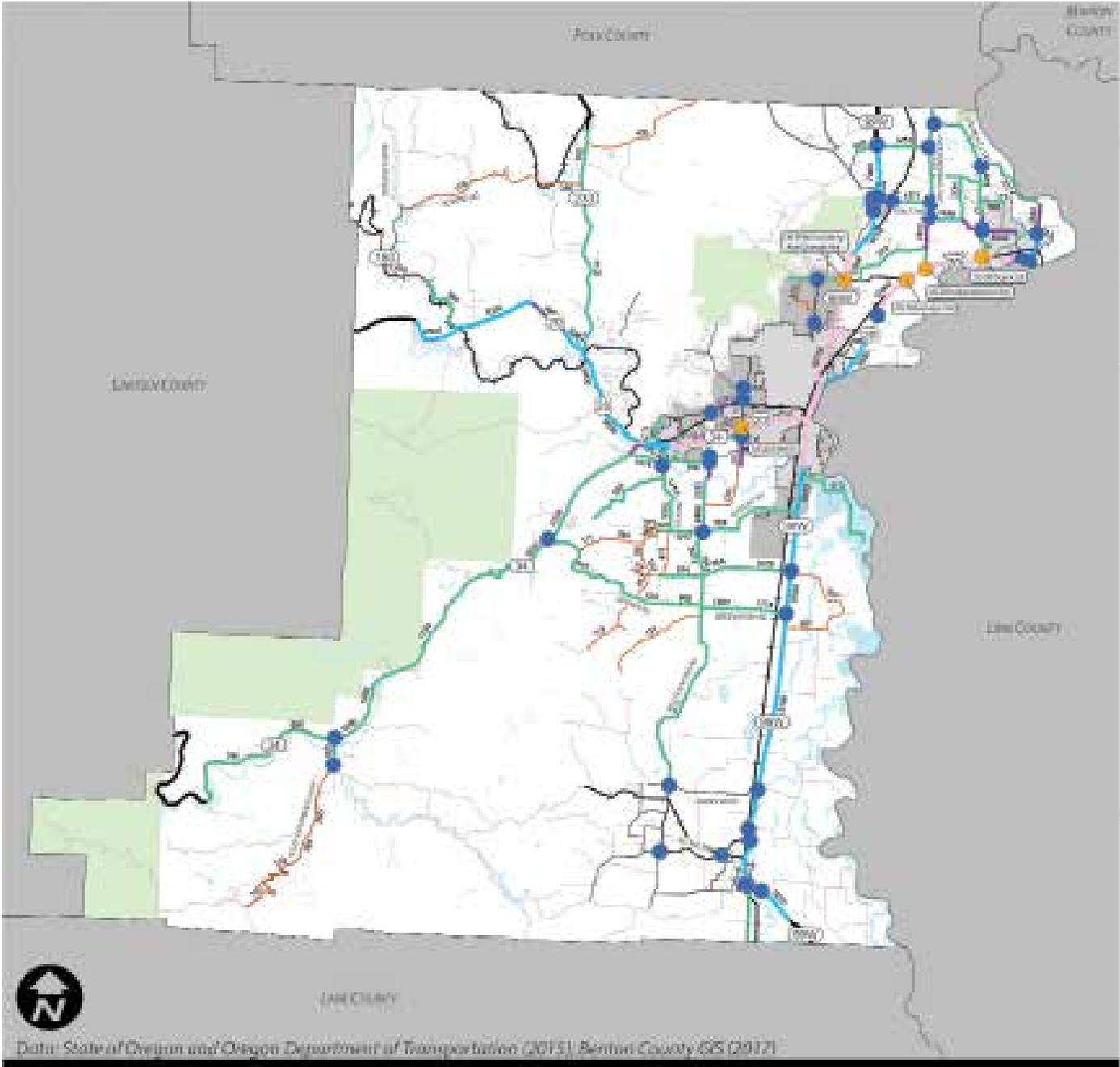
Intersection	Control Type	Mobility Target (v/c)	2017 Existing Year v/c	2040 Future Year v/c
OR 99W & Lewisburg Ave/Granger Ave ¹	Signal	0.90	0.93	1.16
US 20 & Springhill Dr	Signal	0.95	0.85	1.21
US 20/OR 34 & 53rd St	Signal	0.85	0.86	1.02
53rd St & Reservoir Ave	Signal	NA	0.79	1.00
OR 99W & Arnold Ave	STOP on side street	0.70	0.43	1.03
OR 99W & Ryals Ave	STOP on side street	0.70	0.31	>2.0
US 20 & Scenic Dr	STOP on side street	0.95	0.99	>2.0
US 20 & Independence Hwy	STOP on side street	0.70	0.97	>2.0
US 20 & Granger Ave	STOP on side street	0.75	1.94	>2.0
Scenic Dr & Oak Grove Dr	STOP on side street	NA	0.25	1.00

BOLD text indicates mobility target is not met (Benton County does not currently have adopted mobility standards. Information for County facilities at locations where significant congestion occurs is shown for informational purposes only)

Mobility Targets pertain to the intersection for signalized control and also for Major [Minor] street approaches for two-way stop control v/c is shown at the intersection level for signalized control and the worst movement for two-way stop control. v/c is a performance measure. It compares the movement volume (v) with its capacity (c). The ratio shows the degree of congestion.

¹ Intersection fails in base and future year analysis.

Figure 5. Traffic Volumes and Intersection Operations



Data: State of Oregon and Oregon Department of Transportation (2015); Benton County GIS (2017)

Legend

- Principal Arterial
- Collector
- Local Roadway
- Meets Target
- Fails to Meet Target
- AADT - < 500 vpd
- 500 - 2,500 vpd
- 2,500 to 5,000 vpd
- 5,000 to 10,000 vpd
- > 10,000 vpd
- Railroad
- River
- Park
- Airport
- Urban Growth Boundary
- City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN

ACTIVE TRANSPORTATION

Within the rural areas of Benton County, facilities for people walking and bicycling are generally roadway shoulders or off-highway shared-use paths. The adequacy of shoulders for multimodal use was evaluated compared to minimum targets (4 feet wide) and ODOT recommended facilities. Overall, about 12% of the County roadways met the minimum and 8% met the recommended widths. ODOT highways fared better with 58% meeting the minimum and 24% met the recommended widths.

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 residents and visitors. Benton County’s bicycling network consists of bike lanes, shared-use paths, roadway shoulders, and shared roadways. Major designated routes should optimally provide wayfinding signage for bicyclists.

Rural areas typically have few dedicated multimodal facilities and traffic speeds are generally high. Viability of the walking and bicycling network in these areas is largely evaluated based on shoulder presence, type and width.

Table 3 summarizes the results of the shoulder evaluation, which are shown in Figures 6 and 7. Overall, a limited amount of the County system meets minimum or recommended shoulder targets. Many of the County roadways that do not meet minimum shoulder targets currently have low vehicle volumes. Although much of the core ODOT system meets minimum targets, with high vehicle volumes and speeds the minimum is not enough for a well-connected network.

Table 3. Quantity of County Shoulder Bicycle and Pedestrian Facilities

Shoulder	County		ODOT	
	Miles	Percent	Miles	Percent
Meets Minimum Shoulder Targets	29.3	12%	140.1	58%
Meets Recommended Shoulder Targets	18.5	8%	57.0	24%

The above table shows total shoulder miles, evaluating either side of the road separately

Identified deficiencies in the Active Transportation system include:

- **Rural Connectivity:** The City of Monroe is within 5 miles of the unincorporated communities of Alpine and Bellfountain, but there are no adequate facilities for active transportation users in that area. The communities of Wren, Greenberry, and Alsea also lack adequate and safe shoulder facilities to access destinations by walking or biking. The lack of facilities creates limited to no safe routes to school for the children in these communities.
- **Alternative Routes:** The primary north-south corridors in southeastern Benton County are Bellfountain Road and OR 99W. OR 99W provides wider shoulders than Bellfountain Road but also carries more vehicles. Both roads have speeds over 45 miles per hour and carry freight traffic. This results in unattractive conditions for people desiring to walk or bike. Other areas of Benton County, such as Adair Village, Wren-Blodgett-Summit, Kings Valley, and Alsea, also have limited choices for active transportation corridors. Preferred routes should be identified and improvements focused on those corridors.
- **Major Highway Corridors:** The major highway corridors of US 20, OR 99W and OR 34 should be considered for active transportation improvements. US 20 connects the core cities of the metropolitan areas, Corvallis and Albany. Segments of US 20 do not meet recommended minimum shoulder width for cyclists. The planned shared-use path from Scenic Drive to Springhill Drive in North Albany begins to fix the gap between these cities, but further improvements to reach Corvallis will be needed. OR 99W connects Adair Village with Corvallis but does not meet minimum shoulder criteria along its length.
- **Maintenance of Existing and Future Facilities:** Paramount to a successful active transportation project is planning for its continued maintenance. Many of Benton County's shared-use paths are falling apart due to the lack of a funding source/maintenance plan.

Active transportation improvement projects, such as shared-use paths adjacent to US 20 and OR 99W, would provide high-quality connectivity for cyclists and pedestrians. Rural areas of the county remain reliant on shoulders for active transportation facilities.

Figure 6. Pedestrian Facilities



Legend

- Principal Arterial
- Collector
- Local Roadway
- Sidewalk
- Shared-Use Path
- Wide Shoulder
- Railroad
- River
- Park
- Airport
- Urban Growth Boundary
- City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN

Figure 7. Bicycle Facilities



Legend

- - Principal Arterial
- - Collector
- - Local Roadway
- - Bike Lanes
- - Shared-Use Path
- - Wide Shoulder
- ++ - Railroad
- - River
- - Park
- - Airport
- - Urban Growth Boundary
- - City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN

RESILIENCY

Funded bridge improvements like those on Hubbard Road and US 20 will improve resilience, but aging infrastructure throughout the county means that more bridges will have weight restrictions in future years. Preserving dedicated funding for bridge maintenance will be important to maintain reliable connectivity in Benton County.

Emergency response preparation will assist Benton County's recovery efforts in the event of a natural disaster. In the case of an emergency, transportation will be in high demand, particularly for older adults and persons with disabilities. The County's [Emergency Services Division](#) plans and directs emergency procedures, including emergency response training and exercises and maintaining an Emergency Communications Center where response agencies coordinate actions and allocate resources in an emergency. Under the Emergency Operations plan, Benton County Public Works is the lead agency responsible for transportation. Support agencies include transportation providers within the region, such as Corvallis Transit System, Benton County Dial-A-Bus, and Albany Transit (Call-A-Ride, Linn-Benton Loop).¹

The County has collaborated with Linn County in establishing and staffing a Vulnerable Populations Emergency Planning Work Group to plan for and coordinate services to those vulnerable populations least able to respond to emergencies without assistance. The group completed an emergency response plan in 2012 and is currently providing training and emergency preparedness planning to emergency service providers, transportation providers, community shelters, City and County personnel, and other agencies.

FREIGHT MOBILITY

Efficient truck movement plays a vital role in the economical transport of raw materials and finished products. The designation of through truck routes provides for this efficient movement while maintaining neighborhood livability and public safety, and minimizing maintenance costs of the roadway system (due to their heavy loads freight vehicles cause more wear on the road structure). Conflicts between freight traffic and other modes can cause mobility issues and increased freight volume will create additional areas where this conflict occurs.

Highways designated as freight/truck routes by ODOT and the federal government include US 20, OR 99W, and the US 20/OR 34 corridor from Linn County through Philomath, as discussed in Memorandum #4, found in Volume 2 of the TSP. Since most of the congestion forecast to occur in Benton County is on these corridors, projects targeted at improving the efficiency of travel on freight/truck routes may be a priority.

Other areas that are not identified as freight routes but also experience high truck volumes include Bellfountain Road, Decker Road, Llewellyn Road, Springhill Drive, Independence Highway, Dawson Road, Airport Avenue and Kings Valley Highway. Where these roads pass through rural communities, the high volume of truck traffic can impact the quality of life. Such impacts should be considered when developing solutions on these corridors.

¹ Benton County Emergency Operations Plan, June 2012.

TRANSIT

Transit provides mobility to Benton County residents without access to a car or who do not drive. For other residents, transit provides an option to avoid some of nuisances of driving such as congestion and parking. It can play a role in reducing the volume of traffic on the road and improving environmental quality. Fixed-route transit service is provided to residents of Adair Village, Corvallis, Philomath and North Albany. The rural communities of Wren and Alpine are somewhat connected via the Coast to Valley Express route but this service is not priced for daily commuting from those communities and is of limited frequency (4 trips daily in each direction). Residents of the City of Monroe and the unincorporated communities of Bellfountain, Greenberry, Kings Valley, Hoskins and Alsea have no fixed-route transit options or demand responsive options that are open to all demographic groups.

Existing transit services provide mobility and economic opportunity for some of the County's most vulnerable residents but they do not provide a comprehensive and open network for all residents or visitors. To improve mobility for all, transit in Benton County needs to expand service to accommodate the county's growth. The Benton County Coordinated Human Services – Public Transportation Plan describes strategies for efficiently prioritizing resources and identifies unmet needs and service gaps. Other transit plans, such as the Corvallis Transit System Transit Development Plan and the Albany Area MPO/City of Albany Transit Development Plan, guide the improvement of transit service in the urbanized areas of Benton County.

Other specific transit needs to be addressed include:

- **Service along OR 99W south and north of Corvallis:** The area of southeast Benton County surrounding the City of Monroe does not have any fixed-route transit available since a pilot program of a southern 99 Express connecting Monroe with Corvallis was discontinued due to lack of demand. A new route extending to Lane County with stops in Junction City and Eugene may result in increased demand for riders from the metropolitan areas interested in the through trip. Coordination with Lane County Transit would be required to develop this route. Additionally, there is also no service along OR 99W north of Adair Village to Monmouth and other communities in Polk County. Further study is needed for this potential route.
- **Expansion of Regional Linn-Benton Loop Service:** The Linn-Benton Loop is the existing regional transit system, connecting the two regional colleges (OSU and LBCC) and the two inter-connected metropolitan areas of Corvallis and Albany. The existing Loop route and schedule have remained unchanged for the past two decades, even while significant growth has changed the face of both counties. Planning for potential expansion of the Loop network with future transit funding under HB 2017 includes studying the routes and schedules, to better serve commuters as well as the evolving needs of the two colleges.

- **Demand responsive transit capacity improvements:** Benton County Dial-a-Bus service is operating at capacity while the population continues to age and the participation percentage of eligible users is small. There is significant potential for increased demand for this service in the future. Investments to expand the capacity on the Dial-a-Bus system should be considered. Demand responsive service can also be considered as an alternative to fixed route service in rural areas where demand is often low in under-served areas of the County including Wren, Kings Valley, the Alsea River Valley corridor, and South Benton County.
- **Increased frequency of service and expanded evening/weekend service:** There is currently no Sunday fixed-route service on Corvallis Transit System and limited demand response services on weekends. Requests for expanded weekend services are common themes from surveys and outreach events. Convenient access to public transportation for those commuting outside normal working hours, especially for service sector employees, is limited and more frequent off-peak service should be considered.
- **Expanded service to the North Albany area:** While this portion of Benton County is experiencing significant growth, current service is limited. Improved commuter service at peak hours and improved route and schedule timing coordinated to employment locations is needed for this corridor.
- **Improved coordination with health and human service providers:** Coordination of medical and human services transportation is an on-going challenge that requires substantial and continued partnership efforts. One of the priorities is the need for all partners, particularly state agencies, to better understand and to acknowledge the important role that transportation plays in accessing medical and human services.
- **Expanded efforts to inform the public of available services:** Despite the best of efforts, lack of awareness about available public transportation services has been identified as the single greatest impediment to its use. There is an ongoing need to communicate broadly about available services and to conduct outreach to those populations without convenient access to public transportation, that are hesitant to use public transportation, or that are unaware of available services. Rider training and continuing distribution of information about available services are needed to increase ridership, especially among seniors and low-income persons.

FUNDING CONSTRAINTS

The Benton County average annual revenue and expenditures for the Public Works Road Fund is summarized in Table 4. Most of the revenue for the Fund currently comes from Operating Grants/Contributions, largely from the State Highway Trust Fund. Anticipated revenue from House Bill 2017 is not shown in Table 4 as it is not yet known how much of this revenue would be dedicated to system maintenance versus the construction of new projects.

The other significant revenue source is Capital Grants/Contributions. These grants come from various sources, such as CAMPO, and are project-specific. The revenue from services provided by the County, such as engineering tasks and development review, fall under Charges for Services.

The table shows an annual deficit of \$137,900 resulting in a 2040 total deficit of \$3,171,700. However, this outlook does not account for two significant funding issues:

- It does not include the non-guaranteed annual average transfer of \$375,000 that has occurred in recent years and generated an annual surplus of almost \$250,000.

- It does not include the funds to be available through HB 2017. General revenue available through HB 2017 is estimated at \$1,800,000 million annually (\$39,600,000 by 2040) with an additional \$2,400,000 (\$52,800,000 by 2040) annually allocated to transit. These funds could significantly change the financial outlook but it is not yet known how much of the HB 2017 funds will be available for capital improvements.

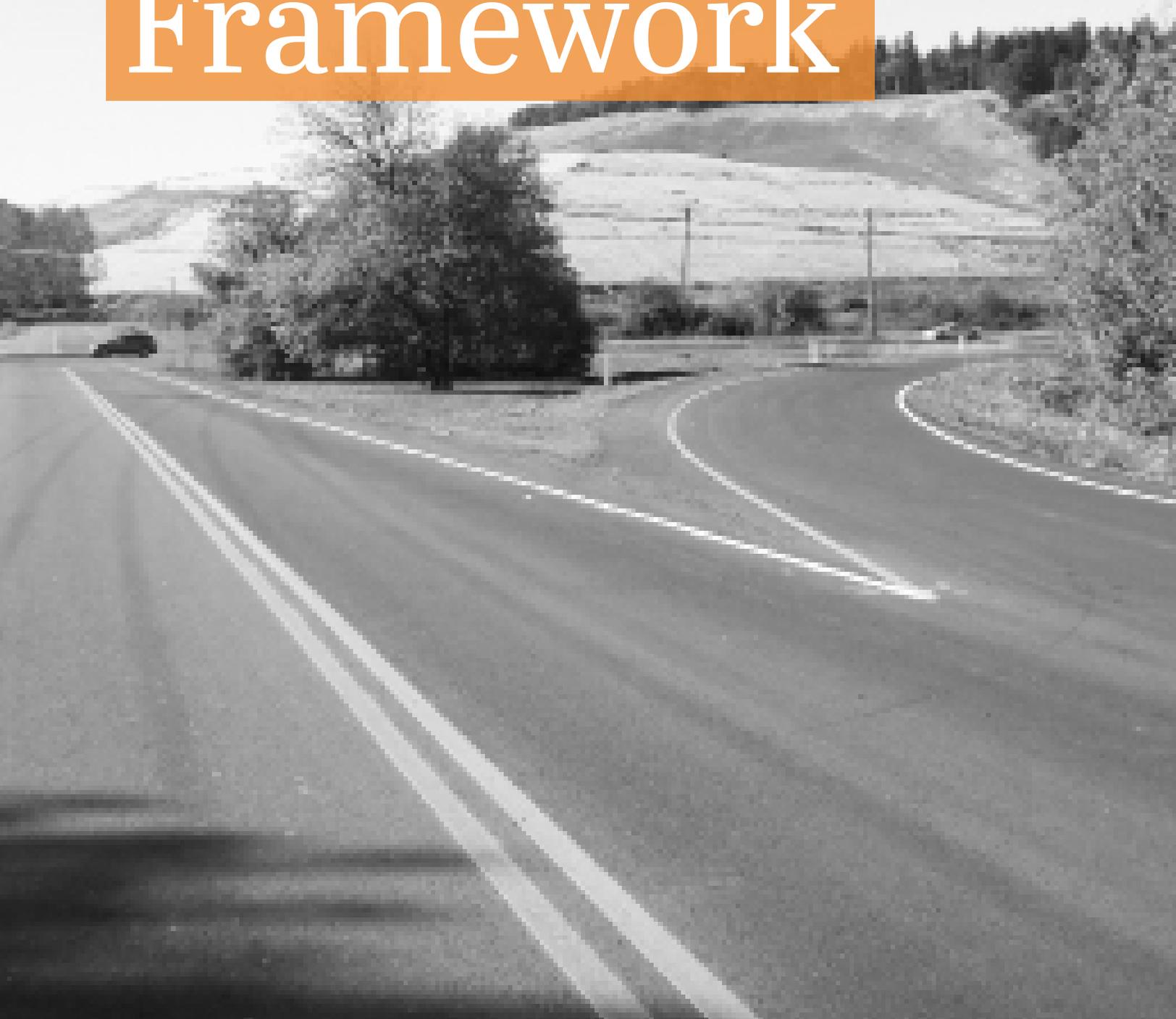
If capital outlay continues at the current average rate of \$1,017,800 then ***Benton County is projected to have approximately \$23.4 million to spend on TSP projects through 2040 (Capital Outlay)***. Any future HB 2017 funds made available for transportation system improvements (non-maintenance) will significantly increase the number of TSP projects that can be funded.

Table 4. Benton County Transportation Revenues and Expenses with 2040 Projections

Revenue	Annual Average	Projected Total (2017 to 2040)
General Revenues	\$13,700	\$315,100
Charges for Services	\$1,053,600	\$24,232,800
Operating Grants/Contributions	\$4,065,500	\$93,506,500
Capital Grants/Contributions	\$798,100	\$18,356,300
Total Revenue	\$5,930,900	\$136,410,700
Expenditures	Annual Average	Projected Total (2017 to 2040)
Personnel Services	\$2,791,800	\$64,211,400
Materials and Services	\$2,259,200	\$51,961,600
Capital Outlay	\$1,017,800	\$23,409,400
Total Expenditures	\$6,068,800	\$139,582,400
Available Transportation Revenue (Revenues - Expenditures)	-\$137,900	-\$3,171,700

CHAPTER 3

TSP Framework



The TSP supports and advances the core values of Benton County's 2040 Thriving Community Initiative. The Thriving Communities Initiative guides the development of the future social, cultural and environmental space of Benton County. The plan identifies six core values with Equity and Health at the center. These six values are:

- Vibrant and Livable Communities
- Community Resilience
- Diverse Economy that Fits
- Supportive People & Resources
- High Quality Environment & Access
- Equity & Health



Goals and Objectives

The TSP identifies goals and objectives to guide development of the transportation system to reflect Benton County's vision and values. Goals and objectives create stepping-stones by which the community vision can be achieved. Goals are brief clear statements of the outcomes to be achieved to realize the vision. Each goal is supported by objectives, which outline the specific actions to be taken to achieve the outcomes described by the goals.

The TSP goals and objectives were developed with guidance from the Stakeholder Advisory Committee, Technical Advisory Committee and the general public. The goals and objectives were used to guide the development and evaluation of TSP projects and strategies and were the basis of new adopted policies.

Goals and Objectives

Goal 1 - Safety: A safe transportation system minimizes risks and conflict.

OBJECTIVE 1: Provide safe facilities for all modes.

OBJECTIVE 2: Reduce the frequency of crashes and strive to eliminate crashes resulting in serious injuries or fatalities.

OBJECTIVE 3: Proactively improve areas where crash risk factors are present.

OBJECTIVE 4: Provide both primary and secondary access for emergency services.

Goal 2 - Equity: Transportation investments should serve everyone in the community and recognize disparities in people's access to transportation modes.

OBJECTIVE 1: Ensure mobility to the transportation disadvantaged.

OBJECTIVE 2: Consider the housing burdened population in the project selection process.

Goal 3 - Health: The transportation system should encourage healthy lifestyles.

OBJECTIVE 1: Support access to public spaces and encourage active transportation and social interaction.

OBJECTIVE 2: Provide healthy transportation options for students traveling to school.

OBJECTIVE 3: Consider the impact of particulate emissions in transportation projects.

OBJECTIVE 4: Work with neighboring jurisdictions to identify and promote opportunities to commute to and around Benton County by means other than single occupant vehicles.

Goal 4 - Mobility and Circulation: The transportation system should efficiently connect people with where they want to go.

OBJECTIVE 1: Develop a transportation system to facilitate appropriate travel modes.

OBJECTIVE 2: Ensure sufficient capacity is provided concurrent with future travel demand to, within, and through Benton County.

OBJECTIVE 3: Coordinate with local agencies and providers to expand transit services countywide.

OBJECTIVE 4: Ensure an adequate truck route network to reduce commercial/ neighborhood conflicts.

Goal 5 - Economic Development: Transportation should support a thriving economy.

OBJECTIVE 1: Preserve and protect transportation corridors essential to the economic vitality of the County.

OBJECTIVE 2: Promote the use of freight rail and air service to reduce trucking activity on County roads.

OBJECTIVE 3: Promote efficient and affordable ground transportation to existing regional airports (Portland, Eugene, and Salem) and the Albany Amtrak Station.

Goal 6 - Financial Stewardship: Investments in transportation should manage assets efficiently and responsibly.

OBJECTIVE 1: Maximize the useful life of existing facilities.

OBJECTIVE 2: Maximize the cost effectiveness of transportation improvements.

OBJECTIVE 3: Ensure adequate and equitable long-term funding mechanisms.

Goal 7 - Environment: The transportation system should allow a community to live harmoniously with the environment.

OBJECTIVE 1: Provide transportation services that preserve and protect the scenic and natural resources and rural character of Benton County.

OBJECTIVE 2: Provide a transportation system that allows a community to absorb the impact of and quickly recover from natural disasters.

OBJECTIVE 3: Minimize conflicting uses on the transportation system that degrade neighborhoods and rural communities.

Performance-Based Planning

A performance-based planning approach was used to develop the Benton County TSP to guide how the community selects investments that most effectively and efficiently achieve desired outcomes. The decisions are guided by data and analysis describing transportation system performance relative to a select group of measures that track progress toward key goals. Benefits to using a performance-based planning approach include:

- Improved investment decision-making
- Improved return on investments and resource allocation
- Improved system performance
- Increased accountability and transparency
- Demonstrated link between funding and performance

The transportation goals and objectives were reviewed to determine which of them were good candidates for measuring evaluation criteria. The evaluation criteria were used initially to benchmark how the current transportation system performs. Later, they were used to inform the selection and prioritization of alternative investments and strategies for the TSP by helping to determine how likely the solutions are to support the goal areas and achieve the stated objectives. Benton County staff can use selected key performance measures in the adopted TSP to periodically monitor plan outcomes over time.

Evaluation Criteria

Understanding how recommended transportation improvements align with the TSP goals and objectives facilitates the process of selecting and prioritizing projects. To this end, evaluation criteria were developed by the project team that reflect the goals and objectives approved by the Stakeholder Advisory Committee. Further discussion of the evaluation criteria can be found in Memorandum #5 in Volume 2.

Table 5 lists the evaluation criteria, the corresponding scoring methodology, and weights that were applied to the criteria. Each criterion is associated with one or multiple of the County’s proposed goals and includes a question that can be answered:

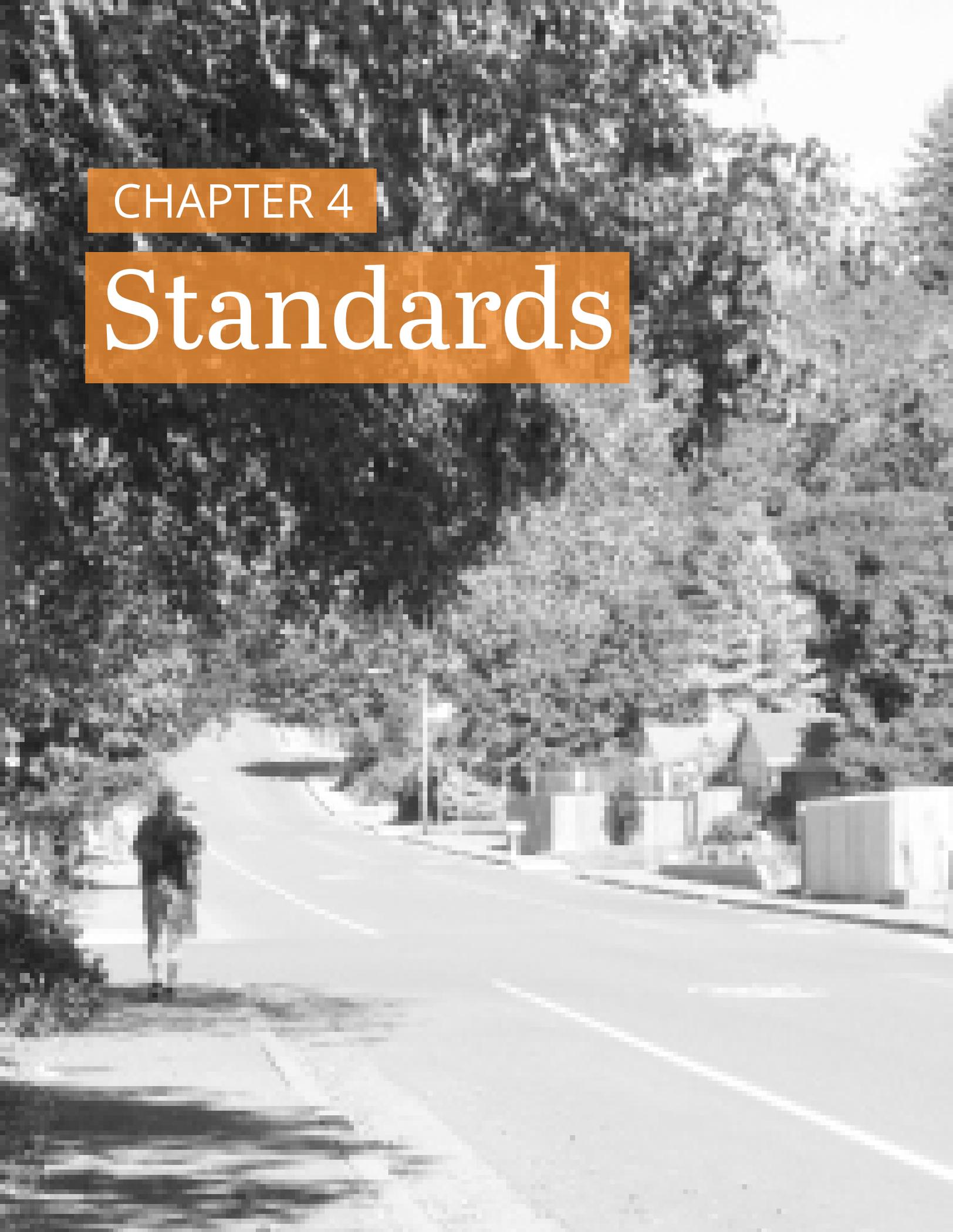
- “Strongly Agree” (score of +2),
- “Somewhat Agree” (score of +1),
- “No Change” (score of 0),
- “Somewhat Disagree” (score of -1) or a
- “Strongly Disagree” (score of -2).

By summing ratings (and applying weighting if desired), projects were compared to help determine priorities.

Table 5. Evaluation Criteria Scoring

Criteria Goal(s)	Strongly Agree	Somewhat Agree	No Change	Somewhat Disagree	Strongly Disagree	Weight
Goal 1: Safety – A safe transportation system minimizes risks and conflict.	Does the project improve safety at a location that has experienced a high rate of crashes or improve areas where geometry presents a high risk of crashes?					
	+2	+1	0	-1	-2	0.33
	Does the project improve areas where serious injuries or fatalities occurred in the past five years of available data?					
	+2	+1	0	-1	-2	0.33
	Does the project improve access for emergency services along Benton County Lifelines?					
	+2	+1	0	-1	-2	0.33
Goal 2: Equity – Transportation investments should serve everyone in the community and recognize disparities in people’s access to transportation modes.	Does the project support services to meet the needs of households that do not own a vehicle?					
	+2	+1	0	-1	-2	0.5
	Does the project improve accessibility to jobs from areas with higher proportions of low-income residents?					
	+2	+1	0	-1	-2	0.5
Goal 3: Health – The transportation system should encourage healthy lifestyles.	Does the project improve access to public spaces and encourage active transportation?					
	+2	+1	0	-1	-2	0.33
	Does the project provide healthy transportation options for students traveling to school?					
	+2	+1	0	-1	-2	0.33
	Does the project support a reduction in single occupancy vehicle use or vehicle emissions?					
	+2	+1	0	-1	-2	0.33

Criteria Goal(s)	Strongly Agree	Somewhat Agree	No Change	Somewhat Disagree	Strongly Disagree	Weight
Goal 4: Environment – The transportation system should allow a community to live harmoniously with the environment.	Does the project minimize impacts to the scenic and natural resources and rural character of Benton County?					0.33
	+2	+1	0	-1	-2	0.33
	Does the project support the ability to absorb the impact of and quickly recover from natural disasters?					0.33
Goal 5: Mobility and Circulation – The transportation system should efficiently connect people with where they want to go.	Does the project minimize conflicting uses on the transportation system that degrade neighborhoods and rural communities?					0.33
	+2	+1	0	-1	-2	0.33
	Does the project reduce congestion in the motor vehicle network?					0.33
Goal 6: Economic Development – Transportation should support a thriving economy.	Does the project enhance freight mobility?					0.33
	+2	+1	0	-1	-2	0.33
	Does the project support the expansion of countywide transit service?					0.33
Goal 7: Financial Stewardship – Investments in transportation should manage assets efficiently and responsibly.	Does the project help enhance freight routes and resource collectors?					0.33
	+2	+1	0	-1	-2	0.33
	Does the project promote the use of freight rail and air service to reduce trucking activity on County roads?					0.33
Goal 7: Financial Stewardship – Investments in transportation should manage assets efficiently and responsibly.	Does the project promote efficient and affordable ground transportation to existing regional airports and the Albany Amtrak Station?					0.33
	+2	+1	0	-1	-2	0.33
	Does the project complete existing facilities and bring them up to standard?					0.5
Goal 7: Financial Stewardship – Investments in transportation should manage assets efficiently and responsibly.	Does the project enhance the efficiency and safety of existing infrastructure?					0.5
	+2	+1	0	-1	-2	0.5

A black and white photograph of a modern building with a curved facade. A person is walking on a sidewalk in the foreground. The building has a series of vertical columns and a curved roofline. The background is filled with trees.

CHAPTER 4

Standards

Benton County applies transportation standards and regulations to the construction of new transportation facilities and to the operation of all facilities to ensure the system functions as intended and investments are used efficiently. These standards enable consistent future actions that reflect the goals of the County for a safe and efficient transportation system.

Street Functional Classification

Traditionally, roadways are classified based on the type of vehicular travel they are intended to serve. In Benton County, the functional classification provides an organizational mechanism for developing roadway design standards, establishing traffic speeds, controlling access, designing intersections, and allocating funds for maintenance and improvements.

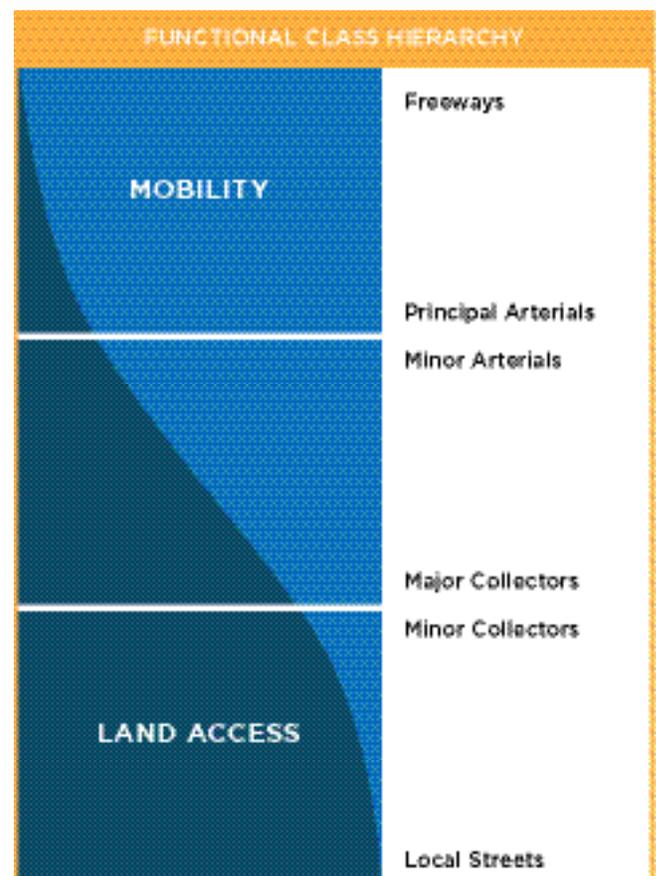
Roadways with higher intended usage generally limit access to adjacent property in favor of more efficient motor vehicle traffic movement (i.e., mobility). Local roadways with lower intended usage have more driveway access and intersections, and generally accommodate shorter trips to nearby destinations.

Benton County's functional classification system categorizes all public roadways to provide for a context-sensitive network that balances local access and regional connectivity, while recognizing the unique needs of timber and agricultural areas. Higher classified roadways prioritize safe and efficient through movement, while lower classified roads are designed to provide access to the adjacent land uses. The TSP applies the following functional classification system:

- **Principal Arterials** connect communities, provide through movement, and are state highways. Access is limited and controlled, and parking is generally prohibited. Higher auto traffic volumes and speeds make principal

and minor arterials uncomfortable for people walking and biking. There is a greater need to separate people walking and biking from auto traffic on arterials compared to other functional classifications. Within Benton County, all state highways are principal arterials.

- **Minor Arterials** connect areas of principal traffic generation to principal arterials, provide through movement, and distribute traffic to collector and local roadways. Access and parking are controlled.



- **Major Collectors** carry local traffic between neighborhoods, or between neighborhoods and arterials, and provide access to minor collectors and community services. Access and parking are controlled. There is still a need to separate people walking and biking from auto traffic on major and minor collectors, but the degree of separation required to create a comfortable environment is often smaller compared to arterials.
- **Minor Collectors** serve internal traffic within areas having a single land use pattern, and serve minor traffic generators such as schools or neighborhood shopping or community centers. They should form a continuous network in urban areas. Access and parking are allowed.
- **Resource Collectors** connect timber and agricultural areas with the arterial system. Their design standards take the characteristics of resource-oriented traffic into account.

- **Local Roads** provide on-street parking and direct access to abutting property. Their design discourages through traffic. Dead-end street lengths are minimized. People biking can share the road with auto traffic, but separation from traffic is still needed for pedestrians.

The changes to the functional classification of County roads are shown in Table 6 and are consistent with modifications in the updates to the Corvallis TSP and Philomath TSP as well as the existing Albany TSP. For additional details, please refer to Memorandum #6 in Volume 2 of this plan. Figure 8 and the following sub-area figures shows the resulting functional classifications of all County roads and State highways.

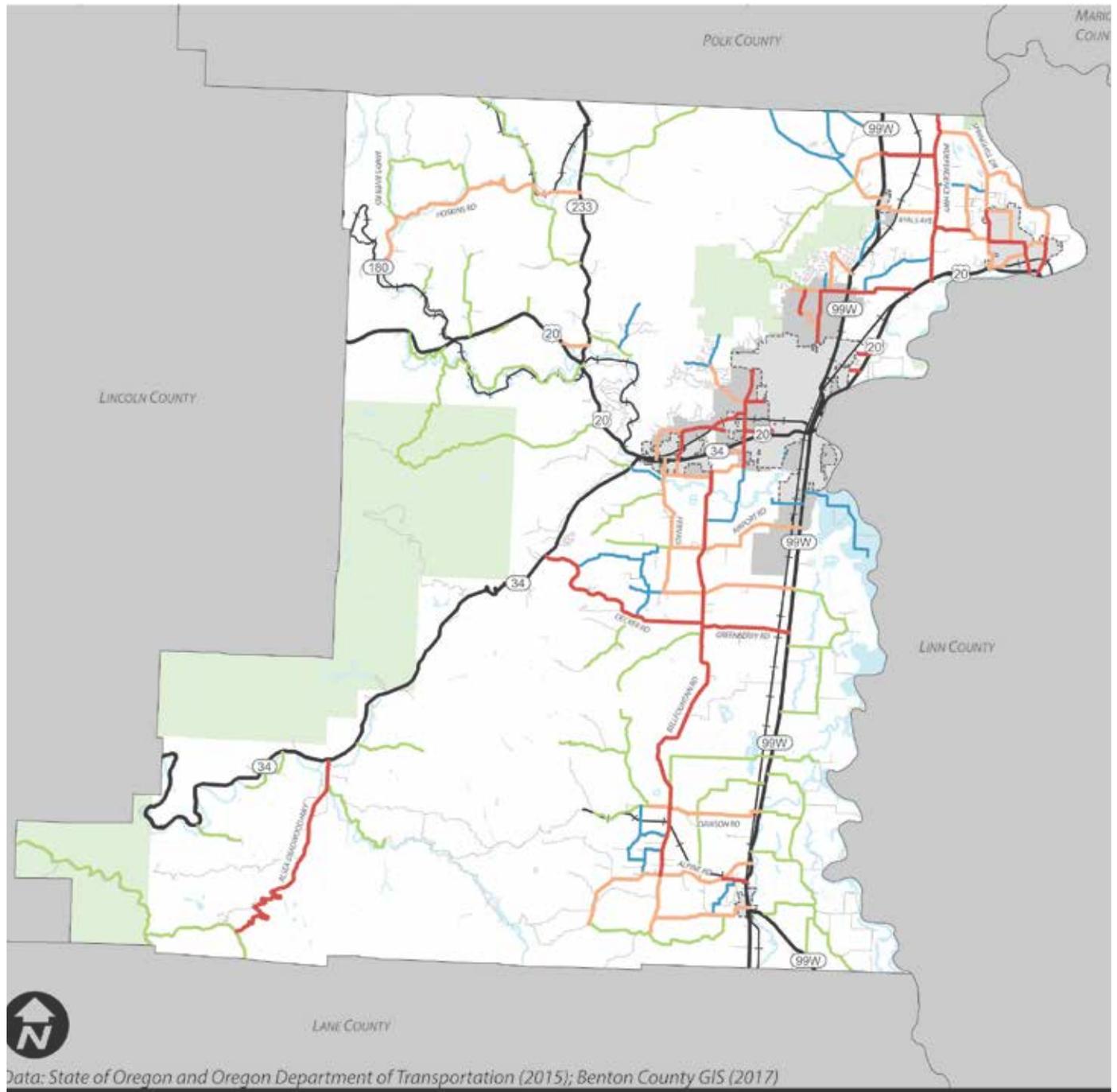
Table 6. Functional Classification Changes

Roadway	From	To	Functional Classification	
			Existing	Updated
19th Street	US 20/OR 34	West Hills Road	Major Collector	Minor Arterial
53rd Street	US 20/OR 34	Plymouth Drive	Major Collector	Minor Arterial
53rd Street	Plymouth Drive	Bellfountain Road	Resource Collector	Minor Collector
9th Street	US 20/OR 34	West Hills Road	Minor Collector	Major Collector
Airport Road	OR 99W	Bellfountain Road	Minor Arterial	Major Collector
Airport Road	Fern Road	End	Minor Arterial	Resource Collector
Alpine Road	Bellfountain Road	Alpine Cut-off	Minor Arterial	Major Collector
Blakeskey Creek Road	Cardwell Hill Drive	End	None ¹	Minor Collector
Brooklane Drive	Chinitimini Avenue	Hawkeye Avenue	None ¹	Minor Collector
Circle Boulevard	Corvallis City Limits	US 20	None ¹	Minor Arterial
Conifer Boulevard	Corvallis City Limits	US 20	None ¹	Minor Arterial
County Club Drive	US 20/Highway 34	53rd Street	Minor Collector	Major Collector
Crescent Valley Drive	Lewisburg Avenue	Jackson Creek Drive	Major Collector	Minor Arterial
Crescent Valley Drive	South of Raider Way	Highland Drive	Minor Collector	Major Collector
Elliott Circle	Granger Avenue	End	None ¹	Minor Collector
Gibson Hill Road	Scenic Drive	North Albany Road	Major Collector	Minor Arterial
Harrison Boulevard	53rd/Walnut Boulevard	Corvallis City Limits	None ¹	Minor Arterial
Herbert Avenue	OR 99W	End	None ¹	Minor Collector
Kiger Island Drive	City UGB	End	Resource Collector	Minor Collector
Lewisburg Avenue	Huntington Drive	Crescent Valley Drive	Minor Arterial	Major Collector
Orchard Street	Coon Road	OR 99W	None ¹	Major Collector
Quarry Road	North Albany Road	Springhill Drive	None ¹	Major Collector
Ryals Avenue	OR 99W	Arnold Avenue	Local	Major Collector
Sulphur Springs Road	Lewisburg Avenue	City UGB	Resource Collector	Major Collector
Vineyard Drive	Lewisburg Avenue	End	Local	Minor Collector
West Hills Road	9th Street	19th Street	Minor Arterial	Major Collector
West Hills Road ²	Reservoir Avenue	Western Boulevard	Major Collector	Minor Arterial

1 Roadways were not previously listed in the 2001 TSP.

2 Excluding the portion of West Hills Road that is within City Limits.

Figure 8. Street Functional Classification, County-wide



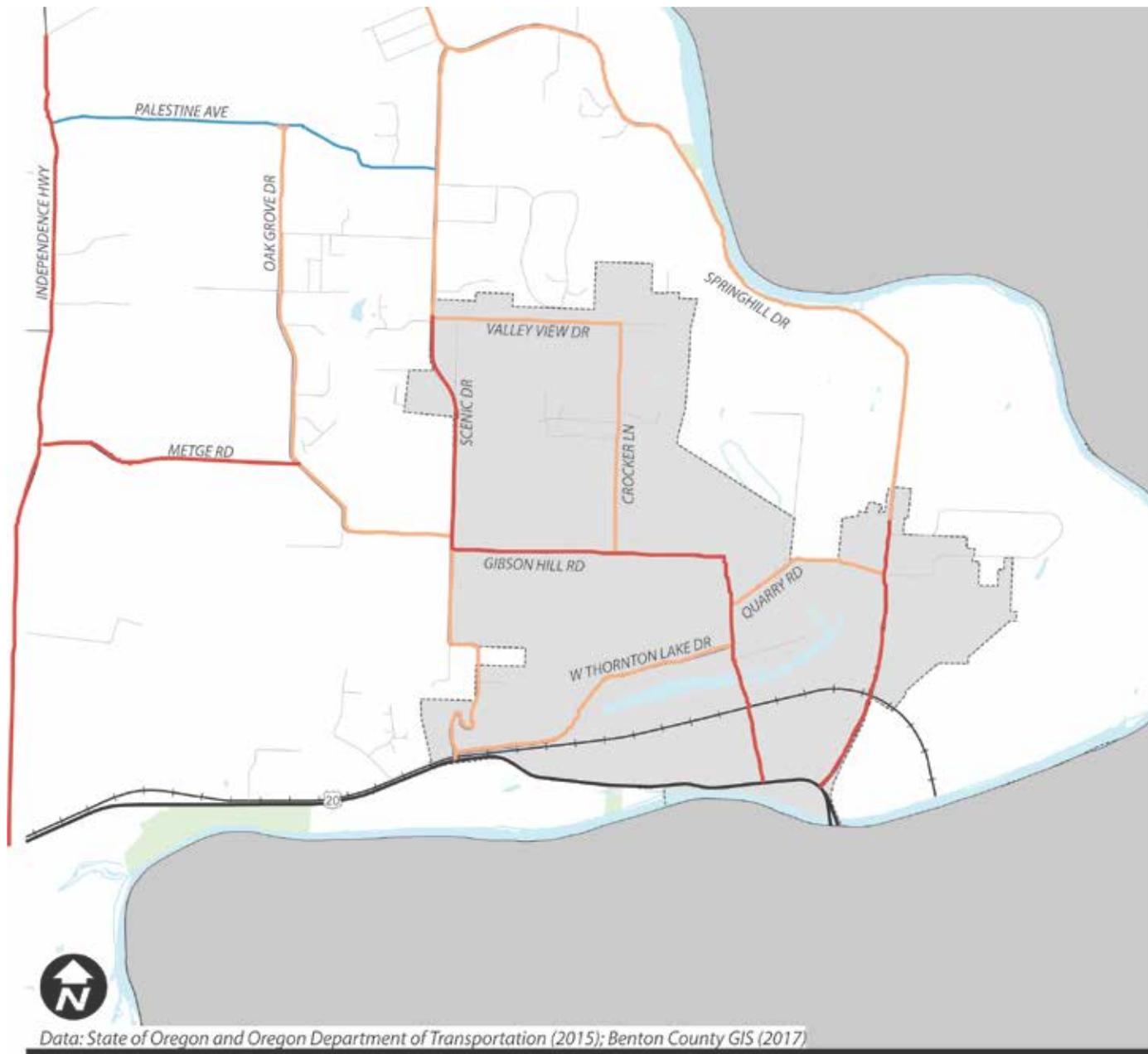
Data: State of Oregon and Oregon Department of Transportation (2015); Benton County GIS (2017)

Legend

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Resource Collector
- Local Roadway
- Railroad
- River
- Park
- Airport
- Urban Growth Boundary
- City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN

Figure 9. Street Functional Classification, North Albany Sub-Area



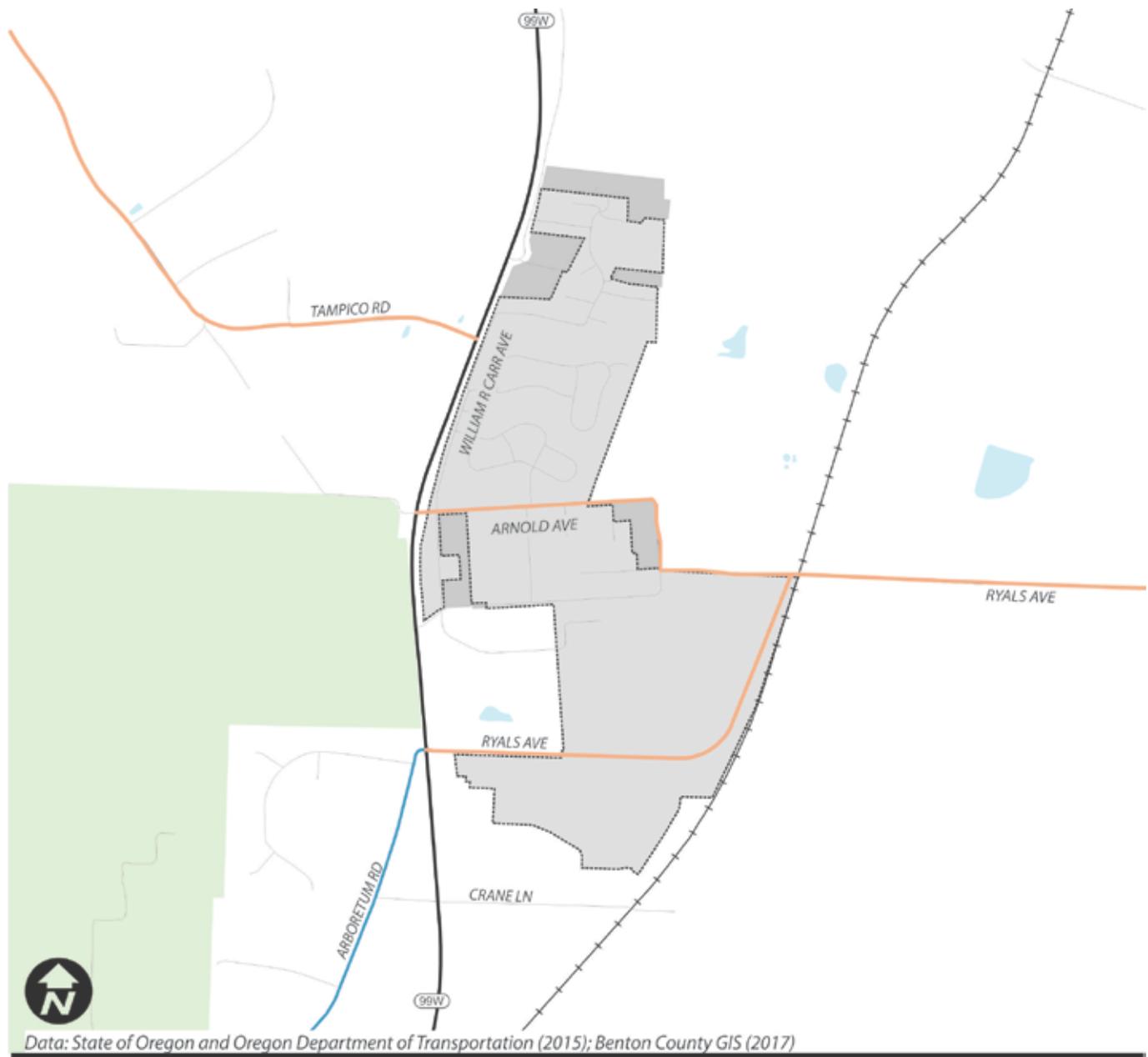
Legend

- | | |
|------------------------|---------------------------|
| — - Principal Arterial | ++ - Railroad |
| — - Minor Arterial | — - River |
| — - Major Collector | — - Park |
| — - Minor Collector | — - Airport |
| — - Resource Collector | — - Urban Growth Boundary |
| — - Local Roadway | --- - City Limits |

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN



Figure 10. Street Functional Classification, Adair Village Sub-Area



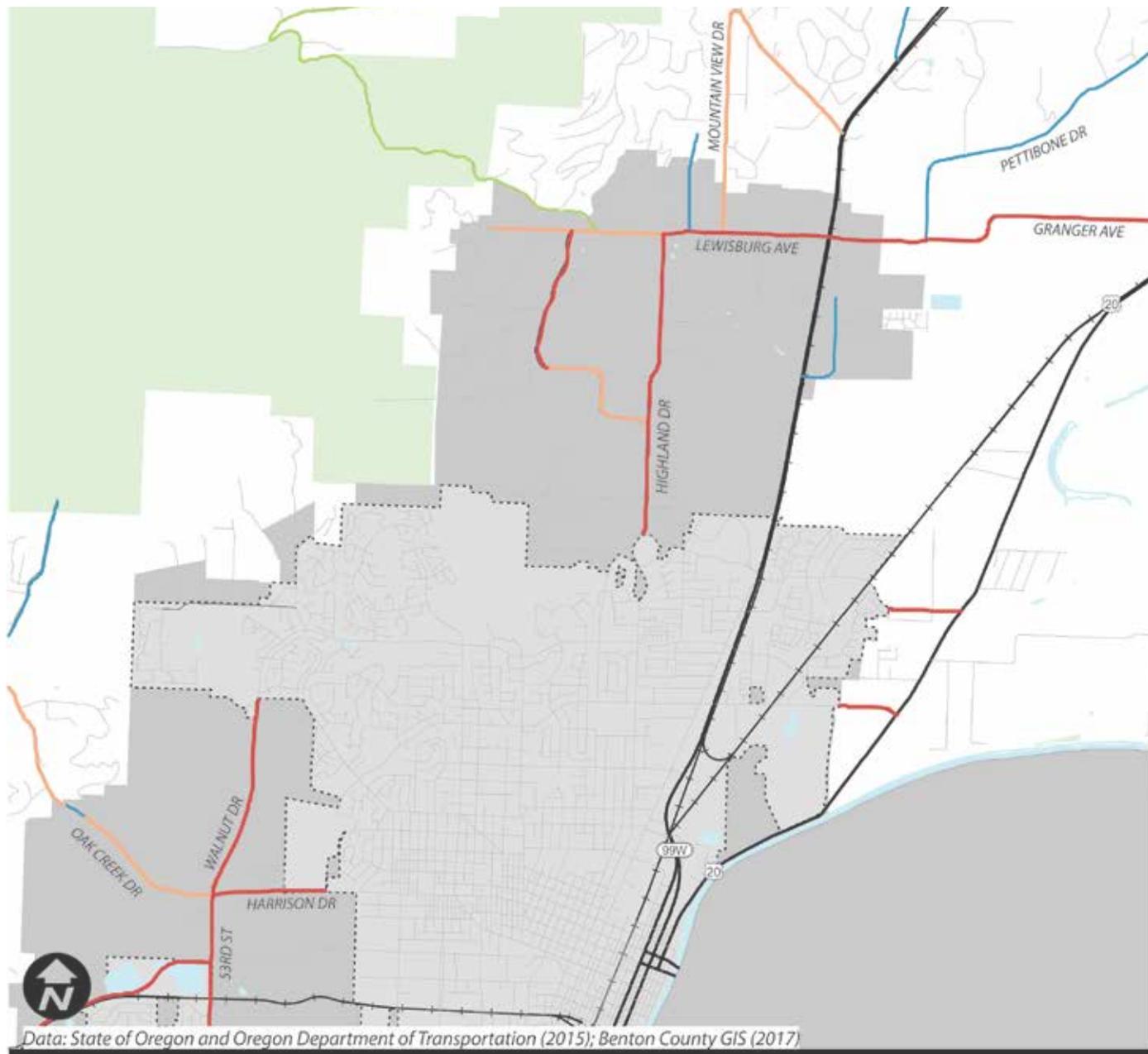
Legend

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Resource Collector
- Local Roadway
- Railroad
- River
- Park
- Airport
- Urban Growth Boundary
- City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN



Figure 11. Street Functional Classification, Corvallis-Lewisburg Sub-Area



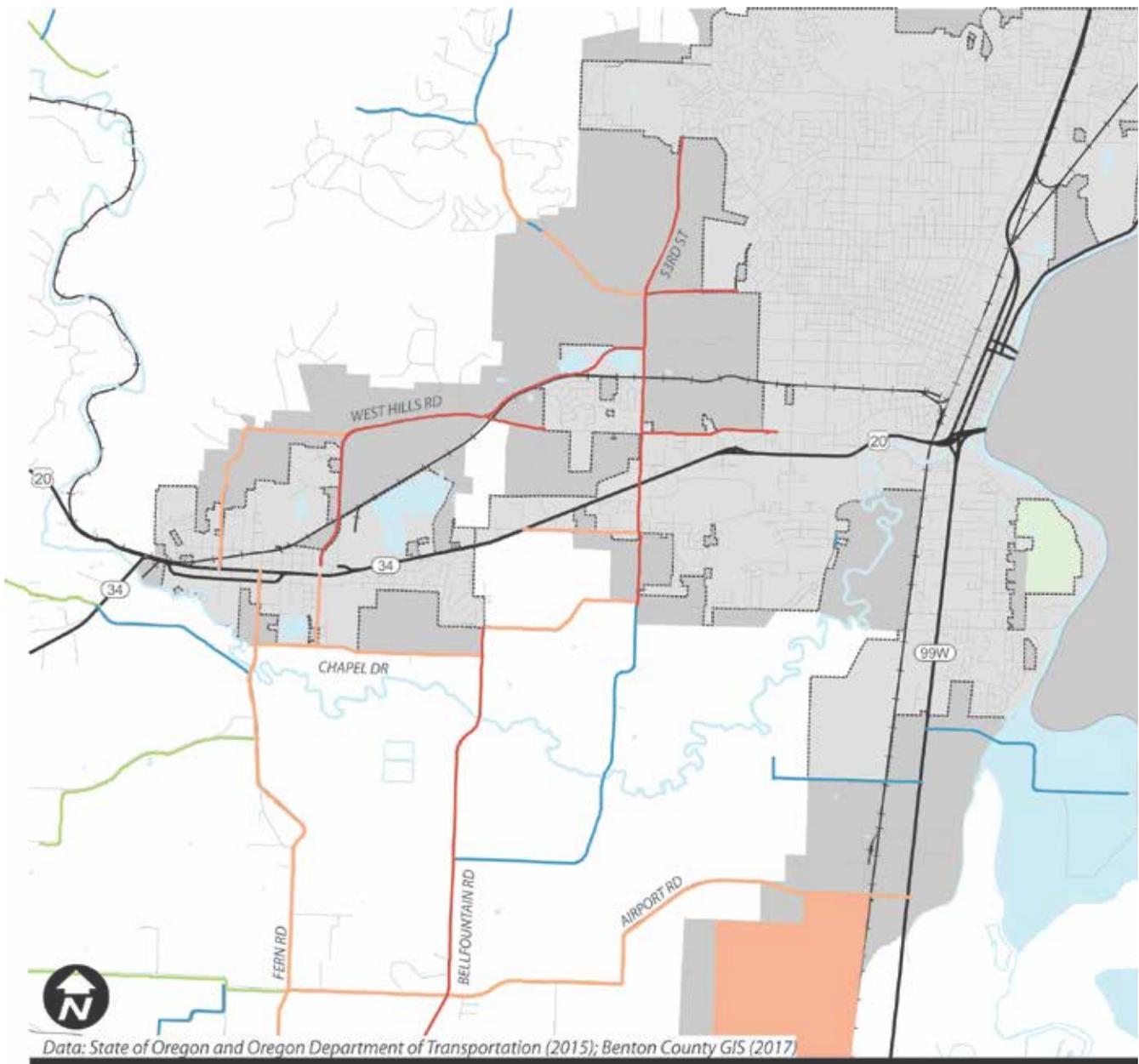
Legend

- - Principal Arterial
- - Minor Arterial
- - Major Collector
- - Minor Collector
- - Resource Collector
- - Local Roadway
- ++ - Railroad
- - River
- - Park
- - Airport
- - Urban Growth Boundary
- - City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN



Figure 12. Street Functional Classification, South Corvallis-Philomath Sub-Area



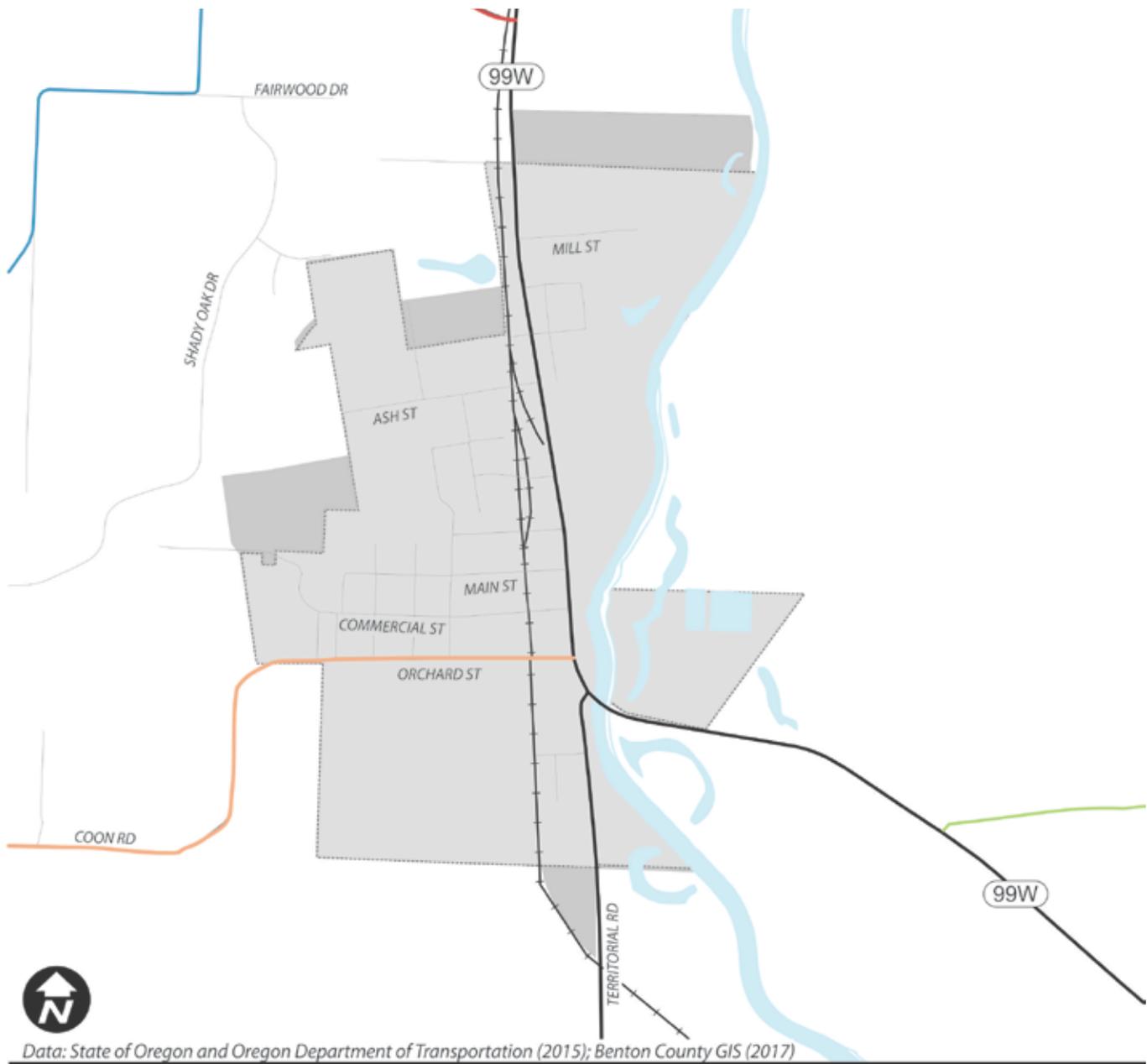
Legend

- | | |
|------------------------|---------------------------|
| — - Principal Arterial | ++ - Railroad |
| — - Minor Arterial | — - River |
| — - Major Collector | — - Park |
| — - Minor Collector | — - Airport |
| — - Resource Collector | — - Urban Growth Boundary |
| — - Local Roadway | — - City Limits |

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN



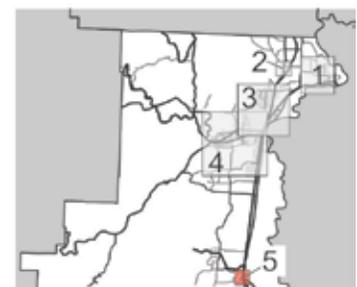
Figure 13. Street Functional Classification, Monroe Sub-Area



Legend

- - Principal Arterial
- - Minor Arterial
- - Major Collector
- - Minor Collector
- - Resource Collector
- - Local Roadway
- ++ - Railroad
- - River
- - Park
- - Airport
- Urban Growth Boundary
- City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN



Freight Routes

Roadways that are designated as freight routes are recognized as being appropriate and commonly traveled corridors for freight vehicles. Decisions affecting maintenance, operation, or construction on a designated freight route must address potential impacts on the safe and efficient movement of truck traffic. However, the intent is not to compromise the safety of other street users to accommodate truck traffic, especially in areas where many conflicts may be present. In such areas, the operational objectives of the street should prioritize safe travel for vulnerable users (e.g., people walking and biking) while continuing to accommodate passage by truck traffic.

The City of Corvallis does not currently define designated freight routes; however, it is considering designating Airport Avenue as a freight route as part of the Corvallis TSP update.¹ The City of Philomath is currently considering designating West Hills Road (Reservoir Avenue to 19th Street), 19th Street (West Hills Road to Main Street), Industrial Way (including the proposed extension), 13th Street, Chapel Drive, and Bellfountain Road (in City limits) as freight routes as part of the Philomath TSP update.²

The County has a designated Over Dimension Vehicle Route along Decker Road and Greenberry Road, however, there are no currently designated freight routes on County facilities. For this TSP update, it is recommended that the following corridors be designated as County freight routes once improvements have been made to support freight traffic:

- Coffin Butte Road (Soap Creek Road to OR 99W)
- Camp Adair Road
- Independence Highway (County border to US 20)
- Decker Road
- Greenberry Road
- S 13th Street (Chapel Drive to US 20/OR 34)
- Chapel Drive
- Llewellyn Road (Bellfountain Road to OR 99W)
- Bellfountain Road (Greenberry Road to Chapel Drive)
- Alpine Road

ODOT has classified Corvallis-Newport Highway (US 20/OR 34), Pacific Highway West (OR 99W), and Corvallis-Lebanon Highway (OR 34) as freight routes and reduction review routes.³ US 20 between Corvallis and Albany has also been designated as a reduction review route. Federal freight routes generally require 12-foot travel lanes. Reduction review routes are highways that require review of any proposed changes to determine if there will be a reduction of vehicle-carrying capacity.

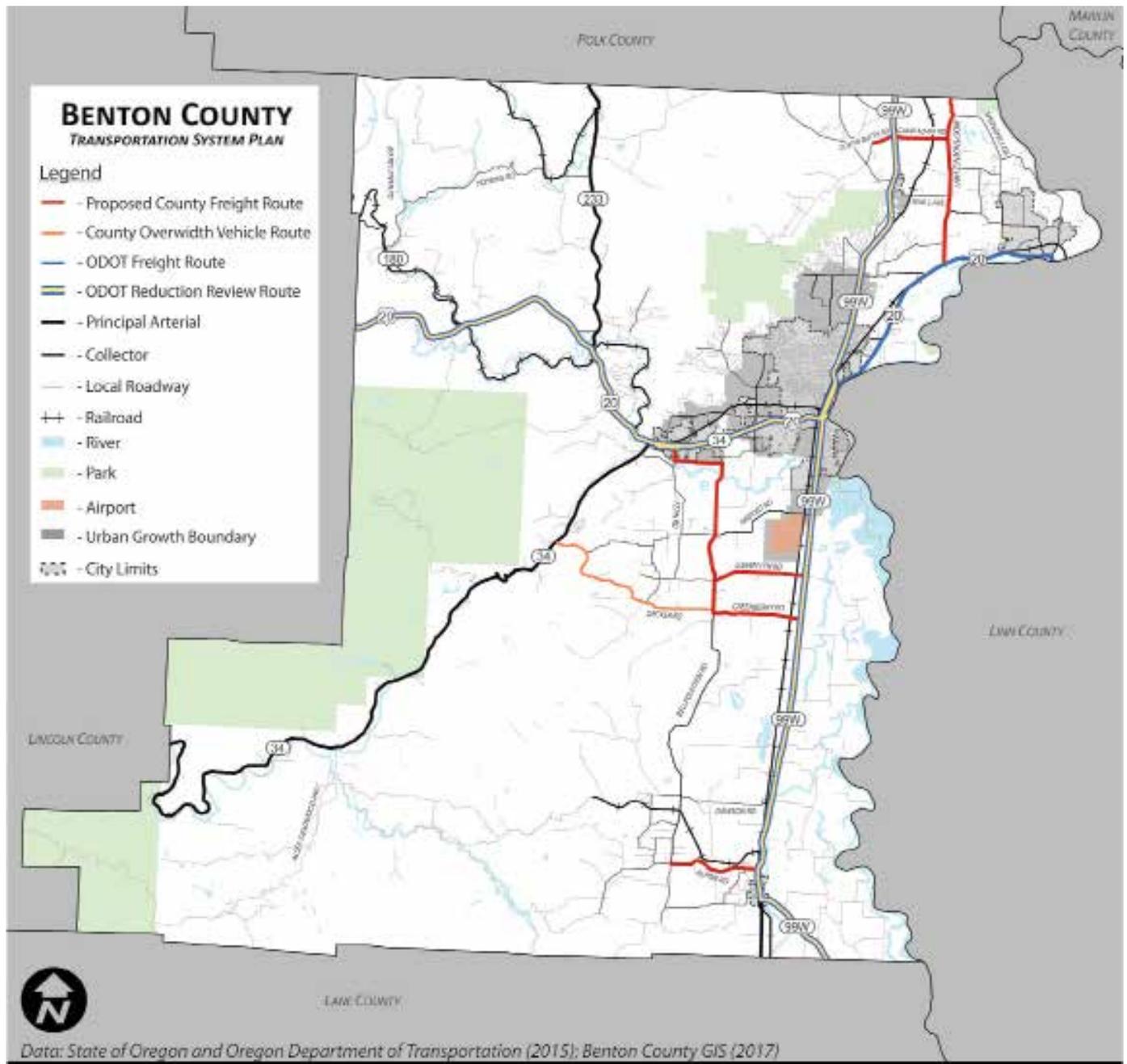
A map of the proposed County freight routes and existing State/Federal freight routes and reduction review routes is provided in Figure 9.

1 Technical Memorandum #16: Corvallis Transportation Plan Updated Task 6.1 Transportation Standards, October 27, 2017.

2 Technical Memorandum #9: Philomath Transportation Plan Updated Task 7.1 Transportation Standards and Solutions, January 15, 2018.

3 Memorandum #4: Benton County Transportation Plan Update Task 2.2 Existing Transportation System Conditions and Deficiencies, November 6, 2017.

Figure 14. Proposed County Freight Routes



Typical Roadway Cross-Section Standards

On each roadway cross-section, there are facilities that accommodate vehicles, bicycles, and pedestrians. The following sections detail elements that are a part of each roadway cross-section. The TSP update is recommending that County roadways within an UGB include facilities consistent with the roadway design standards from the respective city's TSP.

ROADWAY BICYCLE AND PEDESTRIAN FACILITIES

The basic design treatments used to accommodate bicycle travel include shared roadways, shoulder bikeways, bike lane, and pedestrian facilities. The previous TSP referenced a previous version of the Oregon Bicycle and Pedestrian Plan, Section II.1 as the standards to follow for bicycle and pedestrian facilities, except where the Benton County Development Code calls for a higher standard. The Oregon Bicycle and Pedestrian Plan has been recently updated.

The TSP update recommends using the following types of shared-use facilities for the appropriate situation. These facilities are based on the most recent definitions and from the Oregon Bicycle and Pedestrian Design Guide.¹

- **Shared Roadway:** On a shared roadway, bicyclists and motorists share the same travel lane. A motorist will usually have to cross over into the adjacent travel lane to pass a bicyclist. Shared roadways are common on neighborhood streets and on rural roads and highways; however, shared roadways on highways are not desired. The treatments that enhance shared roadways for bicyclists include a wide outside lane and bicycle boulevards. These facilities are most appropriate on

roads with low speeds (up to 20 mph).

- **Shoulder Bikeway:** Paved roadway shoulders on rural roadways provide an area for bicycling, with few conflicts with faster moving motor vehicle traffic. Most rural bicycle travel on the state highway system is accommodated on shoulder bikeways. These facilities are most appropriate on roads with speeds of 40 mph or lower when average daily volumes exceed 8,000 vehicles. There is an inverse relationship between volume and speed – as speed increases, the appropriate volume of traffic decreases.
- **Bike Lane:** A portion of the roadway designated for use by bicyclists. Bike lanes are appropriate on urban arterials and major collectors. They may be appropriate in rural areas where bicycle travel and demand is substantial. Bike lanes must always be well marked to call attention to their use by bicyclists. Types of bike lanes include protected and buffered bike lanes. Bike lanes provide a similar degree of separation to a Shoulder Bikeway and are appropriate with similar speed and volume ranges.
- **Pedestrian Facilities:** Sidewalks, shared-use paths, and shoulder bikeways where no sidewalks exist all serve as pedestrian facilities. Generally, wide shoulders serve as pedestrian facilities in rural areas. The Oregon Bicycle and Pedestrian Design Guide provides a range of widths (2'-8') that are appropriate based on average daily traffic volume. This TSP follows those recommendations except that a minimum width of 4' should be used regardless of traffic volume.

¹ Oregon Bicycle and Pedestrian Design Guide, ODOT, 2011.

Table 7 presents the typical cross-section standards for County roadways outside of UGBs. Within UGBs, it is recommended that County roads be subject to the respective City's roadway design standards. The recommended cross-section standards are generally consistent with the current roadway design standards, with the exception that they are defined based on functional classification instead of average daily traffic (ADT).

The TSP update does not modify the design standards for state highways, which represent all principal arterials within the county. These roadways are subject to the design criteria in the state's Highway Design Manual.²

Typical cross-section standards for Benton County are illustrated in Figures 15 through 21 for County roadways outside of UGBs.

Table 7. Typical Cross-Section Roadway Standards

	Secondary Local	Residential Local	Residential Local HSO ¹	Primary Local	Minor Collector Standard	Major Collector Standard	Arterial Standard
Functional Classification	Local	Local	Local	Local	Minor Collector	Major Collector	Minor Arterial
Projected ADT	< 20	< 200	< 200	< 700	< 1000	< 2000	> 1000
Projected DHV	<10/Hour	<30/Hour	<30/Hour	<100/Hour	<100/Hour	<300/Hour	>300/Hour
Min ROW	50'	50'	50'	50'	60'	60'	80'
Surface Width	16'	20'	18'	22'	24'	32'	36'-72'
Lane Widths	8'	10'	9'	10'	10'	11'	12'
Surface Material	Gravel	Gravel	Asphalt, Concrete, Oil Mat	Asphalt, Concrete, Oil Mat	Asphalt, Concrete	Asphalt, Concrete	Asphalt, Concrete
Example Structure	10" CAB	10" CAB	3" AC, 12" Aggregate	3" AC, 12" Aggregate	4" AC over 10" CAB	4" AC over 12" CAB	6" AC over 15" CAB
Crushed Base Equivalent	10"	10"	18"	18"	18"	20"	27"
Shoulder	NA	NA	1' Gravel	1 Paved + 1' Gravel	2' Paved + 2' Gravel	2' gravel	2' gravel
Max Grade	15% Paved	15% Paved	15% Paved	15%	12%	10%	8%
Bike Lanes	None	None	None	None	If in TSP or Bike Plans	5' Bike Lane	6' Bike Lane
Min Curve Radius	150'	200'	200'	250'	500'	760'	800'
Design Speed	20 mph	20 mph	25 mph	30mph	45 mph	45 mph	50 mph

¹ HSO = Hard Surface Option

² Highway Design Manual, ODOT, 2012. https://www.oregon.gov/ODOT/HWY/ENGSERVICES/Pages/hwy_manuals.aspx.

Figure 15. Arterial Standard Cross-Section

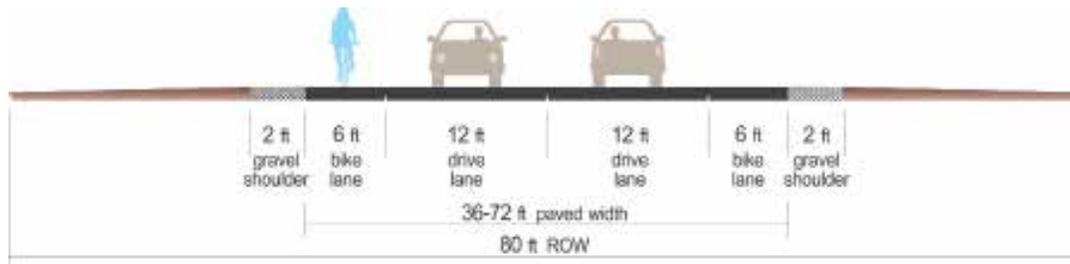


Figure 16. Major Collector Standard Cross-Section

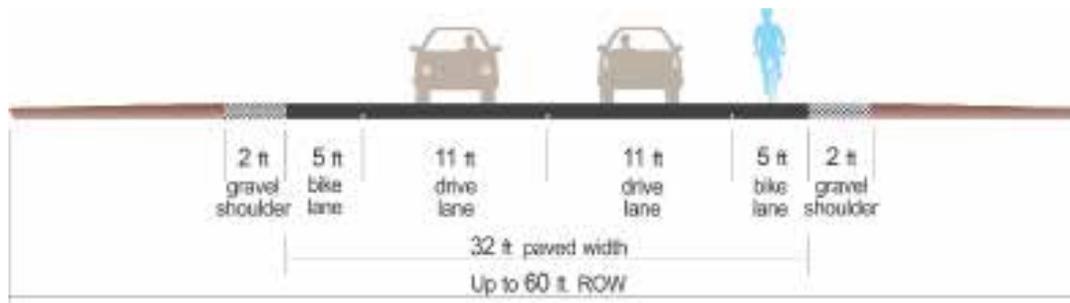


Figure 17. Minor Collector Standard Cross-Section

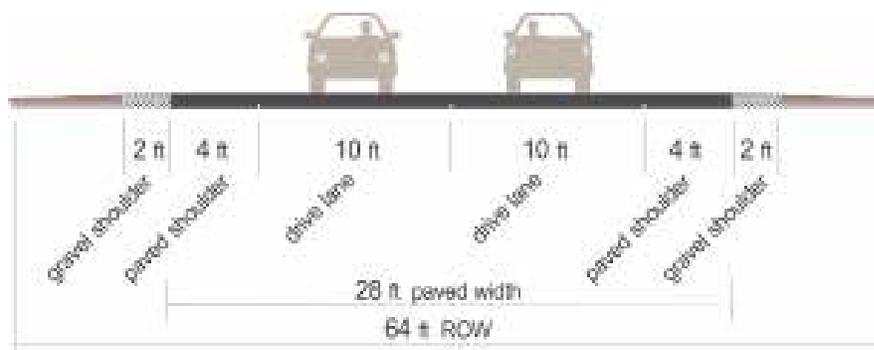


Figure 18. Primary Local Cross-Section

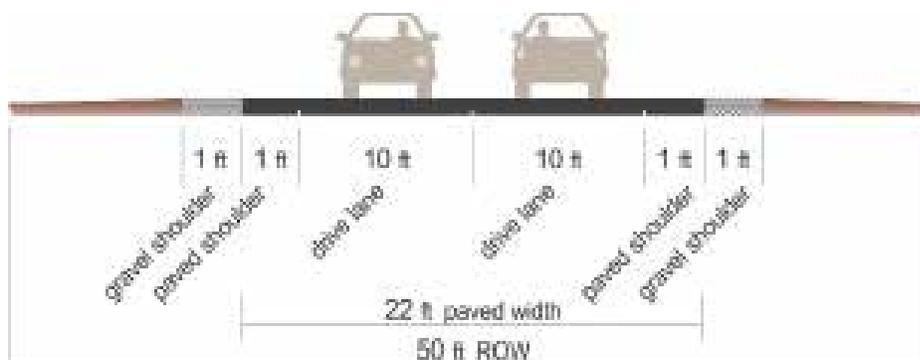


Figure 19. Residential Local HSO Cross-Section

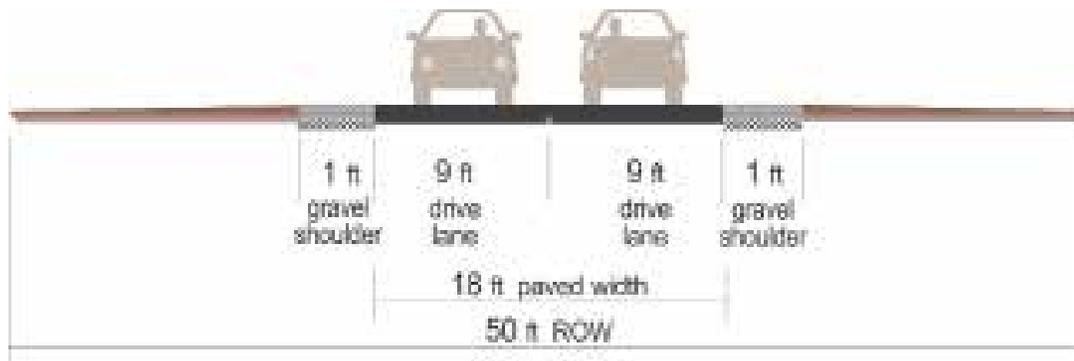
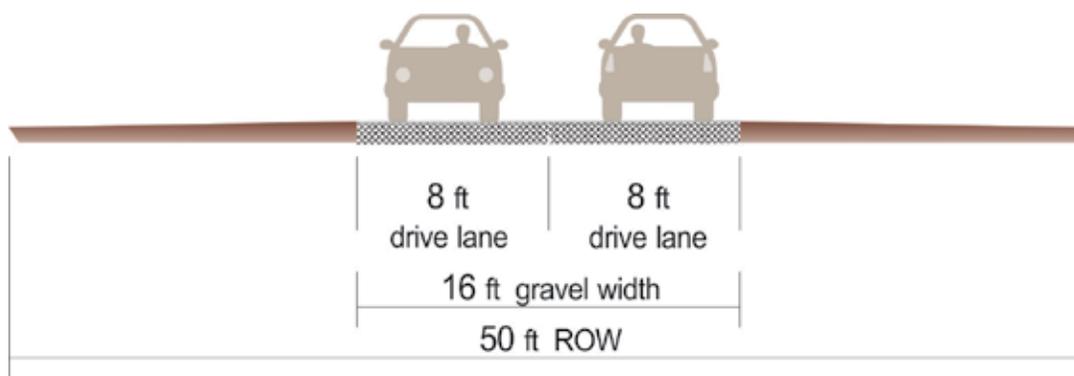


Figure 20. Residential Local Road Cross-Section



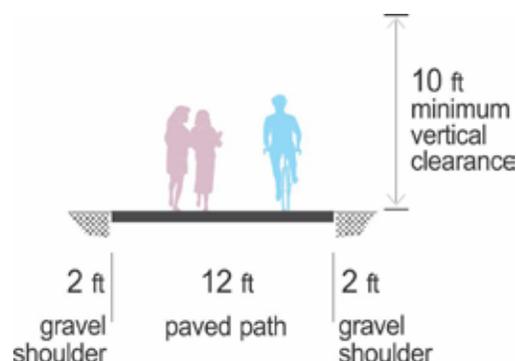
Figure 21. Secondary Local Road Cross-Section



SHARED-USE PATH

A shared-use facility separated from motor vehicle traffic by an open space or barrier, either within the road right-of-way or within an easement. These are typically used by pedestrians, joggers, skaters, and bicyclists as two-way facilities. Shared-use paths are appropriate in corridors not well served by the street system (if there are few intersecting roadways) to create short cuts that link destination and origin points, and as elements of a community trail plan. Shared-use facilities may sometimes be the preferred option over shoulder bikeways.

Figure 22. Paved Shared-Use Path



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. However, the use of concrete to provide a hard surface should be avoided. Concrete is expensive and cyclists do not prefer it. Widths need to provide ample space for both walking and biking and should be able to accommodate maintenance vehicles.

A paved shared-use path should be 12 feet wide (see Figure 16). The County Engineer may reduce the width of the typical paved shared-use path to a minimum of

eight feet at their judgement especially in constrained areas (e.g., steep, environmentally sensitive, historic, or previously developed areas).

ENHANCED PEDESTRIAN CROSSING TREATMENT GUIDELINES

Enhanced pedestrian crossing treatments are intended to make it easier and safer to cross a road for non-motorized travelers, especially those where high traffic volumes and speeds create a barrier-effect. Treatment alternatives vary depending on the context of the crossing location and include median refuge islands, curb extensions, improved street lighting, and several types of signalized enhancements. These treatments may be used in combination. For example, the median refuge island and street lighting could be stand-alone improvements or combined with a pedestrian traffic signal enhancement.

Roadways with high traffic volumes and/or speeds in areas with nearby transit stops, residential uses, schools, parks, shopping and employment destinations often require enhanced street crossings. The County may consider adding enhanced pedestrian crossing treatments to increase protection where warranted by the combination of pedestrian demand volumes and cross traffic speeds and volumes. The National Cooperative Highway Research Program (NCHRP) Report 562, *Improving Pedestrian Safety at Unsignalized Crossings*, provides technical procedures for making this assessment.

Enhanced pedestrian crossings on state highways are required to be reviewed and approved by ODOT.

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. The spacing of street and driveway and intersections on a roadway is a key element of access management.

The access standards in the 2001 Benton County TSP are replaced with the following that specifically address County facilities. Access spacing standards for state highways are determined by ODOT and are defined in the Oregon Highway Plan, OAR 734-051, and ODOT's Highway Design Manual.

Minimum public roadway intersection and private access spacing standards for County-owned roadways outside of an UGB are identified in Table 8 below. New roadways or redeveloping properties must comply with these standards to the extent practical, as determined by County staff.

As the opportunity arises through redevelopment, roadways not complying with these standards could improve with strategies such as shared access points, access restrictions (median or channelization islands), or closure of unnecessary access points, as feasible.

Where ADT's are less than 400, the road is classified as low volume road and circular driveways may be allowed. To the maximum extent practicable, the approaches shall meet minimum access spacing requirements. Any deviation from access spacing requirements shall be reviewed and acted upon by the County Engineer.

Within an UGB, the County will adopt roadway and access spacing standards consistent with the standards from the respective City.

Table 8. Minimum Roadway and Access Spacing Standards

Posted Speed or Travel Speed*	Minor Arterial	Major Collector	Minor Collector	Resource Collector	Local Roadway
> 50 mph	475 feet	475 feet	325 feet	100 feet	100 feet
40 & 45 mph	400 feet	400 feet	325 feet	100 feet	100 feet
30 & 35 mph	275 feet	275 feet	220 feet	100 feet	100 feet
< 25 mph	200 feet	200 feet	150 feet	100 feet	100 feet

**County staff shall determine the travel speed for roadways without a posted speed. An applicant for access may submit a speed study completed by an Oregon certified engineer or other professional with appropriate expertise, to be considered and approved by the County, if there is disagreement with the County speed determination.*

Mobility Standards

Prior to this TSP update, Benton County had no mobility standards for County facilities. These tools provide a metric for assessing the impacts of new development on the existing transportation system and for identifying where capacity improvements may be 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). Benton County Comprehensive plan policy and ODOT use the first method. County engineering practice has used the second method.

- **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.

All roadways and intersections owned by Benton County must operate at or below the following mobility targets. Henceforth Benton County traffic capacity analysis will be changed from level of service (LOS) to volume/capacity (v/c) ratio.¹ 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.

The new Benton County mobility targets are presented below for each type of intersection control that may apply.

- **Signalized, All-way Stop, or Roundabout Controlled Intersections:** The intersection must operate with 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 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.

All roadways and intersections under the jurisdiction of ODOT must operate at the required mobility targets presented in the 1999 Oregon Highway Plan.² If alternate mobility targets have been approved, they supercede the targets in the Oregon Highway Plan.

1 Benton County Comprehensive Plan, 12.1.17, Benton County, 2007.

2 Oregon Highway Plan, ODOT, 1999, Last amended March 2018.



CHAPTER 5

Projects

Planned Transportation System

Tables 9 through 14 and Figures 18 through 22 describe the recommended solutions for Benton County's transportation system through the year 2040. Solutions are presented by geographic sub-areas to the county and for countywide projects. The project categories include the following types (order does not imply priority):

- **Connectivity and Congestion (CC):** Projects to improve connectivity and mobility throughout the county. There are 101 projects to improve driving conditions that would cost an estimated \$953 million to complete.
- **Safety (S):** Projects that primarily improve safety throughout the county. There are 39 identified safety projects that would cost an estimated \$153 million to complete.
- **Active Transportation (AT):** Projects to provide seamless connections throughout the county for non-motorized travel. There are 40 walking and biking projects that would cost an estimated \$80 million to complete. A number of projects benefit both walking and biking modes, particularly shoulder widening or shared-use path projects.
- **Transit (T):** Projects to enhance the quality and convenience for passengers. A total of 20 transit projects was identified that would have an annual operating cost of approximately estimated \$2.2 million.

Each solution is assigned a primary funding source and responsible lead agency for planning purposes, however, these designations do not create any obligation for funding. A few important comments about each funding source:

- **City projects** – Local cities of Adair Village and Monroe have no discretionary fund to advance project design and construction. These cities could consider and implement transportation SDC fee programs to provide funding for projects that expand the system to serve growth, or, potentially, new development could contribute to these facilities improvements as a condition of approval based on their local development code requirements.
- **County projects** – The County has limited discretionary funding available to advance project design and construction. The County could use the project information to apply for grants or other funding mechanisms to fund these projects.
- **State projects** – The State uses local TSPs to identify project needs. The County could also use the project information to apply for grants or other funding mechanisms to potentially advance funding for these projects. The State has made no commitment to date, however, they could opt to allocate discretionary funds in the future.

The County can, however, choose to use its funds to help support City or State projects thus expediting the timeline on those projects the County would like prioritized.

Multimodal solutions were identified to address the existing and future transportation needs reported in Chapter 2. Initial candidate projects were reviewed and refined by County staff and community members through the public process to produce a master list of improvements for Benton County. In general, the projects are organized by travel mode; some address multiple modes.

The potential solutions were evaluated to assess how well they satisfied the community transportation goals and objectives. For more information about the evaluation process, refer to Chapter 3, Framework. The resulting solutions

were prioritized into three groups – High, Medium and Low priority based on their evaluation scores. Chapter 6 presents the highest priority projects in terms of community value and needs.

The remainder of this chapter presents the transportation plan solutions in tabular and map formats. Each project includes a description, the travel mode affected, the responsible lead agency, the likely funding source, a preliminary cost estimate, the project priority and who initially recommended the project. This is a master list of all projects regardless of cost, priority or the likelihood of being constructed within the planning horizon.



Table 9. Benton County Transportation Projects, Countywide

Project ID	Project Name	Cost	From	To	Agency
AT-119	OR 99W Alpine Road to Alpine Cut-Off Shared-Use Path	\$300,000.00	Alpine Road	Alpine Cut-off Road	ODOT
	Shared-use path upgrade; improve path surface to accommodate various users and improve drainage; add bollards, where feasible				
AT-152	OR 34 Shared-use path	\$15,500,000.00	Yewwood Lane	Alsea-Deadwood Highway	ODOT
	Shared-use path; project may construct shared-use path connecting Alsea and Lobster Valley with the central and northern parts of the county				
AT-153	Alsea-Deadwood Highway Bicycle Safety Improvements Study	\$100,000.00	south of Bummer Creek Road	North of Hazel Glen Road	ODOT
	Study; This area has been mentioned as a dangerous area for bicyclists, but apparently not an area of significant bicycle demand, needs further study				
AT-154	Kings Valley Highway Mobility Improvements Study	\$200,000.00	US 20	North County line	ODOT
	Study; further study of the Kings Valley Highway is proposed to better understand the safety concerns and needs of all travel modes particularly freight and cyclists				
AT-178	Blodgett Road Safe Routes to School Shared-use Path	\$1,300,000.00	OR 180	Tum Tum Rd	ODOT
	Shared-use Path; project may provide shared-use path between the Blodgett Country Store and Blodgett Elementary School parallel to US 20				
AT-200	Airport Rd to Alpine Rd Shared-use Path	\$6,950,000.00	Alpine Rd	Airport Avenue	County
	Construct shared-use path between Airport Rd and Alpine Rd, the alignment of this route is to be determined but should connect with the proposed South Corvallis Shared-use Path				
AT-233	Bellfountain Rd Shared-use Path	16,650,000.00	Alpine Rd	Chapel Rd	County
	Shared-use path; new shared use path providing an active transportation corridor along Bellfountain Rd				
AT-236	Lewisburg-Adair Village Shared-use Path	3,450,000.00	Lewisburg Rd	Arnold Ave	ODOT
	Shared-use path; project may construct shared-use path within the OR 99W corridor and may use parallel facilities, project should connect with Corvallis-Lewisburg shared-use path				
CC-128	US 20/Granger Road Intersection Improvements	Funded	-	-	ODOT
	Intersection Improvement; project may install ITS Intersection Warning System and Left-turn acceleration lane				
CC-129	US 20/Independence Highway Intersection Improvement	Funded	-	-	ODOT
	Intersection improvement; project may install ITS Intersection Warning System and Left-turn acceleration lane				
CC-155	Bellfountain Road Widening (Chapel to Greenberry)	\$13,550,000.00	Chapel	Greenberry	County
	Widen to cross-section standards before designation as a freight route				
CC-167	Greenberry Road Widening	\$6,100,000.00	Bellfountain Rd	OR 99W	County
	Project may improve Greenberry Rd to cross section standards, this improvement needs to occur before Greenberry Rd is designated as a County Freight Route				
CC-213	Hubbard Road Bridge	Funded	-	-	County/STIP
	Project may replace existing Hubbard Rd bridge with a pre-stressed concrete girder bridge				
CC-219	Starr Creek Rd Extension	Funded	Hells Canyon Rd	Starr Creek Rd	County/STIP
	Project may connect Starr Creek Rd to Hells Canyon Rd to provide an emergency access route				
CC-221	Independence Highway Widening	\$11,400,000.00	US 20	Camp Adair Road	County
	Project may widen Independence Highway to cross-section standard before designation as a freight route				

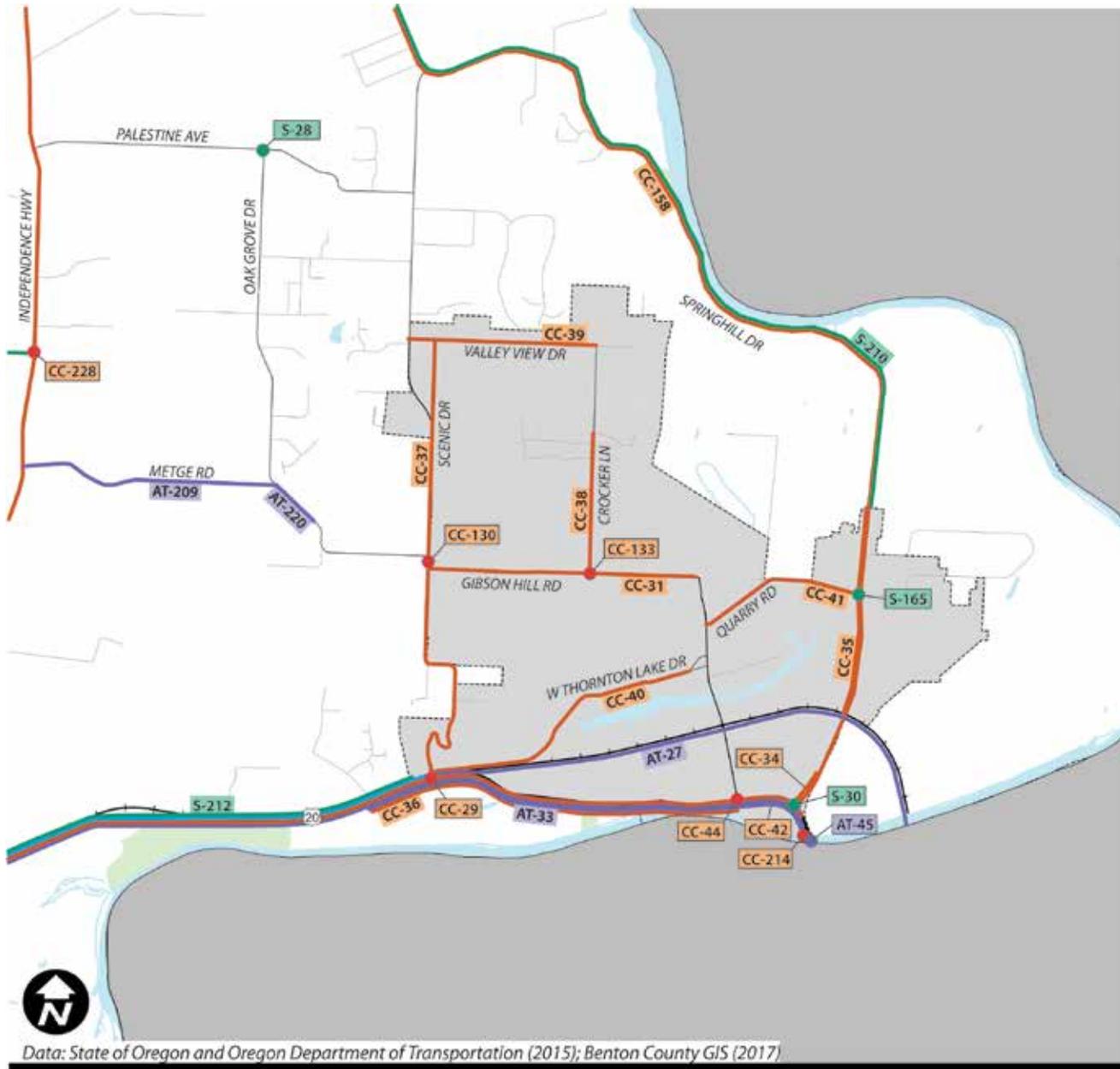
Project ID	Project Name	Cost	From	To	Agency
CC-222	Camp Adair Road Widening	\$2,300,000.00	OR 99W	Independence Hwy	County
	Project may widen Camp Adair Road to standard before designation as a freight route				
CC-223	Coffin Butte Road Widening	\$1,500,000.00	Soap Creek Rd	OR 99W	County
	Project may widen Coffin Butte Road to standard before designation as a freight route				
CC-225	Decker Rd Widening	9,900,000.00	OR 34	Bellfountain	County
	Project may widen Decker Road to standard before designation as a freight route				
CC-226	Llewellyn Road Widening	8,350,000.00	Fern	Bellfountain	County
	Project may widen to cross-section standards before designation as a freight route				
CC-229	OR 99W/Llewellyn Rd Intersection Improvements	95,000.00	-	-	ODOT
	Intersection Improvement, evaluate impact of identifying Llewellyn Rd as a County Freight Route, project may include a flashing amber beacon and or a northbound left turn lane				
CC-231*	OR 99W Passing Lane Study	250,000.00	-	-	ODOT
	Study, evaluate the benefit of passing lanes on selected segments of OR 99W south of Corvallis				
CC-241	Territorial Hwy Modernization	5,250,000.00	Lane Co Line	OR 99W	County/ODOT
	Widening Improvements; project may including widening to standard cross-section, project likely contingent on jurisdictional transfer to the County				
S-18	Greenberry/OR 99W Intersection Improvements	\$45,000.00	-	-	ODOT
	Intersection improvement; project may include flashing amber beacon				
S-20	Bellfountain Road/Llewellyn Road Intersection Improvements	\$5,000.00	-	-	County
	Intersection improvement; project may include rumble strips and paint stripes on pavement				
S-23	Improve "S" Curve alignment on Bellfountain Road	\$1,200,000.00	-	-	County
	Safety improvement; project may include widening Bellfountain Rd to cross-section standard near Llewellyn to improve safety and visibility				
S-25	Bellfountain Road near Muddy Creek School Safety Improvements	\$350,000.00	-	-	County
	Safety improvement; project may include widening to cross-section standard with rumble strips				
S-141	North Fork Alsea Road Bridge Replacement	\$350,000.00	-	-	ODOT
	Bridge replacement to address the identified issues of weight restrictions, poor condition, and structural inadequacies; project may include bridge replacement				
S-144	Wren Road/Highway 223 Intersection Improvement	\$1,200,000.00	-	-	ODOT
	Intersection improvement; project may include realignment to form a conventional "T" intersection				
S-145	Highway 34/Fish Hatchery Road Turn Lanes	\$5,000.00	-	-	ODOT
	Safety improvement; project may construct turn lanes to allow vehicles to slow and/or stop out of the through travel lane				
S-146	Highway 34 Curve Safety Improvements	\$1,950,000.00	-	-	ODOT
	Safety improvement; project may realign curve because of history of accidents				

* The exact location of this project is not defined and is not shown on the map.

Project ID	Project Name	Cost	From	To	Agency
S-160	Alpine Rd/Alpine Cut-off Rd Widening	\$4,400,000.00	Bellfountain Rd	OR 99W	County
	Widening; project may improve to cross-section standard before designation as County Freight Route				
S-161	US 20 Widening (West)	\$30,100,000.00	OR 34	OR 180 Summit Hwy	ODOT
	Widening; project may widen shoulders to cross-section standard 8', this project improves safety for drivers and active transportation users				
S-164	Independence Highway/Springhill Drive Intersection Improvements	\$25,000.00	-	-	County
	Intersection Improvement; address fixed-object crash safety issues, project may include roadway departure improvements such as additional signs at intersection and rumble strips				
S-170	OR 34/ Hayden Rd Intersection Improvements	\$60,000.00	-	-	ODOT
	Intersection improvement; mitigate crash issues that are primarily fixed object crashes into ditches or animals, project may install roadway departure countermeasures such as rumble strips or bollards				
S-171	OR 34 Roadway Departure Counter Measures	\$95,000.00	-	-	ODOT
	Corridor safety improvement; mitigate crash issues that are primarily fixed object crashes into ditches or animals, project may install roadway departure countermeasures such as rumble strips or bollards				
S-173	Alea-Deadwood Highway Widening	\$6,550,000.00	OR 34	Prarie Mountain Rd	ODOT
	Widening; project may widen shoulders to cross-section standard 5'				
S-182	Bellfountain Rd Widening (Coon to Greenberry)	\$22,300,000.00	Coon Rd	Greenberry	County
	Widening; project may widen to cross-section standard, this provides safety upgrades for drivers and active transportation users				
S-183	OR 34 Widening	\$22,500,000.00	Yewood Lane	US 20	ODOT
	Widening; project may widen shoulders to cross-section standard 6', this provides safety upgrades for drivers and active transportation users, shoulder width is based on ODOT rural highway classification				
S-230*	OR 99W Systemic Intersection Improvements	300,000.00	-	-	ODOT
	Intersection Improvements, systemic intersection improvements along OR99W south of Corvallis to improve safety and visibility, project may include flashing amber beacons and/or traffic diverters				
T-189	OR 99W South - Phase 1	\$100,000.00	Corvallis	Eugene	County/LTD
	In conjunction with ODOT public Transit and LTD, conduct a corridor evaluation and service development plan for regional public transit bus service on OR 99W between Corvallis and Eugene, with stops in Monroe; Junction City; and Eugene Airport				
T-196	Coast to Valley Expansion	\$70,000.00	Newport	Albany	County/Lincoln County
	Review existing Coast to Valley Express schedule for potential of adjusting times to better match connections to HUT and Oregon Express shuttles; Amtrak; and Bolt Bus, Add bus and additional daily trips as demand warrants				

* The exact location of this project is not defined and is not shown on the map.

Figure 24. Benton County Transportation Projects, North Albany, Sub-Area 1



Legend

- S-00 - Safety Project
- AT-00 - Active Transportation Project
- CC-00 - Connectivity/Congestion Project
- T-00 - Transit Project
- - Principal Arterial
- - Collector
- - Local Roadway
- ⊕ - Railroad
- - River
- - Park
- - Airport
- - Urban Growth Boundary
- ⊞ - City Limits

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Table 10. Benton County Transportation Projects, North Albany, Sub-Area 1

Project ID	Project Name	Cost	From	To	Agency
AT-27	Corvallis to Albany Shared-Use Path (North Albany)	\$2,480,000.00	Scenic Drive	Springhill Road	ODOT
	Shared-use path; project may construct off highway shared-use path off of US 20 within the City of Albany limits				
AT-33	US 20 Bike lanes (North Albany)	\$30,000.00	Albany UGB	Willamette River west	ODOT
	Project may convert shoulders to bike lanes on US 20 in North Albany from Willamette River (including the Lyon Street bridge which has an existing shoulder) to Albany UGB.				
AT-45	Albany to Corvallis Shared-use Path River Crossing	\$775,000.00	Springhill Drive	across the Lyon St Bridge	ODOT
	Project may construct bike/pedestrian bridge over the Willamette River and extending to Springhill Drive using the existing US 20 (Lyon Street) bridge				
AT-209	Metge Avenue Active Transportation Improvements	Funded	Independence Hwy	Oak Grove Dr	County/STIP
	Widening; project may upgrade to cross-section standards				
AT-220	Oak Grove Drive Bike Lanes	Funded	Terminus of existing lanes	Metge Ave	County/STIP
	Provides active transportation connectivity between Adair Village and North Albany				
CC-29	US 20/Scenic Drive Intersection Improvement	\$1,120,000.00	-	-	ODOT
	Intersection improvement; project may include adding turn lanes				
CC-31	Gibson Hill Road Modernization	\$5,445,000.00	North Albany Road	Scenic Drive	County
	Project may upgrade to cross-section standard with bike lanes and additional sidewalk on the north side per Albany Development Code				
CC-34	Springhill Drive Widening	\$3,470,000.00	Railroad crossing	US 20	County
	Roadway widening; project may widens Springhill Drive to four lanes from US 20 to north of Hickory Road then transition to three lanes across the rail crossing, project related to AT-35				
CC-35	Springhill Drive Modernization	\$4,235,000.00	north to Albany UGB	Railroad crossing	County
	Project may upgrade to cross-section standards with standard sidewalk and bike lanes per Albany Development Code				
CC-36	US 20 Widening (North Albany)	\$8,500,000.00	west to Albany UGB	North Albany Road	ODOT
	Project may include widening US 20 to four lanes and adding sidewalk, curb, and gutter from North Albany Road west to the Albany UGB				
CC-37	Scenic Drive Modernization	\$6,965,000.00	north to Albany UGB	US 20	County
	Project may upgrade to cross-section standards with standard sidewalk and bike lanes per Albany Development Code; project cost assumes ROW will be dedicated				
CC-38	Crocker Lane Modernization	\$2,860,000.00	Gibson Hill Rd	Meadowwood	County
	Project may upgrade to cross-section standard with standard side sidewalk and bike lanes per Albany Development Code				
CC-39	Valley View Drive Modernization	\$3,760,000.00	Scenic Drive	Crocker Rd	County
	Project may upgrade to cross-section standard with standard side sidewalk and bike lanes per Albany Development Code				
CC-40	West Thornton Lake Drive Modernization	\$6,205,000.00	Scenic Drive	600' West of North Albany Road	County
	Project may upgrade to cross-section standard with standard side sidewalk and bike lanes per Albany Development Code				

Project ID	Project Name	Cost	From	To	Agency
CC-41	Quarry Road Modernization	\$3,555,000.00	Springhill Drive	North Albany Road	County
	Project may upgrade to cross-section standard with standard side sidewalk and bike lanes per Albany Development Code				
CC-42	US 20 Super-elevation and Widening Correction	\$3,180,000.00	US 20 bridge-head	North Albany Road	ODOT
	Project may correct shared-use path superelevation issues at intersection along US 20, also widening of US 20 for a third westbound through lane between the north US 20 bridge-head and North Albany Road				
CC-44	US 20/North Albany Rd Intersection Improvement	\$40,000.00	US 20/North Albany Road	-	ODOT
	Intersection Improvement; project may eliminate split-phasing, convert southbound right to shared through-right lane & convert southbound through-left to left-only lane, creating dual southbound left-turns, also install westbound right-turn overlap phasing, implement actuated-coordinated signal control, and develop signal coordination between Springhill Road and North Albany Road for better traffic progression along US 20 during peak periods				
CC-130	Gibson Hill Road/Scenic Drive/Oak Grove Drive Intersection Improvement	\$950,000.00	-	-	County
	Intersection improvement; project may realign offset intersection geometry to standard four leg design				
CC-133	Crocker Lane/Gibson Hill Road Intersection Improvement	Funded	-	-	County
	Intersection Improvement, project may add traffic signal control, if warranted				
CC-158	Springhill Drive/Independence Highway Freight Study	\$1,500,000.00	US 20	Independence Hwy	County
	Study, Freight traffic frequently uses Springhill Dr to avoid Independence Highway, this study may examine the causes for this diversion in more detail and explore solutions to keep freight traffic off of Springhill Dr				
CC-214	US 20 Ellsworth St Bridge	Funded	-	-	County/STIP
	Increases span vertical clearance over the Willamette River				
CC-228	Ryals Ave/Independence Hwy Intersection Improvement	50,000.00	-	-	County
	Intersection Improvement, evaluate potential safety sight distance issues, projects may include re-grading the intersection approach and/or improved intersection warning signs				
S-28	Palestine Ave/Oak Grove Drive Intersection Improvement	\$405,000.00	-	-	County
	Intersection improvement; project may include realigning intersection to remove offset				
S-30	US 20/Springhill Dr Intersection Capacity Upgrade	\$15,000.00	-	-	ODOT
	Intersection Improvement; project may include converting southbound right-turn to a shared left-right lane, creating dual-southbound lefts on Springhill Road, relocating westbound stop bar on inside lane of US 20 10-20 feet east of current location, lengthen cycle length to 120 seconds and develop coordination between North Albany Road and Springhill Road along US 20, geometric design of the intersection should allow space for right-turns on red for southbound vehicles if feasible				
S-165	Quarry Road & Nebergall Loop/Springhill Drive Intersection Improvements	\$25,000.00	-	-	County
	Intersection improvement; mitigate high rate of crashes, primarily rear end crashes with drivers following too closely or going too fast, project may install intersection warning devices				
S-210	Springhill Drive Roadway Departure Countermeasures	\$320,000.00	-	-	County/STIP
	Safety improvements to reduce roadway departure crashes; project may include rumble strips and/or bollards				
S-212	US 20 Safety Upgrades	Funded	City of Corvallis	City of Albany	County/STIP
	Funding provided through HB 2017 to address safety concerns along US 20				

Figure 25. Benton County Transportation Projects, Adair Village, Sub-Area 2



Data: State of Oregon and Oregon Department of Transportation (2015); Benton County GIS (2017)

Legend

- S-00 - Safety Project
- AT-00 - Active Transportation Project
- CC-00 - Connectivity/Congestion Project
- T-00 - Transit Project
- - Principal Arterial
- - Collector
- - Local Roadway
- ++ - Railroad
- - River
- - Park
- - Airport
- - Urban Growth Boundary
- - City Limits

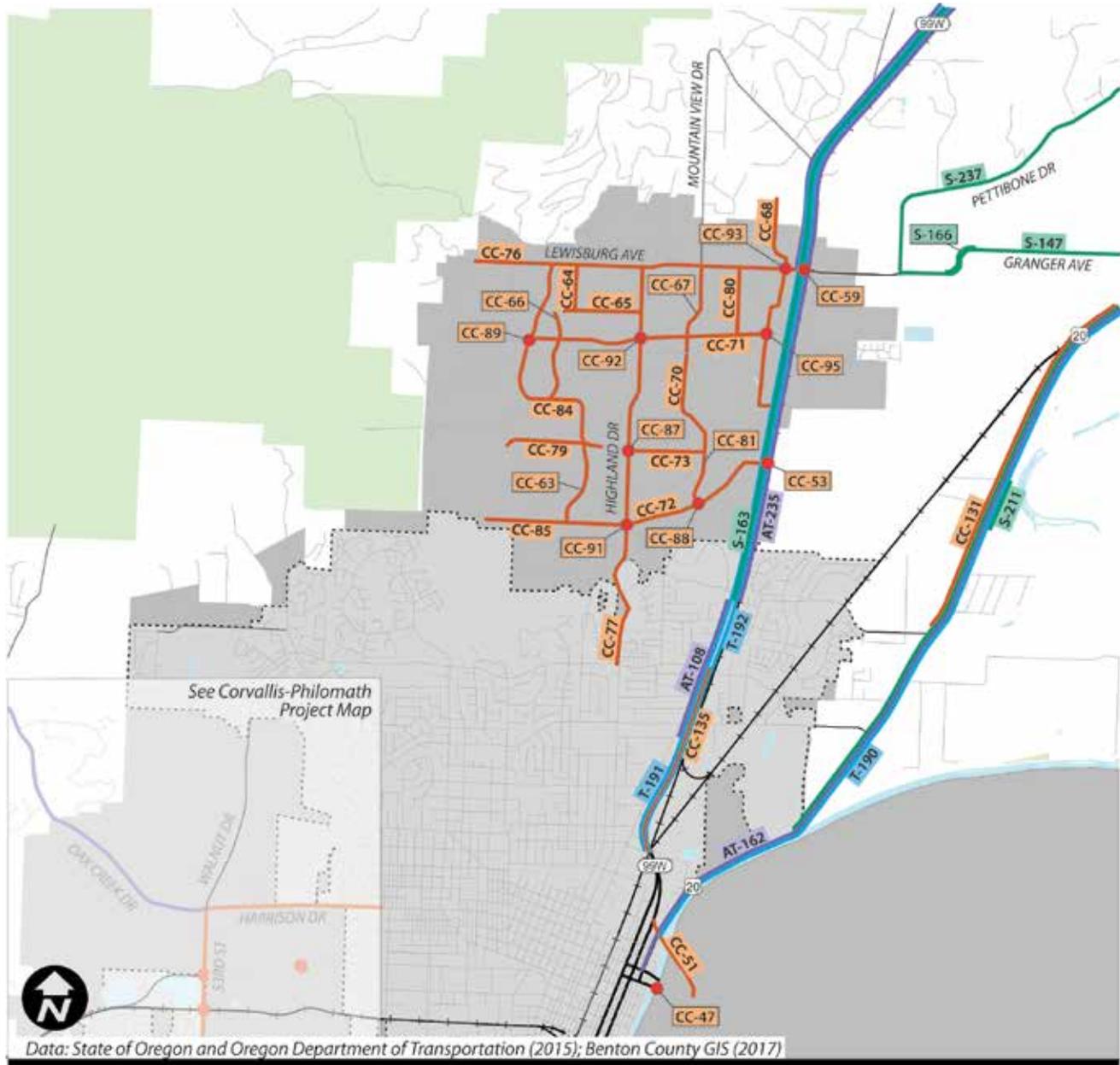
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Table 11. Benton County Transportation Projects, Adair Village, Sub-Area 2

Project ID	Project Name	Cost	From	To	Agency
AT-168	Vandenberg Avenue/OR 99W Enhanced Roadway Crossing	\$250,000.00	-	-	ODOT
	Enhanced crossing; project provides an opportunity for an enhanced roadway crossing to serve Adair Village				
CC-116	OR 99W/Arnold Avenue Intersection Improvement	\$670,000.00	-	-	ODOT
	Intersection improvement; project may install traffic signal or roundabout, if feasible, when warranted, this project should be coordinated with the OR 99W Streetscape Study, CC-179				
CC-117	OR 99W/Ryals Avenue Intersection Improvement	\$670,000.00	-	-	ODOT
	Intersection improvement; project may install traffic signal or roundabout, if feasible, when warranted				
CC-179	OR 99W Streetscape Study	\$250,000.00	Ryals	Tampico	ODOT
	Streetscape Study; study to investigate potential to reduce traffic speeds and improve the environment for residents and businesses along the OR 99W corridor				
CC-227	Ryals Ave Urban Upgrade	\$1,800,000.00	OR 99W	Arnold Ave	County
	Project may improve Ryals Ave to cross section standards, coordinate with planned development				
S-185	Ryals Ave Widening	\$2,700,000.00	Arnold Ave	Independence Hwy	County
	Widening; project may widen to cross-section standard, this project provides East-West connectivity between Adair Village and North Albany and improves safety for drivers and active transportation users				

Figure 26. Benton County Transportation Projects, Corvallis-Lewisburg, Sub-Area 3



Legend

- S-00 - Safety Project
- AT-00 - Active Transportation Project
- CC-00 - Connectivity/Congestion Project
- T-00 - Transit Project
- - Principal Arterial
- - Collector
- - Local Roadway
- ⊕ - Railroad
- - River
- - Park
- - Airport
- - Urban Growth Boundary
- ⊞ - City Limits

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Table 12. Benton County Transportation Projects, Corvallis-Lewisburg, Sub-Area 3

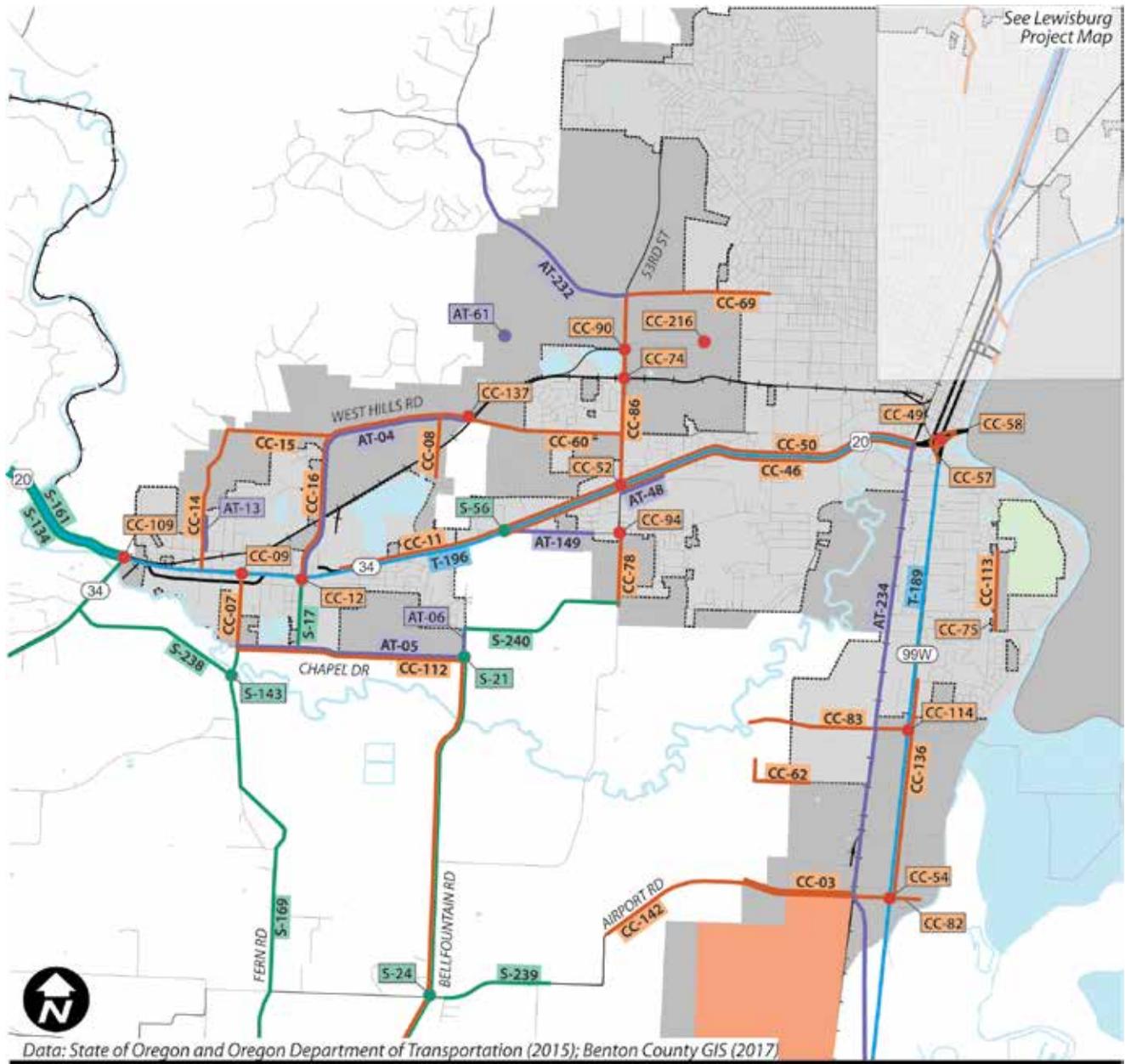
Project ID	Project Name	Cost	From	To	Agency
AT-108	OR 99W Circle to Elks Shared-Use Path	\$1,020,000.00	Elks Drive	Circle Boulevard	ODOT
	Project may extend the shared-use path from Circle Boulevard to Elks Drive, project should connect with the Corvallis-Lewisburg shared-use path				
AT-162	Corvallis to Albany Shared-Use Path	\$7,050,000.00	Corvallis	Albany	County
	Shared-use path off of US 20 between the City of Corvallis and the City of Albany				
AT-235	Corvallis-Lewisburg Shared-use Path	\$1,535,000.00	Elks Dr	Lewisburg Rd	ODOT
	Shared-use path; project may construct shared-use path along OR 99W, project should connect with the Lewisburg-Adair Village shared-use path				
CC-47	Van Buren Bridge (New Construction)	Funded	-	-	ODOT
	Reconstruct a new two-lane bridge across the Willamette River adjacent to and north of the Van Buren Ave Bridge address weight restriction and vertical clearance on Van Buren Bridge to avoid out-of-direction travel for trucks project is subject to ODOT approval project has potential impacts to or may be constrained by environmental resources				
CC-51	North Corvallis Bypass	\$145,790,000.00	US 20/OR 99W	OR 34	ODOT
	New roadway extension; construct the 2-lane northern leg of the OR 34 bypass from the existing OR 34/OR 34 Bypass intersection across the Willamette River connecting to US 20 and OR 99W north of Polk Ave, coordinate with Project M8 (Corvallis TSP ID), note: Some Right-of-Way acquisition is needed west of the Willamette River, project is subject to ODOT approval project has potential impacts to or may be constrained by environmental resources				
CC-53	OR 99W/Lester Ave Extension Signal	\$840,000.00	-	-	ODOT
	Intersection improvements (capacity); options may include constructing roundabout or traffic signal, when warranted before a signal can be installed, an engineering investigation must be conducted or reviewed by the Region Traffic Engineer who will forward intersection traffic control recommendations to ODOT headquarters traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway				
CC-59	OR 99W/Lewisburg Intersection Improvement	\$2,205,000.00	-	-	ODOT
	Intersection improvements (capacity); construct capacity improvements at the intersection, options may include constructing an eastbound right turn lane, eastbound left turn lane, westbound right turn lane, westbound left turn lane, eastbound right turn lane, traffic signal modifications and rail crossing enhancements, project is subject to ODOT approval				
CC-63	New N-S 6 Neighborhood Collector between Lester Ave and Crescent Valley Drive	\$9,570,000.00	Crescent Valley Drive	Lester Ave	Developer
	New roadway extension; construct new neighborhood collector between Lester Ave and Crescent Valley Drive, project has potential impacts to or may be constrained by environmental resources				
CC-64	New N-S 5 Neighborhood Collector between Lewisburg Drive and Spring Meadow Drive Extension	\$4,950,000.00	Lewisburg Road	Spring Meadow Drive Extension	Developer
	New roadway extension; construct new neighborhood collector between Lewisburg Drive and Spring Meadow Drive Extension, project has potential impacts to or may be constrained by environmental resources				
CC-65	Spring Meadow Drive Extension	\$7,920,000.00	Highland Drive	Spring Meadow Drive	Developer
	New roadway extension; construct Spring Meadow Drive Extension to neighborhood collector standard between Highland Drive and exiting stub, project has potential impacts to or may be constrained by environmental resources				
CC-66	New N-S 4 Neighborhood Collector between Crescent Valley Drive and Spring Meadow Drive	\$9,405,000.00	Spring Meadow Drive	Crescent Valley Drive	Developer
	New roadway extension; construct new neighborhood collector between Crescent Valley Drive and Spring Meadow Drive, project has potential impacts to or may be constrained by environmental resources				

Project ID	Project Name	Cost	From	To	Agency
CC-67	New N-S 3 Neighborhood Collector between Lewisburg Ave and Frazier Creek Drive Extension	\$8,910,000.00	Lewisburg Road	Frazier Creek Drive Ext.	Developer
	New roadway extension; construct new neighborhood collector between Lewisburg Ave and Frazier Creek Drive Extension, project has potential impacts to or may be constrained by environmental resources				
CC-68	West Elliot Circle Construction	\$22,965,000.00	North Corvallis UGB	OR 99W	Developer
	New roadway extension; construct West Elliot Circle Extension, west of OR 99W, to collector standard between OR 99W and the north Corvallis UGB, project has potential impacts to or may be constrained by environmental resources				
CC-70	New N-S 2 Collector parallel to, and east of, Highland Drive	\$16,620,000.00	New E-W Collector (M58 Corvallis ID)	Frazier Creek Drive Ext.	Developer
	New roadway extension; construct a new N-S roadway parallel to, and east of, Highland Drive to collector standard between Frazier Creek Extension and new E-W Collector from Highland Drive to Lester Ave Extension (M58 in Corvallis TSP), project has potential impacts to or may be constrained by environmental resources				
CC-71	Frazier Creek Drive Extension	\$26,025,000.00	West Elliot Circle Extension	Crescent Valley Drive	Developer
	New roadway extension; construct Frazier Creek Drive Extension to collector standards between Crescent Valley Drive and West Elliot Circle Extension, project has potential impacts to or may be constrained by environmental resources				
CC-72	Lester Ave Extension	\$15,650,000.00	OR 99W	Highland Drive	Developer
	New roadway extension; construct Lester Ave Extension to collector standard between Highland Drive and OR 99W, project has potential impacts to or may be constrained by environmental resources				
CC-73	New E-W 1 Collector from Highland Drive to Lester Ave Extension	\$7,145,000.00	Lester Ave Ext.	Highland Drive	Developer
	New roadway extension; construct new collector between Highland Drive and Lester Ave Extension, project has potential impacts to or may be constrained by environmental resources				
CC-76	Lewisburg Ave Modernization	\$15,390,000.00	West UGB	OR 99W	County
	Upgrade to cross-section standard along Lewisburg Ave between OR 99W and west UGB, project has potential impacts to or may be constrained by environmental resources				
CC-77	Highland Drive Modernization	\$16,950,000.00	Lewisburg Road	Angelica Drive	County
	Upgrade to cross-section standard between Angelica Drive and Lewisburg Road, project has potential impacts to or may be constrained by environmental resources				
CC-79	Raider Way Extension	\$8,690,000.00	Crescent Valley Drive	Kings Boulevard Ext.	Developer
	New roadway extension; construct Raider Way Extension to collector standard between Crescent Valley Drive and Kings Boulevard Extension and construct frontage improvements on the existing portion of Raider Way, project has potential impacts to or may be constrained by environmental resources				
CC-80	Shasta Drive Extension	\$4,020,000.00	Shasta Drive	Frazier Creek Drive Ext.	Developer
	New roadway extension; construct Shasta Drive Extension to neighborhood collector standard between Frazier Creek Drive Extension to existing stub and construct frontage improvements on the existing portion of Shasta Drive				
CC-81	New N-S 9 Collector north of Lester Ave Extension	\$5,785,000.00	New N-S Collector (M58 Corvallis ID)	Lester Ave	Developer
	New roadway extension; construct new collector between Lester Ave Extension and New E-W Collector from Highland Drive to Lester Ave Extension (M58, Corvallis ID), project has potential impacts to or may be constrained by environmental resources				
CC-84	Crescent Valley Drive Modernization	\$17,820,000.00	Highland Drive	Lewisburg Road	County
	Upgrade to cross-section standard along Crescent Valley Drive between Lewisburg Drive and Highland Drive, project has potential impacts to or may be constrained by environmental resources				

Project ID	Project Name	Cost	From	To	Agency
CC-85	Lester Ave Modernization	\$5,850,000.00	Highland Drive	Kings Boulevard Ext.	County
	Upgrade to cross-section standard along Lester Ave between Kings Boulevard Extension and Highland Drive, project has potential impacts to or may be constrained by environmental resources				
CC-87	Crescent Valley Drive/Highland Drive Intersection Improvement	\$2,395,000.00	-	-	Developer
	Intersection improvements (capacity); options may include installing a roundabout or traffic signal, when warranted, project has potential impacts to or may be constrained by environmental resources				
CC-88	Satinwood Street Ext./Lester Ave Ext. Intersection Improvement	\$2,395,000.00	-	-	Developer
	Intersection improvements (capacity); options may include constructing a roundabout or traffic signal, when needed, project has potential impacts to or may be constrained by environmental resources				
CC-89	Frazier Creek Drive/Crescent Valley Drive Intersection Improvement	\$2,395,000.00	-	-	Developer
	Intersection improvements (capacity); options may include constructing a roundabout or traffic signal, when needed, project has potential impacts to or may be constrained by environmental resources				
CC-91	Highland Drive/Lester Ave Intersection Improvement	\$5,325,000.00	-	-	Developer
	Intersection improvements (capacity); options may include constructing a roundabout or traffic signal, when needed, project has potential impacts to or may be constrained by environmental resources				
CC-92	Highland Drive/Frazier Creek Intersection Improvement	\$5,325,000.00	-	-	Developer
	Intersection improvements (capacity); options may include constructing a roundabout or traffic signal, when needed, project has potential impacts to or may be constrained by environmental resources				
CC-93	Lewisburg/West Elliot Circle Intersection Improvement	\$360,000.00	-	-	Developer
	Intersection improvements (capacity); options may include installing traffic signal or roundabout, when warranted, project has potential impacts to or may be constrained by environmental resources				
CC-95	Elliot Circle/Frazier Creek Intersection Improvement	\$2,395,000.00	-	-	Developer
	Intersection improvements (capacity); options may include constructing a roundabout or traffic signal, when needed, if feasible				
CC-131	US 20 Corridor (Corvallis to Albany) Improvement Study	\$250,000.00	-	-	ODOT
	Study; US 20 has known safety, access and congestion issues, the purpose of this study is to evaluate alternatives to mitigate those issues after the funded safety improvements are in place				
CC-135	OR 99W Widening (North Corvallis)	\$8,800,000.00	Walnut Boulevard	Willamette and Pacific Railroad Crossing	ODOT
	Widening; project may widen OR 99W from Willamette and Pacific Railroad Crossing through Walnut Boulevard from 2 to 4 lanes, (Partially Complete)				
S-147	Granger Avenue Widening	\$3,600,000.00	US 20	Pettibone Road	County
	Widening; project may include shoulder widening provide bicycle access between routes serving the Lewisburg/ Crescent Valley area with bike lanes on US 20 to North Albany and Albany, these improvements should serve local pedestrian access as well as bicyclists				
S-163	OR 99W Widening (north)	\$16,950,000.00	NW Elks Dr	Arnold Ave	ODOT
	Project may including widening shoulders to cross-section standard 8', portions of this segment meet the 8' standard				
S-166	Granger Ave Safety Improvements	\$30,000.00	-	-	County
	Safety improvement; project mitigates high rate of crashes and may install curve warning signs such as chevrons				

Project ID	Project Name	Cost	From	To	Agency
S-211	US 20 Childrens Farm Home Two Way Left Turn Lane	\$850,000.00	-	-	County/STIP
	Safety improvement; project may construct a two way left turn lane to improve safety and accessibility				
S-237	Pettibone Dr Safety Improvements	320,000.00	Granger Ave	Independence Hwy	County
	Safety Improvements; project may include treatments for roadway departure related crashes such as improved signing, delineator posts and/or rumble strips				
T-190	Corvallis Albany Special Transportation Fund Service	\$55,000.00	Corvallis	Albany	Corvallis/Albany Transit
	Expand present Corvallis-Albany demand response service from three days per week to five days per week service, for improved access to services for the senior and disabled population of this area,				
T-191	OR 99W North - Phase 1	\$100,000.00	Corvallis	Monmouth	County/SAMTD
	Based on results of the corridor evaluation and service development plan, implement regional public transit bus service on OR 99W between Corvallis and Monmouth, This may be a contracted service with regional transit providers or a private firm,				
T-192	99 Express Expansion	\$85,000.00	Corvallis	Adair Village	County
	Expanded evening and weekend 99 Express service to Adair Village to supplement service to a growing community				

Figure 27. Benton County Transportation Projects, South Corvallis-Philomath, Sub-Area 4



Legend

- S-00 - Safety Project
- AT-00 - Active Transportation Project
- CC-00 - Connectivity/Congestion Project
- T-00 - Transit Project
- - Principal Arterial
- - Collector
- - Local Roadway
- +— - Railroad
- - River
- - Park
- - Airport
- - Urban Growth Boundary
- ⊞ - City Limits

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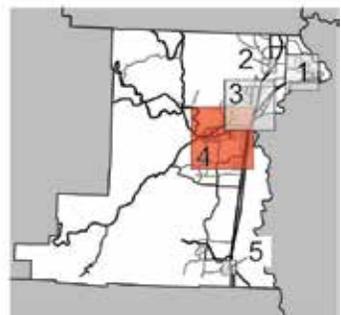


Table 13. Benton County Transportation Projects, South Corvallis-Philomath, Sub-Area 4

Project ID	Project Name	Cost	From	To	Agency
AT-04	19th Street Shared-use Path	\$5,090,000.00	US20/OR34	Reservoir Ave	County
	Project may construct new shared-use path along east side of N 19th and West Hills Rd to the intersection with Reservoir				
AT-05	Chapel Drive Shared-use Path	\$5,025,000.00	13th	Bellfountain	County
	Project may construct new shared-use Path between 13th and Bellfountain Rd				
AT-06	Bellfountain Road Shared-use Path	\$575,000.00	Chapel Drive	Plymouth	County
	New shared-use Path between Chapel Drive and Plymouth Dr				
AT-13	N 9th Street Hill Improvements	\$75,000.00	Main St	West Hills	County
	Safety improvement; project may include safety devices to warn motorists of bicyclists and pedestrians in the roadway				
AT-48	Philomath Boulevard (US 20/OR 34)	\$135,000.00	Technology Loop	53rd Street	ODOT
	Add sidewalk on Philomath Boulevard (US 20/OR 34) between 53rd Street and Technology Loop on north side to provide access to transit stops				
AT-61	Bald Hill Farm Trail	\$30,000.00	-	-	County
	Build 1/2-mile section of trail on Bald Hill Farm to replace an existing public trail that resides on a private road on the farm				
AT-149	Country Club Drive Biking Improvements	\$1,300,000.00	Barley Hill Drive	US 20	County
	Bike Lanes; project may complete bike lanes on the west end of Country Club Drive, a parallel shared-use path exists and will continue to provide for the needs of walkers, it is anticipated that this link will be completed in conjunction with development after this area is annexed into Corvallis				
AT-232	Oak Creek Drive Signing Improvements	50,000.00	53rd ST	Cardwell Hill Rd	County
	Safety improvement; project may add additional warning signs to improve safety for active transportation users				
AT-234	South Corvallis Shared-use Path	\$2,614,000.00	Marys River	Airport Ave	ODOT
	Shared-use path; project may construct shared-use path between Marys River and Airport Avenue parallel to the railroad line in southeast Corvallis, the preferred alignment should be on top of the planned sewer line easement that's being acquired east of the track with development, coordinate with project PB25 and PB26 (Corvallis ID), to connect to the Corvallis-Philomath shared-use path, extend the path east along the south side of Marys River to the existing pedestrian and bicycle crossing at the SE 3rd Street bridge				
CC-03	Airport Avenue Modernization	\$2,150,000.00	West Corvallis UGB	OR 99W	County
	Project may upgrade road to cross-section standard per Corvallis TSP				
CC-07	13th Street Modernization	\$4,200,000.00	Chapel Drive	Main Street	County
	Project may upgrade road to cross-section standard per Philomath TSP before designation as a County Freight Route				
CC-08	Extend Clemens Mill to West Hills	\$20,265,000.00	Terminus	West Hills	Developer/County
	New road; should be implemented in conjunction with future development				
CC-09	US20/OR34 Freight Traffic Intersection Improvement	\$205,000.00	-	-	ODOT
	Intersection Improvement; project may include freight traffic signal priority US 20/OR 34 & 19th St and US 20/OR 34 & 13th St				
CC-11	US 20/OR 34 Widening	\$43,980,000.00	Green St	69th	ODOT
	Widening; project may widen to 4 lanes				
CC-12	US 20 / OR 34 & 19th St Intersection Improvement	\$695,000.00	-	-	ODOT
	Intersection improvement; project may include re-grading to remove vertical crest issue				
CC-14	N 9th Street Modernization	\$8,655,000.00	US20/OR34	West Hills Rd	Developer/County
	Project may upgrade to cross-section standard per Philomath TSP				

Project ID	Project Name	Cost	From	To	Agency
CC-15	West Hills Road Modernization	\$6,005,000.00	N 9th St	Reservoir Ave	County
	Project may upgrade to cross-section standard per Philomath TSP				
CC-16	N 19th Street Modernization	\$20,260,000.00	US20/OR34	West Hills Rd	Developer
	Project may upgrade to cross-section standard with sidewalk on west side and bike lanes to both sides per Philomath TSP				
CC-46	US 20/OR 34 Corridor Optimization	\$910,000.00	69th Street	OR 34/OR 99W Interchange	ODOT
	Implement strategies identified in the US 20/OR 34 Optimization Study (2015); options may include 1) Adaptive Signal Timing, 2) Freight Signal Priority, and/or 3) Arterial Performance Measurement and Real-Time Equipment Monitoring - at 5 signalized intersections and 1 mid-block locations to collect arterial performance measures, including traffic volumes, travel speeds, travel times, vehicle classifications, vehicle occupancy, pedestrian and bicycle volumes, and delay for vehicles, pedestrians and bicyclists, coordinate with Project A25 (Corvallis TSP ID), project is subject to ODOT approval project has potential impacts to or may be constrained by environmental resources				
CC-49	OR 99W/US 20/OR 34 Ramps	\$24,220,000.00	-	-	ODOT
	New off-ramp; options may include providing an eastbound off ramp between eastbound US 20/OR 34 to eastbound OR 99W and a eastbound off ramp between eastbound OR 99W to eastbound US 20/OR 34 project is subject to ODOT approval project has potential impacts to or may be constrained by environmental resources				
CC-50	US 20/OR 34 Capacity Enhancements	\$37,955,000.00	OR 34/OR 99W Interchange	West Corvallis UGB	ODOT
	Capacity enhancements for the US 20/OR 34 corridor from OR 99W to the western Corvallis UGB options may include; 1) Widening US 20/OR 34 to 4-5 lanes, 2) add turn lanes and traffic signal modifications at the intersections, 3) consolidate and realign the US 20/OR 34/Western Boulevard intersections to form a single T-intersection including an eastbound left turn lane and may include constructing a traffic signal or roundabout with bypass lanes, and 4) access management improvements coordinate with Project A3 (Corvallis TSP ID) project is subject to ODOT approval project has potential impacts to or may be constrained by environmental resources				
CC-52	53rd Street/US 20/OR 34	\$3,160,000.00	-	-	ODOT
	Intersection improvements (capacity and safety); options may include constructing a eastbound right turn lane, extending the westbound right turn lane, constructing a second westbound through lane, and constructing a second eastbound through lane, this project should be coordinated with the 53rd Street and US 20/OR 34 corridor widening projects (M10 and A25 in Corvallis TSP), project is subject to ODOT approval, project has potential impacts to or may be constrained by environmental resources				
CC-54	OR 99W/Airport Ave Traffic Control	\$5,325,000.00	-	-	ODOT
	Intersection improvements (capacity); options may include constructing a roundabout or traffic signal, when warranted, before a signal can be installed, an engineering investigation must be conducted or reviewed by the Region Traffic Engineer who will forward intersection traffic control recommendations to ODOT headquarters traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway				
CC-57	OR 34/Bypass Interchange	\$76,630,000.00	-	-	ODOT
	Intersection improvement (capacity); OR 34/Bypass Interchange Improvements may include constructing a westbound left-turn flyover ramp, project is subject to ODOT approval				
CC-58	OR 34 Overpass (OR 99W) Clearance	\$63,055,000.00	-	-	ODOT
	Corridor (capacity); improve to meet vertical clearance requirements, the vertical clearance for northbound and eastbound OR 99W at the OR 34 overpass is one to two feet below the design standard, project is subject to ODOT approval, project has potential impacts to or may be constrained by environmental resources				
CC-60	West Hills Road Modernization	\$20,705,000.00	Reservoir Road	Western Boulevard	County
	Upgrade to cross-section standards along West Hills Road between Western Boulevard and Reservoir Ave, improvements may also include supplemental safety improvements to address potential sight distance limitations related to horizontal and vertical alignment (west of Grand Oaks), project has potential impacts to or may be constrained by environmental resources				
CC-62	Herbert Ave Extension	\$7,145,000.00	East Corvallis UGB	OR 99W	Developer
	New roadway extension; construct Herbert Ave Extension to collector standard between OR 99W and East UGB, project has potential impacts to or may be constrained by environmental resources				

Project ID	Project Name	Cost	From	To	Agency
CC-69	Harrison Boulevard Modernization	\$10,330,000.00	36th Street	53rd Street	Developer
	Upgrade to cross-section standard between 36th Street and 53rd Street including bike lanes, coordinate with Project P27 (Corvallis TSP ID), project has potential impacts to or may be constrained by environmental resources, the City of Corvallis Parks Master Plan includes a shared-use path on the north side of this segment				
CC-74	53rd Street Railroad Crossing	\$7,000,000.00	-	-	County
	Capacity and safety improvements, options include reconstructing the crossing and roadway realignment, project has potential impacts to or may be constrained by environmental resources				
CC-75	Crystal Lake Drive Extension	\$3,005,000.00	Goodnight Ave	Park Ave	Developer
	New roadway extension; extend Crystal Lake from Park Ave to Goodnight Ave and construct to neighborhood collector standard				
CC-78	53rd Street (south) Modernization	\$6,580,000.00	Nash Ave	Country Club Drive	County
	Upgrade to cross-section standard along 53rd Street between Country Club Drive and Nash Ave				
CC-82	Airport Ave Extension	\$3,230,000.00	New N-S Collector (M98 Corvallis ID)	OR 99W	Developer
	New roadway extension; construct Airport Ave Extension to collector standard between OR 99W and New N-S Collector between Rivergreen Ave and Airport Ave Extension (M98 Corvallis ID), coordinate with Project A13 (Corvallis ID)				
CC-83	New Roadway Kiger Island from OR 99W to West Corvallis UGB	\$15,820,000.00	West Corvallis UGB	OR 99W	Developer
	New roadway extension; construct Kiger Island Extension to collector standard between OR 99W and west Corvallis UGB				
CC-86	53rd Street (north) Modernization	\$27,350,000.00	Harrison Boulevard	US 20-OR 34	County
	Upgrade to cross-section standard along 53rd Street between Harrison Boulevard and US 20-OR 34, consistent with the 5-lane cross-section identified in the West Corvallis - North Philomath Plan, project has potential impacts to or may be constrained by environmental resources				
CC-90	Reservoir Ave/53rd Street Intersection Improvement	\$5,655,000.00	-	-	Developer
	Intersections improvements (capacity and safety); options may include constructing a roundabout or traffic signal, project has potential impacts to or may be constrained by environmental resources				
CC-94	53rd Street/Country Club Intersection Improvement	\$2,745,000.00	-	-	County
	Intersection improvement (capacity); options may include constructing a roundabout or traffic signal in conjunction with development				
CC-109	US20/OR34-Alesea Highway Intersection Improvement	\$475,000.00	-	-	ODOT
	Intersection improvement, project may include traffic signal or roundabout, if feasible, when warranted				
CC-112	Chapel Dr Modernization	\$2,140,000.00	13th St	19th Street	County
	Urban upgrade; project may include upgrade to cross-section standards before designation as a County Freight Route				
CC-113	Crystal Lake Drive Modernization	\$6,055,000.00	Park Ave	Alexander Ave	County
	Urban upgrade; project may include upgrade to cross-section standards along Crystal Lake Drive between Alexander Ave and Park Ave				
CC-114	OR 99W/Kiger Island Drive Intersection Improvement	\$5,325,000.00	-	-	ODOT
	Intersection improvements (capacity); options may include constructing roundabout or traffic signal, when warranted, before a signal can be installed, an engineering investigation must be conducted or reviewed by the Region Traffic Engineer who will forward intersection traffic control recommendations to ODOT headquarters, traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway				

Project ID	Project Name	Cost	From	To	Agency
CC-136	OR 99W Widening (South Corvallis)	\$12,050,000.00	Rivergreen Avenue	Airport Avenue	ODOT
	Widening; project may widen OR 99W between Rivergreen Avenue and Airport Avenue from 2 to 4 lanes				
CC-137	West Hills Road/Reservoir Road Intersection Improvements	\$850,000.00	-	-	County
	Intersection improvement; project may construct a traffic signal or roundabout, if feasible, when warranted				
CC-142	Airport Avenue Widening	\$2,150,000.00	West Corvallis UGB	Start of southbound segment	County
	Widening; project may improve to cross-section standard				
CC-216	Campus Way Covered Bridge	Funded	-	-	County/STIP
	Preservation that includes re-roofing, re-painting and installation of a fire suppression system				
S-17	S 19th Street Safety Improvements	\$10,000.00	-	-	County
	Safety improvements for pedestrians (especially children), project may include raised crosswalks at Applegate and the crossing near Clemens School				
S-21	Chapel Drive/Bellfountain Road Intersection Improvements	\$5,000.00	-	-	County
	Intersection improvement; project may include rumble strips on Chapel Dr				
S-24	Bellfountain Road/Airport Avenue Intersection Improvements	\$5,400,000.00	Chapel	Greenberry	County
	Intersection improvement; project may include roundabout or signal, if warranted				
S-56	Country Club Drive/69th Street/US 20/OR 34	\$5,680,000.00	-	-	ODOT
	Intersection Improvements (safety); improvements needed to mitigate complex intersection and poor street alignments, improvements may include realignments of Country Club Drive and 69th Street and constructing a roundabout, project is subject to ODOT approval				
S-134	US 20 Continuous Left Turn Lane	\$7,900,000.00	Highway 34	Woods Creek Road	ODOT
	Access improvement; project may construct continuous left turn lane on US 20 from Highway 34 to Woods Creek Road (Lincoln County Line) to improve safety and access				
S-143	Grange Hall Road/Fern Road Intersection Improvements	\$200,000.00	-	-	County
	Intersection improvement; project may include advance beacons, signing, and striping				
S-169	Fern Road Widening	\$8,500,000.00	Llewellyn Road	Chapel	County
	Widening; project may widen shoulder to cross-section standard, this project improves safety for drivers and active transportation users				
S-238	Grange Hall Rd Safety Improvements	\$320,000.00	OR 34	Fern Rd	County
	Safety Improvements; project may include treatments for roadway departure related crashes such as improved signing, delineator posts and/or rumble strips				
S-239	Airport Ave Safety Improvements	320,000.00	MP 3.07	MP 3.76	County
	Safety Improvements; project may include treatments for roadway departure related crashes such as improved signing, delineator posts and/or rumble strips				
S-240	Plymouth Dr Safety Improvements	\$320,000.00	Bellfountain Rd	53rd Street	County
	Safety Improvements; project may include treatments for roadway departure related crashes such as improved signing, delineator posts and/or rumble strips				

Figure 28. Benton County Transportation Projects, Monroe, Sub-Area 5



Data: State of Oregon and Oregon Department of Transportation (2015); Benton County GIS (2017)

Legend

- S-00 - Safety Project
- AT-00 - Active Transportation Project
- CC-00 - Connectivity/Congestion Project
- T-00 - Transit Project
- - Principal Arterial
- - Collector
- - Local Roadway
- ++ - Railroad
- - River
- - Park
- - Airport
- - Urban Growth Boundary
- ⊞ - City Limits

BENTON COUNTY
TRANSPORTATION SYSTEM PLAN



Table 14. Benton County Transportation Projects, Monroe, Sub-Area 5

Project ID	Project Name	Cost	From	To	Agency
AT-120	OR 99W Alpine Cut-off to Kelly Street Shared-Use Path	\$450,000.00	Alpine Cut-off	Kelly Street	ODOT
	Shared-use path upgrade; add improved path surface and drainage; add bollards, where feasible, marked crosswalks recommended at major cross street intersections				
AT-122	Monroe Cross Country Shared-Use Path	\$1,250,000.00	Monroe Library	Alpine Cut-off Road	Monroe/County
	Shared-use path; project may begin at Monroe Library and follow the Airport to Alpine Shared-use path pathway south to Main Street (or Commercial Street), turning west up through the Reservoir Heights Park to Shady Oak Drive/ Orchard Street to the Alpine Cutoff Road/Bailey Branch access point, An alternative route could connect Shady Oak/ Fairwood Drive with the Cemetery Road and the Airport to Alpine Shared-use Path, Way finding signage is also recommended				
AT-125	Orchard Street/6th Street Intersection Improvements	\$50,000.00	-	-	County
	Intersection improvement; project may include new striping, pedestrian and bicycle yield signage, and Rectangular Rapid Flashing Beacons (RRFBs)				
AT-177	Orchard Street Modernization	\$650,000.00	S 11th St	OR 99W	County
	Urban Upgrade; project may upgrade to cross-section standards including sidewalk on north and south side and bike lanes				
CC-138	OR 99W/Orchard Street Intersection Improvements	\$850,000.00	-	-	ODOT
	Intersection improvement; project may construct a traffic signal or roundabout, if feasible, when warranted				
CC-243	Riverside District Master Plan	\$140,000.00	Monroe Cemetery Rd	Territorial Hwy	ODOT
	Study; the plan will integrate land uses (commercial, industrial, public, parks, residential), transition the areas connectivity towards human-scale transportation options, enhance and protect riparian and aquatic ecosystems, and develop place-making strategies.				
S-150	OR 99W Widening (Dawson to Monroe Cemetery Rd)	\$3,000,000.00	Dawson Road	Monroe Cemetery Rd	ODOT
	Widening; project may widen shoulders to provide safety for drivers and active transportation users				
S-242	OR 99W Widening (Territorial Hwy to Lane Co)	\$10,100,000.00	Territorial Hwy	Lane County Line	ODOT
	Widening; project may widen shoulders to provide safety for drivers and active transportation users, this project may include widening the bridge over the Long Tom River				

Table 15. Benton County Transportation Projects, Transit Projects

Project ID	Project Name	From	To	Annual Cost	Agency
T-188	Transit marketing	Countywide	-	\$30,000.00	County
	Market public transportation services to improve access for all riders				
T-189	99W South - Phase 1	Corvallis	Eugene	\$100,000.00	County/LTD
	In conjunction with ODOT public Transit and LTD, conduct a corridor evaluation and service development plan for regional public transit bus service on OR 99W between Corvallis and Eugene, with stops in Monroe; Junction City; and Eugene Airport				
T-190	Corvallis-Albany Special Transportation Fund Service	Corvallis	Albany	\$55,000.00	Corvallis/Albany Transit
	Expand present Corvallis-Albany demand response service from three days per week to five days per week service, for improved access to services for the senior and disabled population of this area				
T-191	99W North - Phase 1	Corvallis	Monmouth	\$100,000.00	County/SAMTD
	Based on results of the corridor evaluation and service development plan, implement regional public transit bus service on OR 99W between Corvallis and Monmouth. This may be a contracted service with regional transit providers or a private firm				
T-192	99 Express Expansion	Corvallis	Adair Village	\$85,000.00	County
	Expanded evening and weekend 99 Express service to Adair Village to supplement service to a growing community				
T-193	Demand Response Phase 1	Countywide	-	\$130,000.00	County
	Expand demand response transit to increase capacity for a growing older adult population and persons with disabilities				
T-194	Demand Response Phase 3	Wren, Blodgett, Burnt Woods, Kings Valley	-	\$105,000.00	County
	Expand demand response transit services to Wren, Blodgett, Burnt Woods, and the Kings Valley communities, for improved access to services for the senior and disabled population of these communities				
T-195	Linn-Benton Loop Phase 1	Corvallis/Albany	-	\$155,000.00	County/Linn County
	Reassess LB Loop service needs, routes & schedule & implement improved general public corridor transit service between North Albany and Corvallis, for traffic congestion relief, safety, and economic development				
T-196	Coast to Valley Expansion	Newport	Albany	\$70,000.00	County/Lincoln County
	Review existing Coast to Valley Express schedule for potential of adjusting times to better match connections to HUT and Oregon Express shuttles; Amtrak; and Bolt Bus. Add bus and additional daily trips as demand warrants				
T-197	Reduced fare program	Countywide	-	\$47,000.00	County
	Encourage discounted fares and other strategies to address the cost of transit for low income individuals				
T-198	Corvallis-Amtrak Connector	Corvallis/Albany	-	\$140,000.00	County
	Establish permanent funding for the Amtrak Connector pilot. Expand to seven days per week; conduct public outreach & service needs assessment; add second bus and driver; modify route to better serve north and south Corvallis; this may include incorporating the Amtrak Connector into another transit service				
T-199	Vehicle Asset Management	Countywide	-	\$240,000.00	County
	Replace two aged cutaway fleet vehicles per year. Maintain existing vehicles in a state of good repair through maintenance and scheduled regular replacements				
T-201	Bus Stop Projects	Countywide	-	\$125,000.00	County
	Complete planned bus stop projects as developed in the ODOT-led NW Connector Transit Access Bus Stops & Amenities project report				
T-202	99W South - Phase 2	Corvallis	Eugene	\$200,000.00	County
	Based on results of the corridor evaluation and service development plan, implement regional public transit bus service on OR 99W between Corvallis and Eugene, with stops in Monroe; Junction City; and Eugene Airport. This may be a contracted service with regional transit providers or a private firm				

Project ID	Project Name	From	To	Annual Cost	Agency
T-203	99W North - Phase 2	Corvallis	Monmouth	\$175,000.00	County
	Based on results of the corridor evaluation and service development plan, implement regional public transit bus service on OR 99W between Corvallis and Monmouth. This may be a contracted service with regional transit providers or a private firm				
T-204	Demand Response Phase 4	Alsea River Valley, Bellfountain, South Benton County	-	\$105,000.00	County
	Expand demand response transit services to the Alsea River Valley corridor, Bellfountain, and the South Benton County communities, for improved access to services for the senior and disabled population of these communities				
T-205	Linn-Benton Loop Phase 2	Corvallis	Albany	\$145,000.00	County
	Support service improvements and expansions for the Linn-Benton Loop service along the Highway 34 Corridor and other routes as identified in the Service Development Plan				
T-206	Public Transit Partnerships	Countywide	-	\$80,000.00	County
	Explore opportunities to partner with regional parks and open space to utilize public transportation for enhanced access to public resources for low income and minority residents				
T-207	Plan Monitoring	Countywide	-	\$5,000.00	County
	Establish mechanisms for routine monitoring of Plan implementation and for coordination with other land use and transportation planning occurring in the County and region				
T-208	Demand Response Phase 2	Countywide	-	\$100,000.00	County
	Conduct an assessment of demand response service needs in under-served rural areas of Benton County, including the Alsea Valley corridor, South Benton County areas, Kings Valley, and the eastern County communities. Determine specific service needs (i.e. shopper shuttle, medical rides, etc.) and optimal days/hours of operation				

Other Modes

AIR SYSTEM IMPROVEMENTS

The 2013 Corvallis Airport Master Plan refines the aviation element of the Transportation Plan. The plan covers existing conditions, future forecast, and an alternatives analysis to develop recommendations for the future growth and development of the airport. The Corvallis Municipal Airport is publicly owned, and is classified as an Urban General Aviation Airport in Oregon. The airport has two runways and is adjacent to the Airport Industrial Park.

The Master Plan included the following general recommendations for the Corvallis Municipal Airport:

- Airport runway extension and strength improvement (pavement overlay) – when justified by frequent activity
- Property acquisition for runway protection zones and obstacle free zones
- Upgrade instruments for approaches to runway and visual navigation aids

- Taxiway edge lighting and airfield signage
- Perimeter security fence
- Additional hangar space and associated taxi lanes
- Continue to rehabilitate and maintain the WWII era hangar
- Change hangar access and separate vehicles from aircraft operational areas
- Consider the addition of a terminal building with services, such as flight planning, pilot lounge, restrooms and showers, administrative offices, and restaurants
- Apron area for air cargo transfer

Recommended County projects to improve accessibility to the Corvallis Municipal Airport include upgrades to Airport Avenue (CC-03 and CC-142), Bellfountain Road (CC-155) and OR 99W (CC-54 and CC-136). The improved freight mobility that accompanies these upgrades will encourage economic growth and increased commercial traffic at the airport.

CHAPTER 6

Improved Transportation System



As Benton County implements the TSP projects, residents will enjoy a safer, more balanced multimodal transportation network. This chapter describes outcomes that could be achieved by 2040.

Intersection Operations

Projects to improve congestion at study intersections were identified. With the improvements in place, all but six studied intersections (all on State highways) would meet mobility targets in 2040. However, the level of congestion experienced at these six intersections would be significantly improved. At these locations,

Benton County will work with ODOT to explore the possibility of adopting alternative mobility targets that set more realistic expectations for what can be achieved with anticipated resources. Table 16 lists the intersections anticipated to fail to meet mobility targets by 2040 and the recommended projects from this plan to help mitigate congestion.

Table 16. Congested Intersections in 2040 with Planned Improvements

Intersection ID	Intersection Name	Mobility Target ¹ (V/C)	Description of Improvements		
			2040 No Build V/C	2040 Build V/C	Project Description
4	OR 99W & Ryals Ave	0.70	>2.0	0.80	(CC-117) Signalize intersection. This intersection fails ODOT mobility targets with future growth in the City of Adair Village.
14	US 20 & Springhill Dr	0.95	1.21	1.00	(S-30) Coordinate with signal at North Albany Road, convert existing southbound right turn lane to shared right/left. The eastbound volume at this intersection exceeds capacity. Additional lanes on US 20 are needed.
16	US 20 & Scenic Dr	0.95	>2.0	>2.0	(CC-29) Widen US 20 from 2 to 4 lanes and add southbound left turn lane. Southbound left turning drivers have less delays but v/c ratios still exceed mobility targets. The volume using this movement low and an alternate route is available.
17	US 20 & Independence Hwy	0.70 [0.75]	>2.0	0.91	(CC-129) Add southbound left acceleration lane. High east/west through volumes create significant delays for turning movements.
18	US 20 & Granger Ave/ Autumn Seed Drwy	0.70 [0.75]	>2.0	1.04	(CC-128) Add southbound left acceleration lane. High east/west through volumes create significant delays for turning movements.
20	US 20-OR 34 & 53rd St	0.85	1.02	0.89	(CC-52) Add southbound right turn lane, lengthen the westbound right turn lane and additional east and westbound through lanes.

¹ Mobility Targets pertain to the intersection for signalized control and to Major [Minor] street approaches for two-way stop control. V/C is shown at the intersection level for signalized control and the worst movement for two-way stop control.

Safety

Between 2011 and 2015 there were an average of 175 crashes per year in Benton County. Most of these crashes occurred on 29 intersections and roadway segments identified in the existing conditions safety analysis (see Benton County Today & Tomorrow in this document and Memorandum #4 in Volume 2).



This TSP includes 32 projects targeted at mitigating identified safety issues. These include several projects to widen roadway shoulders and install warning devices to reduce roadway departure crashes. Other projects improve the safety of intersections through warning signing and upgrading traffic control (i.e., installation of roundabouts or traffic signals). While not described as “safety” projects, active transportation projects that create walking and biking facilities separated from the roadway (i.e., shared-use paths) will improve safety by eliminating many direct conflicts between motor vehicles and vulnerable users. Altogether, these projects contribute to a safer future for people walking, biking, and driving in Benton County.

Active Transportation

With the recommended active transportation improvement projects in place, the safety of walking and biking along major travel corridors in the county will be significantly improved and connections will be established between rural communities and the urban centers. As a result, more inviting recreational opportunities will be provided, access to existing and future transit services will be enhanced, and non-motorized travel options for trips to work, schools, and daily activities will be better supported. Key connections include:

- Adair Village to North Albany: Connection through Ryals Avenue widening (S-185), funded bike lane project on Metge Avenue (AT-209), Independence Highway widening (CC-221), Gibson Hill Road urbanization (CC-31) and the Corvallis-Albany shared-use path (AT-162).
- Adair Village to Corvallis: Connection along OR 99W shared-use path (AT-108, AT-235, AT-236) and OR 99W shoulder widening (S-163).
- Alsea to Philomath: Connection through OR 34 shared-use path (AT-152) and OR 34 widening (S-183).
- Alpine to Monroe: Connection through Alpine Road shoulder widening (S-160) and Airport to Alpine Shared-use Path (AT-200).
- Alpine to Bellfountain: Connection through Bellfountain Road shared-use path (AT-233).
- Corvallis to Albany: Connection through the Corvallis-Albany shared-use path (AT-162).
- Monroe to Corvallis: Connection through Airport to Alpine Shared-use Path (AT-200).
- Blodgett to Philomath: Connection through US 20 shoulder widening (S-161).

Public Transportation

Public Transportation in Benton County will help create a safe, equitable, and efficient component of the transportation system that supports healthy lifestyles, environmental health, and economic development by connecting people with where they want to go.

The public transportation recommendations address the needs for improved connections with rural areas; expanded demand response service; transit service on OR 99W between Eugene and Monmouth; and expanded service between Corvallis and Albany. Specific strategies are summarized below.

IMPROVED CONNECTIONS TO RURAL COMMUNITIES

- Conduct a needs assessment for Rural communities like Wren, Alsea, Bellfountain, and Kings Valley that have limited or no public transportation options.

A needs assessment for these corridors will help determine what level of fixed rural or demand response transit service will be most effective. For example, a rural shopper shuttle could provide one to two days of transit service weekly, up to three times per day, and connect people in rural communities to Corvallis and Philomath. The service design can include a consolidated stop in each community, or pick up and drop off riders close to the destinations, based on the time available and local needs.

- Consider adding daily runs for the Coast to Valley Express which connects Newport and rural communities on US 20 with Corvallis and Albany.

This will support long-distance connections between Lincoln and Benton Counties. Acquisition of a bicycle trailer to accommodate larger groups of biking travelers to the coast is one possible option to expand market access.

IMPROVED ON-DEMAND TRANSIT SERVICES

Benton County's demand response transit system supports a wide range of travel needs for some of the County's most transportation-disadvantaged residents. The ADA-accessible vehicles are aging out and need replacement. The system will need continuous improvements and capacity expansion as the older adult population continues to grow and demand for transportation increases. Maintaining capacity for regional demand response transit is a top priority for Benton County.

SERVICE ON HIGHWAY OR 99W

- Benton County will explore organizational partnerships to serve the 99W corridor.

Comments from residents, employees and visitors to Benton County have identified transportation needs in communities along the OR 99W corridor, from Eugene to Monmouth. Key destinations in addition to these communities would include Junction City, Monroe (which has no transit service today), Corvallis, and Adair Village. Given that areas north and south of Benton county area served by large public transit districts (Lane Transit District and Salem-Keizer Mass Transit District), Benton County will explore organizational partnerships to serve the 99W corridor.

- Consider supplemental services for connections to Eugene.

The Eugene Connector is envisioned as a deviated fixed route bus offering four round trips per day or a bus every two hours between the Corvallis and Eugene Downtown Transit Centers. Benton County may consider three or four days per week service, and/or operating only to Junction City where riders can connect to an LTD route. The service is expected to appeal to people seeking medical services, shopping and visits to family and friends. Work commutes, which require 10- to 12-hour service hours, will be considered in later phases. The communities of Monroe, Halsey, and Junction City share a transportation nexus, with convenience shopping in Junction City provided for the other two communities; an exploration of the needs of these three communities should be undertaken if a Connector service is developed.

- The 99W North service is envisioned as a deviated fixed route bus offering four round trips daily between Corvallis and Monmouth, with a stop in Adair Village.

The key markets are residents, students, and visitors traveling between Corvallis and Monmouth. This would provide connections between Oregon State University and Western Oregon University. This route would replace and expand the 99 Express service between Corvallis and Adair Village, offering four round trips daily, Monday through Friday. The service could be aligned with service to/from Eugene, as operationally possible, but will likely require an additional vehicle and operator to provide additional service.

Alternatively, Benton County may increase service to Adair Village through the **99 Express** independently from the service to Monmouth. Near-term demand in Adair Village is not expected to warrant an additional route today, but maintaining the separate service allows for more local stops without slowing the regional route.

EXPANDED SERVICE BETWEEN CORVALLIS AND ALBANY

- Increase service on the Amtrak Connector and improve service for the Linn Benton Loop.

The Benton County **Amtrak Connector** currently links Corvallis to the Albany Amtrak station. The first year of the service met expectations and the County and partners plan to continue the route. Adding three trips per off-peak days (Tuesday and Wednesday in 2018) and expanding the pick-up locations to north and south Corvallis sites will help round out the service for 7-day per week availability. Geographic expansion opportunities exist within Corvallis and other communities in the county. The Regional Coordinated Plan envisions incorporating the Amtrak Connector into an existing transit service such as the Coast to Valley Express. The Coast to Valley Express currently operates between Newport in Lincoln County and Albany in Linn County.

The **Linn Benton Loop** serves a route between Corvallis and Oregon State University, and is one of the busiest regional transit routes. Benton County is a supporter of this regional transit service, and is committed to supporting the service as it grows to keep pace with population and student enrollment growth. A short-range plan in 2018 will provide further guidance on service improvements. This TSP adopts the priorities and recommendations described in the Linn Benton Loop Service Enhancement Plan.

TRAVEL TRAINING, MARKETING AND COORDINATION

- Improve travel education and outreach and marketing activities to ensure riders and organizations are aware of the services offered.

While operations and vehicle maintenance are the main activities for the public transportation services, many activities support high quality service delivery.

Travel training includes a variety of activities to help people learn how to ride the bus, and get comfortable using it. Travel training is implemented by staff typically in a shared facility, with minimal materials or equipment. Travel training is a key way to protect capacity on the demand-response service for those who need it most, by moving passengers capable of using fixed-route systems to those services.

Marketing and communication is a key component to service delivery, to ensure riders and potential riders have access to service details, changes, and disruptions. Marketing and communication activities include but may not be limited to radio, television, print and internet advertising; social media campaigns; newsletters, websites, online trip planners, and maintaining stop and vehicle location data. Local partners such as Good Samaritan Hospital, HP, schools, local cities, Oregon State University, and major employers are important information-sharing venues. Information about programs like the “emergency ride home” can encourage many people to consider alternative transportation. Costs can include staff (marketing coordinator) time, advertising rates, and design.

Coordination helps partner organizations to operate seamless services across and between regions. This can include, but is not limited to, transit providers, counties, cities, human service organizations, non-profit organizations, state agencies, and federal agencies. The 2017 Benton County Public Transit – Human Services Coordinated Plan is an excellent planning framework for coordination.

Preparing for the Future and Smarter Mobility

Emerging transportation technologies will shape our roads, communities, and daily lives for generations. Vehicles are becoming more connected, automated, shared, and electric. This future is highly uncertain, but it may have significant impacts for how Benton County plans, designs, builds, and uses the transportation system. Below are some important definitions that provide the basis for the impacts, policies and action items discussed in the following sections.

Connected vehicles (CVs) will enable communications between vehicles, infrastructure, and other road users, see Figure 29. This means that our vehicles will be able to assist human drivers and prevent crashes while making our system operate more smoothly.

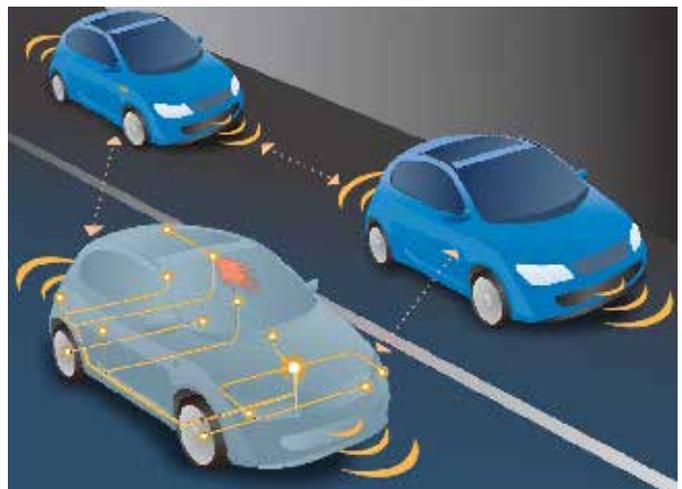
Automated vehicles (AVs) will, to varying degrees, take over driving functions and allow travelers to focus their attention on other matters. Already today we have vehicles with combined automated functions like lane keeping and adaptive cruise control. However, these still require constant driver oversight. In the future, more sophisticated sensing and programming technology will allow vehicles to operate with little to no operator oversight.

Shared vehicles (SVs) are already on the road today in Benton County that allow ride-hailing companies to offer customers access to vehicles through cell phone applications. Ride-hailing applications allow for on-demand transportation with comparable convenience to car ownership without the hassle of maintenance and parking. Ride-hailing applications can enable customers to choose whether share a trip with another person along their route or travel alone.

Electric Vehicles (EVs) have been on the road for decades and are becoming more economically feasible as the production costs of batteries decline.

Many of these vehicles will not be exclusive of the others and it is important to think of the host of implications that arise from the combination of these technologies. When discussing these vehicles, they can be referred to as connected, automated, shared, and electric (CASE) vehicles.

Figure 29. Vehicle to Vehicle Communication



IMPACTS OF CASE VEHICLES

CONGESTION AND ROAD CAPACITY

There are several competing forces that will unfold as connected, automated, and shared vehicles are deployed. It is difficult to predict how these vehicles will influence congestion and road capacity. The following factors will transform how people use County roadways:

- AVs will provide a more relaxing or productive ride experience and people will have less resistance to longer commutes.
- Shared AVs will likely cost significantly less on a per mile basis which will increase demand for travel.
- CV technology will allow vehicles to operate safely with closer following distance, less unnecessary braking, and better coordinated traffic control. This will increase road capacity in the long run as CVs and AVs comprise increasing portions of the public and private fleet of vehicles.
- In the near term, as AVs still make up a fraction of the fleet of vehicles, road capacity could decrease as AVs will operate more slowly and cautiously than regular vehicles.
- A new class of traffic – zero-occupant vehicles – will increase traffic congestion.
- Roadways may need to be redesigned or better maintained to accommodate the needs of automated driving systems. For instance, striping may need to be wider and more consistently maintained.

The following questions remain open and should be followed closely to understand the degree to which CASE vehicles will impact road capacity and congestion:

- How much will AVs cost for people to own them personally?
- How much will AVs cost if they are used as a shared fleet?
- How does cost and the improved ride experience of AVs influence travel behavior?
- How much more efficiently will AVs operate compared to regular human driven vehicles once they dominate the vehicle fleet?
- How will AVs impact road capacity in the near term as they are deployed in mixed traffic with human driven vehicles?
- What portion of traffic will be zero-occupant vehicles and what areas will likely generate the highest portion of zero-occupant vehicles looking for parking or waiting for their next passenger?

TRANSIT

Transit is expected to remain the most efficient way to move high volumes of people through constricted urban environments. AVs will not eliminate congestion and as discussed above, could exacerbate it – especially in the early phases of AV adoption. In addition, shared AVs may not serve all areas of a community and underserved communities still require access to transit to meet their daily needs.

PARKING

Because AVs will be able to park themselves, travelers will elect to get dropped off at their destination while their vehicle goes to find parking or their next passenger. Shared AVs will have an even greater impact on parking because parking next to your destination will no longer be a priority for the traveling public. This means that parking may be over-supplied in many areas and new opportunities to reconfigure land use will emerge. Outstanding questions related to parking that should be closely followed include:

- How does vehicle ownership impact parking behavior?
- What portion of the AV fleet will be shared?

PACKAGE DELIVERY

AVs will also be used to deliver packages, food, and expand services. This may mean that delivery vehicles will need to be accommodated in new portions of the right of way. Package delivery by aerial drone could introduce new sets of challenges for Benton County.

ELECTRIC VEHICLE CHARGING

To accommodate a future where electric vehicles will come to dominate the vehicle fleet, new charging capacity will be needed. In addition to charging stations, municipalities, electric utilities, regions, and states will need to work together to create enough electricity to supply the significant increase in demand.

POLICIES AND ACTION ITEMS

MOBILITY HUBS

A mobility hub is a central location that serves as a multimodal connection point for transit, car share, bike share, and ride share stations, see Figure 30. This system can serve as a tool to encourage travelers to take seamless multimodal trips that are well timed and convenient. Mobility hubs can be integrated into transit centers, park-and-ride lots and other areas needing or with access to multimodal supportive infrastructure (e.g., protected bike lanes) to maximize connectivity for first- and last-mile solutions.

It is likely that cities within Benton County will take the lead in siting and developing future mobility hubs. Benton County will coordinate with such efforts to provide access to County-provided transit services and information as feasible.

Figure 30. Mobility Hub



ROAD PLANNING AND CAPACITY

It is difficult to plan for the impacts of CASE vehicles on road capacity at this point in their development. Because there is a high potential that ultimately road capacity will increase after CASE vehicles are widely adopted along with a corresponding increase in traffic demand, we can expect that congestion will continue to persist.

However, CASE vehicles provide a much greater opportunity for effective transportation demand management solutions because the expected congestion can be used to encourage use of transit, shared vehicles, and bike share. These modes could all be encouraged through pricing mechanisms that are vastly less expensive to implement than building more road capacity. A variety of pricing mechanisms and alternatives to the State gasoline tax are enabled with CASE technology because these vehicles will be tracked geographically, and by time of day. With time/location data, transportation system operators will be able to develop pricing mechanisms that reduce congestion at a lower cost than other roadway improvements.¹ As opportunities arise, Benton County will coordinate with partnering local and regional agencies to explore options for implementation of such region-wide travel demand management strategies.

TRANSIT

To avoid potential equity and congestion issues, transit agencies need to work together to integrate the use of automated vehicles and transit. Transit needs to adapt to new competition in the transportation marketplace as well as consider adopting CASE technologies to support transit operations. The following list includes some technology options that Benton County will consider. There are other smart mobility options, not in this list, that should be explored, if appropriate.

- Partnering with ride-hailing companies to provide first and last-mile solutions.
- Working with ride-hailing companies and bike share to integrate payment platforms and enable one button purchase of a suite of transportation options for multimodal trips.
- Creating fixed route autonomous shuttles to provide first and last-mile solutions.
- Creating on-demand autonomous shuttles to provide first and last-mile solutions.

¹ Fishman, E, 2016 Road Use Pricing: Driverless cars, congestion and policy responses.

High Priority Solutions & Strategies

The highest value transportation solutions and strategies for Benton County are summarized in the Tables 17-19. These projects rose to the top of the prioritization process based on the evaluation criteria developed to measure the community's transportation goals and objectives. Specifically, candidate projects that scored two or more standard deviations above the median scores were considered to be High Priority.

The tables are broken out by lead transportation agency. Although many transportation projects will require inter-agency coordination, the identified lead agency is expected to be responsible for project development, design and construction. Tables 17 and 18 show the list of High Priority Solutions led by the County and the State, respectively.

Table 17. High Priority Projects (led by Benton County)

Project ID	Name	Cost	Lead Agency
CC-07	13th Street Modernization	\$4,200,000	County
CC-14	N 9th Street Modernization	\$8,655,000	Developer/County
CC-15	West Hills Road Modernization	\$6,005,000	County
CC-16	N 19th Street Modernization	\$20,260,000	Developer
CC-35	Springhill Drive Modernization	\$4,235,000	County
CC-38	Crocker Lane Modernization	\$2,860,000	County
CC-40	West Thornton Lake Drive Modernization	\$6,205,000	County
CC-60	West Hills Road Modernization	\$20,705,000	County
CC-76	Lewisburg Ave Modernization	\$15,390,000	County
CC-77	Highland Drive Modernization	\$16,950,000	County
CC-78	53rd Street (south) Modernization	\$6,580,000	County
CC-112	Chapel Drive Modernization	\$2,140,000	County
AT-162	Corvallis to Albany Shared-Use Path	\$7,050,000	County
CC-167	Greenberry Road Widening	\$6,100,000	County
S-169	Fern Road Widening	\$8,500,000	County
AT-209	Metge Avenue Active Transportation Improvements	Funded	County/STIP
AT-220	Oak Grove Drive Bike Lanes	Funded	County/STIP
Total		\$135,835,000	

Table 18. High Priority Projects (led by ODOT)

Project ID	Name	Cost	Lead Agency
AT-33	US 20 Bike lanes (North Albany)	\$30,000	ODOT
AT-48	Philomath Boulevard (US 20/OR 34)	\$135,000	ODOT
AT-108	OR 99W Circle to Elks Shared-Use Path	\$1,020,000	ODOT
CC-128	US 20/Granger Road Intersection Improvements	Funded	ODOT
CC-129	US 20/Independence Highway Intersection Improvement	Funded	ODOT
CC-131	US 20 Corridor (Corvallis to Albany) Improvement Study	\$250,000	ODOT
S-141	North Fork Alsea Road Bridge Replacement	\$350,000	ODOT
S-150	OR 99W Widening (Dawson to Lane Co)	\$7,500,000	ODOT
AT-152	OR 34 Shared-use path	\$15,500,000	ODOT
S-161	US 20 Widening (West)	\$30,100,000	ODOT
S-163	OR 99W Widening (north)	\$16,950,000	ODOT
S-183	OR 34 Widening	\$22,500,000	ODOT
Total		\$94,335,000	

Financially Constrained Transportation System

The Oregon Transportation Planning Rule (TPR) (OAR 660-012) requires that local agencies identify a Financially Constrained list of projects within their TSP document. Aside from complying with this regulation, this project list and expected funding value provides a basis of comparison for subsequent proposed amendments to the TSP. For example, if a major land use amendment is proposed that would significantly intensify travel activity beyond what is identified in the TSP, the County would need to demonstrate that the transportation system could still adequately serve the increased needs in the 2040 horizon year. In answering that question, the Financially Constrained system improvements would be assumed to be in place since it is reasonably likely, based on historical trends, that enough funding would be available to construct them.

As noted in Chapter 1, Benton County is expected to have roughly \$23 million available for transportation system improvements through the planning horizon. Most of that funding comes from federal and State discretionary programs.¹ The projections over the planning horizon of current County funding levels compared to estimated expenditures indicates there will not be any available discretionary money to allocate to moving projects identified in the TSP forward. Furthermore, for the purposes of TPR compliance, only projects that add capacity for vehicle travel were considered (CC projects). As a result, there are very few County-led solution projects on the Financially Constrained list, as shown in Table 19.

Table 19. Financially Constrained Projects

Project ID	Name	Cost
CC-07	13th Street Modernization	\$4,200,000
CC-14	N 9th Street Modernization	\$8,655,000
CC-15	West Hills Road Modernization	\$6,005,000
CC-35	Springhill Drive Modernization	\$4,235,000
Total		\$23,095,000

¹ Funding available does not include new revenues provided by House Bill 2017.