

Transportation System Plan update excerpts related to Rural Roads

Street designations text (from the Mobility Goal)

Arterial streets

- Arterials in the rural area provide connections to neighboring cities, and farm-to-market access between urban and rural areas. Most rural Arterials serve a mix of rural-to-urban and farm-to-market traffic. In some cases rural Arterials, especially in rural/urban fringe areas, accommodate significant amounts of urban-to-urban through-traffic during peak commuting time periods. This is not the intended function of the rural Arterial designation and is often the result of congestion on urban Arterials.

Collector Streets

- In the rural area, Collectors are a primary link between the local street system and Arterials for freight, people, goods and services.

Local Streets

Rural Local roads may be miles long because of large parcels and a relatively sparse street network. Many rural Local roadways are unpaved (gravel) and serviceability can vary with rainfall and maintenance. Rural Local roads provide direct access to a variety of rural land uses including agriculture, forestry, quarry activities, low-density rural residential uses as well as rural commercial and industrial uses. Rural Local street characteristics include:

- Paved or oftentimes unpaved surfaces.
- Narrow lane widths with roadside ditches to provide drainage.
- No access control and access points spaced far apart.
- Lack of traffic calming measures, sidewalks and illumination.

Goal 4: Safety

Provide a safe transportation system for all users.

- Objective 4.1** Strive to ensure that the transportation system is structurally and operationally safe for all users and all modes.
- Objective 4.2** Recognize that safety is an important element of any transportation improvement.
- Objective 4.3** Review all development proposals, including those within incorporated areas, to ensure the continued safe operation of County roads.
- Objective 4.4** To improve the safe operation of the transportation system by all modes, coordinate with law enforcement and other safety related agencies and organizations.
- Objective 4.5** Provide street lighting along all new, expanded or extended streets within the urban area.
- Strategy 4.5.3** In urban areas within direct sight line to rural reserves and/or adjacent to active farming operations, consider street lighting placement, design and/or type to limit light pollution damage to crops.

Goal 5: Active Transportation

Create a built environment that supports safe, comfortable and convenient active transportation options that are viable for all users.

Objective 5.1 Provide “complete streets” that safely and comfortably accommodate road users of all ages and abilities, including people walking, cycling, taking transit, driving and using mobility devices.

Objective 5.2 Provide a pedestrian network that is comfortable for people of all ages and abilities.

Strategy 5.2.6 In rural pedestrian activity areas, which includes recreational trail crossings, consider improvements that enhance pedestrian safety.

Objective 5.3 Expand and improve the quality of bicycling infrastructure.

Strategy 5.3.1 Implement the guidelines set forth in the Washington County Bicycle Facility Design Toolkit on new or reconstructed urban and rural principal arterials, arterials and collectors (except for freeways).

Strategy 5.3.6 Develop a rural road bicycle safety study that proposes solutions and strategies to increase the safety of recreational and utilitarian cycling in the rural area. Implement recommendations as appropriate.

Objective 5.4 Assist in developing and maintaining an off-street trail and accessway network that serves both recreational and transportation functions.

Objective 5.5 Improve access to and support the expansion of transit service in Washington County.

Strategy 5.5.5 Encourage Ride Connection, Yamhill County Transit, Columbia County Transit and other transit providers to support the continued operation and potential enhancement of rural transit where it is cost-effective and warranted by demand.

Goal 6: Economic Vitality

Maintain and improve the transportation system to enhance the economic health of Washington County.

Agricultural and rural industries form a significant industry in Washington County. As a contributor to the economic activity in Washington County, it is important that the rural transportation facilities are built and maintained to best serve these industries. Much of rural Washington County relies on farm-to-market roads. Conflicts between agricultural equipment, and other roadway users continues occur on these roadways resulting in mobility, accessibility and safety concerns. Increasingly county-wide demand on the transportation system, including on rural roads, has led to additional non-agricultural traffic using these farm-to-market routes.

Objective 6.1 Maintain a freight route system that supports the efficient movement of goods and services and agricultural equipment.

Objective 6.2 Support the operation of freight rail, airport and pipeline facilities.

Strategy 6.2.5 For state identified airport facilities subject to the LCDC Airport Planning Rule, address the Rural/Natural Resource Plan and the Comprehensive Framework Plan for the Urban Area, and provide regulatory standards for airport related uses and safety concerns in the Community.

Objective 6.5 Support the preservation and operation of the agricultural industry throughout Washington County.

Strategy 6.5.1 Support the ability to move agricultural equipment efficiently and safely, and to transport agricultural products to processors and other markets.

Strategy 6.5.2 Consider programs to raise awareness of the significance of agricultural equipment operations.

Strategy 6.5.3 Consider the agricultural industry when designing context sensitive roadway improvements within the rural area, as appropriate.

Goal 7: Livability

Preserve and enhance Washington County's quality of life for all residents, workers and visitors

A “livable future” requires a balance of three key societal goals: vibrant communities, vital economy, and sustainable environment—all goals for which good transportation is essential. If enhancing livability is a goal of transportation system plan, then it must work for those who live, work, or visit rural areas just as much as for those who live, work or visit dense urban areas.

Objective 7.4 Identify, limit and/or mitigate adverse impacts of transportation on rural and agricultural areas in Washington County.

- Strategy 7.4.1 To the extent reasonable, limit and/or mitigate the adverse impacts of urban commuter traffic in rural areas.
- Strategy 7.4.2 Develop comprehensive strategies to address bicycle / farm equipment / vehicle conflicts and safety on rural roads including roadway suitability evaluation, education, outreach, enforcement, and identification of infrastructure improvements.
- Strategy 7.4.3 Consider new design and regulatory solutions to address livability and safety issues on roads that form the boundary between urban areas, urban reserves, rural areas and/or rural reserves.
- Strategy 7.4.4 During the concept planning of newly-designated urban areas, strive to design the transportation system such that the traffic associated with these areas will travel primarily through the existing urban area.

Goal 8: Natural Environment

Create and maintain a transportation system that first avoids, then minimizes, then mitigates for impacts to the natural environment.

Washington County's Community Development Code Article 7 specifically addresses the impacts of transportation projects on land and water resources, as well as other resources including cultural, visual and recreational resources. Transportation project applicants must describe anticipated impacts on the natural, built and planned environment, and propose potential mitigation measures. Land and water resources in Washington County are documented in the county's Rural/Natural Resource Plan, and in mapping associated with Metro's Functional Plan Title 3, and Oregon's Goal 5 (Natural Resources, Scenic and Historic Areas, and Open Spaces). Additional regulations at the federal and state level are triggered when projects enter a waterway, floodplain or wetland. State land use regulations also apply in exclusive farm (State Goal 3) and forest zones (State Goal 4).

Plan strategies that address impacts to land and water resources focus on identifying natural resources through existing planning and regulatory mechanisms, avoiding impacts to these resources if possible, and – if impacts are unavoidable – reducing and mitigating them through context-sensitive design features and enhancements.

Objective 8.2 Reduce negative impacts of the transportation system on the natural environment.

Strategy 8.2.6 Ensure that transportation project and maintenance activities in the rural areas do not disrupt existing agricultural drainage systems in accordance with Policy 15 of the Rural Natural Resource Plan.

Goal 9: Coordination

Implement the Transportation System Plan by working with the public, community groups, transit providers, cities and other government agencies.

Objective 9.1 To improve the effectiveness of the planning process, provide opportunities for citizens to participate in the planning and development of transportation plans, processes and projects.

Strategy 9.1.4 Utilize input from the Urban Road Maintenance District Advisory Committee (URMDAC) and the Rural Roads Operations and Maintenance Advisory Committee (RRMAC). Identify needs for advisory committee membership and fill the positions.

Objective 9.3 Coordinate with Cities and agencies of Washington County to cooperatively plan and operate a seamless network of transportation systems and services.

Strategy 9.3.2 Work with cities and other agencies to plan for transportation systems that account for Urban and Rural Reserves. For urban reserves coordinate concept plans to provide transportation systems for these areas, including finance strategies to implement these plans. Coordinate the transportation planning of the urban area to avoid and or limit impacts on rural reserves areas.

Goal 11: Maintenance

Adequately maintain Washington County's transportation facilities.

Preserving Washington County's investment in its transportation infrastructure is the principal purpose of maintenance. However, competing interests and limited funds presents a challenging task for those who are charged with maintaining a complex network of static and dynamic features. The County's Operations & Maintenance Division (OPS) strives "to apply the right level of resources at the right time to ensure the most cost-effective use of available funds while achieving the best overall condition of our transportation system assets."¹

With nearly 1300 centerline miles of paved and gravel roads, almost 200 bridges, over 3000 culverts, close to 900 miles of drainage ditches and numerous miles of roadside vegetation to maintain, achieving the best overall condition of our transportation system is a balancing act requiring cooperation, creativity, and collaboration. To help achieve this balance for roadway maintenance, OPS utilize a variety of tools including policies, empirical analysis, professional judgment and citizen involvement to make decisions regarding road maintenance activities.

One of the most important services that any transportation agency can provide is an efficient and well-maintained transportation system that serves the needs of its citizens including residents, businesses, commuters, and tourists. This is a challenging task and civic leaders must often make difficult choices that are sometimes unpopular. Washington County's situation of an aging infrastructure coupled with a reduced revenue stream is not unique. In fact, the difficulties facing the Department of Land Use & Transportation are similar to other transportation agencies throughout the region and across the country.

Washington County's road and bridge maintenance budget is being strained by a number of competing factors. New construction and added programs are being pitted against the preservation and preventive maintenance of existing assets. All the while, gas tax revenue continues to diminish as fuel prices increase, drivers are being encouraged to reduce their vehicular trips and cars are becoming more fuel efficient.

The maintenance goal of the Department of Land Use and Transportation is used to protect public safety and personal property, make effective use of available funds, and preserve the public and private investments in the transportation system. In addition, the department also strives to preserve and protect the natural environment.

¹ Memo from Dave Schamp, Operations Division Manager to Andrew Singelakis, Director of Land Use and Transportation, May 14, 2012.

MAINTENANCE PRIORITIES

There are four different types of priorities associated with maintenance.

- 1) **Emergencies/Hazards:** Work related to abating or managing an immediate threat to public safety, private property, or environmental resources. These occurrences that may cause a road to become impassable, or an operator of a vehicle to lose control. These occurrences may require prompt action in order to protect human life or welfare and/or access.
- 2) **Mandated:** Work related to regulatory or legislative requirements that require the agency to perform certain activities. The specific authorization may vary by the type of activity.
- 3) **Essential:** Work that maximizes the efficiency of the transportation system but is not required, by law, to be performed. This can include general maintenance and preventative activities required to keep a road or other facility in good condition.
- 4) **Non-Essential:** Work that is typically for aesthetic or non-functional enhancements as it relates to the movement of vehicles, bicycles and/or pedestrians. This can include both minor improvements and reconstruction. Minor improvements may go beyond general maintenance, but can be completed in conjunction general maintenance activities. Reconstruction projects rebuild substandard or deteriorated facilities such projects may be considered a comprehensive form of maintenance.

A long-standing tool used for selecting road maintenance activities has been the *Road Maintenance Priority Matrix* shown in Table 7. This guideline has been in place since adoption of the 1988 transportation plan and focuses on the functional classification of the roadway for the selection processes.

Table 7: Road Maintenance Priority Matrix
Road Classification / Priority*

Activity	Arterial	Collector	Rural Resource Route**	Neighborhood Route	Local Road
Emergencies/ Hazards	1	1	1	1	1
Mandated	1	1	1	1	1
General Maintenance	2	3	4	5	8
Minor Improvements	6	7	11	13	14
Reconstruction	9	10	12	15	16

* "1" is the highest priority; "16" is the lowest.

** Resource Routes are an identified network of rural local roads important to the County's economy and connectivity. Their designation will be adjusted periodically as needed as part of the Board-adopted annual maintenance program.

RISK FACTORS

When assessing maintenance needs the Department also considers risk. Certain risks are inherent to managing public transportation infrastructure and Washington County attempts to minimize this risk through sound engineering judgment, methodical maintenance strategies and the use of established industry-standard approaches to managing the system. The management of these risks includes the following strategies:

- **Avoid:** Do not own the asset or perform an activity that presents the risk.
- **Transfer:** Shift the risk to a third party either through insurance or through a performance contract.
- **Mitigate:** Implement design or operating measures that reduce the likelihood or severity of occurrence.
- **Accept:** Self insure or otherwise assume the likelihood and consequences of an occurrence.

When dealing with risk, it is important to take into consideration the consequences of failure. For each asset class, "failure" can occur in a number of ways with varying degrees of severity. Understanding that failures of assets will occur, the challenge for the agency is to keep those failures to a minimum in order to reduce the likelihood of a catastrophic failure that can injure a person, damage personal property or harm the environment.

FAILURE MODES

There are two failure modes for any given transportation asset. A Functional failure is when the asset continues to operate but stops performing the way it was designed or intended. This failure can be short-lived with the asset being restored to full capacity with the use of limited resources. For example, a roadside ditch may be full of sediment and debris which in turn reduces its capacity during a heavy rain event. Water may overtop the ditch temporarily closing the road. This type of failure can create minor disruptions to the flow of traffic or increase the need for additional maintenance costs to repair damages to the system. A Catastrophic failure is when an asset is destroyed creating a "life-safety" gap in the transportation system. An example of this would be a bridge or culvert washout that completely removes an entire section of roadway. The typical solution to a catastrophic failure is constructing a new asset altogether or performing a major rehabilitation on the existing feature.

Target Service Levels

Each year the Department of Land Use and Transportation develops an Annual Road Maintenance Program. This program is the Department's plan for scheduled work during the fiscal year and focuses on preservation of the existing transportation assets. The target service levels provide a guideline for the Department to use when establishing the annual road maintenance work program, responding to emergencies and service requests, selecting projects and developing budgets. The target service levels supplement the maintenance priority matrix to improve the process for selecting maintenance activities. The major assets that represent the foundation of the transportation system generally fall into the following categories:

1. **Bridge:** A structure that typically consists of vertical supports and horizontal members connecting at least two segments that allows safe and efficient passage over an obstacle such as a body of water, a road, or a railway. In some instances, large culverts are considered bridges.
2. **Culvert:** A structure underneath the roadway used to pass storm water through a roadway fill section.
3. **Pavement:** The hard surface of a road or other facility. The pavement can be made of bituminous material (asphalt or chip seal) or Portland cement concrete.
4. **Gravel Road:** A facility that has crushed aggregate material as the wearing surface.
5. **Ditch:** An open channel adjacent to a roadway used for the collection and conveyance of storm runoff.
6. **Landscaped Area:** A region in the right-of-way with ornamental trees, shrubs, and/or ground cover intended to provide erosion control, environmental mitigation, traffic calming, and aesthetic value.

The target service levels are intended to provide staff with formal guidance associated with planning work on the County's transportation system. The target service levels are intended to be the nexus between the maintenance budget and the annual work program to ensure the goals and priorities of the Board of County Commissioners are being realized. It is also important to note that the service levels identified are merely "targets" and not intended to imply that they are mandates.

Goal 11: Maintenance

Adequately maintain Washington County's transportation facilities.

Objective 11.1 Preserve the County's investments in transportation facilities.

Strategy 11.1.1 Inspect the transportation system as necessary to identify current and future roadway maintenance and reconstruction needs.

Strategy 11.1.2 Prioritize road maintenance and reconstruction expenditures using the Road Maintenance Priority Matrix as a guide.

Strategy 11.1.3 Implement an asset management program to maintain an accurate inventory and condition rating of pavements, bridges, culverts, gravels roads, roadside drainage facilities and landscape areas.

Strategy 11.1.4 Design projects considering future maintenance needs and costs.

Strategy 11.1.5 Evaluate best maintenance practices for financial efficiencies.

Objective 11.2 Program maintenance activities through the annual Washington County Road Maintenance Program.

Strategy 11.2.1 Utilize the asset management system to systematically select maintenance activities based on adopted service levels.

Strategy 11.2.2 Review maintenance service levels and annual work programs with and seek feedback from the Urban Road Maintenance District Advisory Committee (URMDAC) and the Rural Roads Operations and Maintenance Advisory Committee (RROMAC).

Strategy 11.2.3 Annually program transportation maintenance expenditures, as adopted by the Board of County Commissioners.

Objective 11.3 Maintain the County's transportation facilities, within funding limitations, to adequately protect public safety and private property and the environment, and to ensure the system is structurally sound and reliable.

Strategy 11.3.1 Use the Urban Road Maintenance District Advisory Committee (URMDAC) to assist in evaluating the cost effectiveness and efficiency of the Urban Road Maintenance District.

Strategy 11.3.2 Use the Rural Roads Operations and Maintenance Advisory Committee (RROMAC) to assist with identifying and evaluating the cost effectiveness and efficiency of maintenance program activities in the rural area.

Strategy 11.3.3 Consult with both URMDAC and RROMAC to establish appropriate service levels for pavements, bridges, culverts, gravel roads, roadside drainage facilities and landscape areas.

Strategy 11.3.4 Continue the practice of vegetation removal by County crews to address vegetation related hazards, and protect public safety.

Strategy 11.3.5 Strive to limit soil disruption and/or damage to drainage tiles when conducting maintenance activities in rural agricultural areas.

Objective 11.4 Monitor the efficiency and cost effectiveness of transportation maintenance procedures, and revise as needed to ensure most effective use of available maintenance funds.

Strategy 11.4.1 Attempt to keep construction contract related administrative costs at or below 10% of the annual construction contract cost. Typical Administrative costs include, but is not limited to, contract development, bidding, contract administration, testing and inspection. They do not include design or permitting elements.

Strategy 11.4.2 Implement efficient and cost effective maintenance operations: A) Consolidate maintenance activity geographically. B) Monitor, identify and correct failures. C) Determine cause, and modify practices. D) Take advantage of opportunities to leverage resources through cooperative arrangements with other agencies, regional utilities, and local businesses.

Objective 11.5 Distinguish between countywide and local maintenance responsibilities. Address transportation system maintenance needs through mechanisms that recognize the primary responsibility of system users.

Strategy 11.5.1 Confine countywide road maintenance and reconstruction program (i.e. Road Fund) activities to roads that have been formally accepted as "County Roads". Limit expenditures on non-County roads (i.e. local access or public roads) to those prescribed by the Oregon Revised Statutes and the direction of the Board of County Commissioners.

Strategy 11.5.2 Where appropriate finance the reconstruction, minor improvement or maintenance of Neighborhood Routes and Local Streets through localized funding mechanisms, such as the Urban Road Maintenance District or Local Improvement Districts (LIDs).

Objective 11.6 Strive to ensure that facilities intended for non-auto users are adequately maintained.

Strategy 11.6.1 When and where appropriate, maintain the element of the transportation infrastructure intended for non-auto users by:

- A) incorporating the non-auto facilities into the County's regular maintenance program, and
- B) integrating pedestrian and bicycle improvements with road maintenance projects, such as resurfacing or shoulder widening, to take advantage of cost-sharing opportunities.

Strategy 11.6.2 Consider a maintenance program to keep asphalt pedestrian facilities along County streets in adequate condition.

Strategy 11.6.3 Consider developing supplemental funding sources for the maintenance of the non-auto system facilities.

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