WASHINGTON COUNTY
OREGON

January 4, 2018

LONG RANGE PLANNING
ISSUE PAPER NO. 2017-06

Rural Roads | Urban Edge

Distributed at the January 9, 2018 Board Work Session with the Draft 2018-19 Long Range Planning Work Program

Issues

As Washington County continues to grow, more urban traffic is expected to use the rural connector roads to access employment centers and other urban amenities, in addition to increased agritourism and other recreational activities. Some of these roads already experience a number of conflicts. This paper addresses three safety and policy challenges related to increasing urban traffic on rural roads:

- Bicycle/Pedestrian Safety: Bicyclists and pedestrians don't stop at the urban edge, but they aren't adequately accommodated along many roadways once the road shifts from urban to rural.

- Border Roads: How can so-called "border" roads between urban/rural land uses be designed to maximize safety for all users? Urban reserve and rural undesignated areas may not develop for many years (if at all) and rural reserves are held for rural uses for the foreseeable future, so it is unclear how and when roadway improvements will occur for border roads with urban uses on one side and rural uses on the other side.

- Roadway Needs Within Urban Reserves: Current interpretation of state laws and processes is that the County cannot designate and preserve right-of-way (ROW) for new roadways in urban reserve areas, even though roads in these areas will be needed to accommodate future growth and must be included in urban reserve concept plans.

Staff Recommendations

Staff recommends consideration of the following options to address these issues:

1. Border Roads:
    A. Create either a new functional classification or a design standard specific to border roads.

    B. Adopt a policy to have the developer dedicate the entire needed ROW from the urban side for improvements to border roads.

    C. Include all border roads on the Transportation Development Tax (TDT) project list so that the additional ROW dedication (beyond their typical "half") and additional bicycle/pedestrian improvements (beyond the typical bike lane/sidewalk configuration) is creditable.

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2. Row Preservation in Urban Reserves: Direct staff to work with local, regional, and state partners on potential process changes to allow cities and counties to adopt Transportation System Plan (TSP) amendments to designate conceptual roadway alignments within the urban reserve areas.

3. Potential Further Analysis: Consider future issue papers to study the rural road issues this paper could not address. This paper provides background information and context for future issue papers that can consider other rural road issues in detail, such as roadway function and design standards, policy for rural connector roads, and prioritization of rural road improvement needs.

Organization of Paper

Background. This section discusses the impetus for this issue paper, the statutory and policy framework for transportation improvements in rural areas, the topics the issue paper will address, and maps that illustrate the issues discussed in the paper.

Roads: Types, Design, and Improvements. This section includes a discussion of roadway functional classifications, right-of-way dedication and frontage improvement requirements, the City of Beaverton and City of Hillsboro approaches to the urban/rural border road scenario, and road types in Washington County. The section includes an overview, policy questions, staff recommendations, and analysis. The policy questions for this section are the following:

1. *How should the County address unique design requirements for border roads?*
2. *Should the County create additional functional classifications and/or design standards for border roads?*
3. *Should the County's policy be to: A) have developments on the urban side dedicate the entire needed ROW for improvements to border roads (versus only their "half"); B) have developments on the urban side dedicate only their "half" of the needed ROW and the County plan to purchase ROW/easement from the rural side to complete the ultimate improvement; or C) a hybrid approach somewhere in between A and B?*

Improving Rural Roads and Preserving Rural Right-Of-Way in Urban Reserves. This section discusses the County's ability to improve rural roads and preserve right-of-way within the existing state law parameters, and includes a case study of Elwert Road in west Sherwood. The section includes an overview, a policy question, staff recommendation, and analysis. The policy question for this section is:

4. *Should the County work with local, regional, and state partners on potential process or rule changes to allow cities and counties to adopt TSP amendments to designate conceptual roadway alignments within the urban reserve areas?*

Recommendations. This section expands on the staff recommendations listed above.

Appendices. This paper includes the following appendices:

A. Statutory & Policy Framework
B. Cross Sections – Excerpted from the Washington County Design and Construction Standards
C. West Union Road Multi-Use Path Conceptual Design Plan – Executive Summary & Final Concepts
D. Origin & Destination Modeling Map of Rural Users in the 2015 PM Peak Hour
E. Identified Issues Impacting Rural Roads
F. Washington County Rural Road Conflict Elements Table

Definitions

Washington County Design and Construction Standards:

> Half Street: Improvements of one-half (1/2) of an existing road in accordance with the Community Development Code, Transportation Plan, and applicable County standards. One-half (1/2) of the road shall mean the area between the right-of-way centerline and the ultimate right-of-way line.
>
> Transportation Plan: The Washington County Transportation Plan, as set forth in A-Engrossed Ordinance No. 588, and which is an element of the County Comprehensive Plan.
>
> Ultimate: As used in these standards, refers to an improvement, location, grade, or other matter, that is necessary to construct the full improvement prescribed in the Transportation Plan.

OAR 660 Division 27 – Urban and Rural Reserves in the Portland Metropolitan Area:

> Rural Reserve: lands outside the Metro UGB, and outside any other UGB in a county with which Metro has an agreement pursuant to this division, reserved to provide long-term protection for agriculture, forestry or important natural landscape features.
>
> Urban Reserve: lands outside an urban growth boundary designated to provide for future expansion of the UGB over a long-term period and to facilitate planning for the cost-effective provision of public facilities and services when the lands are included within the urban growth boundary.

OAR 660 Division 12 – Transportation Planning

> Urban Area: lands within an urban growth boundary, two or more contiguous urban growth boundaries, and urban unincorporated communities as defined by OAR 660-022-0010(9).
>
> Urban Fringe: (a) Areas outside the urban growth boundary that are within 5 miles of the urban growth boundary of a Metropolitan Planning Organization (MPO) area; and (b) Areas outside the urban growth boundary within 2 miles of the urban growth boundary of an urban area containing a population greater than 25,000.

For purposes of this paper:

> Rural areas are considered to be any area outside an urban growth boundary and not meeting the definition of urban area; rural roads travel through rural areas.
>
> Border roads are those roads with urban land use designations on one side and rural land use designations on the other side (including land designated urban reserve).

Background

The Washington County Committee for Community Involvement (CCI) asked the County to study standards and policies for roads serving rural and urban traffic in a 2012 letter requesting action as part of the 2013-2014 Washington County Transportation System Plan (TSP) update. The Land Use & Transportation Director suggested that this issue could be further studied in the future when funding was available, but not as part of the TSP update.

The 2016 Long Range Planning Work Program authorized Task 1.17, an Urban/Rural Roadways Issue Paper to: identify major rural roads that serve urban traffic (including cars, freight, and cyclists) and roads that separate urban land use districts from rural/agricultural land use districts; explore design and operational practices and policies to protect the vitality of rural/agricultural uses while serving the transportation needs of rural and urban users; and identify priorities and an approach to address the State's exceptions process. This task was carried over in the adopted 2017 Long Range Planning Work Program, Task 1.22.

Urban traffic on rural roads is a complex and multifaceted topic. In addition to the items stated in the work program, other potential concerns have been identified by staff through coordination with Washington County residents and businesses, such as: potential rural quality of life impacts, congestion and speed conflicts, and maintenance concerns. Many of these issues will require future research and review that is beyond the scope of this issue paper. Appendix E to this paper contains a list of the identified rural road issues.

Out of the broad list of topics related to urban traffic on rural roads, this issue paper:

- Describes the statutory and policy framework for improvements to rural roads and preservation of right-of-way within urban reserve areas.
- Identifies the major rural roads with known or projected conflicts from multiple user types.
- Discusses the variety of road types within the county, including existing design standards and policies for right-of-way dedication and improvements.
- Recommends a variety of potential solutions for Board consideration.

This paper does not address many of the topics found on the list of identified issues in Appendix E beyond those listed above. The adopted 2017 Long Range Planning Work Program identifies several tasks aimed at addressing a handful of the identified issues, including the following:

- Task 1.15: Refinement plan for arterial connections between high growth residential areas.
- Task 1.16: Transportation planning for urban reserves.
- Task 1.17: Road function review and standards update.

These tasks will ultimately paint a broad picture of the issues and solutions around urban traffic on rural roads as we look to the future.

Statutory and Policy Framework

Transportation improvements in rural areas are governed by the following state and local rules and regulations:

- OAR 660-027-0070
- OAR 660-012-0065
- OAR 660-012-0035

- OAR 660-033-0130
- ORS 215.213
- ORS 215.296
- Washington County Community Development Code Articles V and VII

This section contains a summary of each applicable rule or regulation; the full statutory and policy framework can be found in Appendix A of this report.

OAR 660-027-0070
Counties must maintain urban reserve land as rural until it is brought into the UGB. Minor transportation improvements are allowed, including road realignments, interchanges, turn lanes, and other safety improvement projects. Projects for capacity and demand must be based on adopted growth forecasts, not on future urban reserve growth; capacity increasing projects are typically not allowed in rural areas without a goal exception.

OAR 660-012-0065
Minor transportation improvements are allowed on rural lands, including road realignments, interchanges, turn lanes, and local access improvements, subject to alternative analysis findings to determine the option with the least impact on farm or forest uses. There is some case law on this matter, specifically the 2001 LUBA case, *Friends of Yamhill County v. Yamhill County*, 39 Or LUBA 478 (2001), which found that existing roads must be considered in the alternatives analysis, with an accounting for how much it would cost to bring the road up to standard, and also found that land costs could not be included in the consideration of feasibility.

OAR 660-012-0035
Minor transportation projects in urban fringe (and urban reserve) areas may be included within an adopted TSP, including road realignments, interchanges, turn lanes, and local access improvements. These transportation projects can improve safety but cannot be intended to improve capacity. The rule intends all capacity increasing projects to be accommodated within the urban areas.

OAR 660-033-0130
Allows transportation improvements subject to OAR 660-012-0035 and 660-012-0065, which both limit such improvements to safety needs versus capacity needs, and are subject to alternative analysis findings to determine the option with the least impact on farm or forest uses. This rule also sets out the requirement to make findings of no significant impact on surrounding farm or forest practices.

ORS 215.213
Transportation improvements within existing ROW are allowed. Counties may improve existing facilities outside existing ROW that require acquisition of ROW, including passing and travel lanes, where no new land parcels are created. Other improvements, including new roads, would require an exception to Goal 3 or other statewide goals.

ORS 215.296
This statute mirrors the language found in OAR 660-033-0130 where local governments must make findings of no significant change to surrounding farm or forest practices. The no significant change findings are not required for improvements within an urban growth boundary or exception area.

WC CDC Article V

CDC Article V applies to development applications both inside and outside the UGB. In general, rural developments are required to dedicate ROW to widen existing roads to adopted standards but are not required to construct frontage improvements. However, all developments are required to sign non-remonstrance waivers against future improvement efforts, and developments over 500 average daily trips (ADT) may be required to do safety improvements based on their projected impact.

WC CDC Article VII

CDC Article VII implements OAR 660-033-0130, ORS 215.296, OAR 660-012-0065, and ORS 215.213, and establishes levels of review for those permitted transportation improvements authorized by statute and rule in rural lands. The review procedure includes making findings of no significant impact and alternatives analysis for those improvement projects outside a UGB that may have a greater impact. Transportation improvements exempted from the review processes include maintenance, operational, replacement, and reconstruction projects within the existing ROW, bus infrastructure within the ROW, acquisition of ROW consistent with the TSP, and ROW acquisition and construction of bicycle/pedestrian facilities.

Maps

This section contains maps to illustrate some of the concepts discussed in this paper: a Rural Road Conflict Elements map, a Border Roads with TDT Project List Status map, and the TSP Rural Road Enhancement Study Corridors map.

As Washington County continues to grow, more urban traffic is expected to use rural connector roads to access employment centers and other urban amenities. Some of these roads already experience a number of conflicts. The Rural Roads Conflict Elements map (Figure 1) is meant to highlight those rural roads with more potential conflicts at any given time, based on the number of identified conflicts they may have. The map includes a combination of the following data layers for rural arterial and collector roads:

- Washington County freight routes (TSP)
- Areas of shoulder deficiencies (TSP)
- Promoted bicycle routes by outside user groups (bicycle clubs, bicycle books)
- Traffic count data (Washington County Engineering and Construction Services)
- Scenic tour routes (Washington County Visitors Association)

The map assigns each conflict layer the same score, with the roads color coded according to how many conflicts show up on any given route. The traffic count data layer excluded the urban areas and then averaged the traffic on the rural roads alone; counts above the average are counted as a conflict. This map helps inform the areas where safety concerns are likely to be greater than on other routes, and may help prioritize areas for safety improvements. Appendix F includes a corresponding table showing conflict elements for each rural roadway by name.

The Border Roads with TDT Project List Status map (Figure 2) illustrates which Washington County roads are considered to be border roads, and indicates which of those roads are currently included on the TDT project list for creditable improvements. The map shows that around half of the border roads are currently included on the TDT project list. The county may want to add more roads to the TDT project list so that additional right-of-way dedication and frontage improvements could be creditable for certain border road developments.

The Washington County TSP contains a section about Rural Road Enhancement Study Corridors, with a corresponding map (Figure 3). The map shows that the rural roads identified for future study and improvements are many of the same roads identified through the conflicts map, including Verboort Road/Zion Church Road and Tongue Lane, and many are identified border roads as well, including Elwert Road and 175th Avenue. The TSP text concerning Rural Road Enhancement Corridors discusses the concerns and potential solutions as follows:

> *The Rural Road Enhancement Study Corridors (TSP Figure 3-16) identify corridors where conflicting travel needs of different users must be considered and monitored. Many of these rural roadways were originally designed and built to accommodate only local and agricultural-related traffic. Now they may host urban traffic, farm equipment and commercial freight traffic. The identified corridors may be accommodating travel beyond the scope or intensity intended or envisioned during their design. The travel needs for different users must be considered and monitored. Such users may include urban motor vehicle travelers using these routes as regional connections for cross-county or cross-region travel, farm equipment and commercial freight traffic as well as bicyclists using them for both recreational and commuting travel. Minor enhancements (consistent with OAR 660-012-0065) may be appropriate to consider along these corridors as resources allow.*
>
> *Enhancement considerations should not be limited to motor vehicle traffic. The rural roadways of Washington County continue to be popular bicycle routes for both recreational and commuting travel. In addition, farm-machinery and farm related travel, as well as commercial freight travel, need to be considered.*
>
> *A variety of agricultural resources and communities are located along these rural routes. The owners and operators of these resources and residences in these communities are likely to be most affected by any enhancement of these facilities. Furthermore, these parties may have considerable insight into how such enhancements could be most effective. Ongoing dialog and coordination with the affected parties should be conducted as part of the assessment of rural enhancement solutions.*
>
> *Identification and evaluation of enhancement improvements should be considered as available funding is identified. Specific improvements are to be identified at the time of the evaluation. Some sample considerations may include:*
> - *Sight distance improvements*
> - *Pavement markings*
> - *Advance curve warning signs*
> - *Larger signs and/or reflective sign posts*
> - *Intersection illumination*
> - *Flashing beacon in advance of intersections*
> - *Vegetation control*
> - *Shoulder widening*
> - *Other intersection improvements*

The county's border roads and rural connector roads generally fall under the same umbrella of needing further study as the rural road enhancement corridors, and many of the identified improvements could be applicable to these roads as well.

Issue Paper No. 2017-16
Figure 1

Washington County
Long Range Planning

Rural Road Conflict Elements

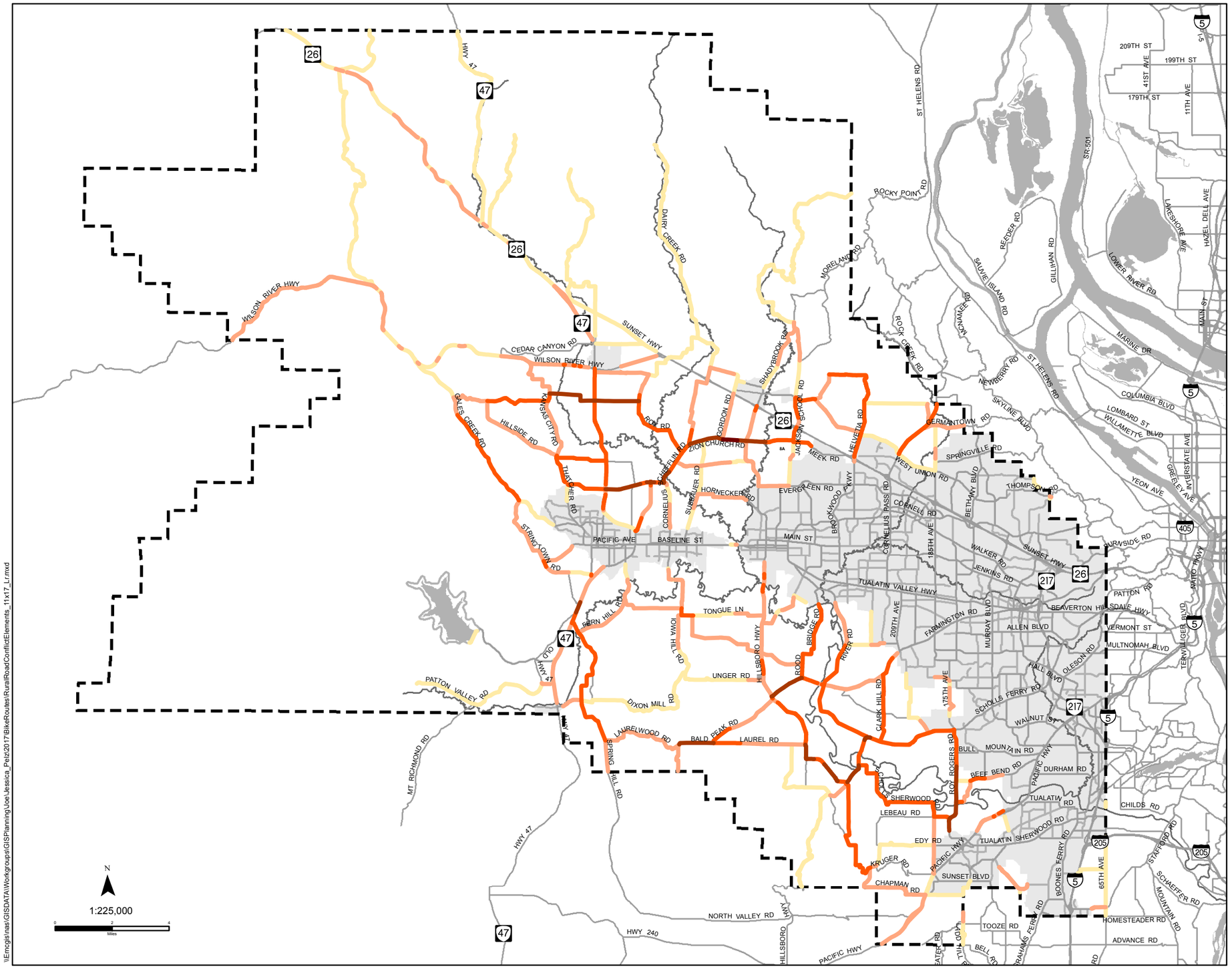
Rural Arterial and Collector Roadways*

Conflict Elements include:
- Higher than average ADT for rural Arterial and Collector roads
- Lack of suitable shoulders
- On the Vineyard & Valley Scenic Tour Route
- On known promoted bike route
- Designated Freight Route

***Some urban Arterial and Collector roads present**

Number of Conflict Elements

- 5
- 4
- 3
- 2
- 1
- Urban Area
- County



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Issue Paper No. 2017-16
Figure 2

Washington County
Long Range Planning

Border Roads with TDT Project List Status

Border Roads

- On TDT list
- Not on TDT list

- Rural Reserve
- Urban Reserve
- Rural Area - No Reserves Designation
- Urban Area
- County

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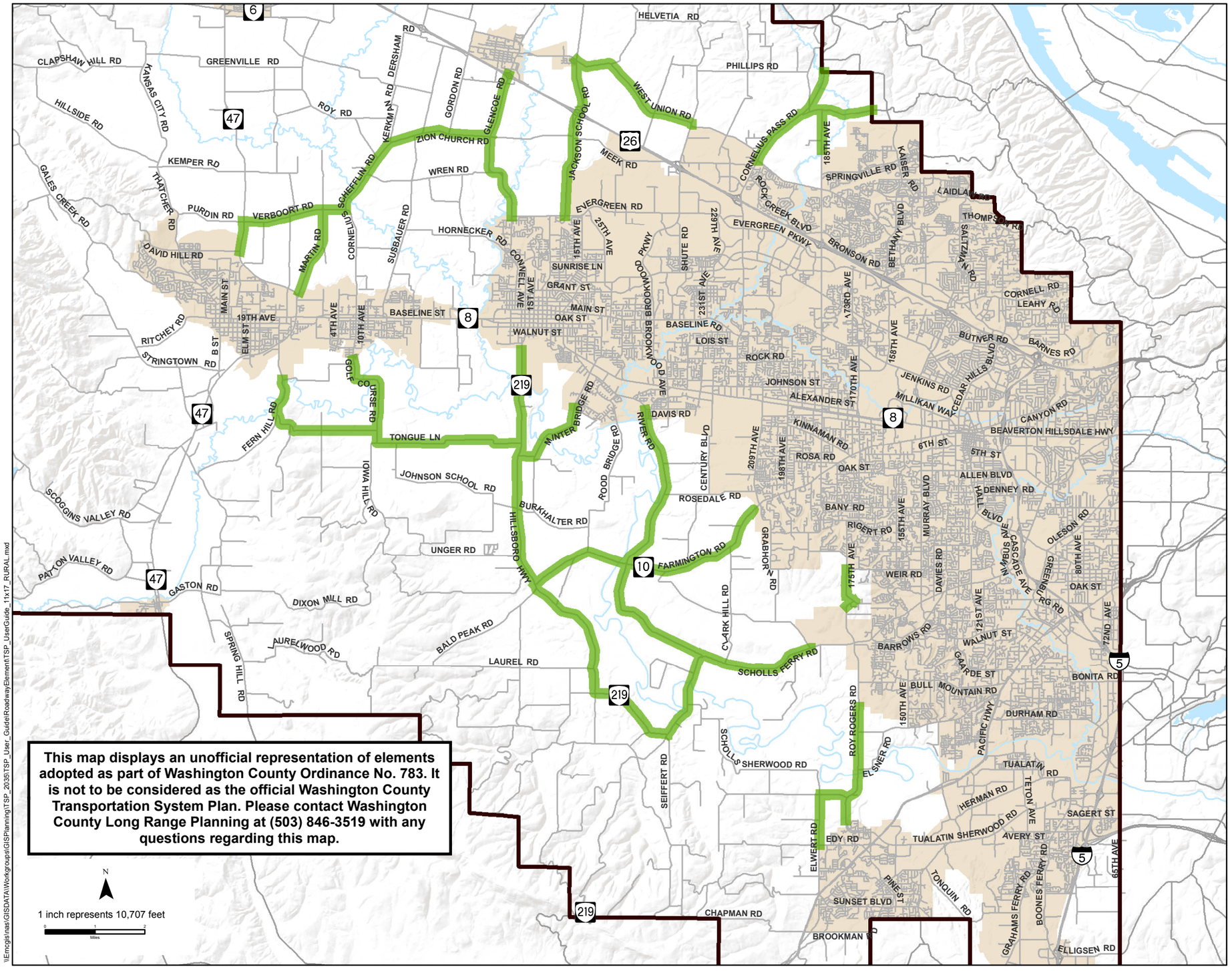

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Transportation System Plan User's Guide

Roadway Element

Rural Road Enhancement Study Corridors

- Rural Road Enhancement Study Corridor
- Other Roads
- Urban Area
- County

Figure 3-16

Online Map: http://arcg.is/1bSRMU8

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Effective: November 27, 2015

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Roads: Types, Design, and Improvements

Issues:

- Border roads have unique characteristics and challenges that distinguish them from roads entirely within the urban or rural area. Context-sensitive design would help meet mobility and safety goals for these facilities.

- Staff's understanding is that when a border road is urban on one side and rural on the other, based on land use designations and/or interpretations of state law, any ROW dedication must come entirely from the urban side.

- Half street improvements on border roads may mean that the "rural" half of the street is not ever funded for improvement, because it will not be financed by development. This creates safety, mobility, and access concerns. Creating an incentive for developers to make additional ROW dedication and build safety improvements on the urban side may facilitate developer construction of some of these projects, for example, construction of a separated multi-use path to serve pedestrian and bicycle traffic going both directions.

Policy Questions:

1. *How should the County address unique design requirements for border roads?* Current land use designations and development patterns mean that there is the potential for conflict between the "practical reality" of what level of frontage improvements might actually be constructed in the 20-40-year horizon and the "aspirational desire" to construct the ultimate ROW cross-section detail from the Washington County Design and Construction Standards (DCS). In practice, this could mean the County could consider the areas where county roads make the transition from urban with urban design standards, to rural with rural design standards, and which specific elements and design should be continued along the roads for their lengths as they carry urban traffic through the rural areas. The County could explore special designations or mobility standards for county roads through some urban areas to better match the land use designations and existing and proposed land use patterns.

2. *Should the County create additional functional classifications and/or design standards for border roads?* Due to the inherently restrictive and complicated nature of the rural reserves, the County may want to consider a classification and cross-section for urban areas bordering rural reserves that assumes that the rural reserve side of the road may never be built. Sidewalks are seldom constructed along roadways in rural areas for many reasons, including: maintenance expectations, cost, and responsibility; low expectations of use; lack of rural area development that would require frontage improvements; and cost to the County to purchase ROW and construct sidewalks. The adopted cross-sections within the DCS include a six-foot shoulder on the rural side of arterial and collector roads, but no sidewalk. In addition, rural roadways of all classifications are almost always limited to two lanes as center turn lanes are a function of urban needs for volume and access management.

3. *Should the County's policy be to:*
    (A) Require developments on the urban side dedicate the entire needed ROW for improvements to border roads (versus only their "half");

(B) Require developments on the urban side dedicate only their "half" of the needed ROW and the County plan to purchase ROW/easement from the rural side to complete the ultimate improvement; or

(C) A hybrid approach somewhere in between A and B?

- In Option A, one way to ensure fairness could be to make all border road improvements TDT creditable so that developers could get credits for the additional ROW dedication (beyond their typical "half") and additional bicycle/pedestrian improvement (beyond the typical local street configuration)[1]. The fairness principle is important because the County must be consistent in its development requirements – i.e., it would not be fair to require a border road developer to dedicate more ROW than another developer who happens to be developing on a purely urban road. The downside to this approach is that the additional ROW dedication requirement is a new idea and hasn't been tested with development applications. An upside to this approach is that it may be less expensive overall and improvements would be timelier if the County gave TDT credits for ROW and construction in lieu of the County purchasing ROW, doing the construction itself, or relying upon some other mechanism for construction of the improvements such as a local improvement district. The Border Roads map shows that around half of identified border roads are currently on the TDT project list[2].

- In Option B, improvements may not get done as quickly if the ultimate improvement must wait until the County has acquired the adequate ROW, depending on the chosen cross-section for the border road. The County would be permitted by state law to purchase ROW for widening projects subject to alternatives analysis and findings of "no significant impact"; however, the County has many competing priorities for limited funding and may be unable to acquire needed ROW on a timely basis. An upside to this approach is that the County could control the timing and construction of the improvement, and rural ROW may be less expensive for the County than giving TDT credits to a developer since the value of rural land is typically less than that of urban land.

- In Option C, analysis could show the cost difference between crediting developers for the additional ROW and construction and the County purchasing the rural ROW necessary for the improvement. This could lead to a hybrid approach where the County could potentially purchase the needed ROW at a lower cost than having the developer on the

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[1] The "fairness" test for ROW dedications and frontage improvements has been identified by the United States Supreme Court through the Nollan v. California Coastal Commission, Dolan v. City of Tigard, and Koontz v. St. Johns River Water Management District cases. In general, an exaction is legitimate if it has an "essential nexus" with the development and the public benefit is "roughly proportional" to the public impacts from the development.

[2] Facilities that are on the TDT project list are 100% creditable for eligible costs of improvements that exceed the local street standard. For facilities that are not on the TDT project list, 75% of the eligible costs are creditable for an arterial and 50% of the eligible costs are creditable for a collector. See the Countywide Transportation Development Tax Procedures Manual for more details.

urban side dedicating the entire needed ROW, and then the developer could construct the entire needed improvement and potentially get TDT credits for the upsized bicycle/pedestrian facility on the urban side.

Recommendations:

1. Create either a new functional classification and/or a design standard specific to border roads.

2. Adopt a policy to have the developer dedicate the entire needed ROW from the urban side for improvements to border roads.

3. Include all border roads on the TDT project list so that the additional ROW dedication (beyond their typical "half") and additional bicycle/pedestrian improvements (beyond the typical bike lane/sidewalk configuration) is creditable.

Analysis:

Roads are assigned functional classifications in the Washington County Transportation System Plan (TSP). Functional classification is based on the mobility and access function of each roadway and is a factor in determining how many lanes and other features a roadway should have, along with access spacing guidelines. Rural roadways can have the functional classification of arterial, collector, or local roads. Related to functional classification, the TSP notes the following:

> *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.*
>
> *In the rural area, Collectors are a primary link between the Local Street system and Arterials for freight, people, goods and services.*
>
> *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 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.*

The TSP lays out a 20-year outlook for the transportation network, with specific information such as how much right-of-way a roadway should have and which roadway elements will be included at full build-out for its specific functional classification. However, the urban and rural reserves were designated as a 40-50-year land supply (which is an approximately 30-40-year supply today). This means that even though the County may have designated a roadway as an arterial with 3-5 lanes with 90-98 feet of right-of-way, if the roadway is adjacent to an urban reserve area the rural (urban reserve) side may not get improved for at least 40 years. This can create an inherent conflict between the "practical reality" of what level of frontage improvements might actually be built and the "aspirational desire" for the ultimate roadway cross-section detail. We could expect that under the current system the urban side of the road would be improved with sidewalks and bike lanes as development occurs, while the rural side would continue to have a varying width shoulder. This can cause concerns with gaps in the facilities

available for bicycles and pedestrians. The County may want to shift to a more context sensitive version of functional classification that would take into account the surrounding land use pattern as well as mobility and capacity.

In addition to the physical roadway frontage improvements, developers typically dedicate the right-of-way necessary to make their half of the roadway "whole" in terms of the ultimate right-of-way at full build-out. For example, a property developing along an arterial roadway that is classified as having a 90-foot right-of-way for three lanes would need to dedicate enough right-of-way to ensure that their side of the road has 45 feet of right-of-way from the centerline to their property line. Rural arterial roadways typically range from 90 feet of right-of-way for a two lane road to 102 feet of right-of-way for a five lane road with enhanced bike facilities. Footnote 3 of Table 3.9: Functional Classification Design Parameters in the TSP specifies that, "In rural areas, the maximum right-of-way for Collectors shall be 60 feet." Staff has determined that this provision was added to the TSP more than 30 years ago in response to concerns from rural residents. However, there is no equivalent reduction of right-of-way for arterials in rural areas.

Cities within the county are also currently grappling with the idea of right-of-way dedication and frontage improvements to border roads. The city of Beaverton and the city of Hillsboro are among the first to test this new urban/rural border road scenario with the planning and development of South Cooper Mountain in Beaverton and in the South Hillsboro area. Both cities are taking the approach that right-of-way to improve roads in the urban/rural scenario must come entirely from the urban side. Beaverton's South Cooper Mountain Community Plan also says that bicycle and pedestrian traffic will be accommodated by a multi-use path located on the urban side when the road is between urban and rural land.

City of Beaverton

The city of Beaverton's South Cooper Mountain Community Plan encompasses approximately 544 acres located at the southwest edge of the city. The plan area is located generally north of SW Scholls Ferry Road, south of Horse Tale Drive, east of SW Tile Flat Road, and west of SW Loon Drive. The Plan lays out the framework for land use, transportation, resource protection and enhancement, and infrastructure provision.

With respect to transportation, the Plan notes the following:

> *East-west and north-south connections are limited both within and around the Community Plan area, and several important area roadways that serve regional traffic are nearing capacity. SW Scholls Ferry Road and SW 175th Avenue / Roy Rogers Road in particular carry large volumes of through-traffic. North-south commute patterns between Tualatin / Sherwood / Yamhill County and Washington County employment destinations rely heavily on SW 175th Avenue, despite its terrain, narrow width, and sharp curves. SW Tile Flat and SW Grabhorn Roads presently serve more through-traffic than their current rural nature and sharp curves would suggest. SW Tile Flat Road forms the western edge of the UGB in the Community Plan area.*

In the South Cooper Mountain Community Plan area, SW Scholls Ferry Road and SW 175th Avenue are both adjacent to designated Urban Reserve land, while SW Tile Flat Road is adjacent to designated Rural Reserve land. The Plan notes the following approaches to future road improvements:

a. *SW 175th Avenue within the Community Plan area shall be improved through a coordinated approach between the City, County and adjacent land owners. The City shall proactively initiate this coordination. SW 175th Avenue should be designed to provide for mobility needs and provide an attractive and welcoming entrance to the area. Safe, protected pedestrian crossing opportunities shall be provided near important pedestrian destinations, such as the future high school site, when a need is demonstrated and such crossings are appropriately and safely designed and located.*

b. *SW Scholls Ferry Road adjacent to the Community Plan area should be designed to provide for efficient movement of vehicles, including freight, but should also provide for safe bicycle and pedestrian facilities, especially in the vicinity of the Main Street. The city of Beaverton will work with city of Tigard and Washington County to explore coordinated access, and a pedestrian crossing, in the vicinity of the high school and Main Street.*

c. *SW Tile Flat Road adjacent to the Community Plan area should retain a rural design, particularly on the west side adjacent to land designated as Rural Reserve. All expansions requiring additional right-of-way should be to the east (urban) side. Safe bicycle and pedestrian movements shall be accommodated by a shared-use pathway adjacent to the road on the east side, with trees and other landscaping to provide a visual buffer to adjacent rural lands.*

City of Hillsboro

Staff from the city of Hillsboro noted that ROW dedication issues have come up over the past year with land use applications at the city's edge adjacent to Rural Reserves. Preliminary discussion with Hillsboro staff indicates that they are approaching the urban/rural reserve scenario by having the entire ROW dedication from the urban side, although they have not yet formalized a policy on this. The urban/urban reserve scenario has not yet been tested in Hillsboro, but future development in South Hillsboro along 229th Avenue will occur in this situation, with the area east of 229th Avenue being urban Hillsboro and the area west of 229th Avenue being designated urban reserve. Hillsboro staff confirmed that multi-use paths would more likely be made on the urban side rather than the rural side in the urban/rural reserve scenario. Frontage improvements on the rural side would likely include curbs and streetlights.

Road Types in Washington County

There are several road types within the county, outside of the official functional classification. These include the following:

- True rural: rural road primarily serving rural users. Examples: Laurel Road, Hillside Road
- Rural connectors: connect urban places via rural roads. Examples: Clark Hill Road, River Road
- Border roads: rural roads that border urban places (either adjacent to a city limit boundary, within urban unincorporated Washington County, or within the urban growth boundary).
    - Urban/Urban Reserve: one side urban, one side urban reserve. Examples: Elwert Road, 209th Avenue, Brookman Road

  - Urban/Rural Reserve: one side urban, one side rural reserve. Examples: West Union Road, Evergreen Road, Tile Flat Road

  - Urban/Rural Undesignated: one side urban, one side rural undesignated. Examples: Banks Road, Grabhorn Road, Gordon Road

- Urban roads: primarily serve urban development, provide connections within urban areas, or provide a direct connection from an urban place to a major roadway. Examples: Walker Road, Murray Blvd, Durham Road.

Within these road types, there is a wide range of traffic although they may have the same functional classification. Origin and destination modeling shows us that some rural roads have much more urban traffic than rural traffic in the PM peak hour than others, including: Verboort Road, Zion Church Road, Scholls-Sherwood Road, and Cornelius Pass Road. This means that drivers originating from urban places are using these roads to get to and from work and other urban destinations. Appendix D includes a 2015 PM Peak Hour model plot showing the traffic originating from or destined to rural areas (this means that at least one end of the trip is in the rural area). It also shows the rural percentage of the total traffic on the road at the peak hour (highest hour between 4-6 p.m.).

Traffic on rural roads includes farm machinery, freight vehicles, and bicycles along with automobiles. Farm traffic travels at a slower rate of speed than other vehicles, which can lead to safety concerns when other vehicles attempt to pass in unsafe conditions or at high rates of speed. The County has an obligation to provide adequate bicycle accommodations along collector and arterial roads when constructing new roads or reconstructing existing roads[3]. Therefore, a new cross-section for border roads might include a separated multi-use path or a two-way cycle track along the urban side of the road and a standard 6-foot shoulder along the rural side. This could address bicycle and pedestrian demands while the wider shoulder would help give a refuge to slow moving farm traffic with additional space for other vehicles to pass more safely[4].

The Washington County Bicycle Facility Design Toolkit addresses both the multi-use path and two-way cycle track options[5]:

- Multi-Use Off-Street Path: Serves both bicyclists and pedestrians and provides additional width over a standard sidewalk. Allowed within the right-of-way, and must have a vertical (curb or

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[3] All roadways in Washington County, with the exception of freeways, are on-street bikeways. State policy requires "bikeways" along urban Arterials and Collectors [Washington County TSP; Oregon Administrative Rule 660-112-0045 (Transportation Planning Rule)]

[4] ORS 30.930 protects farming practices, including the transport or movement of any equipment, device, or vehicle used in conjunction with farming.

[5] The Washington County Bicycle Facility Design Toolkit says that Washington County "is committed to providing a quality bikeway network that facilitates bicycling for transportation in rural, suburban, and urban portions of the County." Facilities identified for the rural land use context include: shoulder bikeway, conventional bike lane, buffered bike lane, multi-use off-street path. Facilities identified for the suburban land use context include: protected cycle track, raised cycle track, two-way cycle track.

barrier) or horizontal (landscape strip) buffer separating the path from adjacent vehicle travel lanes. Typically used where there are few at-grade crossings and in situations where a separated path is highly desirable (i.e., roadways with high traffic speeds and volumes).

- Two-Way Cycle Track: Allow for bicycle travel in two directions on the same side of the road; require additional design treatments at intersections. Built within the right-of-way between the travel lanes and the sidewalk, and can be combined with a buffer from the travel lanes. Two-way cycle tracks are not currently addressed in the DCS.

A 2013 study prepared for Washington County, the West Union Road Multi-Use Path Conceptual Design Plan, analyzed three alternatives for bicycle facilities along West Union Road between Helvetia Road and Glencoe Road: a 10-foot wide multi-use path on either side of West Union Road; widening the roadway shoulder to accommodate bicycles and other roadway users; or intermittent shoulder widening to address safety concerns. The study considered stormwater management requirements, right-of-way needs, traffic capacity and safety, constructability, and funding feasibility for all three alternatives. The total concept level cost estimate for each alternative was:

- Multi-use path - $3,012,100
- Shoulder widening, full-length - $2,156,100
- Shoulder widening, intermittent - $740,500

The three identified alternatives may each be appropriate for different situations throughout the county; however, the multi-use path concept is likely the best alternative for the heavily traveled border roads to provide the best transition from urban areas with sidewalks and/or multi-use paths. A future study will explore the application of all three alternatives on rural bike routes throughout the County. Appendix C includes the executive summary and discussion of the three concepts from the study, including proposed cross-sections.

Improving Rural Roads and Preserving Rural Right-Of-Way in Urban Reserves

Issue: Current understanding of state statute is that conceptual ROW alignments for new roadways cannot be adopted for areas outside the UGB. This is a problem because: ROW cannot be preserved in the urban reserves, even when designated on a concept plan; roads within UGB areas sometimes must be "overbuilt" to handle the capacity that would have been better served by a new road in the urban reserve area; and if the county were able to designate needed ROW in the urban reserve it could be included by the city in their concept planning.

Policy Question:

4. *Should the County work with local, regional, and state partners on potential process or rule changes to allow cities and counties to adopt TSP amendments to designate conceptual roadway alignments within the urban reserve areas?*[6]

[6] A "rule" is "any agency directive, standard, regulation or statement of general applicability that implements, interprets or prescribes law or policy, or describes the procedure or practice requirements of any agency" - ORS 183.310(9). Agencies

This potential administrative rule change could be limited to identifying and adopting conceptual road alignments only, allowing for preservation of needed ROW, but would not extend to construction or ROW acquisition. New road construction and ROW acquisition in rural areas, including within the urban reserve, could still be approved through a goal exception process. However, if counties were permitted to designate and adopt conceptual roadway alignments in urban reserves, cities would have more certainty about the county's mobility needs and expectations and could design the infrastructure element of their Metro Title 11 concept plans to maintain countywide mobility. Adopting the conceptual roadway alignments into the TSP would also give the county and/or the city a tool to preserve ROW for those future roads upon development, and/or preclude buildings from locating within the alignment area.

An additional process or rule change is needed to allow the county to forecast an urban level of growth within the urban reserve areas for TSP purposes so that roadway capacity needs can more accurately be assessed. This would also allow the county to get in front of concept planning processes with more accurate information for cities to include. This is important not only to plan for new roads within the urban reserve areas, but also to identify those existing county arterial and collector roads that may need to be reclassified and/or widened from a 2-3-lane facility to a 5-lane facility. Transportation facilities are a significant element of concept planning, and it is important for cities to know the extent that county facilities will need to be upsized so that they can draft their plans for adjacent land uses, access management and roadway design accordingly.

A potential upside to potential process or rule changes is that concept planning could be more efficient, with more certainty about future infrastructure needs. This could help both the county and the cities have more realistic projections for planning and funding future needed improvements. A potential downside to this approach is it may appear to some that this analysis is prematurely readying urban reserve areas for future urbanization.

Recommendation:

4. Direct staff to work with local, regional, and state partners on potential process changes to allow cities and counties to adopt TSP amendments to designate conceptual roadway alignments within the urban reserve areas.

Analysis:
A number of growth areas within the county are identified as having existing or future problematic traffic conditions due to the existing roadway configuration or lack of adequate roads to handle traffic capacity. Future Work Program tasks will study these concerns in-depth, but the most commonly cited solutions to these problems are to either widen existing roads, realign certain roads to mitigate safety issues, or to construct new roads to mitigate capacity and/or safety issues[7]. However, widening for

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may adopt, amend, repeal or renumber rules, permanently or temporarily (up to 180 days), using the procedures outlined in the Oregon Attorney General's Administrative Law Manual [*Oregon Secretary of State*].

[7] The Adopted WC 2017 Long Range Planning Work Program identifies several work tasks associated with this idea, including Task 1.15: Refinement Plan for arterial connections between high growth residential areas, Task 1.16: Transportation planning for Urban Reserves, and Task 1.17: Road function review and standards update.

capacity, realignment, and/or creating alternate parallel routes are difficult to do within the parameters of existing state laws.

Many rural roads were not built with urban levels of traffic in mind, and thus they often have sharp curves, skewed intersection alignments, and sight distance issues. Some of these roads would be good candidates for realignment or other select improvements to help mitigate the safety issues that are compounded by high traffic levels and congestion. In general, the County is permitted to do minor transportation improvements on rural lands, including road realignments, interchanges, turn lanes, and local access improvements; however, these improvements can only be done to improve safety and cannot be intended to improve capacity. ORS 215.213 permits the construction of additional passing and travel lanes requiring the acquisition of ROW in any area zoned for exclusive farm use as long as it does not result in the creation of new parcels of land. ORS 215.213 is subject to ORS 215.296, Standards for Approval of Certain Uses in Exclusive Farm Use Zones, which requires uses permitted by ORS 215.213 to make findings that the transportation improvement will not:

> *(a) Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or*
>
> *(b) Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.*

The Washington County Community Development Code, Article VII, also requires these "no significant impact" findings and alternatives analysis (required by OAR 660-012-0065) for those transportation improvement projects outside of a UGB. New rural roads or rural road improvements not meeting these parameters would be subject to the goal exception process for approval.

State law treats urban reserve lands the same as other rural lands for most legal purposes, but they essentially serve a different land use and planning purpose because they have been identified as potential future urbanizable areas similar to rural land within UGBs. This is a challenge for the following reasons:

- Conceptual ROW alignments in the urban reserve areas cannot be designated and adopted into a TSP. This is important because if the ROW alignment is not in the TSP, the County and/or cities are not able to preserve needed ROW within the urban reserve until the area is brought into the UGB. In other words, a rural development in the urban reserve area would be permitted to build within the conceptual ROW alignment.

- Cities and counties invest significant time and money into the concept planning process, including analysis to determine preliminary roadway capacity needs and the preliminary alignment of existing and new county and city roads. This is important because preliminary road alignments and intersection needs should be vetted with planning and preliminary engineering to ensure countywide mobility is accounted for and maintained. However, because there is no mechanism to preserve the designated needed ROW, the city and county may have to redo the analysis to account for current conditions once the urban reserve area is brought into the UGB.

- Because ROW needs cannot be designated and adopted within the urban reserve, the County sometimes must transfer a needed capacity project to an area within the UGB, even if analysis determines that the better location for a facility is within the urban reserve. If there is a degree of

surety about the eventual provision of collector or arterial roads within the urban reserve area, existing or new roads within the UGB would not need to be overbuilt to meet projected demand in urban reserve areas.

Case Study: Elwert Road (West Sherwood)

Elwert Road is classified in the Washington County TSP as a two to three lane arterial and enhanced major street bikeway, which means that it is intended to carry a significant amount of multi-modal traffic through the area up to Scholls-Sherwood Road and Roy Rogers Road. The existing Elwert Road is a two-lane road with minimal shoulder facilities. One side of Elwert Road is urban Sherwood and the other side is designated urban reserve for the portion south of Edy Road. According to the Sherwood West Concept Plan (approved by Sherwood City Council in February 2016):

> *Transportation is a key concern for current Sherwood and study area residents alike. The vertical alignment condition of Elwert Road, a two-lane rural county road, combined with heavy traffic volumes and the confluence of Chicken Creek at the intersection with Edy Road is a significant existing condition that requires a thoughtful solution. Due to the extensive public improvement that will be required to support future development, the Sherwood West Preliminary Concept Plan proposes two transportation options. The first option calls for a realignment of the Edy and Elwert Road intersection to reduce the impacts of infrastructure improvements on the sensitive creek confluences. The realignment is likely to discourage regional freight traffic from utilizing Elwert Road as a north-south bypass to Highway 99W, the designated freight corridor. Initial cost estimates show that this alternative may be more cost effective than improving the existing road in its current alignment. The second option is to improve the roadway up in its current alignment.*

The Sherwood West Concept Plan identified the future growth areas as primarily residential, with a few mixed use areas and two school sites. The Plan also shows Elwert Road being realigned over a creek/wetland area and the addition of two roundabouts beyond the currently planned roundabout at Kruger/Elwert/Sunset (MSTIP 3D), anticipated for completion in 2020. However, the Sherwood School District acquired property outside the UGB within the urban reserve concept plan area for the construction of a new 2,400 student high school near the intersection of Elwert Road and Kruger Road, bounded on the north by Haide Road. The property was brought into the UGB in 2017. All of this leads to a few issues to consider, including:

- Mobility and access needs for the new school, and how that will impact Elwert Road. In particular, the new high school will be close to the new Elwert Road roundabout and will be adding a significant amount of traffic during the morning peak commute time. All Sherwood High School students coming from the more populated areas east of Highway 99W will be crossing at the few limited access points on Highway 99W. This scenario was not included in future traffic analysis for the concept plan area. In addition, the District plans to use Haide Road, a rural local road, as an access to the school site from Elwert Road. The Washington County Community Development Code currently only allows new connections to arterials (Elwert) from collector or arterial roads.

- Elwert Road currently serves a countywide mobility function by providing a route from Highway 99W in Sherwood north to Scholls-Sherwood Road and then to either Scholls Ferry Road or Roy Rogers Road, dispersing through traffic north, west, and east through the county. The concept

planning process reveals that Sherwood would like Elwert Road to be built to Sherwood city standards versus County arterial standards (alignment, access points, design, etc). Elwert Road would eventually be entirely within the Sherwood urbanized area and a potential candidate for jurisdictional transfer to Sherwood if an alternative arterial route could be identified within the urban reserve area to ensure countywide mobility through the area is maintained.

Recommendations

This issue paper has discussed the need for special standards for border roads and a need for transportation planning within the urban reserve areas. Staff recommends consideration of the following options to address these issues.

1. Border Roads: These three recommendations should be explored further with staff and the development community.
    A. Create either a new functional classification or a design standard specific to border roads. The County has an obligation to provide adequate bicycle accommodations along collector and arterial roads when constructing new roads or reconstructing existing roads, and border roads have a special dynamic with urban uses on one side and rural uses on the other side which may not be developed for a very long time. Therefore, the urban side of the border road could be built with a separated multi-use path or a two-way cycle track and the rural side should have a standard 6-foot shoulder. Rural connector roads should have either a continuation of the separated multi-use path or a wide shoulder for their length between urban areas.

    B. Adopt a policy to have the developer dedicate the entire needed ROW from the urban side for improvements to border roads when appropriate. Rural reserves are intended to provide long-term protection for large blocks of agricultural and forest land. Therefore, the County cannot rely upon development of the rural side of the roadway to dedicate ROW and/or construct frontage improvements. Therefore, it seems appropriate that all of the needed ROW to construct border roads to their ultimate cross-section should come from the urban side of the road upon development where abutting rural reserves and rural undesignated land. The policy should have some flexibility to account for development abutting urban reserves, which may or may not be under short-term consideration to come into the UGB and be developed.

    C. Include all border roads on the TDT project list so that the additional ROW dedication (beyond their typical “half”) and additional bicycle/pedestrian improvements (beyond the typical bike lane/sidewalk configuration) is creditable. Because the ROW dedication for road improvements on border roads should come from the urban side where appropriate, the additional ROW and bicycle/pedestrian improvement should be TDT creditable to account for the extra impact on the developer. Having the border roads on the TDT project list would give the County the flexibility to issue credits for this type of improvement if the situation arises. The Border Roads with TDT Project List Status map shows that around half of the identified border roads are currently on the TDT project list.

2. ROW Within Urban Reserves: Direct staff to work with local, regional, and state partners on potential process changes to allow cities and counties to adopt TSP amendments to designate conceptual roadway alignments within the urban reserve areas. If counties were permitted to designate and adopt conceptual roadway alignments in urban reserves, cities would have more certainty about the county's mobility needs and expectations and Metro Title 11 concept plans would better reflect land use and infrastructure plans that would maintain countywide mobility. In addition, if the County is able to adopt conceptual roadway alignments in their TSP, the County and/or city would have a tool to ensure ROW dedication for those future roads upon development and preclude buildings from locating within the alignment area.

3. Potential Further Analysis: Consider future issue papers to study the rural road issues this paper could not address. This paper provides background information and context for future issue papers that can consider other rural road issues in detail, such as roadway function and design standards, policy for rural connector roads, and prioritization of rural road improvement needs.

Appendices:

A. Statutory & Policy Framework
B. Cross Sections – Excerpted from the Washington County Design and Construction Standards
C. West Union Road Multi-Use Path Conceptual Design Plan – Executive Summary & Final Concepts
D. Origin & Destination Modeling Map of Rural Users in the 2015 PM Peak Hour
E. Identified Issues Impacting Rural Roads
F. Washington County Rural Road Conflict Elements Table

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Appendix A: Statutory & Policy Framework

This section contains applicable excerpts from state and local rules and regulations pertaining to roads in rural areas. Note that all rules and policies are excerpted and do not contain the full text of the rule or policy. Several rules and regulations relate back to each other and have been cross-referenced as applicable.

State

OAR 660-027-0070 Planning of Urban and Rural Reserves

(2) In order to maintain opportunities for orderly and efficient development of urban uses and provision of urban services when urban reserves are added to the UGB, counties shall not amend comprehensive plan provisions or land use regulations for urban reserves designated under this division to allow uses that were not allowed, or smaller lots or parcels than were allowed, at the time of designation as urban reserves until the reserves are added to the UGB, except as specified in sections (4) through (6) of this rule.

(4) Notwithstanding the prohibitions in sections (2) and (3) of these rules, counties may adopt or amend comprehensive plan provisions or land use regulations as they apply to lands in urban reserves, rural reserves or both, unless an exception to Goals 3, 4, 11 or 14 is required, in order to allow:

> (c) Roads, highways and other transportation and public facilities and improvements, as provided in ORS 215.213 and 215.283, OAR 660-012-0065, and 660-033-0130 (agricultural land) or OAR chapter 660, division 6 (forest lands).
>
> *ORS 215.213: Transportation improvements within existing ROW are allowed. Counties may do transportation improvements on existing facilities outside existing ROW that require acquisition of ROW, including passing and travel lanes, where no new land parcels are created. Other improvements, including new roads, would require an exception to Goal 3 or other statewide goals.*
>
> *ORS 215.283: This statute is not applicable to Washington County as the County is a marginal lands county.*
>
> *OAR 660-012-0065: Minor transportation improvements are allowed on rural lands, including road realignments, interchanges, turn lanes, and local access improvements, subject to alternative analysis findings to find the option with the least impact on farm or forest uses.*
>
> *OAR 660-033-0130: Allows transportation improvements subject to OAR 660-012-0035 and 660-012-0065, which both limit such improvements to safety needs vs. capacity needs, and are subject to alternative analysis findings to find the option with the least impact on farm or forest uses. This rule also sets out the requirement to make findings of "no significant impact" on surrounding farm or forest practices.*
>
> *OAR 660 Division 6: This paper does not address any areas of designated forest lands.*

(7) Notwithstanding the prohibition in sections (2) and (4) of this rule, a county may take an exception to a statewide land use planning goal in order to allow:

(a) The establishment of a transportation facility in an area designated as urban reserve; or

(8) Counties, cities and Metro may adopt and amend conceptual plans for the eventual urbanization of urban reserves designated under this division, including plans for eventual provision of public facilities and services, roads, highways and other transportation facilities, and may enter into urban service agreements among cities, counties and special districts serving or projected to serve the designated urban reserve area.

OAR 660-027-0070 Summary

Counties must maintain urban reserve land as rural until it is brought into the UGB. Minor transportation improvements are allowed, including road realignments, interchanges, turn lanes, and other safety improvement projects. Capacity increasing projects are typically not allowed outside of urban areas without a goal exception.

OAR 660-012-0065 Transportation Improvements on Rural Lands

(3) The following transportation improvements are consistent with Goals 3, 4, 11, and 14 subject to the requirements of this rule:

(a) Accessory transportation improvements for a use that is allowed or conditionally allowed by ORS 215.213, 215.283 or OAR chapter 660, division 6 (Forest Lands);

(b) Transportation improvements that are allowed or conditionally allowed by ORS 215.213, 215.283 or OAR chapter 660, division 6 (Forest Lands);

(c) Channelization not otherwise allowed under subsections (a) or (b) of this section;

(d) Realignment of roads not otherwise allowed under subsection (a) or (b) of this section;

(e) Replacement of an intersection with an interchange;

(f) Continuous median turn lane;

(g) New access roads and collectors within a built or committed exception area, or in other areas where the function of the road is to reduce local access to or local traffic on a state highway. These roads shall be limited to two travel lanes. Private access and intersections shall be limited to rural needs or to provide adequate emergency access.

(h) Bikeways, footpaths and recreation trails not otherwise allowed as a modification or part of an existing road;

(i) Park and ride lots;

(j) Railroad mainlines and branchlines;

(k) Pipelines;

(l) Navigation channels;

(m) Replacement of docks and other facilities without significantly increasing the capacity of those facilities;

(n) Expansions or alterations of public use airports that do not permit service to a larger class of airplanes; and

(o) Transportation facilities, services and improvements other than those listed in this rule that serve local travel needs. The travel capacity and performance standards of facilities and improvements serving local travel needs shall be limited to that necessary to support rural land uses identified in the acknowledged comprehensive plan or to provide adequate emergency access.

(5) For transportation uses or improvements listed in subsections (3)(d) to (g) and (o) of this rule within an exclusive farm use (EFU) or forest zone, a jurisdiction shall, in addition to demonstrating compliance with the requirements of ORS 215.296:

(a) Identify reasonable build design alternatives, such as alternative alignments, that are safe and can be constructed at a reasonable cost, not considering raw land costs, with available technology. The jurisdiction need not consider alternatives that are inconsistent with applicable standards or not approved by a registered professional engineer;

(b) Assess the effects of the identified alternatives on farm and forest practices, considering impacts to farm and forest lands, structures and facilities, considering the effects of traffic on the movement of farm and forest vehicles and equipment and considering the effects of access to parcels created on farm and forest lands; and

(c) Select from the identified alternatives, the one, or combination of identified alternatives that has the least impact on lands in the immediate vicinity devoted to farm or forest use.

OAR 660-012-0065 Summary

Minor transportation improvements are allowed on rural lands, including road realignments, interchanges, turn lanes, and local access improvements, subject to alternative analysis findings to find the option with the least impact on farm or forest uses. There is some case law on this matter, specifically the 2001 LUBA case, *Friends of Yamhill County v. Yamhill County*, 39 Or LUBA 478 (2001), which found that existing roads must be considered in the alternatives analysis, with an accounting for how much it would cost to bring the road up to standard, and also found that land costs could not be included in the consideration of feasibility.

OAR 660-012-0035 Evaluation and Selection of Transportation System Alternatives

(10) Transportation uses or improvements listed in OAR 660-012-0065(3)(d) to (g) and (o) and located in an urban fringe may be included in a TSP only if the improvement project identified in the Transportation System Plan as described in section (12) of this rule, will not significantly reduce peak hour travel time for the route as determined pursuant to section (11) of this rule, or the jurisdiction determines that the following alternatives cannot reasonably satisfy the purpose of the improvement project:

(a) Improvements to transportation facilities and services within the urban growth boundary;

(b) Transportation system management measures that do not significantly increase capacity; or

(c) Transportation demand management measures. The jurisdiction needs only to consider alternatives that are safe and effective, consistent with applicable standards and that can be implemented at a reasonable cost using available technology.

(11) An improvement project significantly reduces peak hour travel time when, based on recent data, the time to travel the route is reduced more than 15 percent during weekday peak hour conditions over the length of the route located within the urban fringe. For purposes of measuring travel time, a route shall be identified by the predominant traffic flows in the project area.

(12) A "transportation improvement project" described in section (10) of this rule:

(a) Is intended to solve all of the reasonably foreseeable transportation problems within a general geographic location, within the planning period; and

(b) Has utility as an independent transportation project.

Applicable Definitions:

(39) "Urban Area" means lands within an urban growth boundary, two or more contiguous urban growth boundaries, and urban unincorporated communities as defined by OAR 660-022-0010(9). For the purposes of this division, the area need only meet the definition contained in the Unincorporated Communities Rule although the area may not have been designated as an unincorporated community in accordance with 660-022-0020.

(40) "Urban Fringe" means:

(a) Areas outside the urban growth boundary that are within 5 miles of the urban growth boundary of an MPO area; and

(b) Areas outside the urban growth boundary within 2 miles of the urban growth boundary of an urban area containing a population greater than 25,000.

OAR 660-012-0035 Summary

Minor transportation projects in urban fringe (and urban reserve) areas may be included within an adopted TSP, including road realignments, interchanges, turn lanes, and local access improvements. These transportation projects can improve safety but cannot be intended to improve capacity. The rule intends all capacity increasing projects to be accommodated within the urban areas.

OAR 660-033-0130 Minimum Standards Applicable to the Schedule of Permitted and Conditional Uses (Agricultural Land)

(5) Approval requires review by the governing body or its designate under ORS 215.296. Uses may be approved only where such uses:

(a) Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and

(b) Will not significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

(13) Roads, highways and other transportation facilities, and improvements not otherwise allowed under this rule may be established, subject to the adoption of the governing body or its designate of an exception to Goal 3, Agricultural Lands, and to any other applicable goal with which the facility or improvement does not comply. In addition, transportation uses and improvements may be authorized under conditions and standards as set forth in OAR 660-012-0035 (TSP alternatives evaluation) and 660-012-0065.

OAR 660-033-0130 Summary

Allows transportation improvements subject to OAR 660-012-0035 and 660-012-0065, which both limit such improvements to safety needs vs. capacity needs, and are subject to alternative analysis findings to find the option with the least impact on farm or forest uses. This rule also sets out the requirement to make findings of "no significant impact" on surrounding farm or forest practices.

ORS 215.213 Uses permitted in exclusive farm use zones in counties that adopted marginal lands system prior to 1993

(1) In counties that have adopted marginal lands provisions under ORS 197.247 (1991 Edition), the following uses may be established in any area zoned for exclusive farm use:

(j) Climbing and passing lanes within the right of way existing as of July 1, 1987.

(k) Reconstruction or modification of public roads and highways, including the placement of utility facilities overhead and in the subsurface of public roads and highways along the public right of way, but not including the addition of travel lanes, where no removal or displacement of buildings would occur, or no new land parcels result.

(L) Temporary public road and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed.

(m) Minor betterment of existing public road and highway related facilities, such as maintenance yards, weigh stations and rest areas, within right of way existing as of July 1, 1987, and contiguous public-owned property utilized to support the operation and maintenance of public roads and highways.

(2) In counties that have adopted marginal lands provisions under ORS 197.247 (1991 Edition), the following uses may be established in any area zoned for exclusive farm use subject to ORS 215.296 (Standards for approval of certain uses in exclusive farm use zones):

(p) Construction of additional passing and travel lanes requiring the acquisition of right of way but not resulting in the creation of new land parcels.

(q) Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels.

(r) Improvement of public road and highway related facilities such as maintenance yards, weigh stations and rest areas, where additional property or right of way is required but not resulting in the creation of new land parcels.

(10) Roads, highways and other transportation facilities and improvements not allowed under subsections (1) and (2) of this section may be established, subject to the approval of the governing body or its designee, in areas zoned for exclusive farm use subject to:

(a) Adoption of an exception to the goal related to agricultural lands and to any other applicable goal with which the facility or improvement does not comply; or

(b) ORS 215.296 (Standards for approval of certain uses in exclusive farm use zones) for those uses identified by rule of the Land Conservation and Development Commission as provided in section 3, chapter 529, Oregon Laws 1993.

ORS 215.213 Summary

Transportation improvements within existing ROW are allowed. Counties may do transportation improvements on existing facilities outside existing ROW that require acquisition of ROW, including passing and travel lanes, where no new land parcels are created. Other improvements, including new roads, would require an exception to Goal 3 or other statewide goals.

ORS 215.296 Standards for approval of certain uses in exclusive farm use zones

(1) A use allowed under ORS 215.213 (Uses permitted in exclusive farm use zones in counties that adopted marginal lands system prior to 1993) (2) or (11) or 215.283 (Uses permitted in exclusive farm use zones in nonmarginal lands counties) (2) or (4) may be approved only where the local governing body or its designee finds that the use will not:

(a) Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or

(b) Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

(9)(a) The standards set forth in subsection (1) of this section do not apply to farm or forest uses conducted within:

(A) Lots or parcels with a single-family residential dwelling approved under ORS 215.213 (Uses permitted in exclusive farm use zones in counties that adopted marginal lands system prior to 1993) (3), 215.284 (Dwelling not in conjunction with farm use) (1), (2), (3), (4) or (7) or 215.705 (Dwellings in farm or forest zone);

(B) An exception area approved under ORS 197.732 (Goal exceptions); or

(C) An acknowledged urban growth boundary.

ORS 215.296 Summary

This statute mirrors the language found in OAR 660-033-0130 where local governments must make findings of no significant change to surrounding farm or forest practices. The "no significant change" findings are not required for improvements within an urban growth boundary or exception area.

Washington County

Washington County Community Development Code: Article V – Public Facilities and Services

501-9 Limited Application of the Public Facility and Service Standards Outside the UGB

501-9.1 For the purpose of determining the impact and adequacy of public facilities and service outside the UGB only this Section of Article V applies.

501-9.2 For all Type II and Type III applications, with the exceptions noted below, impact on the following public facilities shall be considered: school, fire, police protection and public roads.

501-9.3 For the purpose of determining impact and adequacy of public roads, Section 501-8.5 F. (Sight Distance), 501-8.5 H. (Road Standards), and 501-8.4 (Dedication of Right-of-way) of this article shall apply except as provided in Sections 501-9.4 and 501-9.5. However, in all instances, traffic safety issues shall be addressed. Consideration of traffic safety shall include but not be limited to the following:

A. Applicants for developments that will generate five hundred (500) or more average daily trips (ADT), based on the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual, shall submit a traffic analysis which evaluates and makes recommendations for traffic safety. The traffic analysis shall be prepared by a certified Traffic or Civil Engineer registered in the State of Oregon. Submitted traffic analyses will be reviewed by the County Engineer for adequacy and completeness. Where development will access a state highway, the requirement to provide a traffic report shall be determined by the Oregon Department of Transportation (ODOT).

B. Based on evaluation of the traffic analysis by the County Engineer, improvements such as signalization, acceleration lanes, deceleration lanes, turning lanes, and channelization may be required by the County Engineer when found to be necessary for traffic safety under accepted traffic engineering standards and practices.

C. Sections 501-8.5 A., 501-8.5 B.(4), 501-8.5 C. and 501-8.5 E. may apply to development that will generate at least two hundred (200) ADT and that will access arterial roadways upon the County Engineer's determination that the application of these standards is in the best interest of preserving the safety of arterial roadways.

501-9.4 Applications for Type II replacement dwellings, property line adjustments, nonbuildable parcels, temporary housing permits, home occupations and

Type II and Type III applications for one (1) dwelling on an existing vacant parcel, are not subject to the requirements of Section 501-8.4 (Dedication of Right-of-way).

501-9.5 The standards of Section 501-8.5 F. (Sight Distance Standards) shall apply to all property line adjustment applications except as specifically provided in this subsection. Property line adjustments for parcels or lots which do not meet the sight distance standards of Section 501-8.5 F, (including existing accesses), shall be approved if the parcel or lot's sight distance is not decreased as a result of the property line adjustment.

501-9.6 Accesses for the following development actions are exempt from the Sight Distance standards (Section 501-8.5 F.), but are subject to improvements to maximize sight distance to the extent practicable by the county Operations Division through an Access Permit or Right-of-way Permit:

A. Replacement dwellings;

B. Nonbuildable parcels;

C. Type II and Type III applications for one dwelling on an existing vacant parcel;

D. Home Occupation applications under Section 430-63.1 in the EFU, AF-20 and EFC Districts;

E. Temporary Health Hardships; or

F. Applications which will not add additional vehicle trips to an existing access which does not meet the sight distance standards, except as required by Section 501-9.5.

501-9.7 Where partitions create less than four (4) parcels or there is a request for a Special Use for a dwelling, the applicant shall not be required to obtain service letters.

501-9.8 For those Local and Neighborhood Route roads which are not improved in accordance with Washington County's Road Design and Construction Standards or maintained by the county, and which abut the property owner's proposed development or which do not abut the development but provide direct access to the development, the property owner shall sign a waiver not to remonstrate against the formation of a local improvement district or other mechanism to improve and maintain these roads to county standards. Applications for Type II property line adjustments, nonbuildable parcels, temporary housing permits, and Type II and III applications for one dwelling on an existing vacant parcel, are not subject to this requirement.

501-9.9 For those Arterial and Collector roads which are not improved in accordance with Washington County's Road Design and Construction Standards and which abut the development site or those roads which do not abut the development site but provide access to the site, the property owner shall sign

a waiver not to remonstrate against the formation of a local improvement district or other mechanism to improve the base facility of this road (s) to county standards. Applications for Type II property line adjustments, nonbuildable parcels, temporary housing permits, and Type II and III applications for one dwelling on an existing vacant parcel, are not subject to this requirement.

501-9.10 Service provider letters from schools are only required for partitions, subdivisions, and any other development that results in the addition of dwellings (as defined in Section 106-69).

WC CDC Article V Summary

CDC 501.9 applies to development applications outside the urban growth boundary. In general, these developments are required to dedicate ROW but not required to construct frontage improvements. However, all developments are required to sign non-remonstrance waivers against future improvement efforts, and developments over 500 ADT may be required to do safety improvements based on their projected impact.

Washington County Community Development Code: Article VII – Public Transportation Facilities

701-1 Applicability

701-1.1 This Article applies to project development for the design, construction, operation, maintenance, repair and preservation of public transportation facilities including roadways and bridges, and transit, bicycle and pedestrian facilities authorized by the Washington County Transportation Plan. Conditions of approval may be imposed to address significant impacts demonstrated to arise from the specific location or design of the improvements or decisions authorized by this Article. Except as expressly provided in this Article, the improvements and decisions identified herein:

A. Are permitted in each district, and

B. Shall be subject only to the standards set forth in this Article.

701-1.2 Except as expressly provided in this Article, the standards of this Article shall not apply to Local and Neighborhood Route streets inside an urban growth boundary. The standards in this Article are applicable to all public roads and highways outside an urban growth boundary.

701-1.3 The review standards of this Article are intended to address community or neighborhood impacts rather than isolated impacts on individual properties from which right-of-way or easements are to be obtained. These isolated impacts shall be addressed through right-of-way acquisition, the eminent domain process or dedications required by development in accordance with the procedures and standards applicable thereto.

701-2 Project Categories

The following categories of public transportation improvement projects are established:

A. Exempt Projects. Projects that are exempt from the provisions of this Code. Decisions authorizing exempt projects are not land use decisions.

B. Category A Projects. Projects that involve land use standards that do not require interpretation or the exercise of policy or legal judgment. Decisions authorizing Category A projects are not land use decisions.

C. Category B Projects. Projects that involve land use criteria that are reasonably objective and generally require only limited discretion or judgment. Category B projects are assumed to be appropriate in the District. Decisions authorizing Category B projects are land use decisions.

D. Category C Projects. Projects that involve land use criteria that require the exercise of a more significant level of discretion and judgment. Category C projects generally have more significant impacts or involve more complex land use issues. Decisions authorizing Category C projects are land use decisions.

701-3 Supplemental Procedures and Standards

In addition to the standards of this Article, public transportation improvements are subject to other regulations that are not land use regulations and other practices and procedures that do not involve land use decision-making. It is not the intent of this Article to convert these supplemental regulations, procedures or practices into land use criteria or proceedings. Rather, they are mentioned to inform the public that the public transportation improvement process involves actions that extend beyond land use decision-making. These regulations, procedures and practices include the following:

A. Uniform road improvement design standards and other uniformly accepted engineering design standards and practices that are applied during project development.

B. Procedures and standards for right-of-way acquisition as set forth in Oregon Revised Statutes.

C. Public involvement guidelines and practices for involving the public during the project development phase of a public transportation improvement, as approved by the Washington County Board of Commissioners.

D. Interagency coordination, including coordination among affected Departments and Divisions within Washington County, and coordination with cities, TriMet, special districts, state and federal agencies, public utilities, and other service providers.

E. Compliance with applicable local, state, or federal rules and regulations outside of this Code.

It is recognized that public entities have a responsibility to the public to ensure furtherance of certain non-land use objectives, including the need to rapidly

address safety problems so as to protect the health and safety of the public, the need for fiscal responsibility and for efficient provision of transportation facilities and compliance with non-land use statutes or ordinances. This Article shall be construed so as to minimize interference with, and promote the furtherance of, non-land use public policy objectives.

701-5 Review Procedures

701-5.1 Except as provided in Section 701-6, Category A projects shall be reviewed and processed in the same manner as Type I actions. A project authorized under Section 703 may be elevated by the Director to a Category B project.

701-5.2 Except as provided in Section 701-6, Category B projects shall be reviewed and processed in the same manner as Type II actions. A project authorized under Section 704 may be elevated by the Director to a Category C project.

701-5.3 Except as provided in Section 701-6, Category C projects shall be reviewed and processed in the same manner as Type III actions.

701-5.4 Review approval shall expire automatically five (5) years from the date of approval unless a request for an extension is filed with the County prior to expiration.

702 - EXEMPT PROJECTS

The following public transportation projects and decisions are exempt from the provisions of this Article, applicable to all functional classifications both inside and outside an urban growth boundary, unless otherwise specified below.

702-1 Decisions taken to regulate the use of roads under the jurisdiction of the Board as the statutory "roads authority". Examples include: eliminating, modifying or imposing prohibitions or restrictions on the classes, dimensions, weights or other characteristics of vehicles or road usage, and installing or removing gates.

702-2 Maintenance and preservation of existing public roads, transportation facilities and structures within existing right-of-way and ancillary easements. Maintenance may include the in-kind replacement of structures within the flood plain, drainage hazard area or Significant Natural Resource Area, if necessary to maintain its serviceability.

702-3 Operational improvements within existing right-of-way and ancillary easements including, but not limited to striping, installation of guard rails, pedestrian ways, widening shoulders, street lighting, signalization, reflectors, buttons, signs, flashing beacons, channelization and median control.

702-4 Reconstruction, replacement, or repair of a public transportation facility within existing right-of-way and ancillary easements, provided that:

A. No removal or displacement of buildings occur;

B. No new land parcels result,

C. The facility is not located in a flood plain, drainage hazard area or Significant Natural Resource Area;

D. No change or alteration to a designated historic or cultural resource occur, pursuant to Section 373;

E. No additional travel lanes result; and

F. No reduction in bicycle and pedestrian facilities result.

702-5 Emergency repairs, improvements, detours and traffic pattern changes and other actions taken in response to an immediate and significant risk of harm or inconvenience to the traveling public or for the protection of property. To the extent any such action would otherwise require compliance with this Article, compliance shall be demonstrated within six (6) months of the action. Notwithstanding any other provision, the Review Authority shall apply the standards herein and address mitigation of impacts in light of the exigencies upon which the action was taken.

702-6 Incidental construction activities including contractor construction staging areas and stockpiling of materials within public right-of-way or easements.

702-7 Bus stops, bus shelters and bus turnouts within existing right-of- way.

702-8 Acquisition of right-of-way or ancillary easements related to an approved facility or use, provided that the acquisition is consistent with the Transportation System Plan.

702-9 Final design engineering and construction of a public transportation facility that is consistent with an approval granted under this Article.

702-10 Changes in frequency of transportation services, including rail, transit and air services.

702-11 Climbing and passing lanes within the right-of-way existing as of July 1, 1987.

702-12 Temporary public road and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed.

702-13 Acquisition of right-of-way and construction of a public transportation facility, including an interim improvement, intended exclusively to serve pedestrians and/or bicyclists, provided that:

A. No removal or displacement of buildings occur;

B. No new land parcels result,

C. The facility is not located in a flood plain, drainage hazard area or Significant Natural Resource Area;

D. No change or alteration to a designated historic or cultural resource occur, pursuant to Section 373;

E. No additional turn lanes or travel lanes result;

F. No ancillary facilities are necessary;

G. The acquisition of right-of-way is consistent with the transportation system plan;

H. The project is not part of, or related, to a larger project that otherwise would require an Article VII review; and

I. The dimensions of the facility are consistent with Road Design and Construction Standards.

703 - CATEGORY A PROJECTS

The following projects are permitted subject to the applicable development standards of this Article.

703-1 Category A Projects Permitted Inside an Urban Growth Boundary

703-1.1 Projects listed as exempt but which require the acquisition of right-of-way, provided that the acquisition is no greater than the maximum specified for the road classification in the Transportation Plan.

703-1.2 Widening or modification of an existing transportation facility, provided that:

A. The project is consistent with the Transportation Plan;

B. The right-of-way width and dimensional standards do not exceed the right-of-way width and dimensional standards set forth in the Transportation Plan;

C. The new centerline of the road does not extend more than six (6) feet in either direction from the existing centerline.

703-2 Category A Projects Permitted Outside an Urban Growth Boundary

703-2.1 Uses listed as exempt in Section 702, excluding Section 702-8, which require the acquisition of right-of-way, provided that the acquisition is no greater than the maximum specified for the road classification in the Transportation System Plan.

704 - CATEGORY B PROJECTS

The following projects are permitted subject to the applicable development standards of this Article.

704-1 Category B Projects Permitted Inside an Urban Growth Boundary

704-1.1 Widening or modification of an existing transportation facility, provided that:

A. The project is consistent with the Transportation Plan;

B. The right-of-way width and dimensional standards do not exceed the right-of-way width and dimensional standards set forth in the Transportation Plan;

C. The new centerline of the road extends more than six (6) feet from the existing centerline.

704-1.2 New transportation facilities or the extension of existing transportation facilities where the alignment is consistent with the location shown in the Transportation Plan. The right-of-way shall not exceed the right-of-way width standards set forth in the Transportation Plan.

704-2 Category B Projects Permitted Outside an Urban Growth Boundary

704-2.1 The following improvements are allowed within the AF-20, EFU, and EFC Districts, and within the RR-5, AF-5, AF-10, R-COM, R-IND and MAE Districts:

A. Alteration of a flood plain, drainage hazard area or Significant Natural Resource Area, due to construction, reconstruction, modification, or replacement of a transportation facility or any component thereof, not otherwise permitted by Section 703-2.

B. A transportation improvement that has been adopted through an exception to the goal related to agricultural lands and to any other applicable goal with which the facility or improvement does not comply.

C. Creation or restoration of wetlands in association with a transportation facility.

704-2.2 The following improvements are allowed within the RR-5, AF-5, AF-10, R-COM, R-IND and MAE Districts:

A. Realignment of a public road or highway.

B. Replacement of an intersection with an interchange.

C. Continuous median turn lane.

D. New access roads and collectors within the RR-5, AF-5, AF-10, R-COM, R-IND, and MAE Districts. These roads shall be limited to two travel lanes. Private access and intersections shall be limited to rural needs or to provide adequate emergency access.

E. Transportation facilities, services and improvements other than those listed in Sections 703-2, 704-2, and 705-2 that serve local travel needs. The travel capacity and level of service of facilities and improvements serving local travel needs shall be limited to that necessary to support rural land uses identified in the Rural/Natural Resource Plan or to provide emergency access.

F. Construction of additional passing and travel lanes requiring the acquisition of right-of-way but not resulting in the creation of new land parcels, provided that the acquisition is no greater than the maximum specified for the road classification in the Transportation System Plan.

G. Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels, provided that the alignment and right-of-way width is consistent with the Transportation System Plan.

705 - CATEGORY C PROJECTS

The projects listed below are permitted subject to the applicable standards of this Article.

705-1 Category C Projects Permitted Inside an Urban Growth Boundary

705-1.1 Modification of an existing transportation facility or construction of a new transportation facility that is authorized by and consistent with the Transportation Plan but does not meet the criteria for a Category A or B project.

705-2 Category C Projects Permitted Outside an Urban Growth Boundary

705-2.1 The following projects are allowed in AF-20, EFU and EFC Districts:

A. Realignment of a public road or highway.

B. Replacement of an intersection with an interchange.

C. Continuous median turn lane.

D. New access roads and collectors where the function of the road is to reduce local access to or local traffic on a state highway. These roads shall be limited to two travel lanes. Private access and intersections shall be limited to rural needs or to provide adequate emergency access.

E. Transportation facilities, services and improvements other than those listed in Sections 703-2, 704-3, and 705-4 that serve local travel needs. The travel capacity and level of service of facilities and improvements serving local travel needs shall be limited to that necessary to support rural land uses identified in the Rural/Natural Resource Plan or to provide adequate emergency access.

F. Construction of additional passing and travel lanes requiring the acquisition of right-of-way but not resulting in the creation of new land parcels, provided that the acquisition is no greater than the maximum specified for the road classification in the Transportation System Plan.

G. Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of

new land parcels, provided that the alignment and right-of-way width is consistent with the Transportation System Plan.

712 - PEDESTRIAN, BICYCLE AND TRANSIT FACILITIES

712-1 Inside an urban growth boundary, pedestrian facilities shall be provided along the sides of roads, excluding freeways, that are constructed as ultimate improvements, except when the standards of Section 712-3 are met.

712-2 Inside an urban growth boundary, pedestrian facilities shall be provided along the sides of roads, excluding freeways, that are constructed as interim improvements, when sufficient right-of-way is available except when the standards of 712-3 are met. Otherwise this requirement may be satisfied by improvements required by Section 712-5.

712-3 An exemption to the requirement to construct pedestrian facilities may be granted by the Review Authority upon findings that they are unnecessary at the time of project construction due to the following:

712-3.1 Pedestrian facilities are assured by others to be provided within three (3) years of project completion; or

712-3.2 Abutting land is undeveloped; and

712-3.3 There is a lack of pedestrian oriented activity and the project does not abut a school, park, transit stop, recreation center or commercial center.

712-4 For ultimate capital improvements on Arterials or Collectors as identified on the Functional Classification System Map in the Transportation System Plan, bikeways shall be constructed consistent with the Bicycle Element of the Transportation System Plan. Bikeways include striped and stenciled lanes, five (5) to six (6) feet in width, buffered bike lanes, cycle tracks, paved shoulders at least four (4) feet in width or fourteen (14) foot wide outside travel lanes in areas where constraints limit roadway width; these fourteen (14) foot wide shared, outside travel lanes shall transition to either paved shoulders or bikeways when the constraint ends.

712-5 For those road construction or reconstruction projects located within Pedestrian Districts or along "Pedestrian Parkways" or "Streetscape Overlay" identified in the Pedestrian Element of the Transportation System Plan, pedestrian enhancements such as those amenities described in the County's Pedestrian Enhancements Design Guideline Booklet shall be considered as part of the project development process.

712-6 For interim capital improvements on roadways identified as Arterials or Collectors on the Functional Classification System Map in the Transportation System Plan, a minimum of a five (5) foot paved shoulder for each outside travel lane shall be provided.

712-7 Provision of transit improvements, including bus pullouts, bus shelters and benches, shall be coordinated with the local transit authority.

713 - FARM AND FOREST IMPACTS

713-1 Category C projects located within the AF-20, EFU, and EFC Districts shall not:

A. Force a significant change in accepted farm or forest practices on surrounding lands located in the AF-20, EFU and EFC Districts; nor

B. Significantly increase the cost of accepted farm or forest practices on surrounding lands located in the AF-20, EFU and EFC Districts.

An applicant may demonstrate that these standards for approval will be satisfied through the imposition of conditions. Any conditions so imposed shall be clear and objective.

713-2 Projects identified in Section 705-2.1 A. - E. within the AF-20, EFU, and EFC Districts shall:

A. Identify reasonable build design alternatives, such as alternative alignments, that are safe and can be constructed at a reasonable cost, not considering raw land costs, with available technology. Design and operations alternatives need not be considered if they are inconsistent with applicable standards or not approved by a registered professional engineer.

B. Assess the effects of the identified alternatives on farm and forest practices considering:

(1) The impacts to farm and forest lands, structures and facilities;

(2) The effects of traffic on the movement of farm and forest vehicles and equipment; and

(3) The effects of access to parcels created on farm and forestlands.

C. Select from the identified alternatives, the one, or combination of identified alternatives that has the least impact on lands in the immediate vicinity devoted to farm or forest use, unless that alternative has a significant adverse impact on resources regulated by CDC Sections 373 (Historic and Cultural Resource Overlay District), 379 (Mineral and Aggregate Overlay District), 709 (Alterations to Flood Plain and Drainage Hazard Areas), or 710 (Alternations to Significant Natural Resources), in which case the Review Authority may choose a different alternative that balances impacts to lands devoted to farm or forest use with impacts to resources regulated by CDC Sections 373, 379, 709, or 710.

WC CDC Article VII Summary

CDC Article VII implements OAR 660-033-0130, ORS 215.296, OAR 660-012-0065, and ORS 215.213, and establishes levels of review for those permitted transportation improvements authorized by statute and rule in rural lands. The review procedure includes making findings of “no significant impact” and alternatives analysis for those improvement projects outside of an urban growth boundary that may have a greater impact. Transportation improvements exempted from the review processes include maintenance, operational, replacement, and reconstruction projects within the existing ROW, bus infrastructure within the ROW, acquisition of ROW consistent with the TSP, and ROW acquisition and construction of bicycle/pedestrian facilities.

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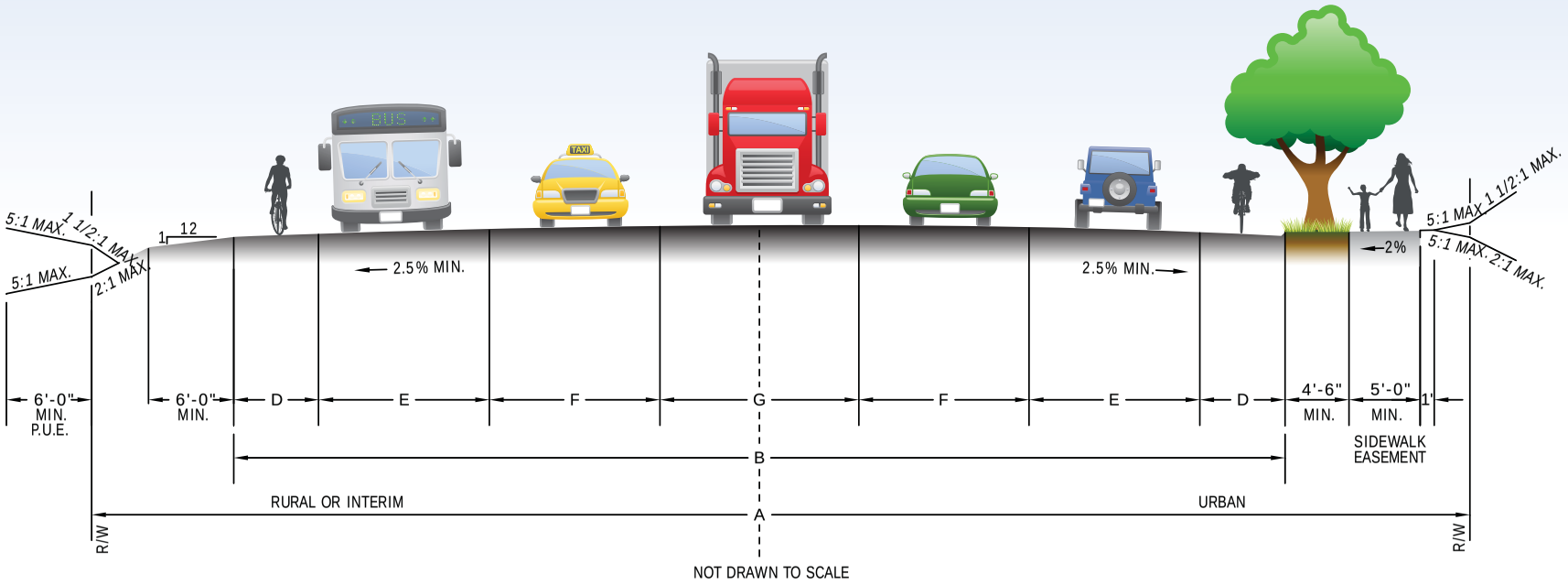
Arterial Road Section



DESIGN SPEED 45 MILES PER HOUR

Road Classification	Washington County Designation	Right of Way (Feet)	Paved Width (Feet)	Number of Lanes	Bike Lane / Paved Shoulder	Curb Travel Lane	Travel Lane(s)	Center Turn Lane	Parking Allowed
		A	B		D	E	F	G	
Arterials	A-1	122	98	7	6	12 + 12	12	14	NONE
	A-2	98	74	5	6	12	12	14	NONE
	A-3	90	60 *‡	4	6	12	12	0	NONE
	A-4	90	50 *	3	6	0	12	14	NONE

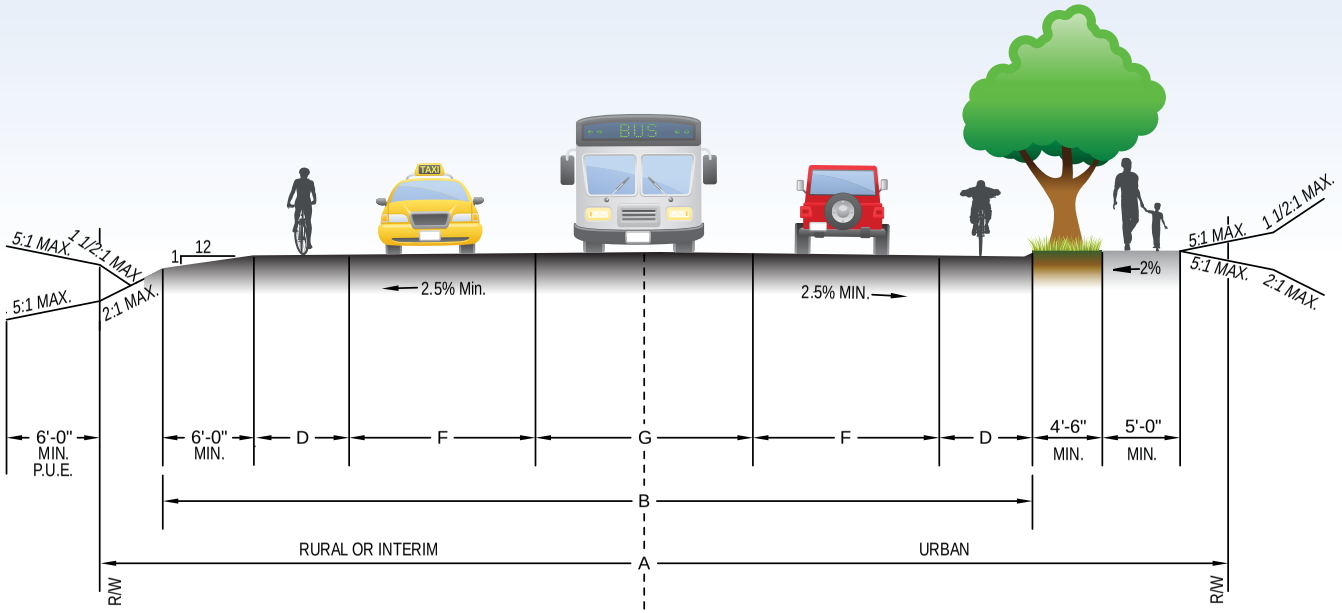
*GRAVEL SHOULDERS AND DITCHES ALLOWED FOR THESE WIDTH ONLY. STANDARD INTERIM SECTION
‡ P.U.E.'S REQUIRED OUTSIDE OF R/W IF SHOULDERS AND DITCHES ARE USED.

The applied "Washington County Designation" is determined by the county's transportation plan and the land use decision.
See Appendices A and B for maps of County arterial roads.

Arterial Road Section — Washington County Exhibit #: 1
Effective Date:

Washington County
Department of Land Use
& Transporation
Engineering Section

Collector Road Section



NOT DRAWN TO SCALE

DESIGN SPEED 35 MILES PER HOUR

Road Classification	Washington County Designation	Right of Way (Feet)	Paved Width (Feet)	Number of Lanes	Bike Lane/ Paved Shoulder	Travel Lane	Center Turn Lane	Parking Allowed
		A	B		D	F	G	
Collectors	C-1	74	50	3	6	12	14	NONE
	C-2	**	36 *‡	2	6	12	0	NONE

*GRAVEL SHOULDERS AND DITCHES ALLOWED FOR THESE WIDTHS ONLY. STANDARD INTERIM SECTION
** USE ULTIMATE R/W FOR PAVED WIDTH IDENTIFIED IN THE TRANSPORTATION PLAN, IF NOT KNOWN USE 74 FOOT R/W, IN RURAL AREAS 60' OF RIGHT OF WAY IS REQUIRED.
‡ P.U.E.'S REQUIRED OUTSIDE OF R/W IF SHOULDERS AND DITCHES ARE USED.

The applied "Washington County Designation" is determined by the county's transportation plan and the land use decision.
See Appendices C and D for maps of County collector roads.

Collector Road Section
Effective Date:
Washington County Exhibit #: 2

Washington County
Department of Land Use
& Transporation
Engineering Section

Issue Paper No. 2017-06, Appendix B

Note: Excerpted from the West Union Road Multi-Use Path Conceptual Design Plan study (2013)

EXECUTIVE SUMMARY

The West Union Road Multi-Use Path Conceptual Design Plan (Plan) identifies a conceptual improvement plan for treatments along NW West Union Road between Glencoe Road and Helvetia Road to better accommodate multi-modal circulation, to support adjacent land use and development, and to address options for treatment of stormwater runoff related to infrastructure improvements. This report is intended to inform the preliminary engineering process and implementation of the Plan.

West Union Road is classified as an arterial and is located within the City of North Plains city limits and in rural Washington County. The Washington County Transportation System Plan (TSP) and the State of Oregon Transportation Planning Rule (TPR) calls for multi-modal facilities along arterials, to create corridors that will encourage and support bicycling and walking by facilitating access to transit, schools, neighborhoods, and businesses. This corridor is currently served by one eastbound travel lane and one westbound travel lane without bicycle lanes or sidewalks except in a few sections at the western end and on the north side of the corridor. More bicyclists than walkers use the corridor today and the improvement of this connection to surrounding destinations will likely attract more users and serve an important community need. Public comment has indicated that there is a demand for bicycle facilities along West Union Road.

The physical constraints of the corridor present a set of unique challenges and restrict viable alternatives. The constraints include:

- Narrow roadway widths with minimal shoulders, and rights of way.
- Existing environmental resources including stream channels, potential wetlands, and floodplains.
- Intermittent commercial and light industrial development with existing sidewalk, stormwater, and utilities in-place.
- Existing intersections with planned future improvements.

The Plan explored potential alternatives for constructing a 10-foot wide multi-use use on either side of West Union Road, widening the roadway shoulder to accommodate bicycles and other roadway users or, alternatively consider intermittent shoulder widening to address safety concerns.

Parallel routes in the study area were found to also have an absence of existing sidewalks and bike lanes, and minimal shoulders. These routes also lack the desirable characteristics of high quality bicycle facilities and directness. The out-of-direction travel that would be required by pedestrians and bicyclist would be between 0.5 and 2.0 miles.

Considerations for the concept design include, stormwater management requirements, minimizing additional right-of-way needs, traffic capacity and safety, constructability and funding feasibility. The resulting preferred conceptual design is intended to be used as the basis for preliminary engineering and construction of improvements on West Union Road.

The roadway concepts evaluated include:

- Construct a separated 10-foot wide multi-use path on one side for the full length of the corridor.
- Construct interim roadway widening on both sides the full length to include two 12-foot lanes with 4-foot shoulders.
- Construct intermittent shoulder widening at horizontal curves or up-hill grades to provide a refuge for bicyclists to improve safety.

The stormwater approach includes:

- Construct a maximum 2-foot deep vee ditch to handle stormwater conveyance where needed.
- Construct a 4 foot wide flat-bottom swale with a minimum length of 100 feet at outfall areas to meet water quality requirements.
- Coordinate water quality and quantity design for the corridor project with Washington County, Clean Water Services (CWS), and City of North Plains.
- Provide stream crossing designs to satisfy fish passage requirements and minimize impacts to wetlands.

The following additional efforts should be addressed prior to the preliminary design phase:

- Conduct survey and mapping to determine existing terrain, features, and property boundaries.
- Complete a soil and geotechnical analysis.
- Complete wetland delineation.
- Locate underground utilities.

Three alternatives were developed ranging in magnitude from constructing intermittent widening on West Union Road which minimizes environmental and property impacts and costs while improving safety, to constructing a separate multi-use path on the north side of the roadway which has higher impacts and costs but provides improved user and safety benefits. These three alternatives are summarized below and include a concept level estimate of roadway and structure construction costs, right of way acquisition costs if needed, preliminary and construction engineering estimated at 25% of construction costs, and a 25% contingency:

- Constructing a 10-foot minimum multi-use path on the north side of the roadway between Glencoe Road and Helvetia Road. Modifications to the existing roadway will be limited to grading to construct a roadway ditch. Total cost is estimated at $3.01M which includes; construction at $0.96M for the path and at $0.53M for the McKay Creek and Storey Creek structures, a $0.37M contingency, $0.47M for PE&CE, and $0.68M for property acquisition.
- Constructing 5-foot shoulder widening on both sides for the total length of the corridor to allow wider 12-foot lanes and a 4-foot shoulder between Glencoe Road and Helvetia Road. Grading will be required to provide a stormwater ditch or water quality swale to handle flows from the added impervious area. No multi-use path would be constructed. Total cost is estimated at $2.16M which includes; construction at $1.38M for the full length widening with no structures, a $0.35M contingency, $0.43M for PE&CE, and no property acquisition required with all work being done within the existing right of way.
- Constructing intermittent 5-foot wide shoulder widening on horizontal curves or uphill grades to improve safety. Improvements that require extensive stormwater, water quality, and environmental permitting or right-of-way acquisition will be limited. The existing lane widths would remain at 10- to 11-feet in this concept providing a 5-foot shoulder. Total cost is estimated at $0.74M which includes; construction at $0.47M for the full length widening with no structures, a $0.12M contingency, $0.15M for PE&CE, and no property acquisition required with all work being done within the existing right of way.

- In areas where a separate multi-use path may not be desirable due to existing landscaping, development, or restricted right-of-way the path would be located near the roadway separated by a minimum 4-foot shoulder and channelization if appropriate.
- In developed areas with an existing sidewalk, the sidewalk would be removed and the path located a minimum of 1.0 foot from the right-of-way line to minimize impacts to development and not restrict future roadway widening to provide bike lanes, curb and sidewalk.
- Where environmental constraints exist, the path will be moved out to minimize impacts to jurisdictional ditches or wetlands. Culverts or structures will be provided for ditch crossing and will consider fish passage when needed.
- Where a utility pole and path conflict exists, the utility will be required to relocate the pole. A 2-foot minimum shy distance to poles, utility vaults, or obstructions that may be considered a safety hazard will be provided.

4.2.2 Shoulder Widening, Full Length

Widen the roadway to include 12-foot lanes and provide 4-foot shoulder widening on both sides for the full length of West Union Road between Glencoe Road and Helvetia Road.

The full length shoulder widening would construct 5-foot of total widening to allow width for 12-foot lanes and 4-foot shoulders on both sides of the roadway, the entire length of the project. Sawcut the existing pavement just outside the existing shoulder stripe and provide a 4-foot paved shoulder with a 2:1 minimum slope. This widening approach has been used throughout Washington County to provide a cost effective alternative to providing bicycle facilities. This approach was used on Jackson School Road north of Evergreen Road and Glencoe Road south of Highway 26.

4.2.3 Shoulder Widening, Intermittent Sections

Provide 5-foot shoulder widening on short sections to improve safety. Identify uphill grades or sections with restricted sight distance and provide asphalt shoulder widening as needed between Glencoe Road and Helvetia Road. Existing lane width would be maintained with a new 5-foot wide shoulder. This would provide enough width to stripe a future 12-foot lane and 4-foot shoulder.

The intermittent widening concept was evaluated to improve safety along the corridor while minimizing cost. Areas with restricted sight distance such as horizontal and vertical curves would be widened to a location past curve where safety is improved. Uphill grade sections where slower bicycle traffic would restrict traffic would be widened with a 5-foot wide shoulder. It was assumed that bicycles traveling downhill would travel at speeds closer to that of the motorists and could mix easier and more safely with traffic than in the northbound or uphill directions where the speed differential would be greater. See concept plans in Appendix C.

4.3 FINAL CONCEPTS

The final concepts considered the data collected for the corridor including: traffic, environmental, geotechnical, geometry, safety conditions, and other factors influencing the existing transportation conditions. This information was used to further refine and evaluate needs and deficiencies for all users. Comments, and input from the County and project team helped refine the preferred conceptual design presented in Appendix C.

The Concepts that were evaluated include:

- Constructing a 10-foot minimum multi-use path on the north side of the roadway between Glencoe Road and Helvetia Road. Modifications to the existing roadway will be limited to grading to construct a roadway ditch.
- Constructing 5-foot shoulder widening on both sides for the total length of the corridor to allow wider 12-foot lanes and a 4-foot shoulder between Glencoe Road and Helvetia Road. Grading will be required to provide a stormwater ditch or water quality swale to handle flows from the added impervious area. No multi-use path would be constructed.
- Constructing intermittent 5-foot wide shoulder widening on horizontal curves or uphill grades to improve safety. Improvements that require extensive stormwater, water quality, and environmental permitting or right-of-way acquisition will be limited. The existing lane widths would remain at 10- to 11-feet in this concept providing a 5-foot shoulder.

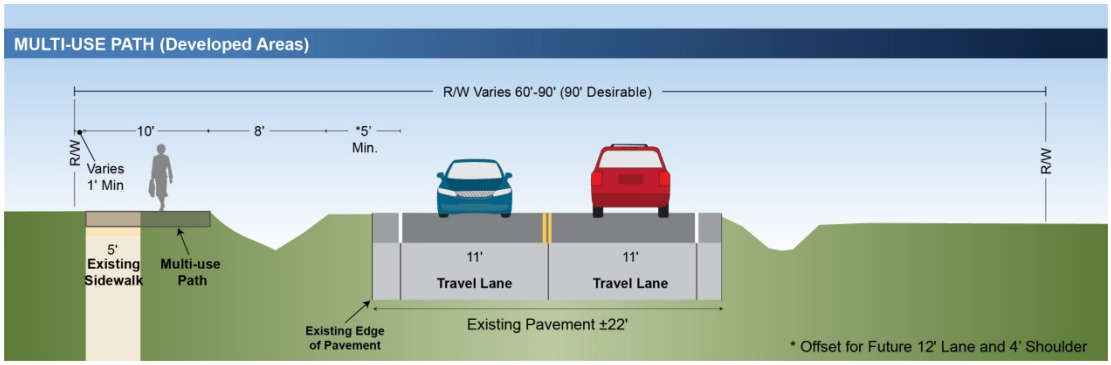


Figure 4-8. Proposed Multi-Use Path - Developed Areas

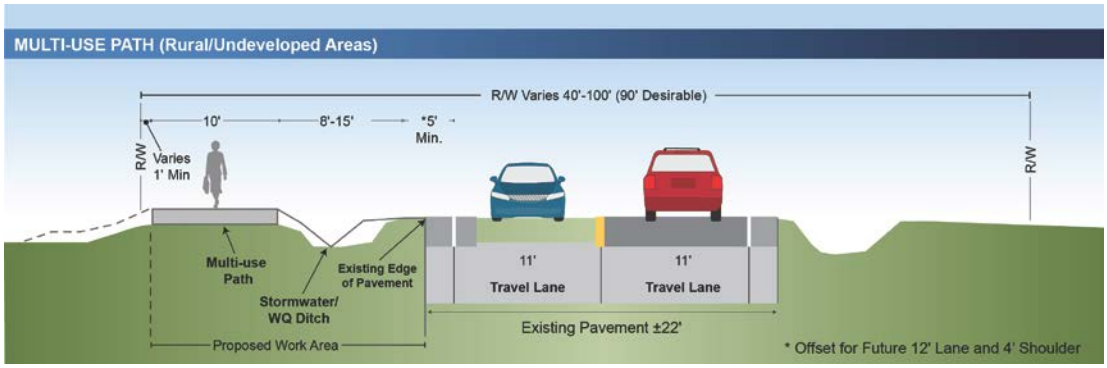


Figure 4-9. Proposed Multi-Use Path - Rural/Undeveloped Areas

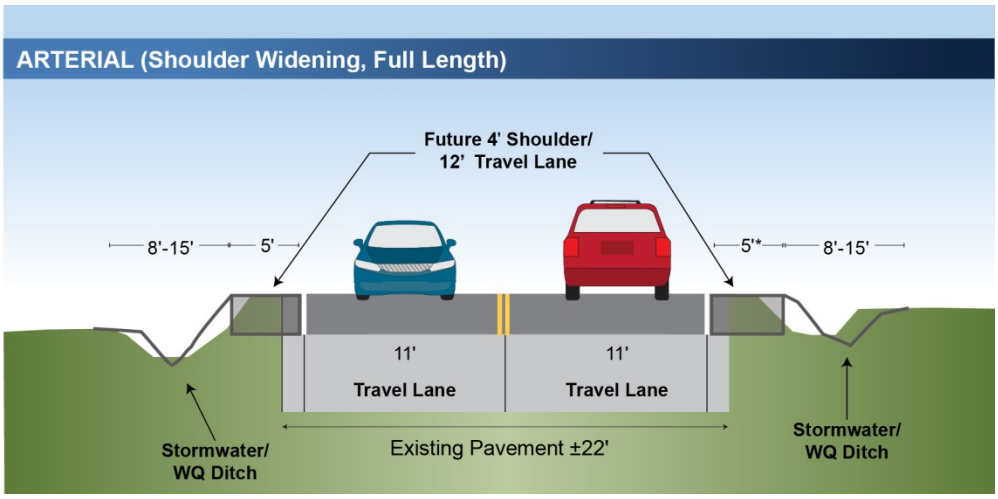


Figure 4-10. Arterial with Shoulder Widening, Full Length

The following factors were considered in the selection of the preferred conceptual sections in addition to those previously discussed:

- Provides consistent facilities for bicyclists and pedestrians along the length of the corridor.
- Continues to provide the minimum section for vehicles and accommodates truck traffic.
- The existing traffic's 85th percentile speed exceeds the posted speed by up to 5 miles per hour despite the narrow roadway and substandard horizontal curvature.
- Onsite infiltration and sheet flow is not a feasible option for the majority of the West Union Road corridor due to the poor draining soils. The proposed improvements will require an enclosed stormwater conveyance system in constrained or developed sections with quality and quantity control handled prior to the stream or ditch outfalls. There are some small sections where swale or storage options are available within the right-of-way. The enclosed system will increase costs. Stormwater quantity and quality control facilities will likely require the purchase of additional right-of-way or property. Outfall to the east connects to the McKay or Storey Creek drainage basin.
- The existing McKay or Storey Creek basins can currently handle additional stormwater volume from the proposed project. Mitigation opportunities exist and include purchasing property in the floodplain to increase available storage.

The identification of a design concept is an important step in focusing the further efforts to secure funding and promoting a positive walking and bicycling environment.

4.3.1 Right-of-Way

Right-of-way will be required to construct the multi-use path on the north side of West Union Road. The proposed multi-use path was located using the existing roadway location, which is not necessarily located within the center of the existing right-of-way. In contrast, the existing right-of-way was recently certified and the record of survey documents were used to identify the property areas needed outside the existing public right-of-way.

The proposed right-of-way line was identified using a 5-foot offset from the outside of the proposed multi-use path to the existing right-of-way. These areas were used in conjunction with estimated square foot property values for each property. This property cost was added to an estimated acquisition cost to develop a total right-of-way cost estimate.

These individual values will be considered when evaluating the proposed alignment and overall cost to identify areas where the alignment may be adjusted to minimize impacts and cost.

4.3.1.1 Concept Level Cost Estimate

Table 4-1. Cost Estimate Summary

		Estimated Cost
Multi-Use Path	Path, stormwater	$961,200
	Structures	$531,000
	Construction Total	$1,492,200
	Contingency (25%)	$373,100
	Preliminary and Construction Engineering (25%)	$466,300
	Land Acquisition	$680,500
	Total:	**$3,012,100**
Shoulder Widening – Full Length	Path, stormwater	$1,379,900
	Structures	$0
	Construction Total	$1,379,900
	Contingency (25%)	$345,000
	Preliminary and Construction Engineering (25%)	$431,200
	Land Acquisition	$0
	Total:	**$2,156,100**
Shoulder Widening – Intermittent Safety Widening	Path, stormwater	$473,900
	Structures	$0
	Construction Total	$473,900
	Contingency (25%)	$118,500
	Preliminary and Construction Engineering (25%)	$148,100
	Land Acquisition	$0
	Total:	**$740,500**

For a detailed breakdown of costs see Appendix D.

4.3.2 Stormwater Management Alternatives

BMPs and designs that address the stormwater management challenges mentioned above are described below. These were collaboratively selected based on discussions and site visits with County Engineering, Operations, and Planning staff. The proposed path is not exempt from requiring surface water runoff treatment.

Flow being collected from the roadway crown and from the path to the ditch system requires water quality treatment and conveyance design. Working with CWS and the County, it was determined that the layout of the project is most conducive to a ditch/swale conveyance and water quality treatment system. These would be located between the roadway and the

proposed path, with the treatment swale located at the downstream end of the ditch and just upstream of the receiving waters. To avoid impacts and mitigation/permit triggers, locate treatment swales outside of DHAs or jurisdictional wetlands if possible. See the attached conceptual plans for proposed stormwater management designs.

The existing ditches and channels along West Union Road are currently likely providing some passive water quality treatment. However, passive treatment is inadequate for future development under current treatment standards. In order to meet treatment and conveyance standards along the project corridor, the roadside ditches may need to be modified/retrofitted. Accordingly, to accommodate these modifications it may be necessary to acquire right-of-way in several areas along the corridor.

At the intersection of Helvetia Road and West Union Road there exists a triangular shaped piece of property between the roadways. It is owned by the Hillsboro School District #1Jl as part of West Union Elementary School but could potentially be acquired by the project, and become a site for a stormwater management facility.

A concept level worst-case swale size was developed for a catchment along West Union Road. The analysis resulted in a swale length of 100 feet which is the minimum allowable per standards. To facilitate county maintenance mowing, the swale base width was selected to be 4 feet wide. Because it is worst case scenario, and minimum allowable length, all proposed facilities are the same dimensions. A design analysis memo is provided in Appendix B. The alignment of the project path is dictated by the location of anticipated water quality treatment locations at each drainage way.

For the next design phase, a more refined placement and detailing of each facility will be contingent upon delineated and mapped wetlands, DHA's and flood plains throughout the site. In general to avoid impacts to jurisdictional waterways and wetlands, the path has been designed to span small waterways and potential wetlands crossing the alignment.

Hydromodification is a stormwater management concern among the regulatory community. For this application, it represents stream degradation by bank and bed erosion due to the introduction of increased flows or durations above those seen historically. There are currently no standards requiring hydromodification, but there likely will be within a few years. Currently detention mitigation is required if localized or downstream flooding is an issue. If flow is concentrated from 5,280 square feet of surface, a downstream impacts analysis must be performed to ¼ mile downstream. At the next design phase, a determination whether this threshold is met should be performed.

If existing hydraulic restrictions are responsible for localized flooding, as an alternative to detention mitigation, the restriction can be removed or modified to eliminate the problems. However, removing the restriction cannot create problems downstream.

4.3.3 Path Maintenance

Trail maintenance cost varies by trail location, ownership and trail amenities. Dependent on ownership, budgets and trail use, maintenance can range from being on a routine schedule or can be done "as needed," when funds are available. It also depends on how the responsible agency defines maintenance and operation costs.

In urban areas, multi-used asphalt trails usually have the basic following maintenance activities performed on an annual basis. Some of these activities occur more frequently than others, dependent on the context in which the trail is situated.

Maintenance on a continuous and scheduled basis:

- Trail inspection

- Trail sweeping
- Trash removal
- Mowing of vegetation
- Tree / shrub pruning

Maintenance to be performed on an irregular / as needed basis:

- Pavement repair
- Trail replacement
- Weed control
- Trail drainage control
- Revegetation
- Graffiti control

Multi-use asphalt trails typically only require extensive paving jobs every 20 years because of light use and the lack of vehicle traffic. Typically a slurry seal or chip seal should be performed every 10 years. Additional activities, such as education and interpretation or developing wayfinding/mapping, may add additional costs to the maintenance and operations plan but may add livability values for trail users.

4.4 SUMMARY

The purpose of this study was to identify concepts for bicycle and pedestrian-related improvements and identify the opportunities and constraints to construct these concepts. Three concepts were identified and evaluated to the extent that a comparison would help the county identify an alternative to move into final design. The work effort focused on identifying and presenting existing policy considerations, physical constraints and opportunities in the corridor and a set of preferred conceptual design cross sections. The cross section concepts include:

- Constructing a multi-use path independent of roadway improvements on West Union Road.
- Constructing shoulder widening similar to recent projects on Glencoe Road and Helvetia Road to improve safety for bicycles and pedestrians.
- Constructing intermittent shoulder widening to improve safety to bicycles.

This concept study utilized existing information to support the selection of a preferred concept by the County. When a concept is selected the following additional studies or efforts should be addressed prior to preliminary design.

- Conduct survey and mapping to determine existing terrain, features, and property boundaries.
- Conduct site surveys for potential jurisdictional waters.
- Complete a more detailed stormwater analysis.
- Complete a soil and geotechnical analysis.
- Evaluate current environmental policies, regulations, and technology relating to stormwater.

- Coordinate unavoidable impacts to natural resources with local, state, and federal permitting agencies.
- Coordinate water quality and quantity for the corridor project with Washington County and CWS (within their jurisdiction).

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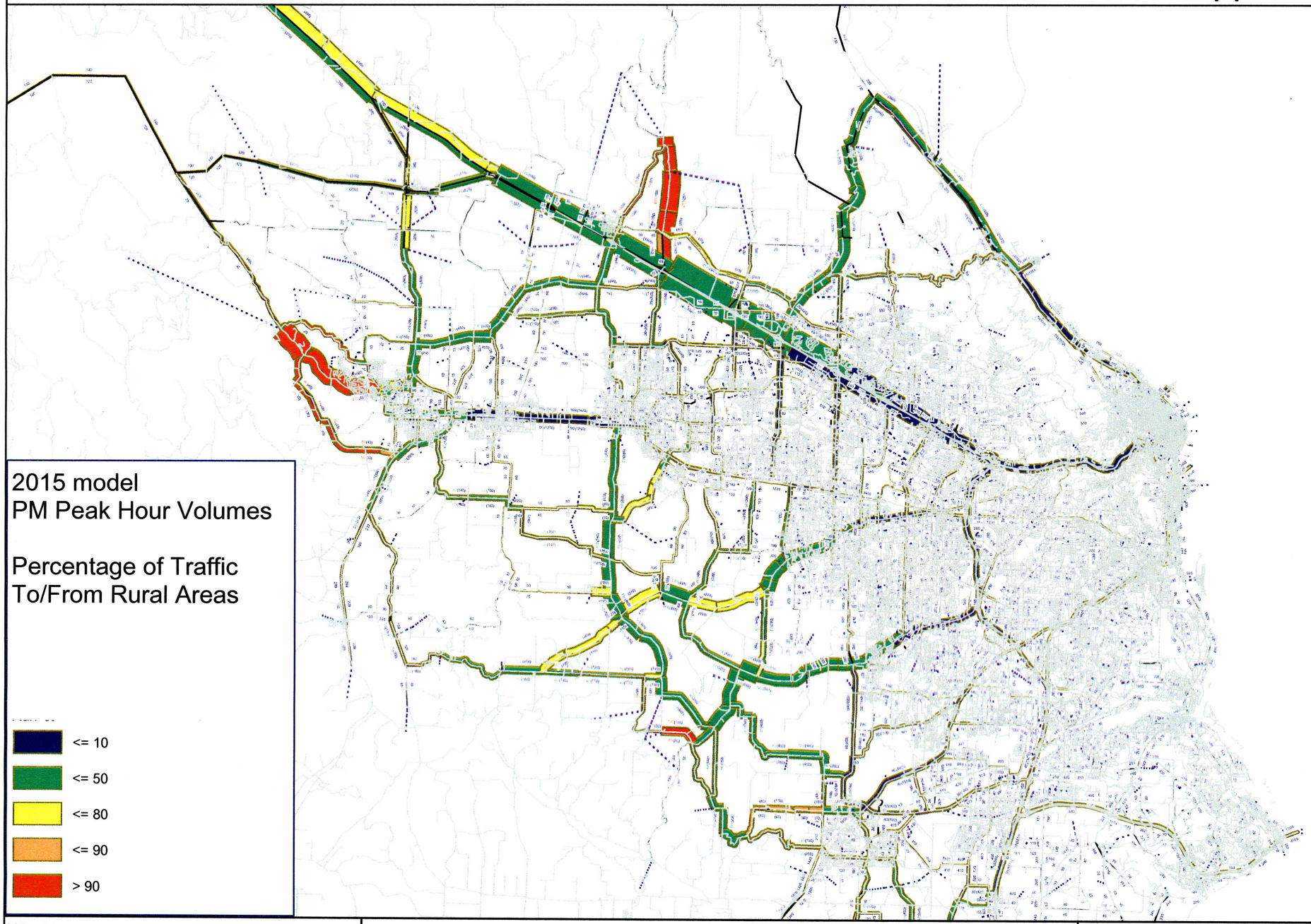
2015 PM Peak Hour Volumes (To/From Rural Areas) Appendix D



Issue Paper No. 2017-06
Appendix D

Washington County	Westside Focus Model	2015 PM Peak Hour
Julie Sosnovske	2015 Network Seed_js8sk-1_MetRM_slowCornEv_RuralFB.ver	31.05.2017

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Appendix E: Issues Impacting Rural Roads

High traffic volumes on rural roads is a complex and multifaceted topic, with impacts that often differ from location to location and person to person. In addition to the issues stated in the 2016 and 2017 Work Programs, other topics have been identified by staff through other issue papers and projects, anecdotal conversations with Washington County residents, project development review, and research. Below is a non-exhaustive list of issues impacting rural roads.

- **Conflicts between Different Travel Modes**. Large farm equipment, bicycles and pedestrians may need to use travel lanes on rural roads concurrently, which can cause conflicts between automobile and non-automobile travel modes. Slower moving vehicles may cause congestion, with general traffic backing up behind slower moving travelers when passing is not possible. As vehicle and bicycle volumes increase, the potential for conflict also increases, particularly in shared-lane situations.

- **Safety Concerns.** Safety concerns include road geometry and construction deficiencies, sight distance issues, limited access control, and differing travel speeds among users. Rural roads may have tight corners, overgrown vegetation adjacent to the roadway, vertical and/or horizontal curves that impede sight distance, driveways that may not be easily visible, and other obstacles in the sight lines for drivers. These kinds of concerns become more of an issue with higher volumes of traffic (traveling at various speeds), which increase the exposure of drivers to these sight distance issues. Access spacing and other access controls are not generally implemented on rural roads, which can contribute to conflicts with driveway access points and can cause problems for drivers trying to enter or exit roads with high volumes of traffic and/or high speeds.

- **Inadequate Facilities for Bicyclists** - Rural roads typically do not have separate bicycle facilities (e.g., bike lanes, wide paved shoulders, or separated bicycle facilities). The lack of adequate bicycle facilities may require bicyclists to travel in the travel lanes, which impacts overall traffic flow and safety for bicyclists and for general traffic.

- **Traffic Congestion along roads, at key intersections, and in roadway sections with tight curves.** General traffic may back up behind slower moving farm equipment (particularly oversize farm equipment that is difficult to get around), and behind bicyclists travelling in the travel lane when there are no bike lanes or adequate shoulders; and may delay shipping of agricultural products (an issue cited by farmers in the Rural Tourism Study). Most intersections on rural roads are controlled with stop signs (if there is any control at all). Increasing volumes of traffic on rural roads lead to potentially long delays for travelers going through these intersections. In some locations roundabouts have been installed to facilitate traffic flow and improve safety. Some rural roads have multiple right angle turns as the road follows section lines, or have other issues that require vehicles to move more slowly. Congestion can develop along these sections since traffic must slow down to safely travel along these sections.

- **Increased maintenance needs.** Increased levels of traffic on rural roadways can accelerate the deterioration of these roads, especially if there are increases in the number of heavy vehicles using these roads.

Washington County has about 1300 centerline miles of roadway to maintain. About 50 percent of those miles are on rural roads that were not designed and built to handle the traffic volumes they are experiencing now and are anticipated to handle in the future. During routine maintenance on rural roadways it may be possible to make some associated minor "improvements" (e.g., shoulder widening/paving, intersection control, restriping, other); however, this can increase the cost of the maintenance project.

- **Maintenance during inclement weather situations and emergency preparedness.** In weather and other emergencies, limited resources are focused on primary urban and rural roads in the County. Increasing travel demand on secondary rural roads shifts to other facilities during emergencies and inclement weather situations. In addition, some rural roads providing access to critical facilities may be cut off by receiving flooding or other weather events.

- **Impacts to rural lifestyle and quality of life.** Traffic-related noise, air pollution, and light pollution from street lights may impact the "quiet, rural" lifestyle desired by some rural residents and may impact adjacent farms. Traffic volumes may lead to difficulty with getting farm equipment and products moved efficiently, particularly in the peak AM and PM commute hours. Traffic congestion may impact the ability of rural residents to exit their properties quickly in the case of emergency medical situations. In addition, these same conditions may impede safe and rapid access by emergency vehicles to reach crashes and emergency situations on properties in the rural areas (see Rural Tourism Study).

- **Widening existing roads and planning new roads in the rural areas.** Building new roads through rural areas may be a solution to serve current and future needs for mobility and connectivity in Washington County. However, widening existing roads in the rural area and/or intersection improvements on existing roads to accommodate increased travel demand may not be compatible with adjacent properties and may require special approvals from state agencies. Planning for new roads would require navigating the exceptions process, as well as resolving issues related to roadway design. Per OAR 660-012-0065 some transportation improvements are consistent with Goals 3, 4, 11 and 14 without a goal exception (e.g., new access roads and collectors within a built or committed exception area, or in other areas where the function of the road is to reduce local access to or local traffic on a state highway). Early planning for new roads in Urban Reserve areas could help the cities and county do concept planning more effectively and efficiently and enable designation and preservation of right-of-way for future road needs.

- **Design considerations for border roads.** Border roads are roads that have urban-designated land on one side and rural-designated land on the other side. Properties developing on the urban side may cause traffic impacts that will require expansion of an existing road or construction of a new road. This can result in several issues, including: right-of-way needs and dedication, design considerations, and financial responsibility (private versus public responsibility). Roads that are built to urban standards on one side and rural standards on the other can have safety implications; for example, a transit stop on the rural side of the road will not have the amenities of a transit stop on the urban side. Design standards for each side of the road are a factor as well, including: bicycle/pedestrian facilities, street lights, and stormwater facilities.

Washington County Rural Road Conflict Elements

Road Name	Functional Classification	On Truck Route	Deficient Shoulder	Above Average ADT	Vineyard & Valley Scenic Tour Route	On Promoted Bike Route
Hwy 26	Principal Arterial	✓	✓			
Hwy 47	Principal Arterial	✓	✓	✓	✓	✓
Wilson River Hwy	Principal Arterial	✓	✓	✓		✓
175th Ave	Arterial		✓	✓		
185th Ave	Arterial		✓	✓		
65th Ave	Arterial		✓			
B St	Arterial		✓	✓		✓
Beef Bend Rd	Arterial		✓	✓		✓
Brookman Rd	Arterial					✓
Brookwood Pkwy	Arterial	✓				✓
Cornelius Pass Rd	Arterial	✓	✓	✓		
Cornelius Schefflin Rd	Arterial	✓	✓	✓		✓
Elligsen Rd	Arterial	✓	✓	✓		
Elwert Rd	Arterial		✓	✓		
Evergreen Rd	Arterial	✓				✓
Farmington Rd	Arterial	✓	✓	✓		✓
Fern Hill Rd	Arterial		✓			✓
Gales Creek Rd	Arterial		✓	✓	✓	
Germantown Rd	Arterial		✓	✓		
Glencoe Rd	Arterial	✓	✓	✓		
Golf Course Rd	Arterial		✓	✓		✓
Grabel Rd	Arterial		✓	✓		
Grabhorn Rd	Arterial		✓			
Hwy 219	Arterial	✓	✓	✓	✓	✓
Hwy 8	Arterial	✓	✓			
Jackson School Rd	Arterial	✓	✓	✓	✓	✓
Ladd Hill Rd	Arterial		✓			✓
Martin Rd	Arterial	✓	✓	✓		
Minter Bridge Rd	Arterial		✓			✓
River Rd	Arterial	✓	✓	✓		
Roy Rogers Rd	Arterial	✓		✓	✓	✓
Scholls Ferry Rd	Arterial	✓	✓	✓	✓	✓
Scholls Sherwood Rd	Arterial		✓	✓		✓
Thompson Rd	Arterial		✓	✓		
Tile Flat Rd	Arterial		✓	✓		
Tongue Rd	Arterial		✓	✓		✓
Tonquin Rd	Arterial	✓	✓			✓
Verboort Rd	Arterial	✓	✓	✓		✓
West Union Rd	Arterial	✓	✓		✓	
Zion Church Rd	Arterial	✓	✓	✓	✓	✓
229th Ave	Collector		✓			

Road Name	Functional Classification	On Truck Route	Deficient Shoulder	Above Average ADT	Vineyard & Valley Scenic Tour Route	On Promoted Bike Route
82nd Ave	Collector		✓			
Aebischer Rd	Collector		✓			
Bacona Rd	Collector		✓			
Bald Peak Rd	Collector		✓	✓	✓	✓
Banks Rd	Collector		✓			
Burkhalter Rd	Collector		✓			✓
Chapman Rd	Collector		✓			✓
Cipole Rd	Collector	✓				
Clapshaw Hill Rd	Collector		✓		✓	✓
Clark Hill Rd	Collector	✓	✓	✓		
Dairy Creek Rd	Collector		✓			
Dersham Rd	Collector		✓			✓
Dixie Mill Rd	Collector		✓			
Dixie Mountain Rd	Collector		✓			
Edy Rd	Collector		✓	✓		
Elsner Rd	Collector		✓	✓		✓
Fisher Rd	Collector		✓			
Gaston Rd	Collector		✓			✓
Gordon Rd	Collector		✓	✓		
Green Mountain Rd	Collector		✓			
Greenville Rd	Collector		✓	✓	✓	✓
Harrington Rd	Collector		✓		✓	
Helvetia Rd	Collector	✓	✓		✓	✓
Hillside Rd	Collector		✓			✓
Hornecker Rd	Collector		✓			✓
Hwy 99	Collector	✓	✓	✓	✓	
Iowa Hill Rd	Collector		✓	✓		
Jackson Quarry Rd	Collector		✓		✓	
Kansas City Rd	Collector		✓	✓	✓	✓
Kemmer Rd	Collector		✓	✓		
Kemper Rd	Collector		✓	✓		✓
Kirkman Rd	Collector		✓	✓	✓	
Kruger Rd	Collector		✓	✓		✓
Laidlaw Rd	Collector		✓			
Laurel Rd	Collector		✓	✓	✓	
Laurelwood Rd	Collector		✓		✓	
McCormick Hill Rd	Collector		✓			
Meek Rd	Collector		✓	✓		✓
Morgan Rd	Collector		✓			
Mountain Home Rd	Collector		✓	✓		✓
Mountaindale Rd	Collector		✓			✓
North Ave	Collector		✓			

Road Name	Functional Classification	On Truck Route	Deficient Shoulder	Above Average ADT	Vineyard & Valley Scenic Tour Route	On Promoted Bike Route
Norwood Rd	Collector		✓			
Old Cornelius Pass Rd	Collector		✓	✓		
Old Hwy 47	Collector		✓			✓
Patton Valley Rd	Collector		✓			
Phillips Rd	Collector		✓			
Purdin Rd	Collector		✓	✓		✓
Ritchey Rd	Collector		✓			✓
Rood Bridge Rd	Collector		✓	✓		✓
Rosedale Rd	Collector		✓	✓		
Roy Rd	Collector		✓	✓	✓	✓
Scoggin Valley Rd	Collector					
Sell Rd	Collector		✓			
Sellers Rd	Collector		✓			
Shadybrook Rd	Collector		✓			✓
Shore Dr	Collector		✓			
Simpson Rd	Collector		✓			✓
Spring Hill Rd	Collector		✓		✓	✓
Springtown Rd	Collector		✓		✓	✓
Stafford Rd	Collector		✓			✓
Strohmayer Rd	Collector		✓			✓
Susbauer Rd	Collector		✓			✓
Thatcher Rd	Collector		✓	✓		✓
Timber Rd	Collector		✓			
Unger Rd	Collector		✓	✓		
Vanderschuere Rd	Collector		✓			
Wilksboro Rd	Collector		✓			✓
Wilksboro Rd	Collector		✓			✓
Woollen Rd	Collector		✓			
Wren Rd	Collector		✓			✓