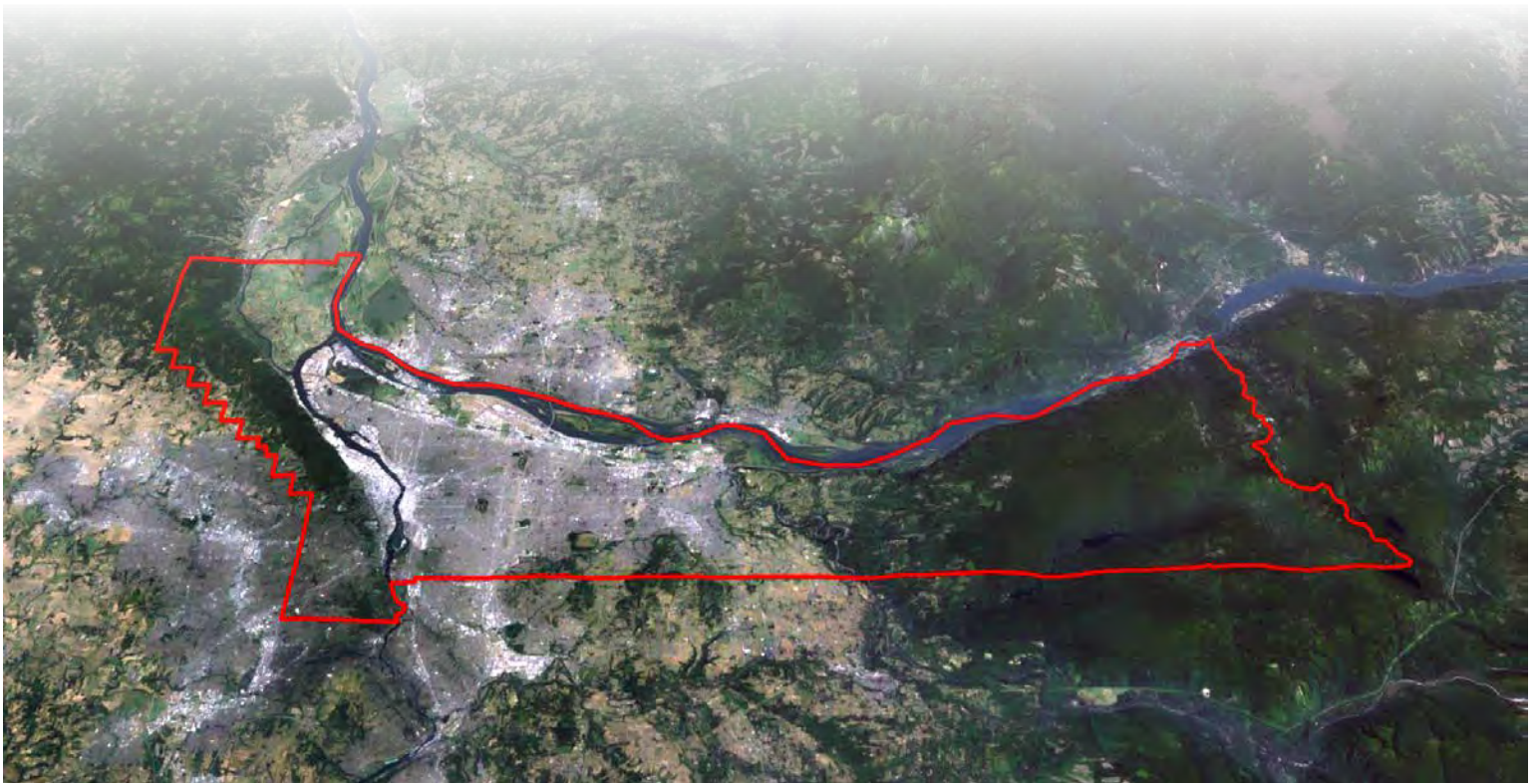


Appendix A Baseline Report Memo

Baseline Report



Demographics, Land Use, Transportation, and Policy



Prepared by Angelo Planning Group, JLA Public Involvement, Kittelson & Associates, SWCA
Environmental Consultants, GeoEngineers, Oregon Public Health Institute.

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INTRODUCTION & STUDY AREA

This report describes three types of information relevant to the update of the Multnomah County Comprehensive Plan and Transportation System Plan:

1. Existing conditions with regard to population, development in the rural areas of Multnomah County
2. Information about state, regional and local plans, statutes and administrative rules and other policies relevant to the Comprehensive Plan update
3. Transportation plans and policy issues relevant to the Comprehensive Plan and TSP update ¹

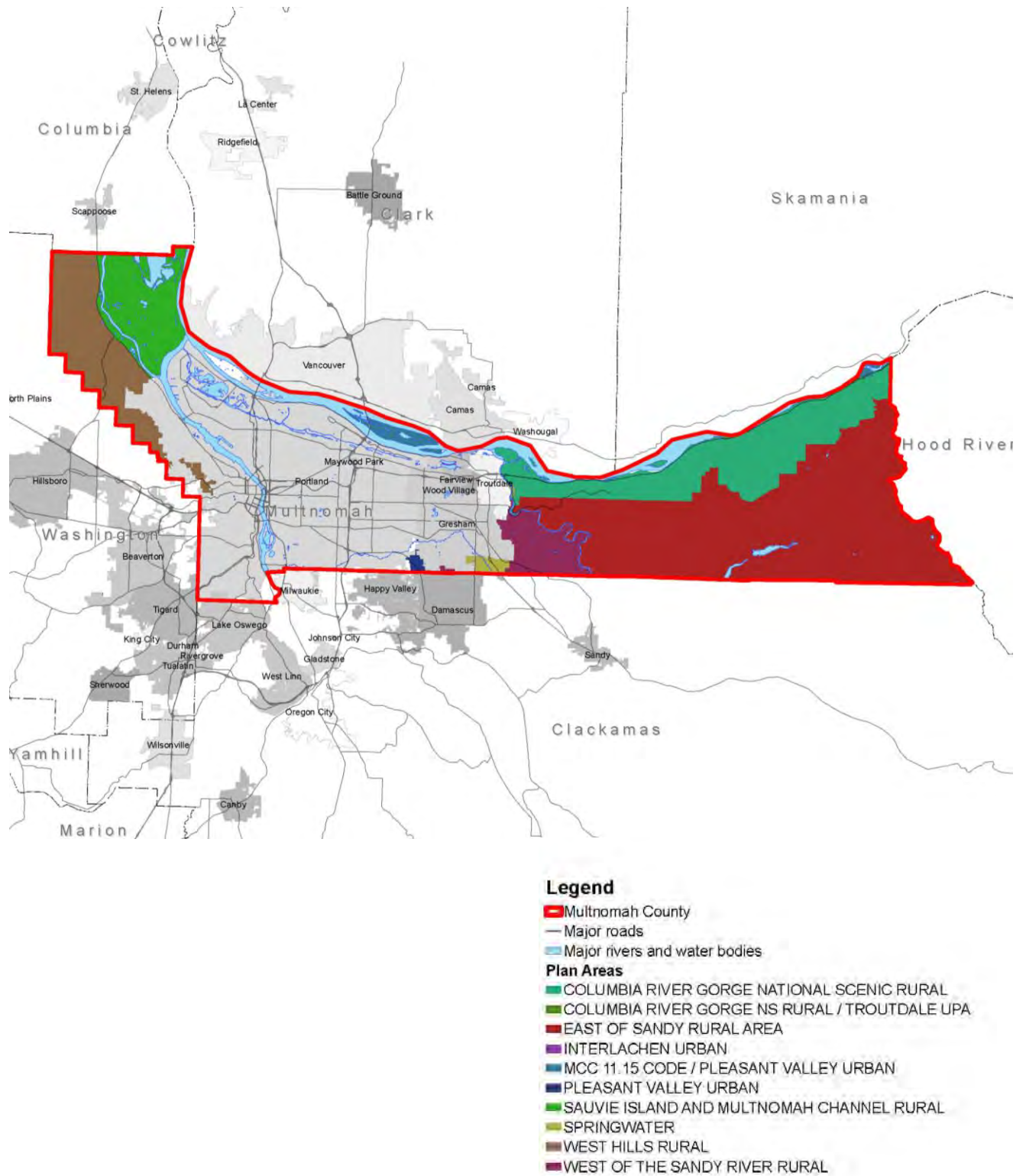
Rural Multnomah County is broken down into the following subareas, shown on Figure 1:

1. East of Sandy River
2. West of Sandy River
3. Pleasant Valley
4. Interlachen
5. West Hills
6. Sauvie Island
7. Columbia River Gorge National Scenic Area

Government Island is also within the unincorporated portion of the County. That area is used primarily for agricultural purposes with some recreational access to the shore/beach areas. However, the island does not have any full-time inhabitants, public facilities or road access. Therefore, it is not described in detail in the remainder of this report.

¹ These issues are described in more detail in the following technical memoranda: TM 3.1: Population Demographics, Zoning, and Development; TM 3.2: Transportation Facilities and Plans; and TM 3.3: State and Regional Requirements & Gap Analysis

Figure 1. Context Map



POPULATION DEMOGRAPHICS, ZONING, AND DEVELOPMENT

This section summarizes and builds upon the Multnomah County Demographic Profile completed as part of Task 2. Zoning and land use data was obtained from Multnomah County and Metro's Regional Land Information System (RLIS).

POPULATION & DEMOGRAPHICS

ANALYSIS AREAS

Much of this analysis is based on US Census data, the boundaries of which do not align perfectly with the rural planning area boundaries. For example, the Census tract for Sauvie Island covers that rural area as well as a portion of West Hills (as defined in the Comprehensive Framework Plan and West Hills Rural Area Plan). The census tracts and block groups used in this analysis to describe the rural subareas of Multnomah County are shown in Figure 2 through Figure 4 and listed in Table 1. Additionally, some data is unavailable at the block group level, and block group boundaries have changed between the 2000 and 2010 censuses. In some cases, this memorandum simply describes the rural areas as West Multnomah County and East Multnomah County, as appropriate to address the shifts in boundaries over time and avoid inaccuracies in representing data trends over time.

Figure 2. Study Area Census Tracts (70, 71, 104.02, and 105)



Figure 3. Study Area Block Groups (East Multnomah County)

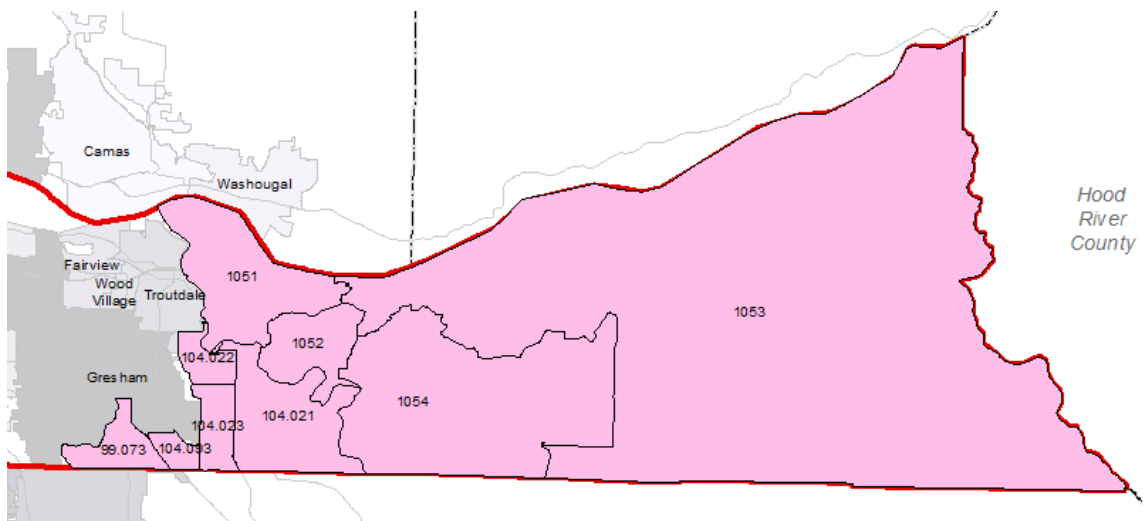


Figure 4. Study Area Block Groups (West Multnomah County)

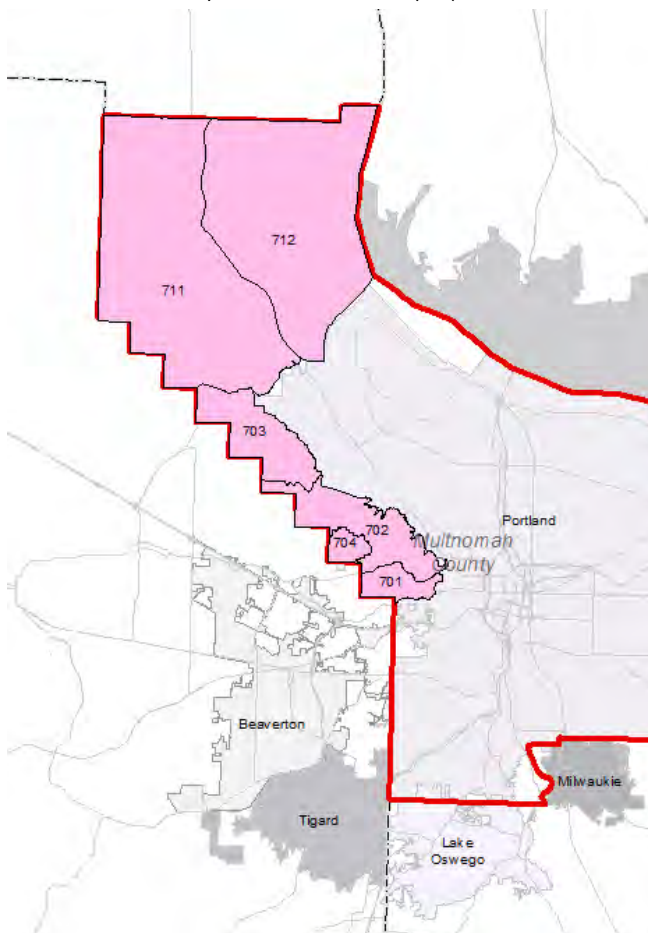


Table 1. Multnomah County Rural Subareas and Census Geographies

Plan Area	Census Geographies	
	2000 Census, 2010 Census, 2008-2012 ACS	2010 Census
East of Sandy River	Tract 105	Tract 105 BG 12 3 4
West of Sandy River	Tract 104.02	Tract 104.02 BG 1 2 3 ; Tract 104.09 BG 3; Tract 99.07 BG 3
West Hills	Tract 70	Tract 70, BG 1 2 3 4; Tract 71 BG 1
Sauvie Island	Tract 71	Tract 71 BG 2
West Multnomah County	Tracts 70 and 71	
East Multnomah County	Tracts 104.2 and 105	

The remainder of this section describes the characteristics of Multnomah County and its subareas along the following topic lines: Population and Growth, Race/Ethnicity, Family and Households, Health Impacts, and Implications for Planning.

POPULATION & GROWTH

Table 2 below describes the population of Multnomah County and its subareas. In 2010, the population of Multnomah County was at 735,334². This represents a significant increase from the 2000 Census figure of 660,486. Between the years 2000 and 2010, Multnomah County grew by 11.3%, or roughly 1.08% on average per year. This is similar to the State of Oregon, which grew 11.97%, or 1.14% per year, during the same period.

Table 2. Population of Multnomah County

	2010 Census
Multnomah County	735,334
East of Sandy River	3,926
West of Sandy River	10,184
West Hills	10,052
Sauvie Island	888

Source: 2010 Census Block Group Data

In contrast, the rural areas of the county grew at a much higher rate from 2000 to 2010 (see Table 3). West Multnomah County grew at roughly 3.2% a year on average, and East Multnomah County grew at roughly 1.5% per year on average. While this does not represent a significant change in total population compared to growth in the County as a whole, it is a relatively high growth rate for a rural area in Oregon, particularly compared to other rural parts of the state.

² Source: U.S. Census Bureau 2010 Census

Table 3. Change in Population - 2000 Census and 2010 Census

	2000	2010	% Change	Population Density***
Multnomah County	660,486	735,334	11.3%	2.47 People/Acre
West Multnomah County*	7,963	10,940	37%	.25 People/Acre
East Multnomah County**	8,668	10,061	16%	.11 People/Acre
State of Oregon	3,421,399	3,831,074	11.9%	--

* Includes Sauvie Island and West Hills subareas

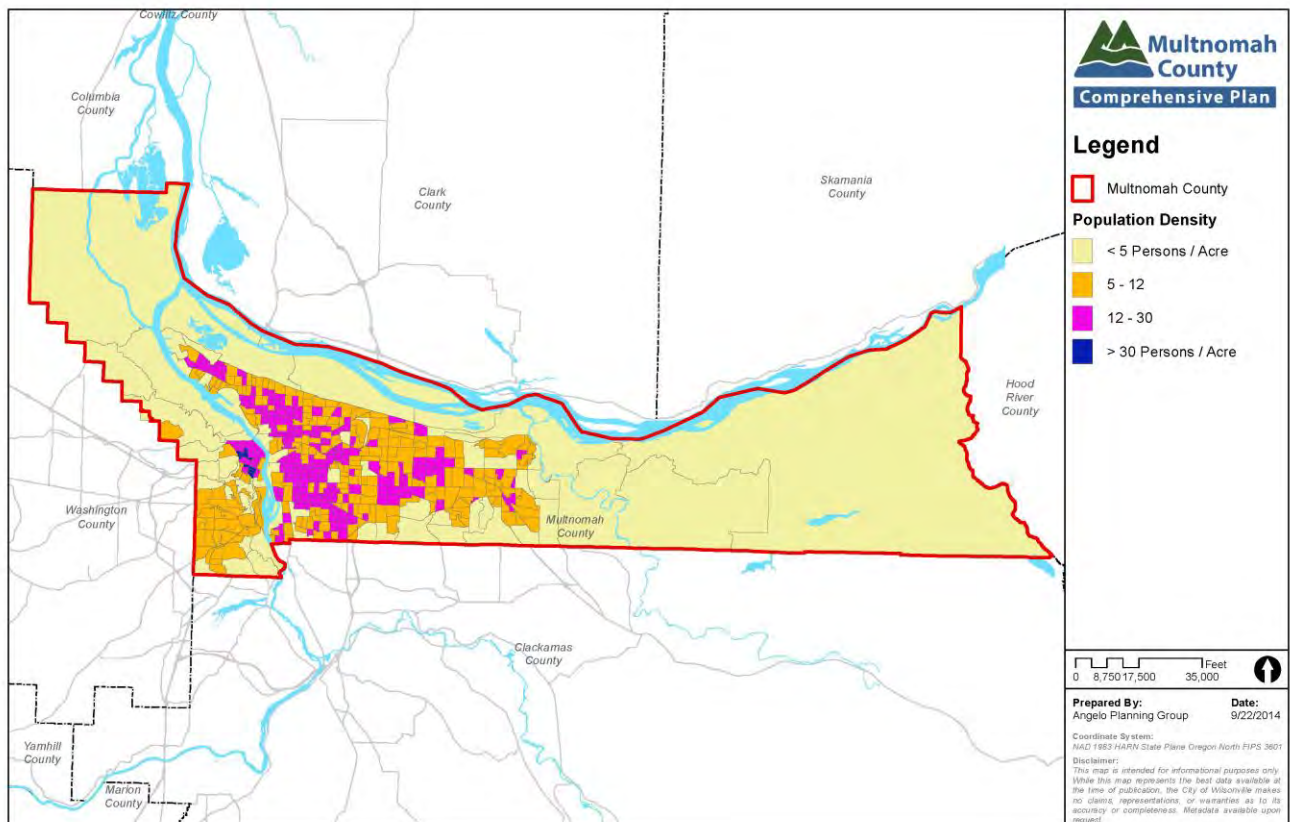
** Includes East of Sandy River and West of Sandy River subareas

*** Calculated as 2010 population / total acres within Census Block Groups listed in Table 1

Source: 2000 and 2010 Census Tract Level Data

Figure 5 shows the population density of the county by block group, as of 2010. Unsurprisingly, most of the county's population is within the City of Portland and its suburbs and population density is much higher in those portions of the County.

Figure 5. Population Density Map



RACIAL/ETHNIC BREAKDOWN

Table 4 below describes the racial and ethnic breakdown of Multnomah County, the county's rural areas, and the State of Oregon. Overall, Multnomah County has a somewhat higher proportion of African American and Asian residents than the state as a whole. The State of Oregon and Multnomah County have roughly same proportion of Hispanic/Latino residents, American Indian and Alaska Native residents, and Native Hawaiian and other Pacific Islander residents. However, the county's rural areas have contrasting demographic profiles when compared to the county as a whole and the State of Oregon. In general, the rural subareas have significantly less racial/ethnic diversity than the rest of the county and the state as a whole.

Table 4. Race and Ethnicity

	East of Sandy River	West of Sandy River	West Hills	Sauvie Island	Multnomah County	State of Oregon
RACE						
African American	0.7%	1.0%	1.0%	0.2%	5.4%	1.8%
American Indian or Native Alaskan	0.6%	0.7%	0.8%	1.8%	0.8%	1.4%
Asian	1.3%	3.1%	11.0%	1.0%	6.5%	3.7%
Native Hawaiian or Pacific Islander	0.0%	0.4%	0.1%	0.1%	0.5%	0.3%
Other Race	1.3%	3.5%	0.8%	5.2%	0.2%	5.3%
Two or More Races	3.4%	3.7%	3.8%	2.5%	5.4%	1.8%
White	92.7%	87.6%	82.5%	89.2%	72.1%	83.6
Ethnicity						
Hispanic/Latino	3.5%	7.8%	3.3%	0.9%	10.9%	11.7%
Not Hispanic/Latino	96.5%	92.2%	96.7%	90.1%	89.1%	88.3%

Source: 2010 Census Block Group Data

RACE AND ETHNICITY MAPS

The maps on the following pages show the distribution of race and ethnicity in the county.

Figure 1. Race – Percent White by Block Group

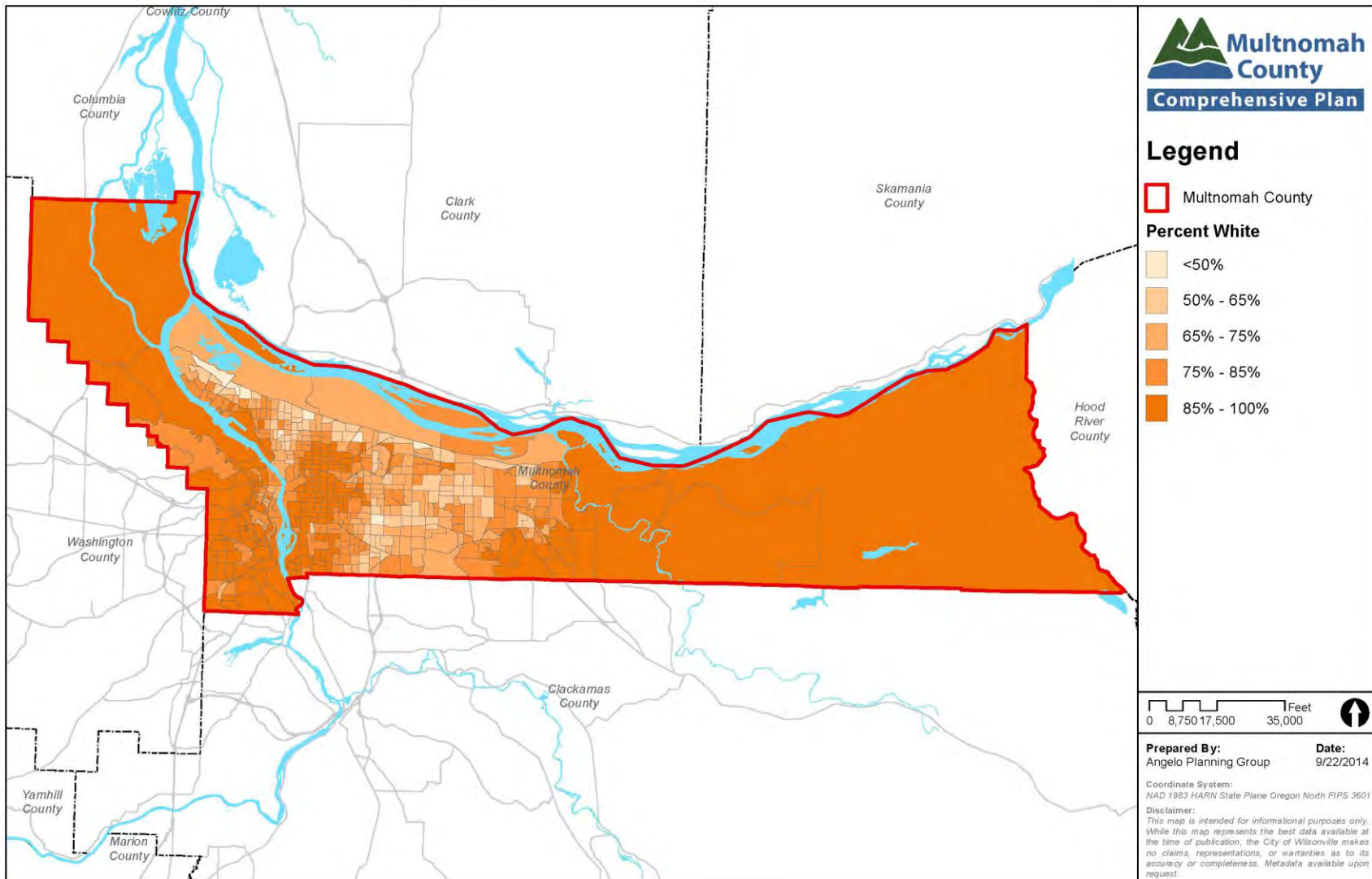


Figure 2. Percent African American by Block Group

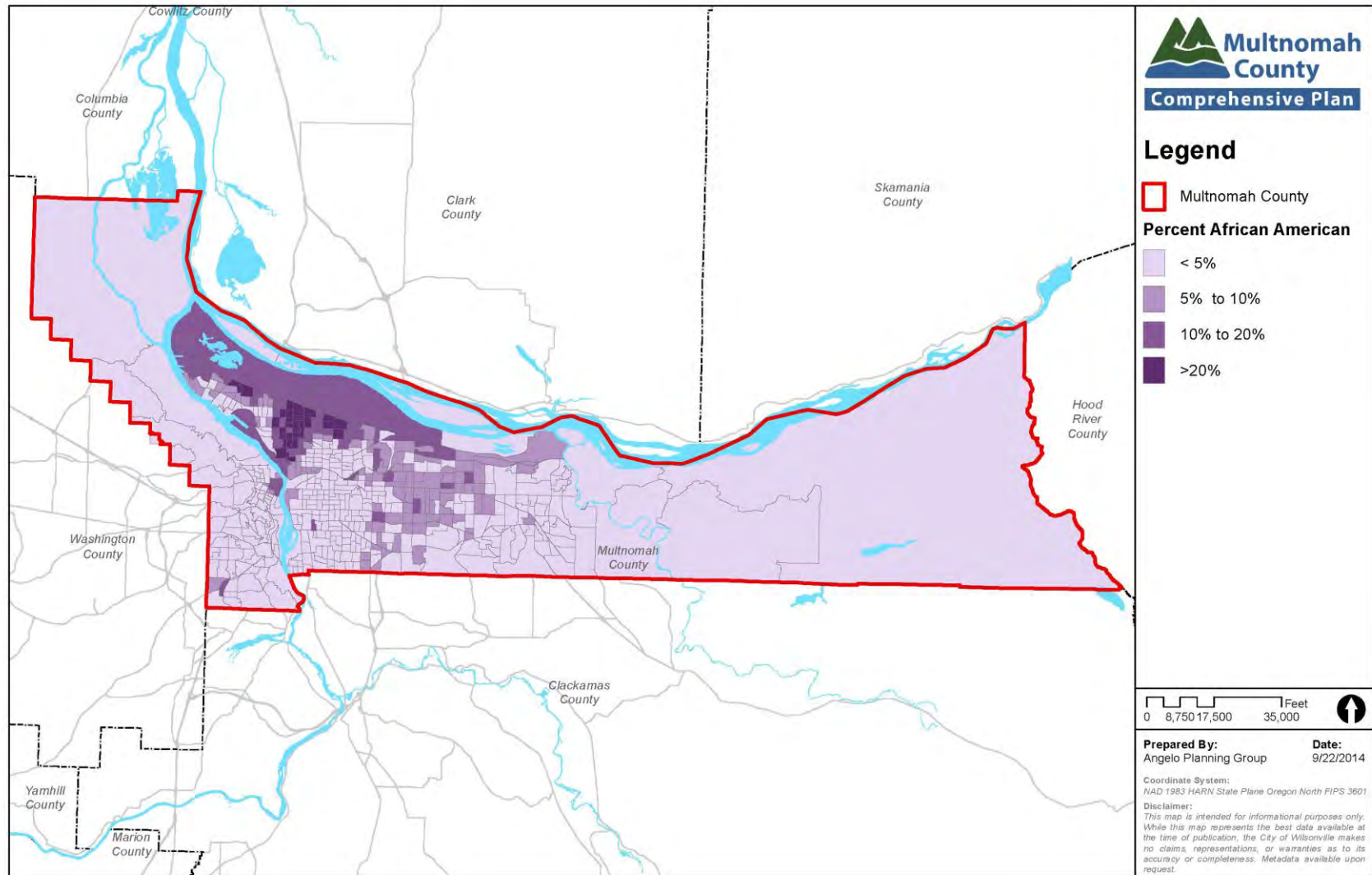


Figure 3. Percent Hispanic by Block Group

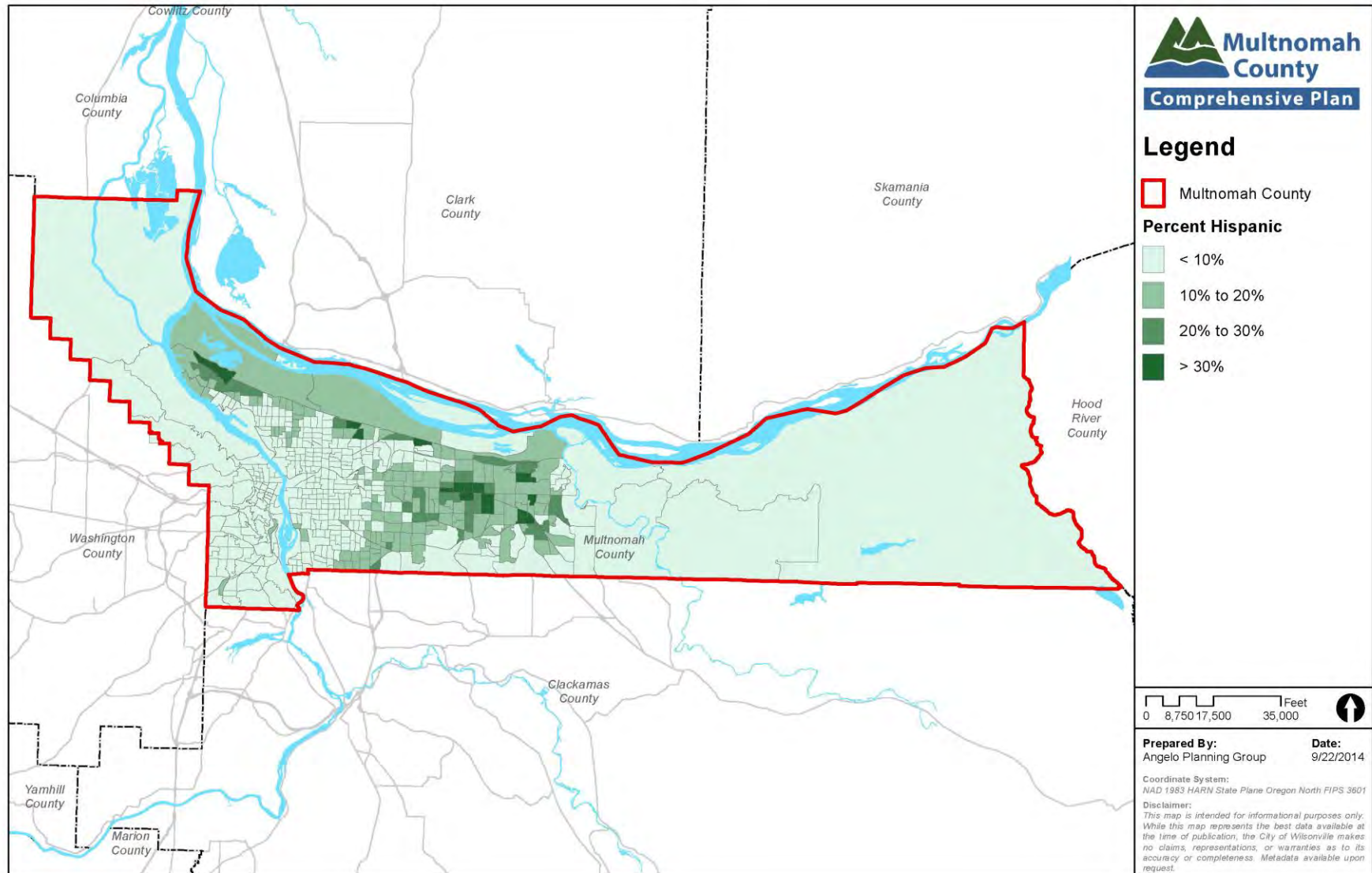
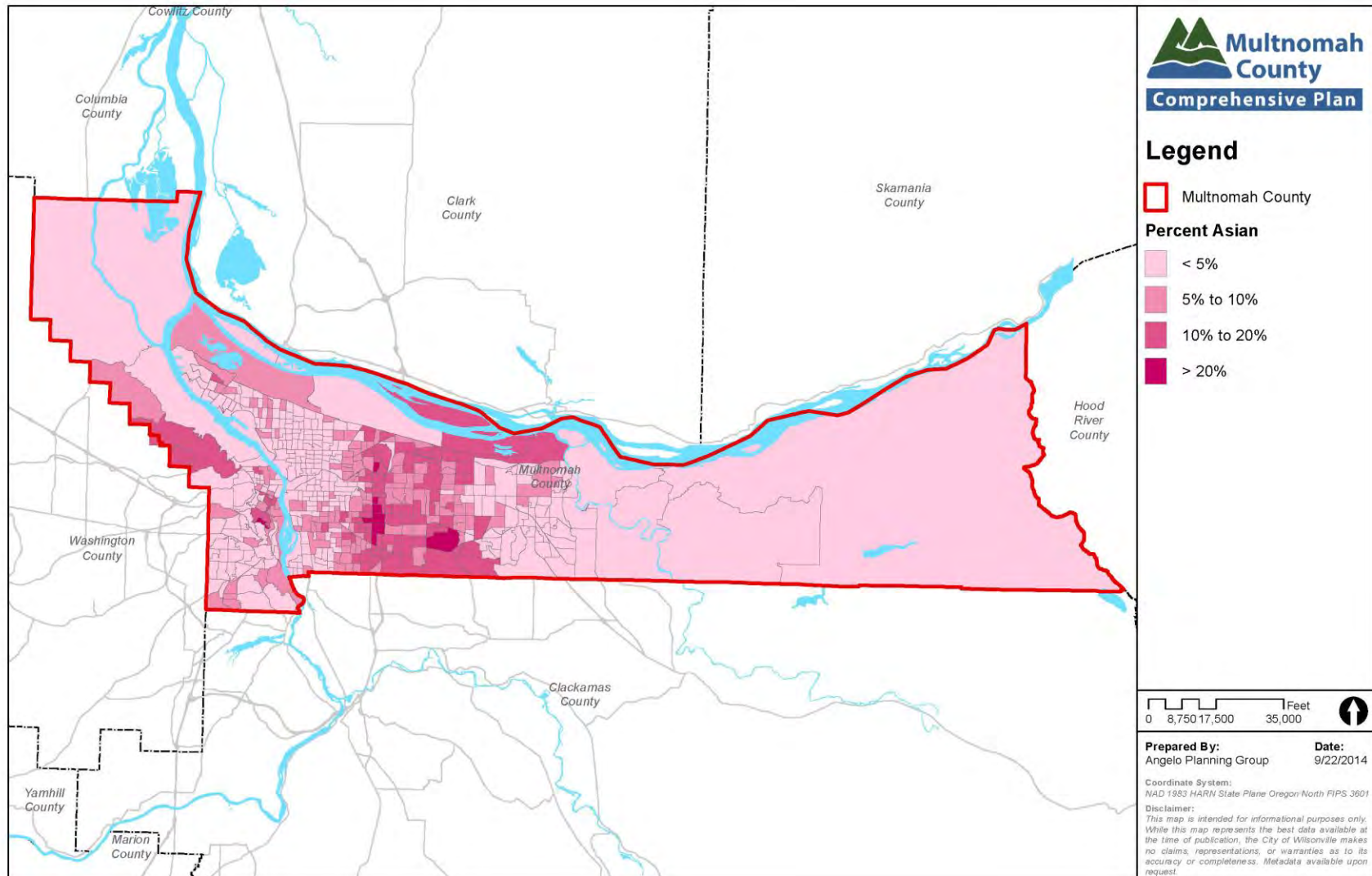


Figure 4. Percent Asian by Block Group



LANGUAGE SPOKEN AT HOME

Language spoken at home is described in Table 5. Overall, the proportion of residents who speak a language other than English at home is somewhat lower than that of the County as a whole. Although margins of error are high, it appears that there is a higher proportion of residents who speak Other Indo-European languages at home in East County, and residents who speak Asian and Pacific Islander Languages at home in West County.

Table 5. Language Spoken At Home

	West Multnomah County		East Multnomah County		Whole County
	Tract 70	Tract 71	Tract 104.2	Tract 105	--
English Only	83.6% +/-4.1	93.0% +/-5.4	92.9% +/-3.2	86.8% +/-6.8	80.4% +/-0.4
Language Other Than English	16.4% +/-4.1	7.0% +/-5.4	7.1% +/-3.2	13.2% +/-6.8	19.6% +/-0.4
Spanish	2.3% +/-1.7	5.5% +/-4.3	3.9% +/-2.5	2.2% +/-1.6	8.3% +/-0.2
Other Indo-European Languages	6.0% +/-2.6	1.5% +/-2.1	1.9% +/-2.0	7.8% +/-4.1	4.5% +/-0.3
Asian and Pacific Islander Languages	7.8% +/-2.2	0.0% +/-1.3	0.8% +/-0.7	3.2% +/-3.3	5.6% +/-0.2
Other Languages	0.3% +/-0.5	0.0% +/-1.3	0.6% +/-0.7	0.0% +/-0.9	1.1% +/-0.2

Source: 2008-2012 ACS Data

FAMILY AND HOUSEHOLDS

In Multnomah County, roughly 53% of households are Family Households, defined by the US Census Bureau as “a group of two or more people related by birth, marriage, or adoption and residing together.” As shown in Table 6, the only rural subarea that has a similar family household percentage is Sauvie Island, with 56.8%. All other rural subareas have higher than a 70% Family Household rate. For comparison, 63.4% of Oregonians live in Family Households.

The State of Oregon and Multnomah County have similar Median Ages, 38.4 and 35.7, respectively. However, the median age in rural subareas in the county are significantly higher. Of the County’s rural areas, Sauvie Island has the highest proportion of nonfamily households, the lowest average household size, and the highest median age.

Table 6. Family and Households

	East of Sandy River	West of Sandy River	West Hills	Sauvie Island	Multnomah County	State of Oregon
Number of Households	1,433 (100%)	3,573 (100%)	3,938 (100%)	410 (100%)	304,540 (100%)	1,518,938 (100%)
Family Households	1,063 (74.2%)	2831 (79.2%)	2,832 (71.9%)	233 (56.8%)	163,539 (53.7%)	963,467 (63.4%)
Nonfamily Households	370 (25.8%)	742 (20.8%)	1,106 (28.1%)	177 (43.2%)	141,001 (46.3%)	555,471 (36.6%)
Mean Household Size	2.65	2.85	2.56	2.14	2.35	2.47
Median Age	44.8	40.1	43.9	50	35.7	38.4

Source: 2010 Census Block Group Data

Table 7. Housing Occupancy

Subject	WEST MULTNOMAH COUNTY				EAST MULTNOMAH COUNTY			
	Census Tract 70		Census Tract 71		Census Tract 104.02		Census Tract 105	
	Estimate & Margin of Error	Percent and Margin of Error	Estimate & Margin of Error	Percent and Margin of Error	Estimate & Margin of Error	Percent and Margin of Error	Estimate & Margin of Error	Percent and Margin of Error
Total housing units	3,260 +/-111	100%	1,266 +/-113	100%	2,098 +/-84	100%	1,569 +/-115	100%
Occupied housing units	3,129 +/-118	96.00% +/- 3.0	1,190 +/-121	94.00% +/- 5.2	1,998 +/-94	95.20% +/- 3.6	1,471 +/-119	93.80% +/- 4.7
Vacant housing units	131 +/-100	4.00% +/- 3.0	76 +/-66	6.00% +/-5.2	100 +/-77	4.80% +/- 3.6	98 +/-75	6.20% +/- 4.7

Source: US Census Bureau 2008-2012 ACS Data

Table 8. Housing Tenure & Household Size

Subject	WEST MULTNOMAH COUNTY				EAST MULTNOMAH COUNTY			
	Census Tract 70		Census Tract 71		Census Tract 104.02		Census Tract 105	
	Estimate	Percent	Estimate	Percent	Estimate	Percent	Estimate	Percent
Occupied housing units	3,129 +/-118	100%	1,190 +/-121	100%	1,998 +/-94	100%	1,471 +/-119	100%
Owner-occupied	2,708 +/-162	86.50% +/-3.9	1,003 +/-128	84.30% +/-5.7	1,568 +/-136	78.50% +/-5.9	1,119 +/-138	76.10% +/-7.5
Renter-occupied	421 +/-124	13.50% +/-3.9	187 +/-69	15.70% +/-5.7	430 +/-120	21.50% +/-5.9	352 +/-114	23.90% +/-7.5
Avg. household size of owner-occupied unit	2.7 +/-0.13	(X)	2.24 +/-0.19	(X)	3.2 +/-0.20	(X)	2.94 +/-0.35	(X)
Avg. household size of renter-occupied unit	2.37 +/-0.41	(X)	2.36 +/-0.97	(X)	2.57 +/-0.46	(X)	2.18 +/-0.56	(X)

Source: US Census Bureau 2008-2012 ACS Data

For the 2008-2012 survey window, the study tracts have a high occupancy rate roughly on par with that of the County as a whole (93.7% +/- .4%). Occupied housing units in West Multnomah County are roughly 85% owner-occupied and 15% renter-occupied, and roughly a similar split exists in East Multnomah County.³ In contrast, Multnomah County as a whole is roughly 55% owner-occupied and 45% renter-occupied.

Owner-occupied units have a greater average household size than renter-occupied units, and East Multnomah County appears to have a higher average owner-occupied household size than West Multnomah County. The county as a whole has an average household size of 2.54 and 2.17 for owner-occupied units and renter-occupied units, respectively.

ECONOMIC CHARACTERISTICS

Figure 5. Census Tract Reference for Economic Characteristics



Table 9 describes selected economic characteristics of the study area. The rural areas of the county have a higher median household income than the county as a whole. West County seems to generally have a higher income, lower unemployment rate, and lower poverty rate than East County or Multnomah County as a whole, particularly Tract 70, which approximates the West Hills rural plan area. Due to the small sample size, however, margins of error are fairly high.

³ Margins of error in the ACS data are between 3.9% and 7.5%, or about the same size as the difference between tracts.

Table 9. Economic Characteristics

	West County		East County		Multnomah County
	Tract 70	Tract 71	Tract 104.2	Tract 105	--
Median Household Income	\$148,832 (+/- \$19,429)	\$78,894 (+/- \$14,306)	\$76,630 (+/- \$9,464)	\$65,938 (+/- \$10,090)	\$51,582 (+/- \$739)
Unemployed	7.4% (+/-2.8%)	6.1% (+/-4.3%)	14.8% (+/-6.5%)	12.1% (+/-6.1%)	10.4% (+/-0.4%)
Individuals below poverty level in past 12 months	4.5% (+/-3.8%)	3.4% (+/-2.8%)	9.7% (+/-2.8%)	13.4% (+/-7.3%)	17.1% (+/-0.6%)

Source: US Census Bureau 2008-2012 ACS Data

PUBLIC HEALTH

A detailed review of relevant Multnomah County public health publications, data, and existing conditions for planning-related health determinants and outcomes is included in the Multnomah County Community Demographic Profile dated October 1, 2014. What follows is a selection of that profile.

The update of the County's Comprehensive plans offers both the opportunity to reduce unintended negative health consequences of policy decisions and enhance opportunities to improve public health. A key first step in addressing health in the development of a Comprehensive plan is identifying the baseline health status of the community that the Comprehensive plan applies to. Table 10 lists some of the primary health determinants⁴ and health outcomes⁵ that researchers have identified as being related to Comprehensive plans.

⁴ A "health determinant" is defined as the range of personal, social, economic and environmental factors which determine the health status of individuals or populations. Examples include behavioral determinants such as consumption of fruits and vegetables, physical activity, and smoking, and environmental determinants such as convenient access to healthy food retail, air quality, and traffic infrastructure.

⁵ A "health outcome" refers to the health status of an individual, group or population which is attributable to a number of determining factors such as behaviors, social and community environments, health care services, and genetics. Examples include: depression, diabetes, physical injury, asthma, and premature death.

Table 10. Key Planning Related Health Determinants and Health Outcomes

Health Determinants		Health Outcomes
<ul style="list-style-type: none"> • Opportunities for physical activity • Access to healthy food • Access to health care services • Exposure to air pollution • Exposure to water pollution • Exposure to environmental hazards • Traffic safety 	<ul style="list-style-type: none"> • Access to cultural resources • Exposure to noise • Access to jobs • Access to education • Access to safe, affordable housing • Opportunities for social cohesion • Emergency preparedness 	<ul style="list-style-type: none"> • Heart disease • Cancer • Obesity • Asthma • Physical injury • Stress • Depression • Life expectancy • Communicable diseases • Stroke

Many of the health determinants listed in Table 10 are already routinely considered as part of many Comprehensive planning processes. Other health determinants such as access to jobs, education, and cultural resources are also often considered to a certain extent in many planning processes, while others such as opportunities for physical activity and access to health care and services are relatively new.

EXISTING CONDITIONS FOR KEY PLANNING-RELATED HEALTH DETERMINANTS AND OUTCOMES

The Coalition for a Livable Future (CLF) produced a web-based “Regional Equity Atlas” that provides Census Tract level data for Multnomah County for many planning-related health determinants and outcomes considered by the health department reports⁶. What follows is a summary of this data, beginning with health determinants, followed by health outcomes.

HEALTH DETERMINANTS:

The Equity Atlas provides information on the following planning-related health determinants:

- Access to opportunities for physical activity
- Access to healthy and unhealthy food
- Access to opportunities for social cohesion
- Access to health supportive goods and services

For health determinants, the Equity Atlas provides information on a related set of individual issues, and then produces a composite score for each determinant. As the Tables indicate below, the scores for each individual issue range from 0 to 5, with lower scores indicating relatively poor access and higher scores indicating relatively good access.⁷

⁶ The Regional Equity Atlas is available online at <https://clfuture.org/equity-atlas>

⁷ Detailed information about the data and methodology used to construct the Equity Atlas is available on CLFs website: <https://clfuture.org/programs/regional-equity-atlas>.

The indicators discussed and summarized below are rough indicators and do not generally account for many of the differences between urban and rural communities. For example, the larger lots in rural areas themselves provide more opportunities for physical activity than urban and suburban lots, and larger lots provide more opportunities for vegetable gardening and animal husbandry, thus increasing potential access to healthy foods.

Additionally, rural zoning is primarily intended to preserve and protect resource lands, and therefore does not permit most non-farm and non-forest uses. Consequently, persons residing in these rural areas will not have the same degree of access to health-supportive goods and services as urban residents. Similarly, the low residential density caused by rural zoning typically cannot support locating these uses in outlying rural areas from a market perspective.

OPPORTUNITIES FOR PHYSICAL ACTIVITY:

In general, when people have easy access to opportunities for physical activity, they are more likely to be more physically active. Table 11 provides a summary of the relative accessibility of multiple different opportunities for physical activity, based on proximity to areas or facilities that provide opportunities to engage in physical activity. As the individual and composite scores indicate, the plan areas have uniformly lower access to opportunities for physical activity than the rest of the county, with the exception of proximity to natural areas where the West Hills and East of the Sandy River have relatively better access. Within the plan areas themselves, Sauvie Island has the worst access, and the West Hills has the best.

Table 11. Proximity to Physical Activity Spaces

Plan Area (Tract)	Parks ^a	Natural Areas ^b	Green-spaces ^c	Water Access ^d	Recreation Facilities ^e	Transit ^f	Bikability ^g	Sidewalks ^h	Composite
East of Sandy River (105)	1.11	4.08	0.99	0.98	0.95	0.95	1.94	0.95	23
West of Sandy River (104.02)	1.3	2.1	2.02	1.08	1.05	0.98	2.71	1.07	24
West Hills (70)	2.09	2.9	3.31	1	1.01	1.01	1.98	1.17	32
Sauvie Island (71)	1.01	1.39	1.03	1.05	0.92	0.92	2.27	0.92	14
Multnomah County	4.23	2.82	4.23	1.10	2.19	1.68	4.04	3.08	65

^a Publicly accessible parks are defined as active or passive recreation areas where facilities exist primarily intended for recreational uses by the public;

^b Publicly accessible natural areas are managed primarily for the value of natural resources as buffers, conservation and/or habitat protection;

^c Publicly accessible greenspaces are a general category that is not specifically a park or natural area; greenspaces generally have limited public access and include common areas of a subdivision or condominium complex, cemeteries, golf courses and school grounds that are not specifically designated for general public use

^d The Water Access indicator shows proximity to points where motorized and non-motorized boats can be launched. These sites have parking areas for cars and include boat ramps.

^e Recreation facilities were compiled from the Metro RLIS data and include pools, tennis courts, sports fields, community centers, stadiums, and fairgrounds

^f The Transit Access indicator is a measure of the proximity to public transit stops and the frequency of trips through those transit stops (bus, streetcar, MAX and Vancouver transit).

^g The Bikeability indicator is a density raster that shows suitability for biking and is based on Metro's "Bike There!" map designations.

^h The Walkability indicator shows the density of sidewalk coverage as a measure of the walkability of a particular area.

ACCESS TO HEALTHY AND UNHEALTHY FOOD OUTLETS

Table 12 summarizes the relative accessibility of healthy and unhealthy food outlets in different parts of Multnomah County. Scores for unhealthy food access are reversed from the other scores, with higher scores indicating lower access to unhealthy foods. This was done because lower access is considered better for health. As Table 12 indicates, while the plan areas have significantly less access to unhealthy foods, they also have relatively less access to sources of healthy food compared to the County as a whole.

Table 12. Proximity to Healthy and Unhealthy Food Outlets

Plan Area (Tract)	Unhealthy Food ^a	Grocery Stores ^b	Food Pantries ^c	Farmers Markets ^d	Composite
East of Sandy River (105)	4.05	0.98	0.95	0.95	28
West of Sandy River (104.02)	3.94	1.54	1.01	0.98	30
West Hills (70)	3.89	1.48	1.03	1	30
Sauvie Island (71)	4.08	0.97	0.92	0.96	28
Multnomah County	1.28	3.62	3.01	2.32	41

^aThe Unhealthy Food indicator is compiled from a list of NAICS codes (North American Industry Classification System) that includes Fast-Food Restaurants (722211), Convenience Stores (445120), Beer, Wine, and Liquor Stores (445310), and Gasoline Stations with Convenience Stores (447110).

^bThe Supermarkets and Grocery Store indicator is compiled from a list of NAICS codes (North American Industry Classification System) that includes supermarkets and other grocery stores (445110)

^cThe Supplemental Food Programs indicator includes sites that provide access to supplemental food (food pantries) and summer food programs for children

^dThe Farmers' Market indicator provides information on access to fresh foods and was manually compiled from the national list maintained by the U.S. Department of Agriculture and other sources including Portland Farmers' Markets and the Oregon Environmental Council. The list of farmers' markets was combined with produce stands retrieved from a list of NAICS codes (North American Industry Classification System) that includes fruit and vegetable markets (permanent) (445230)

OPPORTUNITIES FOR SOCIAL COHESION

Social cohesion, or social capital, refers to the degree to which people know, trust, and interact with other members of their community, and the degree to which people are involved in organizing or influencing their community. High levels of social cohesion can contribute to positive health outcomes by enabling the dissemination of health-related information such as medical care options, establishing and maintaining social norms and practices associated with healthful behaviors, and by discouraging unhealthful behaviors such as smoking and drug use. In addition, higher levels of social cohesion have been correlated with increased rates of physical activity, including walking and biking among both children and adults.

Numerous features of a community can contribute to social cohesion, including faith-based institutions, community centers, the presence of arts and cultural organizations and civic and community organizations, and public libraries. In general, the more opportunities for social cohesion there are in a community, the more cohesive a community is likely to be. As Table 13 indicates, the plan areas have relatively few of these features compared to the county as a whole.

Table 13. Proximity to Opportunities for Social Cohesion, by Plan Area

Plan Area (Tract)	Faith Based Institutions ^a	Community Spaces ^b	Arts and Culture Orgs. ^c	Civic and Community Orgs. ^d	Public Libraries ^e	Composite
East of Sandy River (105)	1.01	0.95	0.99	0.98	0.95	8
West of Sandy River (104.02)	1.57	1.11	1	1.19	0.98	13
West Hills (70)	1.33	1.38	1.73	1.54	1.01	19
Sauvie Island (71)	0.97	0.95	0.96	1.02	0.92	8
Multnomah County	4.07	3.70	3.46	3.63	1.78	65
^a The Faith-Based Institutions indicator is compiled from a list of NAICS codes (North American Industry Classification System) that includes (1) establishments primarily engaged in operating religious organizations, such as churches, religious temples, and monasteries, and/or (2) establishments primarily engaged in administering an organized religion or promoting religious activities (813110). ^b The Community Spaces and Indoor Gathering Places indicator is compiled from a list of NAICS codes (North American Industry Classification System) that includes civic and social organizations (813410) and coffee shops (722213) as well as schools, community centers and grange associations. ^c The Arts and Culture indicator is compiled from a list of NAICS codes (North American Industry Classification System) that includes Theater Companies and Dinner Theaters (711110), Dance Companies (711120), Musical Groups and Artists (711130), Other Performing Arts Companies (711190), Museums (712110), Historical Sites (712120), and Zoos and Botanical Gardens (712130) as well as a list of arts and culture organizations in Oregon provided by the Oregon Cultural Trust and a list of the location of street art provided by the Regional Arts and Culture Council (RACC). A list of additional arts and culture organizations in Clark County, Washington, was compiled by Arts of Clark County. Duplicates resulting from aggregation of these various data sources were removed in the dataset. ^d The Civic and Community Organizations indicator is compiled from a list of NAICS codes (North American Industry Classification System) that includes civic and social organizations (813410), human rights organizations (813311), other social advocacy groups (813319), and other similar organizations (813990). ^e The Public Libraries indicator is compiled from the Metro RLIS dataset.						

ACCESS TO ESSENTIAL RETAIL AND SERVICES

Access to basic goods and services, including health and social services, can impact a person's ability to meet their daily needs and maintain good health. As Table 14 indicates, the plan areas have uniformly lower access to these goods and services than the county as a whole, with Sauvie Island and East of the Sandy River having the least access.

Table 14. Proximity to Essential Retail and Services

Plan Area (Tract)	Primary Care ^a	Essential Retail ^b	Public Services ^c	Health and Human Services ^d	Services Composite
East of Sandy River (105)	0.95	0.97	0.98	0.96	8
West of Sandy River (104.02)	0.99	1.62	0.98	1.04	12
West Hills (70)	1.57	1.59	1.21	1.46	19
Sauvie Island (71)	1.03	1.00	0.96	0.96	8
Multnomah County	3.49	4.18	2.18	3.52	64

^a The Proximity to Primary Care Facilities indicator shows distance to primary medical care facilities including family/general medicine, pediatrics and obstetrics.

^b The Key Retail Services indicator is compiled from a list of NAICS codes (North American Industry Classification System). The industries included in the indicator were chosen based on an index created by the San Francisco Department of Public Health's Healthy Development Measurement Tool

^c The Public Services indicator is compiled from point data in the Metro RLIS dataset (city halls, fire stations, hospitals) supplemented by a list of NAICS codes (North American Industry Classification System) that includes Courts (922110), Police Protection (922120), Fire Protection (922160), Government Executive Offices (921110), and Postal Service (491110).

^d The Human and Social Services indicator is compiled from a list of NAICS codes (North American Industry Classification System) that includes Individual and Family Services (624190), Child and Youth Services (624110), Services for Elderly and Persons with Disabilities (624120), Temporary Shelters (624221), and Other Community Housing Services (624229)

HEALTH OUTCOMES

While data on most health outcomes is available only at the county or state level, the Equity Atlas provides Census block group level data on overweight and obesity, and Census tract level data on diabetes, heart disease, and asthma, all of which are associated with how communities are planned and developed.

OVERWEIGHT AND OBESITY

Overweight and obesity are commonly defined by the metric, Body Mass Index (BMI). BMI reflects a proportional relationship and provides a measure of how much an individual's body weight varies from what is normal for a person of a particular height. A person with a BMI below 18.5 is defined as underweight, a BMI between 18.5 and 24.9 is considered normal, a BMI between 25 and 29.9 is considered overweight, and a BMI of 30 or greater is considered obese. As the data in Table 15 indicates, with the exception of the West Hills, residents in each of the other plan areas have an average BMI slightly higher than the county as a whole (less than 4% at most).

Table 15. Body Mass Index^a by Plan Area

Plan Area	Average BMI
Multnomah County	24.8
East of Sandy River	25.6
<i>Tract 105, BG 1</i>	<i>25.8</i>
<i>Tract 105, BG 2</i>	<i>25.8</i>
<i>Tract 105, BG 3</i>	<i>25.1</i>
<i>Tract 105, BG 4</i>	<i>25.4</i>
West of Sandy River	25.4
<i>Tract 99.07, BG 3</i>	<i>25.1</i>
<i>Tract 104.02, BG 1</i>	<i>25.8</i>
<i>Tract 104.02, BG 2</i>	<i>25.8</i>
<i>Tract 104.02, BG 3</i>	<i>25.1</i>
<i>Tract 104.09, BG 3</i>	<i>25.6</i>
West Hills	23.8
<i>Tract 70, BG 1</i>	<i>23.5</i>
<i>Tract 70, BG 2</i>	<i>23.7</i>
<i>Tract 70, BG 3</i>	<i>24.2</i>
<i>Tract 70, BG 4</i>	<i>23.3</i>
<i>Tract 71, BG 1</i>	<i>25.0</i>
Sauvie Island	25.1
^a This data is derived from Oregon driver's license information (OR DMV) and is thus self-reported. While it is likely that weight is under-estimated, research indicates that the rate of under-reporting of weight in DMV records is relatively consistent, so the dataset is still useful for describing patterns.	

Table 16 lists the rates of three key planning-related chronic health issues asthma, heart disease, and diabetes for each of the plan areas. While the areas east and west of the Sandy River are fairly similar to the county as a whole, the West Hills and Sauvie Island are somewhat healthier than the county as a whole.

Table 16. Rates of Asthma, Heart Disease, and Diabetes by Plan Area^a

Plan Area (Tract)	Asthma	Heart Disease	Diabetes
East of Sandy River (105)	15.6%	2.1%	7.6%
West of Sandy River (104.02)	12.1%	1.6%	7.4%
West Hills (70)	11.6%	1.0%	3.6%
Sauvie Island (71)	12.1%	2.0%	4.7%
Multnomah County	14.3%	1.5%	7.5%
^a Data on the indicators for Rates of Asthma, Diabetes and Heart Disease are compiled from insurer claims data submitted to Oregon Health Care Quality Corporation. Data include administrative claims (billing) data from eight commercial health plans, two Medicaid managed care plans and the Oregon Health Authority Division of Medical Assistance Programs (Medicaid)			

IMPLICATIONS FOR PLANNING

These population and demographic conditions have a number of potential implications for the Multnomah County Comprehensive Plan Update.

- The rural areas of the County have a very low population density, with only approximately 25,000 residents living in a very large area. This will impact the average cost and ability to deliver public services and the proximity to centralize public services, as well as shopping areas or other amenities. Additionally, rural resource protection zoning does not permit service and retail uses, posing another obstacle to locating these types of amenities in proximity to many rural residents.
- The population of the rural parts of the county have increased at a greater rate than that of the county as a whole, though increases are still low in absolute terms.
- The rural areas of the county have a higher proportion of white residents than the county as a whole. One notable exception is a high proportion (11%) of Asian residents in the West Hills area. This may mean a relatively lower need for Spanish or possibly other translation services for public engagement efforts compared to other portions of Multnomah County.
- The study tracts have a higher proportion of family households than the county as a whole and a higher median age as well. Sauvie Island has a median age of 50. Higher median ages have implications related to access to health and social services, issues associated with aging in place and need for and ability to access transit services (combined with the dispersed nature of population and the cost of providing such services).
- The study tracts are generally better off economically than the county as a whole, with a higher median income, lower poverty levels, and lower unemployment rate (though margins of error are high in this case).
- Relative to other portions of the County, the rural areas in the County lack access to a number of features that can help improve public health, including access to healthy food, access to certain types of physical activity opportunities, proximity to essential retail services, and access to opportunities for social cohesion. Planning and policies to enhance access to these opportunities should be considered during the Comprehensive Plan Update process. However, state requirements associated with rural zoning present an obstacle to doing this to some degree.
- Despite the relative lack of access to features that can improve public health, measured health indicators for residents of the rural areas such as body mass index and rates of asthma, heart disease and diabetes do not differ markedly than for residents in the County as a whole.

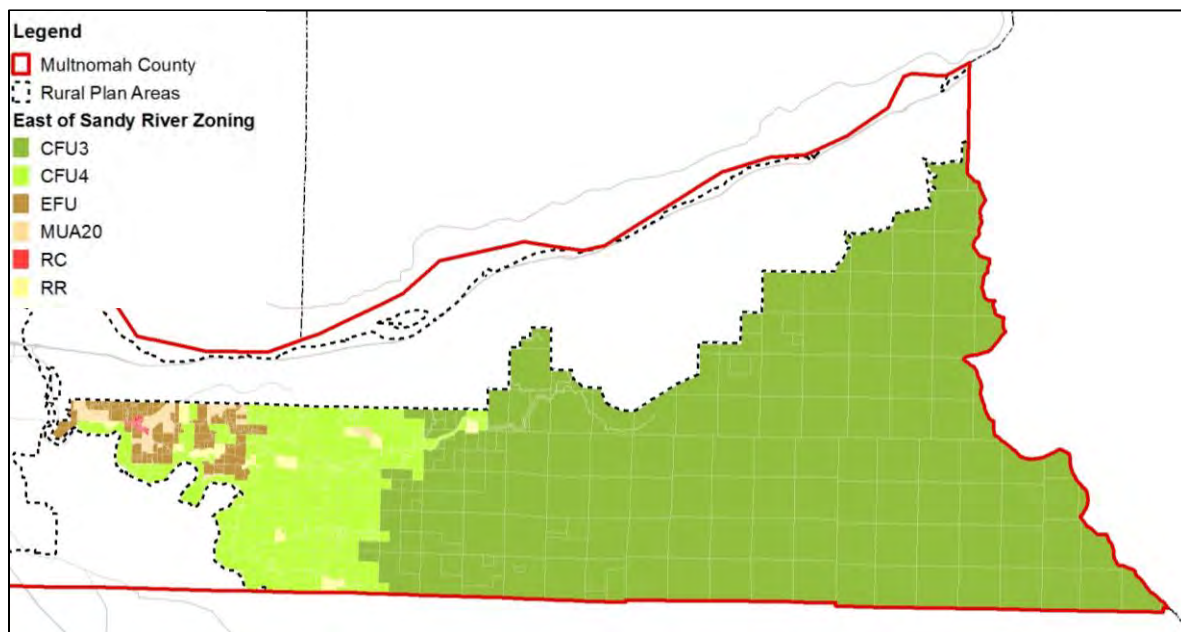
ZONING & DEVELOPMENT

This section describes zoning designations, land use, parcel size, and vacancy status in each of the plan subareas.⁸

EAST OF SANDY RIVER

The East of Sandy River Rural Area is generally characterized by natural and commercial timber forests over the vast majority of its area, much of which is within the Mt. Hood National Forest. The western-most portion of this Rural Area contains the vast majority of the non-forest uses, mainly consisting of agricultural, rural residential, and rural service development.

Figure 6. East of Sandy River Zoning and Parcels



⁸ This section uses both zoning data and taxlot data to describe the zoning and development characteristics of each subarea, with the following general caveats:

- Zoning designations, property lines, and subarea boundaries do not necessarily line up with one another. Taxlots were chosen based on whether their “centroid” was within the subarea, and some taxlots have multiple zoning designations.
- There are occasionally duplicate records of taxlots of identical size and shape. These records are only present to a significant degree in the West Hills subarea, where duplicates have been removed for this analysis. Most (but not all) duplicate records have the same property code and other information.
- Land use information is based upon tax assessor property classifications. These consist of use categories and improvement designations. Use categories include residential, commercial, industrial, farm, forest, multi-family, recreation, tract, and exempt uses. Improvement designations include “Vacant” (land only, without any built structures), “Improved” (with typical structures for the use category such as barns, sheds or other agricultural structures in farm zones), and other specialized designations. Detailed information can be found in the *Assessor’s Certified Ratio Study Procedures Manual* (available online at <http://library.state.or.us/repository/2010/201007231056085/index.pdf>)

The East of Sandy River subarea consists of roughly 1,338 taxlots in 82,146 acres, or an average parcel size of 61 acres. There are a number of very large parcels in this subarea, with 129 parcels greater than 150 acres in size taking up nearly 80% of the land, the bulk of which is federally-owned.

Zoning designations and their descriptions are found in Table 17. Land zoned for commercial forest use makes up over 80% of the land in this subarea.

Table 17. East of Sandy River Subarea - Zoning Designations

Zone	Detail	Acres	
CFU3	Commercial Forest Use	67,471	81%
CFU4	Commercial Forest Use	11,917	14%
EFU	Exclusive Farm Use	2,063	2%
MUA20	Multiple Use Agriculture	703	1%
RC	Rural Commercial	73	0%
RR	Rural Residential	696	1%

Source: Multnomah County GIS

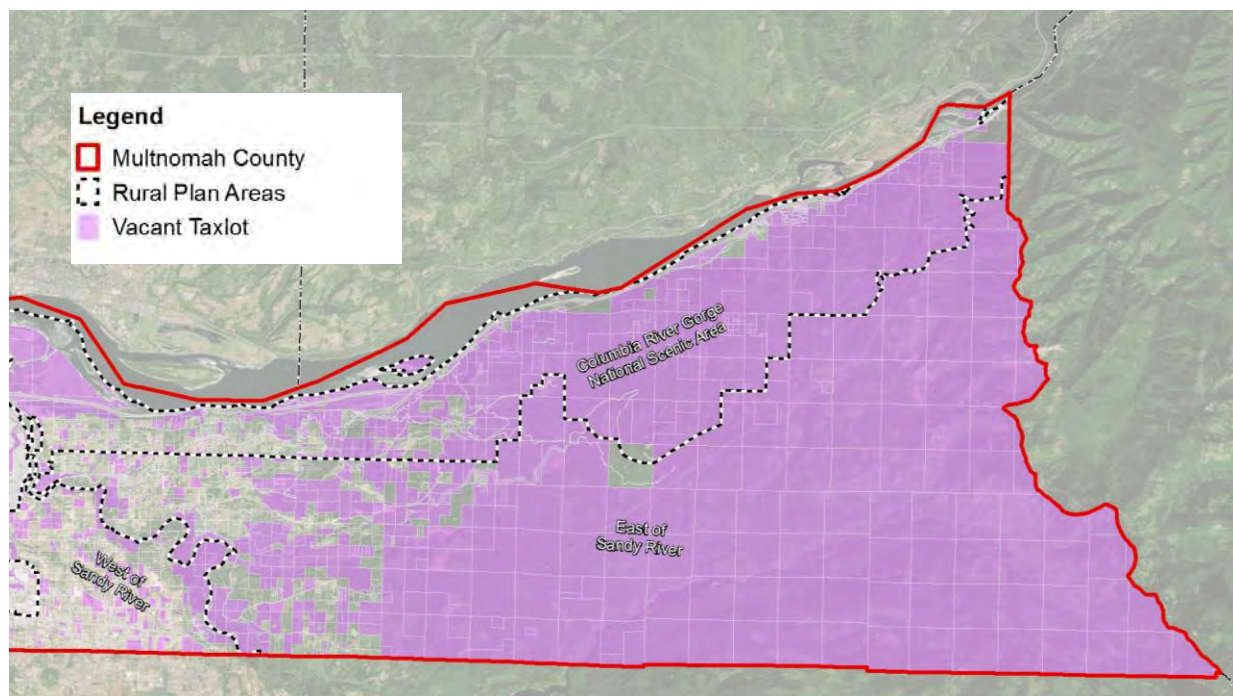
Table 18. East of Sandy River Subarea – Property Classification

Land Use	Number of Taxlots		Total Acres	
TOTAL	1,338	100%	82,146	100%
Residential	221	16.5%	1,941	2.4%
Vacant	58	4.3%	1,532	1.9%
Improved	97	7.2%	214	0.3%
Manufactured Structure	66	4.9%	195	0.2%
Commercial	14	1.0%	685	0.8%
Improved	14	1.0%	685	0.8%
Tract	506	37.8%	60,850	74.1%
Vacant	232	17.3%	59,463	72.4%
Improved	272	20.3%	1385	1.7%
State Responsibility	2	0.1%	2	0.0%
Farm	153	11.4%	1,707	2.1%
Vacant	34	2.5%	324	0.4%
Improved	119	8.9%	1,382	1.7%
Forest	443	33.1%	16,931	20.6%
Vacant	196	14.6%	12,144	14.8%
Improved	247	18.5%	4,786	5.8%
Recreation	1	0.1%	32	0.0%
Improved	1	0.1%	32	0.0%

Source: Multnomah County GIS, tax assessor property classification

Land use and development is characterized in Table 18 using tax assessor property codes. Tract land⁹ makes up the majority (74.1%) of acreage in the East of Sandy River subarea, and the plurality (37.8%) of the number of taxlots. This land is primarily zoned for commercial forest use and much of it is in forest production. Additionally, 39% of the parcels comprising nearly 90% of the land in this subarea are designated as Vacant. Improved properties and/or those with a manufactured structure are concentrated in the western portion of this area, near Corbett and Springdale. Residential land with improvements or manufactured homes makes up only about 0.5% of the land area in the East of Sandy River subarea. Land developed for commercial purposes also makes up a very small proportion of the land area (less than 1 percent) and similarly is concentrated in the western portion of this planning area.

Figure 7. Vacancy Status – East of Sandy River



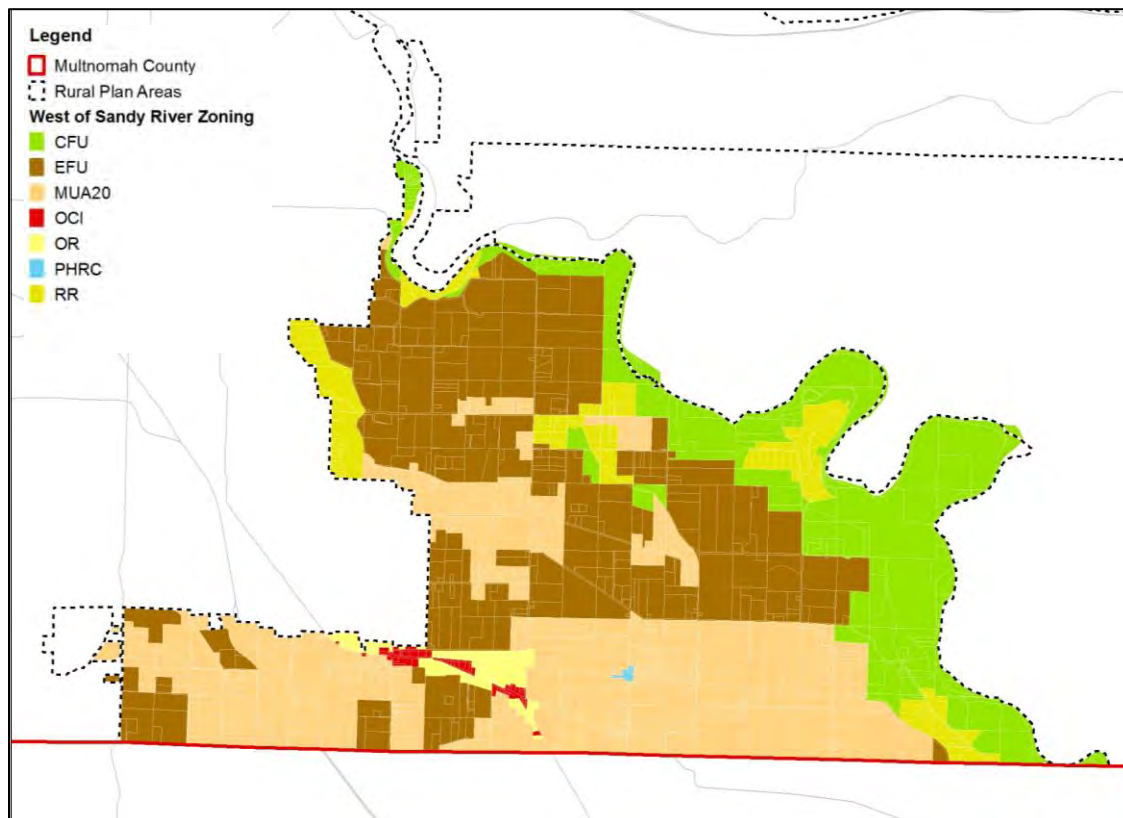
⁹ Tract Land is defined in the *Assessor's Certified Ratio Study Procedures Manual* (available online at <http://library.state.or.us/repository/2010/201007231056085/index.pdf>) as "parcels...where the highest and best use is for development to a suburban or rural homesite, but the land is not divided into urban type lots." This assessor's definition frequently is not consistent with the use, ownership characteristics, state land use planning guidelines or regulation of allowed uses of this land.

WEST OF SANDY RIVER

The West of Sandy River rural area is bounded on the east and north by the Sandy River, on the south by Clackamas County, and on the west by the city limits of Gresham and Troutdale. The area includes a narrow western leg bounded on the north and west by the city limits of Gresham and on the south by Clackamas County, and in island of rural land along Rodlun Road between Gresham and the County line. The area is open to urban influence to a greater degree than the other plan areas due to a lack of physical barriers, such as the steeper topography of West Hills, and the limited access to Sauvie Island and the East of Sandy River area.

The plan area is characterized by rural agricultural land bisected by several riparian corridors. The predominant land uses in the plan area are nurseries, berry farms and pastures. The plan area is located in two major drainage basins, the Sandy River and the Willamette River via Johnson Creek. Three large riparian systems are present: Beaver Creek, which flows northwest through the central portion of the area to the Sandy River; Johnson Creek, which flows west along the southern portion of the area to the Willamette; and the Sandy River, which forms the north and east plan area boundary. Kelly Creek North (a tributary to Beaver Creek) and Kelly Creek South (a tributary to Johnson Creek) as well as many unnamed tributaries to Beaver Creek, Johnson Creek and the Sandy River are present in the plan area.

Figure 8. West of Sandy River Zoning and Parcels



The West of Sandy River subarea consists of roughly 1,719 taxlots in 9,188 acres, or an average parcel size of 5.3 acres. It is more urban in character, with roughly 75% of taxlots below 5 acres in size. Over 95% of taxlots in this subarea are less than 25 acres. Zoning designations and their descriptions are found in Table 19.

Table 19. West of Sandy River Subarea - Zoning Designations

Zone	Detail	Acres	
CFU	Commercial Forest Use	2,153	22%
EFU	Exclusive Farm Use	3,584	36%
MUA20	Multiple Use Agriculture	3,366	34%
OCI	Orient Commercial - Industrial	51	1%
OR	Orient Rural Center Residential	152	2%
PHRC	Pleasant Home Rural Center	5.6	0%
RR	Rural Residential	644	6%

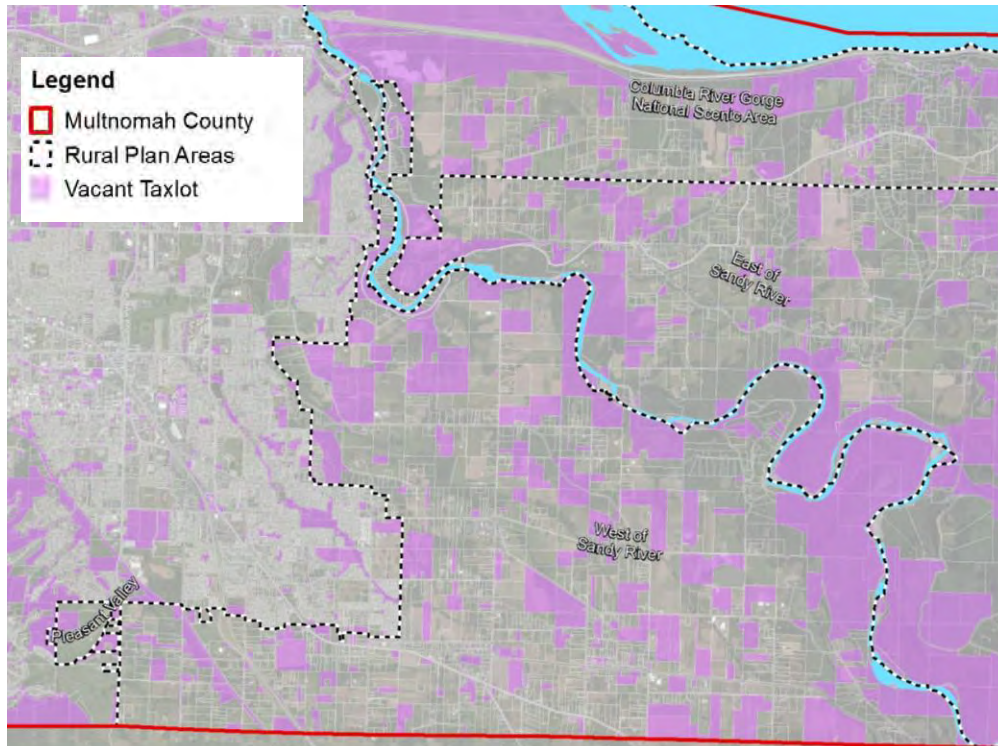
Table 20. West of Sandy River Subarea – Property Classification

Land Use	Number of Taxlots		Total Acres	
TOTAL	1,719	100%	9,188	100%
Residential	400	23.3%	953	10.4%
Vacant	90	5.2%	285	3.1%
Improved	240	14.0%	489	5.3%
Manufactured Structure	70	4.1%	179	2.0%
Commercial	52	3.0%	233	2.5%
Vacant	3	0.2%	2	0.0%
Improved	46	2.7%	214	2.3%
Condominium	1	0.1%	15	0.2%
State Responsibility	2	0.1%	2	0.0%
Industrial	2	0.1%	27	0.3%
State Responsibility	2	0.1%	27	0.3%
Tract	812	47.2%	2,664	29.0%
Vacant	173	10.1%	1,013	11.0%
Improved	637	37.1%	1,645	17.9%
State Responsibility	2	0.1%	6	0.1%
Farm	356	20.7%	4,356	47.4%
Vacant	108	6.3%	1,320	14.4%
Improved	248	14.4%	3,036	33.0%
Forest	93	5.4%	937	10.2%
Vacant	20	1.2%	217	2.4%
Improved	73	4.2%	720	7.8%
Multi-Family	3	0.2%	4	0.0%
Improved	3	0.2%	4	0.0%
Exempt	1	0.1%	13	0.1%
State Responsibility	1	0.1%	13	0.1%

Source: Multnomah County GIS, tax assessor property classification

Land use and development is characterized in Table 20. Farm land is the largest category in terms of acreage, taking up 46.7% of the land in the West of Sandy River subarea. However, Tract land comprises the plurality of taxlots (47.6%). Additionally, 31% of the land is categorized as Vacant (23% of taxlots). While not a significant percentage of the total, the West of Sandy River area contains much more residential and commercial land compared to the East of Sandy River subarea. A significant amount of the vacant land in the area is found on parcels directly adjacent to the Sandy River.

Figure 9. Vacancy – West of Sandy River



PLEASANT VALLEY

The Pleasant Valley subarea is under County zoning but lies within the urban growth boundary and is being planned by Gresham for eventual annexation into the City. Land within this subarea will be zoned and developed in accordance with the Pleasant Valley Plan. This subarea consists of 161 taxlots in 649 acres, or an average parcel size of 15.6 acres. Zoning designations and their descriptions are found in Table 21. The majority of the land in this area is currently zoned for rural residential use. About 18% of the land is now zoned as “Future Urban”.

Table 21. Pleasant Valley Subarea - Zoning Designations

Zone	Detail	Acres	
UF20	Urban Future District	116	18%
LM	Light Manufacturing	10	1%
C3	Retail Commercial	5.6	1%
RR	Rural Residential	530	80%

This subarea is predominately Tract lands, 75.8% of taxlots and 65.3% of total acreage. Only a small portion (8.4% of land area) of this tract land is designated as vacant. Improved residential parcels and those with manufactured structures make up just over 12% of the land area.

Table 22. Pleasant Valley Subarea – Property Classification

Land Use	Number of Tax Lots		Total Acres	
TOTAL	161	100%	649	100%
Residential	17	10.6%	103	15.8%
Vacant	2	1.2%	22	3.4%
Improved	10	6.2%	60	9.3%
Manufactured Structure	5	3.1%	20	3.2%
Commercial	7	4.3%	25	3.9%
Vacant	1	0.6%	10	1.6%
Improved	6	3.7%	15	2.3%
Tract	122	75.8%	424	65.3%
Vacant	26	16.1%	55	8.4%
Improved	96	59.6%	369	56.9%
Farm	13	8.1%	71	11.0%
Vacant	3	1.9%	8	1.3%
Improved	10	6.2%	63	9.7%
Forest	2	1.2%	26	3.9%
Improved	2	1.2%	26	3.9%

Source: Multnomah County GIS, tax assessor property classification

Figure 10. Pleasant Valley Zoning and Parcels

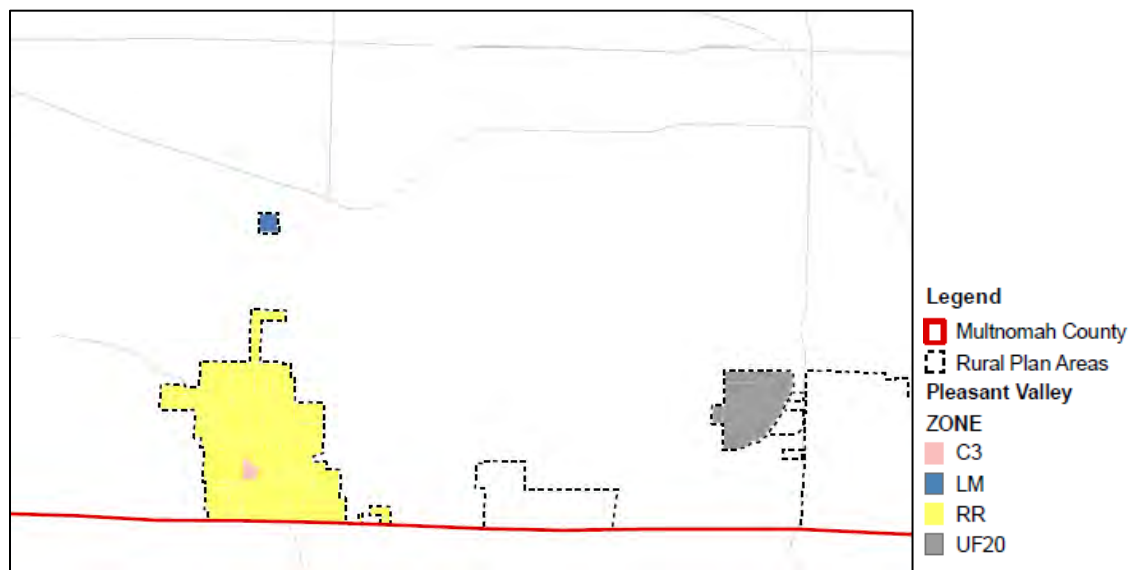
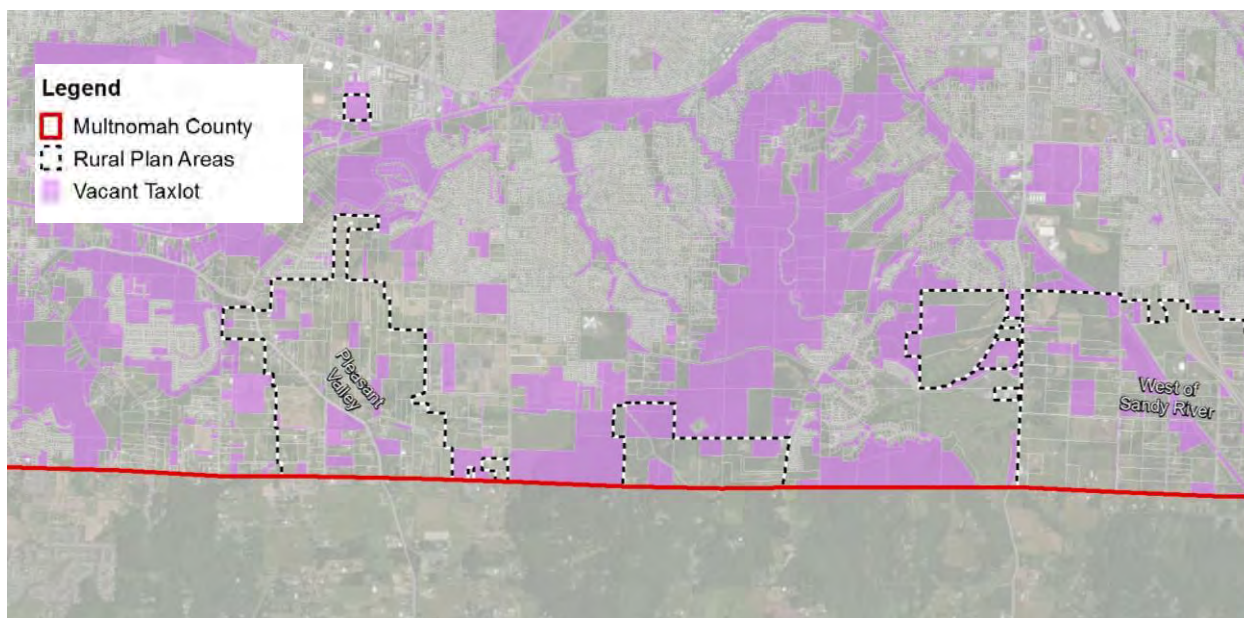


Figure 11. Vacancy Status – Pleasant Valley



INTERLACHEN

Interlachen is a small residential community located between Fairview Lake and Blue Lake and is surrounded by the City of Fairview. It is zoned entirely Urban Low Density Residential and largely built out. Average parcel size is a quarter of an acre. The majority of the area zoned as LR5 represents land covered by the two lakes.

Table 23. Interlachen Subarea - Zoning Designations

Zone	Detail	Acres	
LR10	Urban Low Density Residential	4.6	3%
LR5	Urban Low Density Residential	43.1	27%
LR7	Urban Low Density Residential	113.5	70%

The vast majority is categorized as Improved Residential (90.9%). There is one tax lot designated as Recreation.

Table 24. Interlachen Subarea – Property Classification

Land Use	Number of Tax Lots		Total Acres	
TOTAL	174	100%	42	100%
Residential	173	99.4%	41	99.5%
Vacant	17	9.8%	4	8.5%
Improved	156	89.7%	38	90.9%
Recreation	1	0.6%	0	0.5%
Improved	1	0.6%	0	0.5%

Source: Multnomah County GIS, tax assessor property classification

Figure 12. Interlachen Zoning and Parcels



Figure 13. Vacancy Status – Interlachen



COLUMBIA RIVER GORGE NATIONAL SCENIC AREA

The Columbia River Gorge National Scenic Area covers 85 miles along the Columbia River, including portions of Multnomah, Hood River, and Wasco counties in Oregon and Clark, Klickitat, and Skamania counties in Washington, and the Mt. Hood and Gifford Pinchot National Forests. This analysis addresses the portion within Multnomah County.

The purposes of the Columbia River Gorge National Scenic Area Districts, consistent with the Columbia River Gorge National Scenic Area Plan are to protect and provide for the enhancement of the scenic, cultural, recreational, and natural resources of the Columbia River Gorge, and to protect and support the economy of the Columbia River Gorge by encouraging growth to occur in existing urban areas and by allowing future economic development in a manner that protects and enhances the scenic, cultural, recreational, and natural resources of the Gorge. The Special Management Area includes the region's most sensitive lands, concentrated primarily in the western half of the Scenic Area. Congress authorized the Gorge Commission to plan for General Management Area (GMA) lands, which include agricultural, forestry, and residential uses.

The Columbia River Gorge National Scenic Area subarea consists of 1416 taxlots in 32,354 acres, or an average parcel size of 22.8 acres. Zoning designations and their descriptions are found in Table 25.

Table 25. Columbia River Gorge National Scenic Area - Zoning Designations

Zone	Detail	Acres	
CFU3	Commercial Forest Use (min. lot size is 80 acres)	47	0%
CFU4	Commercial Forest Use (min. lot size is 80 acres)	99	0%
GGA20	General Management Area Agriculture	185	1%
GGA40	General Management Area Agriculture	970	3%
GGC	General Management Area - Commercial	2	0%
GGCR	General Management Area - Recreation	8	0%
GGF20	General Management Area – Forest	367	1%
GGF40	General Management Area – Forest	346	1%
GGF80	General Management Area – Forest	298	1%
GGO	General Management Area – Open Space	134	0%
GGOGW	General Management Area – Open Space	108	0%
GGPR	General Management Area – Recreation	140	0%
GGR10	General Management Area – Residential	670	2%
GGR2	General Management Area – Residential	218	1%
GGR5	General Management Area – Residential	660	2%
GGRC	General Management Area – Rural Center	123	0%
GSA40	Special Management Area – Agricultural	446	1%
GSF40	Special Management Area – Forest	5,790	16%
GSO	Special Management Area – Open Space	24,049	67%
GSPR	Special Management Area – Recreational	784	2%
GSR	Special Management Area – Residential	39	0%
MUF19	Multiple Use Forest	23	0%
RC	Rural Center District (min. lot size is 1 acre)	495	1%

Over 2,600 acres (80.4%) of the land in this subarea is designated as Tract land, which comprises over half of the areas taxlots (51.7%). The majority of this land is designated as “Special Management Area - Open Space,” and is comprised of large vacant taxlots in the southern and eastern portions of the subarea. Residential lands represent 29.5% of the taxlots but less than six percent of the total land area, and are concentrated in the western portion of the subarea. The majority of the residential land in this sub-area is vacant (about 70%), with only 1.3% of the total land area identified as improved residential land.

Table 26. Columbia River Gorge National Scenic Area Subarea – Property Classification

Land Use	Number of Tax Lots		Total Acres	
TOTAL	1,416	100%	32,354	100%
Residential	418	29.5%	1,901	5.9%
Vacant	198	14.0%	1,365	4.2%
Improved	173	12.2%	430	1.3%
State Responsibility	5	0.4%	8	0.0%
Manufactured Structure	42	3.0%	99	0.3%
Commercial	55	3.9%	956	3.0%
Vacant	2	0.1%	4	0.0%
Improved	51	3.6%	931	2.9%
Condominium	1	0.1%	19	0.1%
State Responsibility	1	0.1%	1	0.0%
Tract	732	51.7%	26,026	80.4%
Vacant	419	29.6%	24,960	77.1%
Improved	312	22.0%	1,066	3.3%
State Responsibility	1	0.1%	1	0.0%
Farm	74	5.2%	993	3.1%
Vacant	19	1.3%	223	0.7%
Improved	55	3.9%	770	2.4%
Forest	123	8.7%	1,980	6.1%
Vacant	33	2.3%	495	1.5%
Improved	90	6.4%	1,486	4.6%
Multi-Family	1	0.1%	4	0.0%
Improved	1	0.1%	4	0.0%
Recreation	13	0.9%	494	1.5%
Vacant	10	0.7%	388	1.2%
Improved	1	0.1%	49	0.2%
State Responsibility	2	0.1%	56	0.2%

Figure 14. Columbia River Gorge Zoning and Parcels

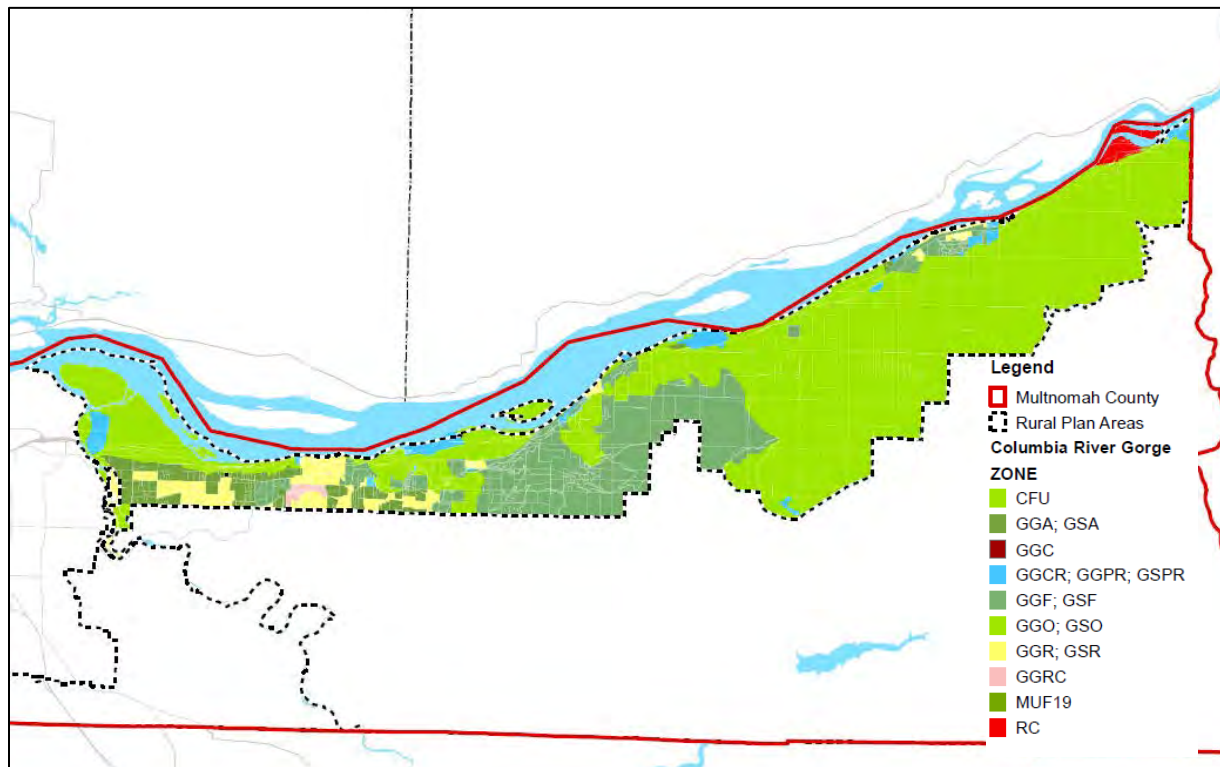
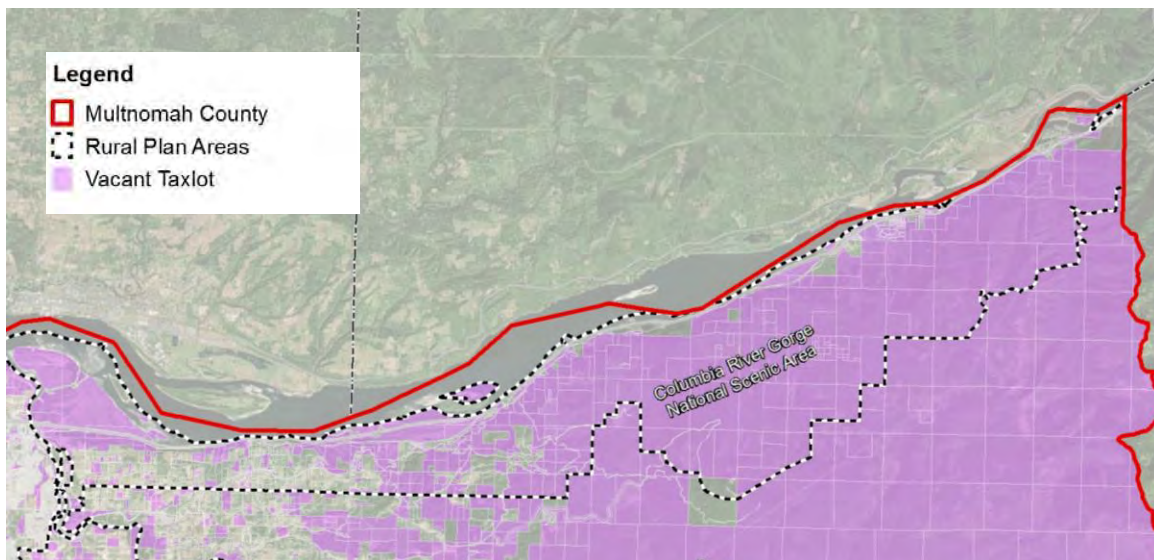


Figure 15. Vacancy Status – Columbia River Gorge



SAUVIE ISLAND

The Sauvie Island Rural Area includes those portions of Sauvie Island and the Multnomah Channel within Multnomah County. The Plan Area is bounded by U.S. Highway 30 on the west, Columbia County on the north, the Columbia River on the east, and the Willamette River and the city of Portland on the south. The area is dominated by agricultural uses and a wildlife refuge, with various water-related uses on and along Multnomah Channel, ranging from protected wetlands to marinas.

The rural area encompasses approximately 15,400 acres of land and several thousand additional acres of water. Approximately 11,800 of these acres are designated in the Comprehensive Framework Plan as Exclusive Farm Use, with the remainder designated as Multiple Use Agriculture.

The Plan Area lies to the north and west of the Portland Metropolitan Area's Urban Growth Boundary, with a direct common boundary only along the west side of Multnomah Channel where it bounds the City of Portland. Sauvie Island and Multnomah Channel provide a mixture of agricultural uses (due to the fine soils on the island protected by the levees of the Sauvie Island Drainage District), recreational uses (due to proximity to the Portland Metropolitan Area), and natural protected areas (primarily wetlands and water areas) which provide excellent wildlife habitat. This combination is unique to both Oregon and the entire nation. The island and channel area have been protected from creeping urbanization and unwanted regional urban-serving facilities by the vigilance of its residents and recreational users and the Oregon State and Multnomah County land use laws.

The Sauvie Island subarea consists of 613 taxlots in 15,417¹⁰ acres, or an average parcel size of 25.2 acres. Zoning designations and their descriptions are found in Table 27.

Table 27. Sauvie Island Subarea - Zoning Designations

Zone	Detail	Acres
EFU	Exclusive Farm Use	12,074
MUA20	Mixed	6,429
RC	Rural Commercial	40

Farm land is the predominant land use in terms of total acreage (84.9%), however it consists of only 48.5% of the taxlots. Residential lands represent 41.4% of all taxlots and 10.4% of the total acreage. While a substantial number of tax lots in the area are classified as residential uses, virtually all of them are zoned for exclusive farm use. The majority of residential tax lots are improved (about 60% of them). However, vacant residential tax lots comprise about 60% of the land area of residential uses. Compared to other rural areas in Multnomah County, "tract" uses make up a much smaller percentage of the number of parcels and land area.

¹⁰ This subarea contains areas over water considered zoned but not within any particular taxlot, accounting for the difference in acreage.

Table 28. Sauvie Island Subarea – Property Classification

Land Use	Number of Tax Lots		Total Acres	
TOTAL	613	100%	15,417	100%
Residential	254	41.4%	1,607	10.4%
Vacant	90	14.7%	1,056	6.8%
Improved	151	24.6%	475	3.1%
State Responsibility	6	1.0%	28	0.2%
Manufactured Structure	7	1.1%	49	0.3%
Commercial	13	2.1%	175	1.1%
Vacant	1	0.2%	0	0.0%
Improved	10	1.6%	175	1.1%
State Responsibility	2	0.3%	0	0.0%
Tract	30	4.9%	294	1.9%
Vacant	15	2.4%	144	0.9%
Improved	15	2.4%	151	1.0%
Farm	297	48.5%	13,094	84.9%
Vacant	103	16.8%	4,379	28.4%
Improved	194	31.6%	8,714	56.5%
Forest	15	2.4%	189	1.2%
Vacant	3	0.5%	1	0.0%
Improved	12	2.0%	187	1.2%
Multi-Family	1	0.2%	4	0.0%
Improved	1	0.2%	4	0.0%
Exempt¹¹	3	0.5%	54	0.4%
Improved	1	0.2%	48	0.3%
Manufactured Structure	2	0.3%	6	0.0%

Source: Multnomah County GIS, tax assessor property classification

¹¹ “Exempt” property is under government or religious ownership, and is exempt from taxation.

Figure 16. Sauvie Island Zoning and Parcels

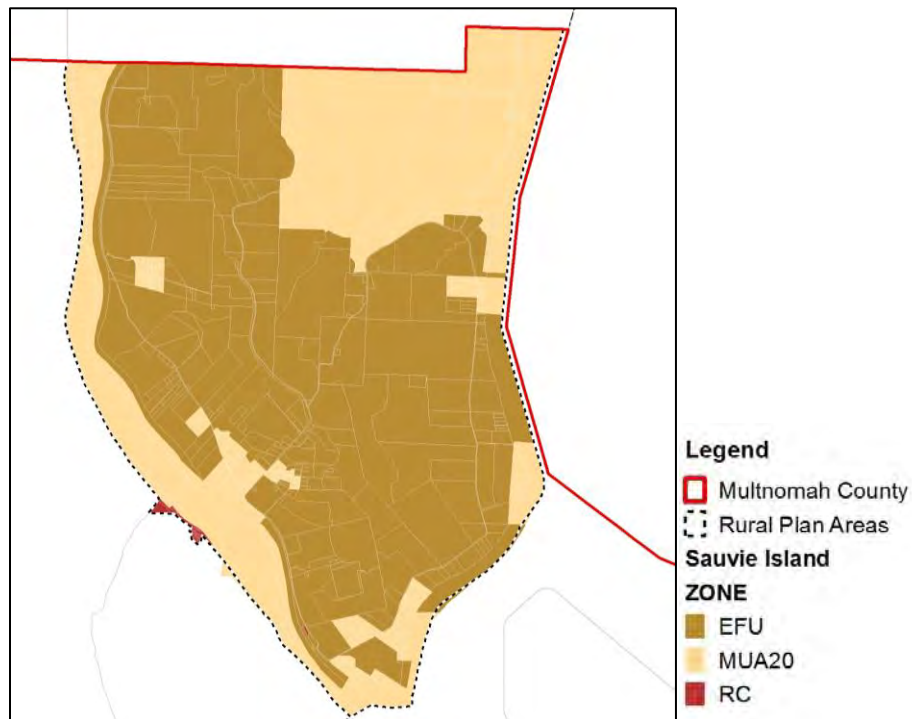
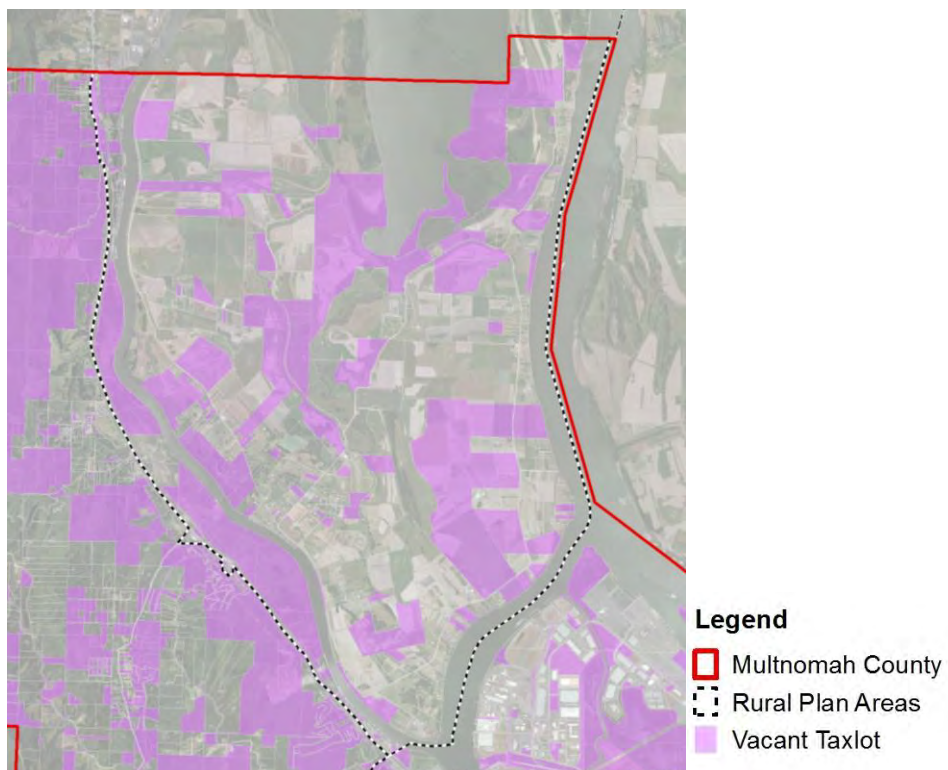


Figure 17. Vacancy Status – Sauvie Island



WEST HILLS

The West Hills subarea consists of roughly 1,888 taxlots in 21,500 acres. The average parcel size is just over 12 acres. Zoning designations and their descriptions are found in Table 29. The majority of land in this subarea (79 percent) is zoned for commercial forest use while land zoned for rural residential use represents 10% of the total.

Figure 18. West Hills Zoning and Parcels

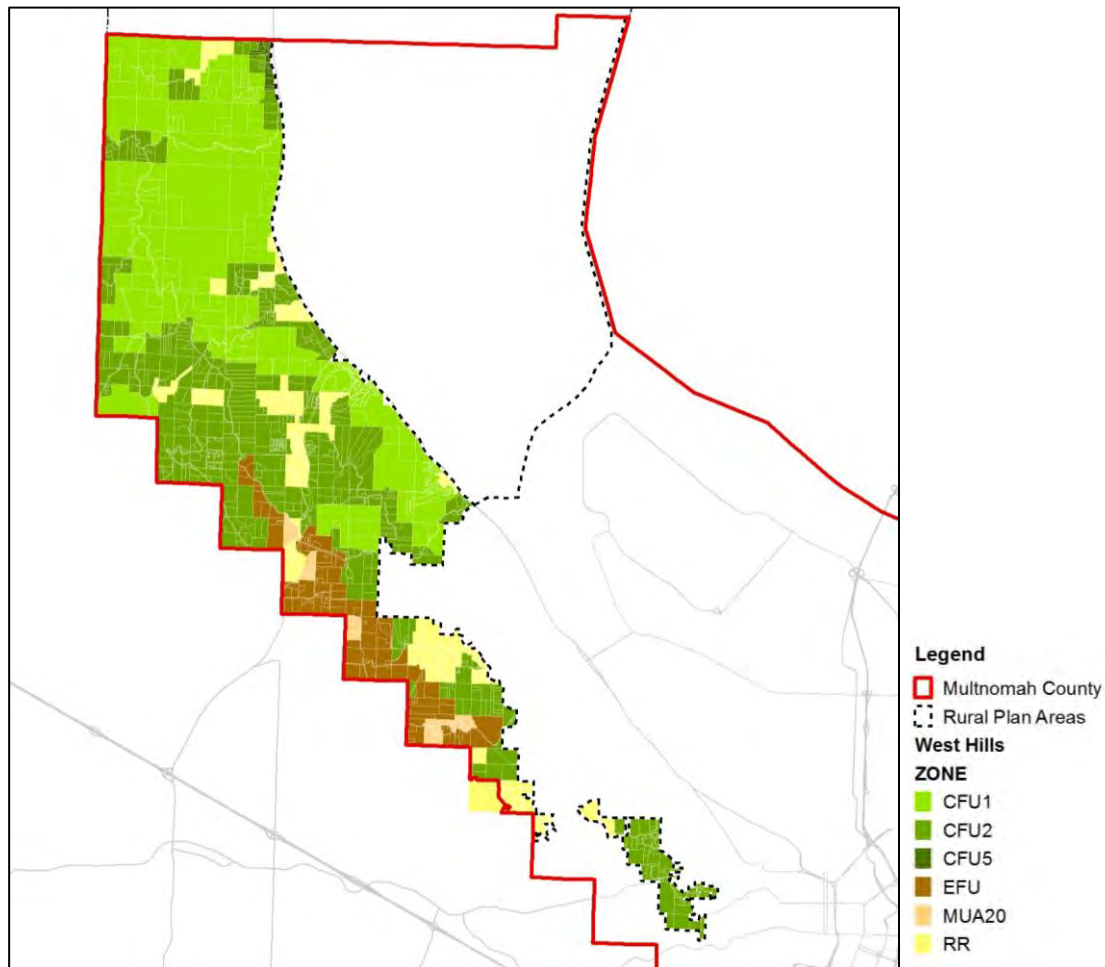


Table 29. West Hills Subarea - Zoning Designations

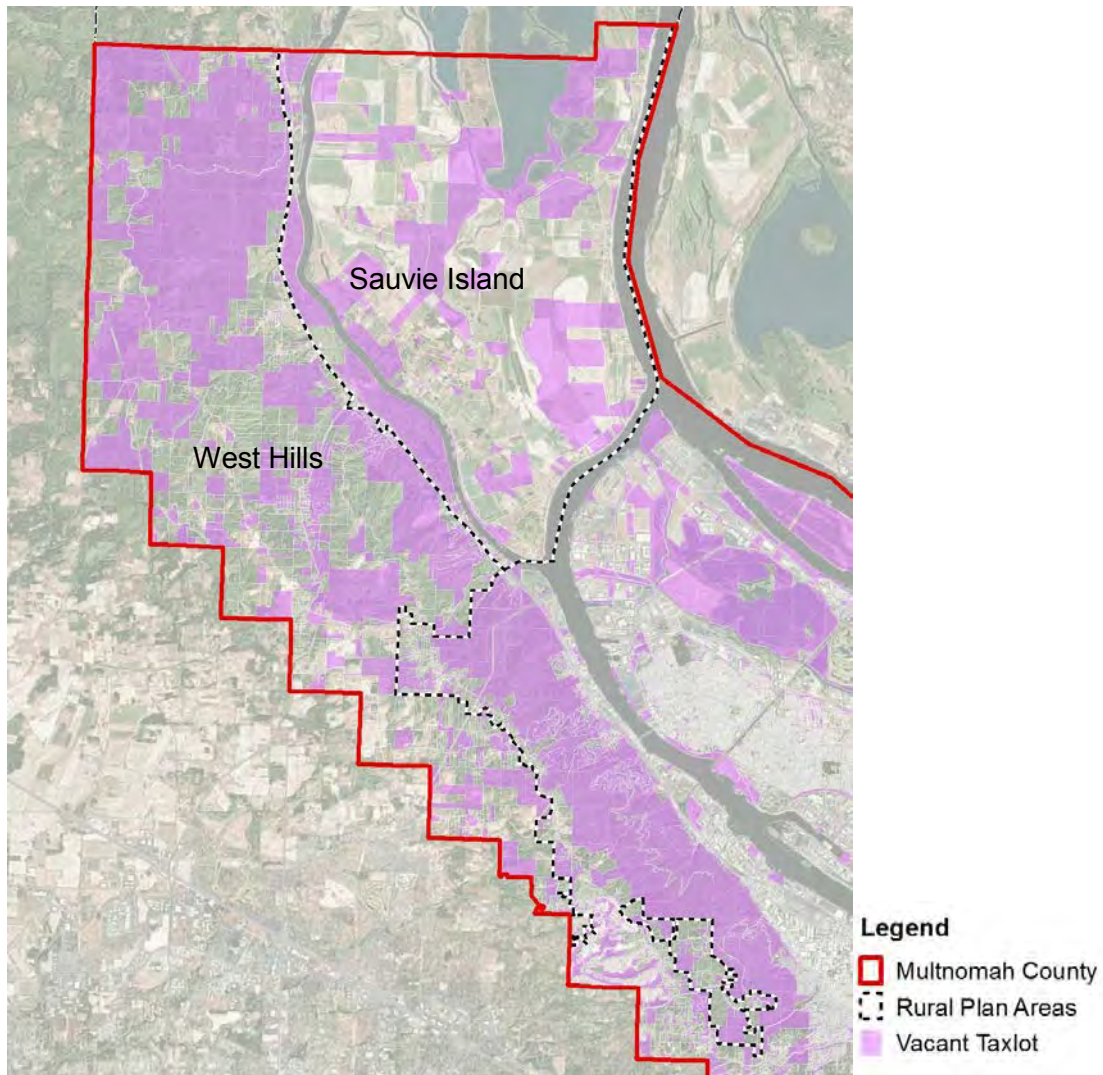
Zone	Detail	Acres	
CFU1	Commercial Forest Use	9,159	42%
CFU2	Commercial Forest Use	8,049	37%
CFU5	Commercial Forest Use	92	0%
EFU	Exclusive Farm Use	1,921	9%
MUA20	Mixed	299	1%
RR	Rural Residential	2,173	10%

Forest uses make up nearly 70% of the total acreage in the West Hills. There are over 700 taxlots (42.2% of total number of tax lots and 67% of the land) identified as in Forest use. There are 959 taxlots identified as having residential uses, representing just over 50% of the total lots. However, these lots total only 18.8% of the total acreage in the subarea.

Table 30. West Hills Subarea – Property Classification

Land Use	Number of Tax Lots		Total Acres	
TOTAL	1888	100%	21,446	100%
Residential	959	50.8%	4035	18.8%
Vacant	406	21.5%	2019	9.4%
Improved	493	26.1%	1727	8.1%
State Responsibility	29	1.5%	168	0.8%
Manufactured Structure	31	1.6%	121	0.6%
Commercial	20	1.1%	141	0.7%
Improved	18	1.0%	140	0.7%
State Responsibility	2	0.1%	1	0.0%
Tract	88	4.7%	688	3.2%
Vacant	30	1.6%	219	1.0%
Improved	50	2.6%	460	2.1%
State Responsibility	8	0.4%	9	0.0%
Farm	95	5.0%	1494	7.0%
Vacant	25	1.3%	275	1.3%
Improved	70	3.7%	1219	5.7%
Forest	713	37.8%	14567	67.9%
Vacant	298	15.8%	7718	36.0%
Improved	415	22.0%	6849	31.9%
Recreation	13	0.7%	521	2.4%
Vacant	12	0.6%	396	1.8%
Improved	1	0.1%	125	0.6%

Figure 19. Vacancy Status – West Hills



POLICY GAP ANALYSIS

This section compares the current Comprehensive Framework Plan (Comprehensive Plan) and Rural Area Plans (RAPs) to relevant state and regional planning requirements and policies in order to identify deficiencies in the current plans that should be addressed as part of this update process.

Current plans were reviewed against the following state and regional documents:

1. Statewide Planning Goals and associated Oregon Revised Statutes (ORS) and Oregon Administrative Rules (OARs)
2. Metro Planning Requirements and Policies
3. Selected County Policies and Planning Documents

This section identifies gaps that will inform work to be conducted in Tasks 5 and 6 of this project. Task 5 involves drafting new plan policies and Task 6 will provide draft code amendments to implement those policies. This section does not include transportation-related plans and policies which are covered in a third (following) section of this report.

STATE PLANNING REQUIREMENTS & POLICIES

STATEWIDE PLANNING GOALS

GOAL 1 – CITIZEN INVOLVEMENT: The Comprehensive Plan contains policies for citizen involvement and intergovernmental coordination (Policies 3 and 4) that address Statewide Goal 1. The policy language applies county-wide; it is not necessary for the individual RAPs to have additional policy language for Goal 1. Goal 1 is relatively general in nature and both the County's existing policies and the public involvement process being used to update the Comprehensive Plan appear to be consistent with Goal 1. However, additional policies related to public involvement could be incorporated in the updated Comprehensive Plan, if desired.

GOAL 2 – LAND USE PLANNING: Goal 2 requires local governments to establish, update as needed and implement Comprehensive Plans. The Goal prescribes general planning requirements, how and when local governments can take exceptions to this goals; and guidelines for Plan preparation, content, filing, revision implementation, and coordination with state and federal agencies. The County's Comprehensive Plan, in concert with the County Development Plan and Operations Plan, as well as other supporting functional and specific area plans (e.g., Rural Area Plans) appear to generally conform to the provisions of Goal 2. Although the existing Comprehensive Plan includes a very detailed set of planning policies and recommended implementation strategies, the preliminary policy audit being conducted separately as part of this project may indicate specific policy gaps in the Plan.

Recommendation: Policies related to land use planning should be reviewed further to ensure that they are consistent with County land use development and permitting processes, including development code requirements. The process of updating the Plan also will need to be

consistent with Goal 2 and the updated Comprehensive Plan will need to incorporate contents and reference implementing plans and regulations consistent with Goal 2.

GOAL 3 – AGRICULTURAL LANDS: This goal states that agricultural lands shall be preserved and maintained for farm use, consistent with existing and future needs for agricultural products, forest and open space and with the state's agricultural land use policy expressed in ORS 215.243 and 215.700. The Oregon Department of Land Conservation and Development (DLCD), with assistance from Angelo Planning Group, is currently preparing a set of model ordinance provisions to help counties ensure consistency with state statutes and administrative rules associated with farm and forest. County planning staff have been involved in this effort and a preliminary review of County standards indicates that they are consistent with or exceed state requirements.

Recommendations: As part of this Comprehensive Plan update, the County should use the results of the DLCD effort noted above to confirm that County policies and regulations are consistent with each other and with state requirements at a minimum and further determine whether additional policies or requirements are needed to meet County or community goals. While the project team has not yet done a thorough review and comparison between state requirements and County policies (this will be done as part of Task 5 of the project), an initial assessment indicates that Multnomah County's requirements exceed the minimum state requirements.

GOAL 4 – FOREST LANDS: This goal directs local governments to conserve forest lands by maintaining the forest land base. It also requires local jurisdictions to ensure that forest production is economical and consistent with the goal of protecting land, air and water quality, as well as wildlife habitat. The goal further local governments to inventory forest lands and apply zoning designations to allow for commercial forestry in these areas, including limiting other land uses that could significantly adversely affect forest operations and practices and to establish numeric standards for land divisions and standards for land uses in these areas. The goal refers to consistency with specific statutes. The Goal includes guidelines for planning and implementation related to inventory practices; management of air, land and water quality; land use and land division; reforestation; road and right-of-way location and standards; and managing conflicts between forest lands and adjacent zones and uses.

The County's Comprehensive Plan includes policies and implementation strategies that address the requirements and guidelines of the goal. The County's Development Code includes several commercial forestry zones that also implement and are generally consistent with the goal. The Comprehensive Plan and Development Code also include policies and standards to protect air, land and water quality and wildlife habitat within forest and other zones.

Recommendations: As part of this Comprehensive Plan update, the County should use the results of the DLCD effort noted under Goal 4 to confirm that County policies and regulations are consistent with each other and with state requirements at a minimum and further determine whether additional policies or requirements are needed to meet County or community goals. The project team also should review County policies and standards (this will be done as part of

Tasks 5 and 6 of the project) to ensure that policies and standards properly balance support of forest operations and practices with management of air, land and water quality and with forest property owners ability to economically conduct commercial forestry operations..

GOAL 5 – NATURAL RESOURCES, SCENIC AND HISTORIC AREAS, AND OPEN SPACES:

Because the County is doing a voluntary update of the Comprehensive Plan (outside of a required periodic review process), there is no requirement to conduct a complete Goal 5 inventory. However, the County may choose to add Goal 5 resources to its existing inventories if desired. Currently, the County has Goal 5 inventories and associated ESEEs for the eastern parts of the County (east and west of the Sandy River). The West Hills RAP identifies scenic resources, wildlife habitat, streams and some mineral/aggregate resources that have been inventoried pursuant to Goal 5. In addition, the recent update of the Sauvie Island RAP included a Goal 5 inventory based on a “literature review” of existing, readily available information about applicable natural resources but did not include an associated ESEE analysis or report. It also has not included a determination of significance for Goal 5 resources or any on-the-ground inventory of resources.

In order to add resources to its existing Goal 5 inventories, the County could take the following approaches, depending on “safe harbor” provisions that may or may not be in place:

- If safe harbor provisions, or provisions that can be demonstrated to be equivalent to safe harbor, are in place – the County may add resources to an inventory without conducting an ESEE analysis.
- If safe harbor (or similar) provisions are not in place, then the County must conduct an ESEE analysis for any new resources added to the inventories. Similarly, if the County revises existing code provisions in place to protect Goal 5 resources, and those revisions are not in line with safe harbor provisions – then an ESEE analysis must be conducted for areas and/or resources affected by the new regulations.

Recommendations: As part of this Comprehensive Plan update, the County will need to assess whether or not its existing Goal 5 code provisions are consistent with safe harbor provisions. In addition, the strategies under Policy 16A-L in the Comprehensive Plan will likely need to be revised to reflect inventories, ESEE work, and mapping that has been done since the last update.

For wetlands, the County is not required to conduct a local inventory and may rely on state/federal data as needed. However, the Comprehensive Plan indicates that some wetlands and other water resources have been inventoried. If additional wetland inventories are conducted as part of this update, the same safe harbor rules mentioned above will apply.

For wildlife habitat, the County has inventories and ESEE analyses for the areas east and west of the Sandy River. However, these may need to be updated based on more recent habitat surveys if they are available; if that is the case, the ESEEs will need to be updated as well.

Historic resources have been inventoried and the County protects historic resources by applying a Historic Preservation overlay zone to sites that meet the criteria. To ensure consistency with

Goal 5, the County should consider including language with the Historical Site Criteria under Policy 16-I that ensures owner consent (the County cannot impose a historical site designation if the property owner does not consent).

For cultural resources, there are no applicable state requirements and the County is not mandated to conduct an inventory. However, as part of this plan update, the County will consult with the State Historic Preservation Office and tribal agencies to determine if significant cultural resources are present and should be addressed in this update process.

GOAL 6 – AIR, WATER AND LAND RESOURCES QUALITY: All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources. It is expected that the County can comply with these requirements by meeting Goal 5 requirements and deferring to state and federal requirements for air and water discharges.

GOAL 7 – AREAS SUBJECT TO NATURAL HAZARDS: There is no specific Administrative Rule or other state requirements associated with Goal 7 beyond the language of the Goal itself. The Goal provides only general guidance regarding reducing risks from natural hazards. The Comprehensive Plan contains policies related to natural hazards under Policy 14 Development Limitations and Policy 16 Natural Resources. In addition, the County Zoning Ordinance contains standards for development in the floodplain and in slope hazard areas. The Federal Emergency Management Agency (FEMA) requires local communities to maintain and enforce minimum floodplain management standards in order to be eligible to participate in the National Flood Insurance Program (NFIP). FEMA accepted floodplain maps compiled by Multnomah County in 1980. Recent and potential future decisions and requirements by the National Oceanic and Atmospheric Administration (NOAA) also may affect the need for potential changes to flood hazard regulations. These include a previous biological opinion issued by NOAA and potential requirements associated with channel migration discussed below.

Recommendations: Channel migration is also considered a potential natural hazard and is currently being evaluated by the National Oceanic and Atmospheric Administration (NOAA) which is considering establishing future federal regulations associated with these potential hazard areas. Those efforts may result in new state requirements for local governments to consider adopting into comprehensive plans that specifically address channel migration. If the NOAA study provides model policy language related to channel migration, the County should consider adoption of that language as appropriate, consistent with future state requirements.

In addition, the Department of Geology and Mineral Industries (DOGAMI) has recently developed new mapping data and protocols using laser-based data (called LIDAR) that can provide a much more accurate depiction of landslide locations than is currently available. LIDAR

maps have been produced for a number of Oregon counties, including Multnomah County. In addition, the Oregon Department of Land Conservation and Development (DLCD) is working with DOGAMI and several cities in northern Clackamas County to develop a model ordinance for use in minimizing risks from landslide and other hazards. Also, Marion County has recently prepared an updated natural hazards ordinance using LIDAR data.

While current state laws and administrative rules do not require it, the County may also want to create a new natural hazards policy section in the Comprehensive Plan that gathers all hazard-related policy language into one place. This will help coordinate hazard-related policy language that exists in the individual RAPs and the County's Hazard Mitigation Plan, as well as any new policy language related to channel migration and LIDAR information that becomes available. The Marion County ordinance and the ongoing work by DLCD could inform these efforts.

GOAL 8 – RECREATIONAL NEEDS: The statewide goal is: To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities. Policies 39 and 40 of the Comprehensive Plan include language about parks and recreation planning and development requirements (mostly pertaining to bicycle and pedestrian connections and landscaped areas).

Recommendation: Policy 39 includes policies specific to a 40-mile loop trail system; this language should be updated to reflect the current status of that project. There are also some references to documents in these policies (for example, the 1984 Multnomah County Neighborhood Park Plan) that are likely outdated and should be revised or deleted as appropriate. Policy 40 seems to focus exclusively on bicycle and pedestrian connections and landscaping. The County may want to expand this section to include additional policies related to parks requirements for development, and to be consistent with the zoning and subdivision ordinances. At the same time, these policies should reflect the current agreement between the County and Metro regarding management of parks within the County.

In addition, policy language in the Comprehensive Plan should include specific reference to the RAPs and the unique recreational value of each (for example, tourism on Sauvie Island and Forest Park in the West Hills). Each RAP contains policy language about recreation that should be updated and incorporated as appropriate.

GOAL 11 – PUBLIC FACILITIES AND SERVICES: The goal requires local governments to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development. Policies 37 and 38 of the Comprehensive Plan address public utilities and facilities; however, it appears they have not been updated since 1999. The Sauvie Island RAP includes a chapter for public and semi-public facilities and identifies key issues. The West Hills RAP refers to a potential new community facility plan for the Burlington Water District, and mentions the lack of public facilities serving the Balch Creek Basin area. The East of Sandy and West of Sandy RAPs contain limited information about public facilities and utilities, most of which is background information and not policy language.

Goal 11 also requires facility plans as follows:

“Cities or counties shall develop and adopt a public facility plan for areas within an urban growth boundary containing a population greater than 2,500 persons. To meet current and long-range needs, a provision for solid waste disposal sites, including sites for inert waste, shall be included in each plan.”

“Counties shall develop and adopt community public facility plans regulating facilities and services for certain unincorporated communities outside urban growth boundaries as specified by Commission rules.”

Recommendations: New and/or revised policy language is likely needed in the Comprehensive Plan to more specifically address Goal 11 and the requirement to plan and develop a “timely, orderly and efficient” arrangement of public facilities. Language should also be updated to reflect any master planning of public facilities that has been completed since 1999. Policy language should also include updated information about the four rural areas, particularly where deficiencies have been identified or recent projects have been completed. The project team also should review plans for unincorporated communities to ensure they are consistent with Goal 11 requirements and consider including references to those documents in the Public Facilities section of the Comprehensive Plan.

GOAL 12 – TRANSPORTATION: This goal is implemented through the Oregon Transportation Planning Rule (TPR). Consistency with the TPR and with other state, regional and local transportation plans and policies is being addressed in a subsequent section of this Report.

GOAL 13 – ENERGY CONSERVATION: Land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles. Policy 22 of the Comprehensive Plan addresses energy conservation and appears to be consistent with this goal. The four RAPs contain little to no language regarding energy conservation. No changes are recommended for this policy except to update as appropriate to reflect more recent information or current practices.

GOAL 14 – URBANIZATION: This goal provides for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries and to protect rural, and resource lands from urbanization and urban sprawl. Policies 6-12 of the Comprehensive Plan are the Urban/Rural Growth Management Policies for the County and provide consistency with Goal 14. It defines three Broad Land Area Classifications: urban, rural and natural resource. Policy 6A also establishes policies and strategies for urban and rural reserves, consistent with OAR 660-027 Urban and Rural Reserves in the Portland Metro Area. Changes are recommended for Goal 14 compliance to update information specific to the four RAPs as needed to reflect current information and any rural reserve designations that apply in those areas. Those updates include:

- Portions of the West Hills were designated as Rural Reserves (areas 9C and 9B)
- Portions of West of Sandy were designated as Rural Reserves (area 1B), Urban Reserves (area 1C), and undesignated.
- Portions of East of Sandy were also designated as Rural Reserves are 1B.

- In 2010, all of Sauvie Island was designated as a rural reserve. This is reflected in the recent draft updated Sauvie Island RAP.

GOAL 15 – WILLAMETTE RIVER GREENWAY: The purpose of Goal 15 is to, “To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River...” The Goal requires that cities and counties update their comprehensive plans and implementing ordinances to establish boundaries, appropriate uses and acquisition areas consistent with the approved Department of Transportation Greenway Plan.

To address Goal 15, the Multnomah County Comprehensive Plan includes Policy 15 Willamette River Greenway that establishes protections for land within the designated Greenway. Those protections include a Willamette River Greenway overlay zone in the zoning code that is applied to all lands within the designated Greenway. The overlay establishes development and design standards, and an administrative review procedure for development proposed within the overlay. Generally, the provisions related to the Willamette River Greenway apply to areas on Sauvie Island that front on the Willamette River. The Greenway Overlay Zone should be reviewed to ensure consistency with Goal 15 and any proposed acquisition areas identified by the County also should be referenced in the Comprehensive Plan.

ORS 215 COUNTY PLANNING, ZONING, HOUSING CODES

WINERIES: ORS 215 contains relatively new (2012) language regarding commercial wineries on EFU lands. The policy language in the Comprehensive Plan does not currently address wineries. The draft Sauvie Island RAP includes a brief discussion that references the ORS language and states that there are currently no commercial wineries on the island. The other RAPs are silent on the issue of wineries.

Recommendation: Comprehensive Plan Policies 9 and 10 related to agricultural lands could be updated to reference ORS allowances and limitations for wineries. The results of the multi-county model ordinance work referenced under Statewide Goals 3 and 4 also may provide guidance to help update this aspect of the Comprehensive Plan.

OAR 660-033 AGRICULTURAL LAND

This rule establishes requirements for identifying agricultural lands and implements sections of ORS 215. It also establishes minimum parcel size requirements; uses that can be permitted outright or conditionally on designated agricultural lands and associated standards; and limitations on dwellings in conjunction with a farm use. As noted previously, DLCD and APG are working on a model ordinance that Counties will be able to use to ensure consistency with these provisions. Results of that effort will be used to ensure consistency of the Comprehensive Plan and Development Code with these requirements.

METRO PLANNING REQUIREMENTS & POLICIES

METRO REGIONAL FRAMEWORK PLAN: The Framework Plan provides more detailed policy guidance for the 2040 Growth Concept and contains policies for land use, transportation, hazards, water quality and other regional elements. Much of the policy language focuses on those areas within the Urban Growth Boundary (UGB). However, there are recommendations and requirements for local governments that should be considered as part of this Comprehensive Plan update, including policies and requirements for urban and rural reserve planning and protection of agricultural and forest land in those areas that apply to lands outside the UGB and within the rural portions of the County. These include portions of Sauvie Island, the West Hills and the area west of the Sandy River, as well as a small portion land east of the Sandy River.

Recommendation: Consider policy language as needed to ensure coordination with Metro on those policy areas that overlap (policies that apply outside the UGB). Specifically, review Framework Plan policies related to watershed management, natural hazards, urban and rural reserve planning and other requirements, as applicable.

METRO PARKS AND NATURAL AREAS: Metro is in the process of drafting a parks system plan (anticipated completion in December 2015).

Recommendation: It appears that Comprehensive Plan policy language related to parks (Policies 39 and 40) may need to be updated to reflect the Metro parks that are located within unincorporated areas of the county. Language in this section could also be revised to emphasize coordination with Metro in parks planning.

In addition, the West of Sandy, East of Sandy and West Hills RAPs all contain outdated information about parks and reference outdated documents (1997 Oxbow Park Master Plan, 1992 Metro Greenspaces Master Plan, for example). Parks information (and any associated maps) for these areas should be updated to reflect more recent regional park planning efforts and parks that have been created since the RAPs were last updated.

CLIMATE SMART COMMUNITIES SCENARIOS PROJECT: This project responds to a state mandate to reduce greenhouse gas emissions by 2035. Still in draft form, the Draft Toolbox of Possible Actions (Sept. 2014) contains potential actions that can be taken by county governments to help achieve the mandated reductions.

Recommendation: The County could review the actions identified in the Toolbox and consider including new policy language in the Comprehensive Plan as appropriate to support and implement the project.

COUNTY PLANNING REQUIREMENTS & POLICIES

COLUMBIA RIVER GORGE NATIONAL SCENIC AREA: The Columbia River Gorge National Scenic Area Plan protects and provides for enhancement of the scenic, cultural, recreational, and natural resources of the Columbia River Gorge. Policy 41 of the Comprehensive Plan calls for the County to “implement the goals, objectives, policies, and guideline elements contained in

the *Management Plan for the Columbia River Gorge National Scenic Area* and attendant maps (including any future amendments) for that portion of the County designated by Congress as the Columbia River Gorge National Scenic Area.” No changes or additions to this policy are recommended as part of this update.

MULTNOMAH FOOD ACTION PLAN: The Multnomah Food Action Plan is designed as a tool to help focus community's resources and efforts on community-established priorities so that our region plans and invests wisely in a sustainable food system.

Recommendation: Consider drafting a new section of policy language for the Comprehensive Plan to address the Food Action Plan goals to the extent they are related to other aspects of the Comprehensive Plan. There is some overlap with other policy sections in the Comprehensive Plan (protecting agricultural lands, social equity, and economy) – those overlapping areas should be consistent with any new food-related policies. This will be especially relevant to Sauvie Island due to the large amount of food grown and sold there.

MULTNOMAH COUNTY EQUITY AND EMPOWERMENT LENS: The Equity and Empowerment Lens is tool used to improve planning, decision-making, and resource allocation leading to more racially equitable policies and programs.

Recommendation: Consider adding new policy language to the Comprehensive Plan that specifically addresses equity in policy and decision making. The Policy and Decision-Making Questions include in the draft Equity and Empowerment Lens provide a framework for potential new policy language, if necessary and relevant to other elements of the Comprehensive Plan.

MULTNOMAH COUNTY HEALTH EQUITY INITIATIVE: This initiative establishes county-wide priority policies to address the root causes of socioeconomic and racial injustices that lead to health disparities.

Recommendation: Consider drafting new policy language for the Comprehensive Plan that addresses health equity. Specific policies could emphasize: access to food/farms, access to public transportation, affordable housing, and a land use review process that considers equity in decision-making. Again, there will be overlap with other policy sections in the Comprehensive Plan so consistency between them should be confirmed.

MULTNOMAH COUNTY NATURAL HAZARDS MITIGATION PLAN: This plan contains updated (2012) county goals for addressing, planning for, and mitigating natural hazards. The emphasis is on the unincorporated rural parts of the county and on Multnomah County government facilities and services. Chapter 4 contains goals and objectives related to coordinating with other government agencies.

Recommendation: Policy 14 Development Limitations already contains some language about zoning regulations intended to avoid or mitigate natural hazards. However, the County could also consider drafting a new strategy under Policy 4 Intergovernmental Coordination that specifies coordination with the County Office of Emergency Management. In addition, Policy 23 of the West Hills RAP recommends revising Comprehensive Plan Policy 14 to designate lands

with average slopes greater than 25% as having development limitations (current policy applies to lands with slopes greater than 20%). This revision will resolve an existing conflict between the Comprehensive Plan and the County Zoning Ordinance. Information in the Hazards Mitigation Plan also should be used address requirements associated with Statewide Goal 7.

MULTNOMAH COUNTY CLIMATE ACTION PLAN: The 2009 Climate Action Plan serves as the 40-year roadmap for the institutional and individual change needed to reduce community-wide greenhouse gas emissions 80% by 2050. The 2014 Climate Change Preparation Strategy identifies Department of Community Services (DCS) as the lead agency on a number of strategy objectives.

Recommendation: Consider drafting some climate change and sustainability policy language for the Comprehensive Plan that addresses applicable objectives in the Action Plan, particularly those related to buildings and energy (Objective 1), urban form and mobility (Objective 2), and local government operations (Objective 8). Also, update Comprehensive Plan policies as needed to reflect the strategies where DCS is identified as the lead agency.

MULTNOMAH COUNTY BOARD LAND USE PLANNING VALUES: These are general value statements adopted by the Board and reaffirmed in 2007. Policy language in the Comprehensive Plan and RAPs generally supports and is consistent with these values. No updates are recommended.

TRANSPORTATION FACILITIES AND PLANS

This section of the report describes Multnomah County plans, state and local plans, Metro plans, and service provider plans that contain plans, policies, or projects that are relevant to the County's Comprehensive Plan Update and related Transportation System Plan Update for the rural unincorporated areas of Multnomah County.

This report identifies the relevant reference background documents, their date and on-line location, and provides a brief summary and description of each document's relevance to the Multnomah County Comprehensive Plan Update. More detailed information can be found in a separate memorandum on this topic.

It should be noted that the County has several documents pertinent to project implementation including the Multnomah County Road Rules and the Design and Construction Manual; however, these types of documents are not included below. The plan and policy documents relevant to Multnomah County rural area transportation include:

- Multnomah County Documents
 - Comprehensive Framework Plan [Policies 33 – 36]
 - Rural Area Plans
 - Columbia River Gorge NSA Rural Area Plan Policy Document (2005)
 - Columbia River Gorge National Scenic Area Management Plan (2011)
 - East of Sandy River Rural Area Plan (1997) [Transportation Section]
 - West of Sandy River Rural Area Plan (2005) [Transportation Section]
 - West Hills Rural Area Plan (1996) [Transportation Section]
 - Sauvie Island/Multnomah Channel Rural Area Plan (1997) [Transportation Section]
 - Transportation System Plans
 - Westside Rural Area Transportation System Plan (1998)
 - Functional Classification of Trafficways Findings and Recommendations Technical Report (2003)
 - Pedestrian Master Plan (1996)
 - Bicycle Master Plan (1990)
 - Transportation Capital Improvement Plan and Program Fiscal Years 2014-2018 (2014)
- Adjacent Jurisdiction Documents¹²
 - Washington County Draft 2035 Transportation System Plan (2014)

¹² TSPs for the Cities of Fairview and Troutdale will be considered; Troutdale's southeastern city limits border the West of Sandy rural area and its County roads.

- Clackamas County Transportation System Plan (2013)
- Hood River County Transportation System Plan (2011)
- Columbia County Long Range Transportation Plan (2004)
- City of Gresham Transportation System Plan (2013)
- City of Troutdale Transportation System Plan (2014)
- Portland Transportation System Plan (2007)
- Multnomah County Urban Pockets Transportation System Plan (2006)
- Metro Documents
 - Metro Regional Transportation Plan (2014)
 - East Metro Connections Plan (June 2012)
 - Metro Regional Framework Plan (January 2011)
- State Documents
 - Oregon Highway Plan (1999 w/ revisions through 2013)
 - Oregon Rail Plan (2014)
 - Oregon Freight Plan (2011)
 - Oregon Transportation Options Plan (On-going)I-84 Corridor Strategy Guidelines (2005)
 - Cornelius Pass Road Safety Evaluation Jobs and Transportation Act (2009)
 - ODOT Statewide Transportation Improvement Program (June 2012)
- Transit Service Provider Plans
 - Trimet- Eastside Service Enhancement Plan (On-going)
 - Trimet - North/Central Service Enhancement Plan (TBD)
 - Columbia County Community-wide Transit Plan and Highway 30 Transit Access Plan (2009)
 - Sandy Transit Master Plan (2009)

MULTNOMAH COUNTY DOCUMENTS

COMPREHENSIVE FRAMEWORK PLAN

<https://multco.us/file/18449/download>

This document outlines the county's land use mission statement. It describes the policies that guide decisions made by the Land Use Planning Division as well as the relationship between Multnomah County land use decisions and the policies adopted by the Metro Council and statewide planning agencies. Policies 33a, 33c, 34, 35, 36 specifically deal with the surface transportation system.

Relevance to the Comprehensive Plan/TSP Update: The following policies affecting the transportation system within unincorporated areas will be reviewed with the County to identify gaps in policy and help identify potential subject areas for new policies:

- Policy 33A: Transportation System
- Policy 33C: Bikeways/Pedestrian System
- Policy 34: Traffic Ways
- Policy 35: Public Transportation
- Policy 36: Transportation System Development Requirements

These policies need be considered along with the area specific policies identified in the individual Rural Area Plans and other documents reviewed.

COLUMBIA RIVER GORGE NSA RURAL AREA PLAN POLICY DOCUMENT (JUNE 2005)

<https://multco.us/file/27510/download>

This Rural Area Plan Policy Document provides guidance on decision making regarding land use, capital improvements, and physical development of the Multnomah County portion of the Columbia River Gorge National Scenic Area.

Relevance to the Comprehensive Plan/TSP Update: The policy document has one reference related to transportation (page 12) that is a policy regarding off-street parking and loading that states the County shall enact standards to reduce traffic congestion and maintain proper function of streets through regulations and standards for parking and loading for specific land uses in the Scenic Area.

COLUMBIA RIVER GORGE NATIONAL SCENIC AREA MANAGEMENT PLAN (SEPTEMBER 2011)

<http://www.gorgecommission.org/managementplan.cfm;jsessionid=c430591ff9952ee556d9246e6e2e2516737c?CFID=110929083&CFTOKEN=2ce7fbe763402d39-FAF6C9F6-0B36-5370-DA1045F214E58863&jsessionid=c430591ff9952ee556d9246e6e2e2516737c>

This plan was developed to ensure the Columbia River Gorge National Scenic Area is used in ways consistent with the Scenic Area Act. The Management Plan identifies goals, objectives, policies and guidelines for resource protection and enhancement, addresses land use designations, outlines an action program, and focuses on roles of the invested parties. Part 1, Chapter 4 (Recreation Resources) and Part 3, Chapter 3 (Enhancement Strategies) both include goals, objectives, and policies related to transportation that primarily focus on enhancing multi-modal access to the NSA.

Relevance to the Comprehensive Plan/TSP Update: Part 1, Chapter 4 (Recreation Resources) includes goals, objectives, and policies related to “Trails and Pathways” as well as “Transportation” in the NSA. The trails and pathways policies relate to creating connections to

the metro area from the NSA as well as between the various recreational sites in addition to creating new recreational opportunities. The transportation policies are related to promoting alternative modes of travel and specifically ensuring that recreational sites can accommodate transit vehicles.

Part 3, Chapter 3 (Enhancement Strategies) includes transportation related strategies for enhancing recreational resources. These include increasing transportation options and promoting modes that are recreational in nature.

EAST OF SANDY RIVER RURAL AREA PLAN (JULY 1997)

<https://multco.us/file/27455/download>

A part of the Rural Area Planning Program and the overall Multnomah County Comprehensive Framework Plan, this plan provides guidance on decision making regarding land use, capital improvements, and physical development of the East of Sandy River Area. It includes a brief “Transportation” section.

Relevance to the Comprehensive Plan/TSP Update: The East of Sandy River Rural Area is an unincorporated area of Multnomah County and therefore any policies and projects for this area should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

The East of Sandy River Rural Area Plan includes five transportation related policies (Policy 36 – 41) in the Transportation section that need to be considered in a policy gap analysis and to identify policies that are unique to this area.

The Transportation section of the Plan identifies functional classifications for the ODOT (I-84) and County roadways within the plan area and includes areas that are also within the Historic Columbia River Gorge National Scenic Area (NSA) and included in the NSA Overlay.

The Plan identifies roadways that were designated as part of the County’s Bikeways Plan Map in 1992 and also summarizes recommendations to modify that map from the Northeast Multnomah County Community Association. Those recommendations largely include postponing implementation of the Bikeways Plan until there is more community support, removing some segment designations, and to consider the needs of equestrians and other forms of active transportation.

The Plan acknowledges that there are no County plans or policies that establish or designate equestrian trails in the County and that equestrians use the public right-of-way like other non-motorized users; however, improvements such as paving shoulders hamper equestrian use. The Plan suggests the County could encourage a private system for equestrian use through land use approvals and approval of signage on the roadway system.

WEST OF SANDY RIVER RURAL AREA PLAN (DECEMBER 2002)

<https://multco.us/file/27459/download>

A part of the Rural Area Planning Program and the overall Multnomah County Comprehensive Framework Plan, this plan is intended to guide development in the West of Sandy River area over the next 20 years. It includes a transportation chapter that is titled the “Transportation System Plan” for the area.

Relevance to the Comprehensive Plan/TSP Update: West of Sandy River Rural Area is an unincorporated area of Multnomah County and therefore any policies and projects for this area should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

The West of Sandy River Rural Area Plan includes eleven transportation related policies (Policy 27 – 37) in the Transportation System Plan section that need to be considered in a policy gap analysis and to identify policies that are unique to this area.

The Existing Conditions section of the TSP section identifies functional classifications for the ODOT (US 26) and County roadways within the West of Sandy River Rural Area along with roadway inventory data including pavement width, pavement conditions, bridge/viaduct conditions, crash rates, speed zones, truck restrictions, traffic volumes, and intersection operations and overviews of other modes including the pedestrian and bicycle systems, public transportation, and air, rail, water, and pipeline systems.

The TSP then projects future conditions for the roadway system through the projection of future traffic volumes and describes potential future needs for other modes.

The recommendations within the TSP include several functional classification changes, intersection LOS standards changes in the Orient Rural Center, and a review of truck route signage and restrictions. Several intersection improvements are recommended to improve safety and the Stark Street viaduct is recommended to be replaced.

The TSP Appendix includes a proposed bikeways and walkways network map that identifies routes for improvements. It is based largely on roadways with ADTs above 3,000 and those heavily traveled by cyclists to access Oxbow Park.

The TSP identifies the potential future need for a small park-and-ride in the rural area center.

These projects and recommendations should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

WEST HILLS RURAL AREA PLAN (OCTOBER 1996)

<https://multco.us/file/27453/download>

The first of the rural plans to be completed by the Rural Area Planning Program, the West Hills Rural Area Plan provides guidance on decision making regarding land use, capital improvements, and physical development of the West Hills area. The plan is a part of the larger Multnomah County Comprehensive Framework Plan. It includes a brief “Transportation” section; however, the “Westside Rural Multnomah County Transportation System Plan” (TSP) was

adopted after the West Hills Rural Area Plan but is consistent with the policies in the Rural Area Plan.

Relevance to the Comprehensive Plan/TSP Update: West Hills is an unincorporated area of Multnomah County and therefore any policies and projects for this area should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

The Rural Area Plan section on Transportation includes functional classifications of roadways, references the County's Bicycle Master Plan routes within the area, and discusses a potential Burlington Northern rails-to-trails project along Cornelius Pass Road. The Plan includes several transportation related policies (Policy 8 – 10). Policy 8 opposes the construction of regional roadways in the West Hills Rural Area (such as a regional by-pass). These policies need to be considered in a policy gap analysis and to identify policies that are unique to this area.

The plan also includes a section on Recreational Trails that refers to two significant regional recreational efforts; one utilizing a Burlington Northern right-of-way that is planned to be vacated (referenced above), and the "Greenway to the Pacific" which has two potential corridors that could impact the West Hills Rural Area. Much has occurred related to regional trail planning since 1996 and the Comprehensive Plan and TSP need to reflect the latest local, regional, and state plans for recreational trails in the area. Policies 16 and 17 in the Rural Area Plan relate to regional trails and should be included in the policy gap analysis and review.

SAUVIE ISLAND/MULTNOMAH CHANNEL RURAL AREA PLAN (OCTOBER 1997; 2014 UPDATE IN PROCESS)

<https://multco.us/file/27454/download>

This plan is a part of the Rural Area Planning Program and Multnomah County Comprehensive Framework Plan and provides guidance on decision making regarding land use, capital improvements, and physical development of the Sauvie Island/Multnomah Channel area. It is in the process of being updated but the current update has not yet addressed transportation policies and plans. However, this work is scheduled to be conducted as part of a separate planning process to be undertaken concurrently with the TSP process.

Relevance to the Comprehensive Plan/TSP Update: Sauvie Island/Multnomah Channel is an unincorporated area of Multnomah County and therefore any plans and policies for this area should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

The Rural Area Plan section on Transportation includes functional classifications of roadways and references the County's Bicycle Master Plan routes within the area; namely US 30 and Sauvie Island Road. The Plan also highlights the lack of shoulders on Sauvie Island and the inconsistency with the County's Pedestrian Master Plan.

The Plan includes six transportation related policies (Policy 21 – 26) that need to be considered in a policy gap analysis and to identify policies that are unique to this area. The policies largely relate to the need for a Bicycle and Pedestrian Advisory Committee for the area and opposition

to regional roadway facilities in the area (such as a by-pass). Most of the information in this document is expected to be updated as part of the planning process described above.

WESTSIDE RURAL MULTNOMAH COUNTY TRANSPORTATION SYSTEM PLAN (JULY 1998)

<https://multco.us/file/28612/download>

The Westside Rural Multnomah County TSP covers both the West Hills and Sauvie Island/Multnomah Channel Rural Area Plan areas. This Plan is being updated as part of the process noted in the Sauvie Island Rural Area Plan description listed previously.

Relevance to the Comprehensive Plan/TSP Update: The areas covered by this TSP are unincorporated areas of Multnomah County and therefore any policies and projects for these areas should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

The TSP includes approximately 15 policies falling under five goal areas and are largely related to safety for all modes of travel, the provision and support of transportation options (such as ride-sharing and active transportation facilities), maintaining the proper function of local roadways, and freight movement.

The Existing Conditions section of the TSP section identifies natural hazards and functional classifications for the ODOT (US 30) and County roadways within the plan area along with roadway inventory data including pavement width, pavement conditions, bridge/viaduct conditions, slope stability, and access management. It includes roadway design standards and also includes traffic volumes, intersection operations and overviews of other modes including the pedestrian and bicycle systems, public transportation, and air, rail, water, and pipeline systems. It then includes a safety review and documents roadways where area residents have speed concerns.

The TSP then projects future conditions for the roadway system using both Metro model data and historic traffic volumes to project future traffic volumes and includes a review of the adequacy of the existing functional classifications and looks at future intersection operations.

The recommendations within the TSP include study and improvements to Cornelius Pass Road, several intersection improvements along Highway 30, study of the Sauvie Island Bridge needs, monitoring the need to upgrade Newberry Road to a collector while also trying to preserve it as a local street.

The plan identifies the need for formalizing an informal park-and-ride facility on Sauvie Island and providing a park-and-ride for regional commuters on US 30 near the Columbia County line.

The plan indicates that apart from US 30, none of the roadways identified in the Bicycle Master Plan or Pedestrian Master Plan have paved shoulders and that the primary use of these facilities for walking and biking is recreational. Several roadways are identified as priorities in both the West Hills and Sauvie Island area.

The plan includes a list of twenty-one improvements and potential funding opportunities for them. They primarily include roadway and intersection safety improvements, shoulder widening, and recommended locations for ride-share and vanpool parking. These projects and recommendations should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

Much of the information in this document is expected to be updated as part of the planning process described above.

MULTNOMAH COUNTY FUNCTIONAL CLASSIFICATION OF TRAFFICWAYS FINDINGS
AND RECOMMENDATIONS TECHNICAL REPORT (OCTOBER 2003)

<https://multco.us/file/28613/download>

The report reviews, evaluates, and makes recommendations for updates and changes to the functional classification of roadways in Multnomah County including roadways in both urban and unincorporated areas.

Relevance to the Comprehensive Plan/TSP Update: This document includes recommended roadway functional classifications for both urban and rural area roadways and is more current than any of the County's Rural Area Plans and TSPs. Although largely focused on consistency with Metro and local agency plans in urban areas, it does include information on designated Scenic Routes, recommended updates to the Comprehensive Framework Plan Policies to provide compliance with the Transportation Planning Rule, discusses truck routes and identifies areas of truck restrictions and bridge weight restrictions. These recommendations should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

MULTNOMAH COUNTY PEDESTRIAN MASTER PLAN (APRIL 1996)

<https://multco.us/file/28614/download>

This plan provides a framework for developing a safe and convenient pedestrian system on both urban and rural roads. It includes a vision for walking in Multnomah County and includes objectives and policies that were recommended for adoption into the Comprehensive Framework Plan. The plan also contains an inventory of existing pedestrian facilities, deficiencies in the system, as well as a Pedestrian Capital Improvement Program (PCIP). The PCIP developed criteria for prioritizing pedestrian projects and identified funding sources for implementation.

Relevance to the Comprehensive Plan/TSP Update: This plan includes pedestrian related policies and improvement priorities. These recommendations should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

MULTNOMAH COUNTY BICYCLE MASTER PLAN (DECEMBER 1990)

<https://multco.us/file/23733/download>

The Multnomah County Bicycle Master Plan outlines development of a safe and efficient road and bicycle system. The plan amends the Comprehensive Framework Plan Bicycle Map to update the bicycle routes. It includes guidance on appropriate facility types (shared lanes or shoulder bikeways in the rural area) by roadway functional classification and characteristics. It also includes objectives and policies and a Bicycle Capital Improvement Plan (BCIP) as a means to implement the Plan.

Relevance to the Comprehensive Plan/TSP Update: This plan includes bicycle related policies, facility type guidance, and future network map. These recommendations should be reviewed, updated, and consolidated into the Multnomah County TSP Update.

MULTNOMAH COUNTY TRANSPORTATION CAPITAL IMPROVEMENT PLAN AND
PROGRAM FISCAL YEARS 2014-2018 (MAY 2014)

<https://multco.us/file/9289/download>

This document establishes a list of priority transportation improvements to enhance and maintain the County's transportation system. Funding information including sources and amounts is also included.

Relevance to the Comprehensive Plan/TSP Update: Projects and programs on the CIP should be reviewed to determine if they are still warranted, if additions need to be made, and to update priorities.

ADJACENT JURISDICTION DOCUMENTS

WASHINGTON COUNTY 2035 TRANSPORTATION PLAN (2014)

<http://www.co.washington.or.us/LUT/Divisions/LongRangePlanning/PlanningPrograms/TransportationPlanning/Transportation2035/>

This document is the long-range transportation plan for Washington County. The plan identified existing and future needs as well as projects and funding to address the identified needs. The plan addresses the major roadway system, transit, pedestrian, and bicycle transportation issues and focuses on specific and system requirements.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses the neighboring unincorporated areas to the west of the Multnomah County. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's Rural Westside TSP area should to be identified and reviewed.

CLACKAMAS COUNTY TRANSPORTATION SYSTEM PLAN (MARCH 2014)

<http://www.clackamas.us/planning/documents/compplan/Chapter%205%20Transportation.pdf>

(policies)

<http://www.clackamas.us/planning/comprehensive.html>

(maps and tables)

The Clackamas County Transportation System Plan is the long-range transportation plan for Clackamas County. The plan evaluates existing and long term transportation facilities for deficiencies and opportunities for improvements. It includes projects identified as 20-Year Capital Projects (projects likely to be funded in a 20-year timeframe), Preferred Capital Projects (priority projects that would be funded if additional funding were available), and Long-term Capital Projects (projects necessary to meet all future needs but that are not likely to be funded).

Relevance to the Comprehensive Plan/TSP Update: This plan addresses the county to the south adjacent to unincorporated areas of the Multnomah County. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's West and East of Sandy River Areas should to be identified and reviewed.

HOOD RIVER COUNTY TRANSPORTATION SYSTEM PLAN (NOVEMBER 2011)

http://www.co.hood-river.or.us/vertical/sites/%7B4BB5BFDA-3709-449E-9B16-B62A0A0DD6E4%7D/uploads/Final_HRC_TSP_11-21-11.pdf

This plan evaluates the existing and future needs of the transportation system and serves as guidance for the design, implementation and management of transportation facilities in Hood River County.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses the areas east of the East of Sandy River Area Plan area. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's rural areas should to be identified and reviewed.

COLUMBIA COUNTY LONG RANGE TRANSPORTATION PLAN (IN-PROCESS)

<http://columbiacountytsp.org/>

Columbia County is in the process of updating the Columbia County Transportation System Plan as a guide for the County to address transportation needs through the year 2035.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses the county to the north of the West Hills and Sauvie Island/Multnomah Channel rural Areas of Multnomah County. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's West Hills and Sauvie Island areas should to be identified and reviewed.

CITY OF GRESHAM TRANSPORTATION SYTEM PLAN (DECEMBER 2013)

<https://greshamoregon.gov/tsp/>

The City of Gresham's Transportation System Plan documents the existing and future transportation system within Gresham. It has four primary elements: guiding tenets, system of street function and design, project list, and funding mechanisms. This document is used to guide improvements to the transportation system in Gresham over the next 20 years.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses the incorporated area west of Multnomah County's West of Sandy River Planning Area. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's West and East of Sandy River Areas should to be identified and reviewed.

CITY OF TROUTDALE TRANSPORTATION SYSTEM PLAN (MARCH 2014)

http://www.ci.troutdale.or.us/publicworks/documents/InfrastrucureMasterPlans/Final_tsp_03-04-2014.pdf

The transportation system plan for the City of Troutdale evaluated the existing multi-modal transportation system within Troutdale as well as the system in 20 years. Issues were identified and projects were developed to address the transportation issues. The plan is used as a guide for future transportation investments within Troutdale and is consistent with the East Metro Connections Plan.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses the incorporated areas just west of Multnomah County's West and East of Sandy River Rural Areas. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's rural areas should to be identified and reviewed.

PORTLAND TRANSPORTATION SYSTEM PLAN (MAY 2007)

<https://www.portlandoregon.gov/transportation/52495>

This document is the long-range transportation plan for the city of Portland. The plan identified existing and future needs as well as projects and funding to address the identified needs.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses the incorporated area southeast of the Westside Rural Area TSP. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's rural areas should to be identified and reviewed.

MULTNOMAH COUNTY URBAN POCKETS TSP (2006)

<https://multco.us/file/28615/download>

This document is the long-range transportation plan for unincorporated areas of Multnomah County within urban areas. The plan identified existing and future needs as well as projects and funding to address the identified needs.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses unincorporated urban areas that are all currently within the planning areas of cities within Multnomah County. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's rural areas should to be identified and reviewed.

METRO DOCUMENTS

METRO REGIONAL TRANSPORTATION PLAN (JULY 2014)

<http://www.oregonmetro.gov/regional-transportation-plan>

Updated every four years, this document is Metro's guide for future investments for the region's transportation system. Existing and future transportation issues are evaluated to develop projects to help address the identified issues. All modes of travel are considered as well as an evaluation of costs and funding sources for projects.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses the area adjacent to unincorporated areas of the Multnomah County. Roadway functional classifications, regional trails, and planned projects effecting roadways to and from Multnomah County's rural areas should to be identified and reviewed.

EAST METRO CONNECTIONS PLAN (JUNE 2012)

<http://www.oregonmetro.gov/east-metro-connections-plan>

The East Metro Connections Plan identifies transportation projects that advance economic and community development in the East Metro area by providing better access and mobility. Projects were developed with three focus areas in mind: north/south connections, downtowns and employment areas, and regional mobility. The study area includes the cities of Gresham, Fairview, Wood Village, and Troutdale, and the unincorporated Pleasant Valley, and Springwater areas.

Relevance to the Comprehensive Plan/TSP Update: This plan addresses both the incorporated and unincorporated portion of Multnomah County within the Metro urban growth boundary and generally lying south of I-84 and east of 181st Avenue. Roadway functional classifications, regional trails, future transit plans, and planned projects effecting roadways to and from Multnomah County's rural areas should to be identified and reviewed.

METRO REGIONAL FRAMEWORK PLAN (JANUARY 2011)

<http://www.oregonmetro.gov/regional-framework-plan>

The Metro Regional Framework Plan is based on the *2040 Growth Concept*, which provides a set of objectives for building better communities. While *2040 Growth Concept* provides objectives, the Regional Framework Plan goes a step further providing overall guidance for more detailed policies including regional transportation and mass transit systems.

Relevance to the Comprehensive Plan/TSP Update: This document provides guidance for regional transportation in the metro area, which is adjacent to unincorporated areas of Multnomah County. Policies and guidance addressing roadways into unincorporated areas should to be identified and reviewed.

STATE DOCUMENTS

OREGON HIGHWAY PLAN (1999)

<http://www.oregon.gov/ODOT/TD/TP/pages/ohp.aspx>

The Oregon Highway Plan outlines long-range policies and investments strategies for Oregon's multimodal transportation system. Guidance is given within this plan but responsibility for identifying specific projects is left to corridor plans and transportation system plans. The plan is a part of the Oregon's Statewide Transportation Plan.

Relevance to the Comprehensive Plan/TSP Update: This document provides policy for Oregon's State Highway System, many parts of which go through unincorporated areas of Multnomah County including Interstate-84, US 26, and US 30. Policies affecting these roadways through Multnomah County's unincorporated areas should to be identified and reviewed. These primarily include access spacing standards, vehicle mobility standards, and design standards.

OREGON STATE RAIL PLAN (SEPTEMBER 2014)

http://www.oregon.gov/ODOT/TD/TP/RailPlan/Adopted_Oregon_SRP.pdf

This plan is an element of the Oregon Transportation Plan and documents the freight and passenger rail system, provides a needs assessment, and includes an investment decision-making framework in addition to goals, policies and strategies for improving the rail system in Oregon. Rail is a critical component of the state's multimodal transportation network.

Relevance to the Comprehensive Plan/TSP Update: The freight and passenger rail system spreads across the state with many links within Multnomah County. Class 1 railroad exists along the Interstate-84 Corridor and Class 1 and Non-Class 1 railroads exist in the US 30 Corridor. In addition, there are some abandoned lines in Multnomah County. The existing railroad classifications and policy implications of those classifications for the railroads in unincorporated

areas should be identified and reviewed. In addition, the goals, policies and strategies in the plan should be reviewed to ensure County policies are consistent and updated as necessary.

OREGON FREIGHT PLAN (2011)

<http://www.oregon.gov/odot/td/tp/pages/ofp.aspx>

This plan is an element of the Oregon Transportation Plan. The purpose of the Oregon Freight Plan is to improve freight connections to local, state, tribal, regional, national and international markets with the goal of increasing trade-related jobs and income for Oregon workers and businesses. The plan documents the economic importance of freight movement in Oregon, identifies transportation networks important to freight-dependent industries and recommends multimodal strategies to increase strategic freight system efficiency. The plan identifies, sixteen freight issues and strategies with action steps to address the issues.

Relevance to the Comprehensive Plan/TSP Update: US 30, US 26, and Interstate-84 traverse the County's rural areas and play critical roles in the movement of freight in addition to providing access to the Port of Portland and the Port of St. Helens. This plan documents different types of commodity flows, policies, and strategies to enhance the movement of freight that could be relevant to the County TSP.

OREGON TRANSPORTATION OPTIONS PLAN (ON-GOING)

The Oregon Department of Transportation (ODOT) is developing Oregon's first Transportation Options Plan (TO Plan). The TO Plan is one of several statewide transportation mode and topic plans that further refine and implement the Oregon Transportation Plan's (OTP) goals, policies, strategies, and key initiatives.

The purpose of the Plan is to establish a vision and policy guidance that integrates transportation options in local, regional, and state transportation planning, programming, and investment. The TO Plan will be grounded in an examination of existing programs, investments, and unmet transportation needs in the state. The Plan will include policies and recommendations that support and advance TO program activities, suggest ways to integrate TO into transportation planning and investments, and support TO program activities and integration with capital investment planning at the local and regional level.

Relevance to the Comprehensive Plan/TSP Update: The assessment of existing programs, investments, and unmet transportation need should be reviewed as it relates to the Multnomah County rural areas and the applicable rural areas policies, strategies, and initiatives should be incorporated into the Travel Demand Management (TDM) elements of the TSP.

OREGON DEPARTMENT OF TRANSPORTATION – STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM (JUNE 2012)

http://ftp.odot.state.or.us/outgoing/STIP/OnlineSTIP_Public.pdf

The STIP is Oregon's capital improvement program which details transportation projects and programs, funding, and schedule across the state of Oregon. It includes projects on the federal, state, city, and county transportation systems.

Relevance to the Comprehensive Plan/TSP Update: Projects and programs effecting roadways to, from, and within Multnomah County's unincorporated areas should to be identified and reviewed.

SERVICE PROVIDER PLANS

TRIMET EASTSIDE SERVICE ENHANCEMENT PLAN (ON-GOING)

<http://future.trimet.org/east>

Through 2014 and early 2015, Trimet will be working on an Eastside Service Enhancement Plan to improve bus service, bus stops and street crossings in the communities of East Portland (generally east of I-205), Fairview, Gresham, Troutdale and Wood Village.

Relevance to the Comprehensive Plan/TSP Update: Trimet provides service near to the West of Sandy River Rural Area (Route 84) so potential service changes or opportunities to enhance service to this area should be monitored.

TRIMET NORTH/CENTRAL SERVICE ENHANCEMENT PLAN (TBD)

<http://future.trimet.org/northcentral>

In late 2014, Trimet will be initiating a North/Central Service Enhancement Plan to identify bus service, bus stops and street crossing improvements in Northwest Portland, North Portland, Downtown Portland, Southeast neighborhoods north of Division and extending east to I-205, and Northeast neighborhoods extending east to I-205. The plan will identify:

- near-term bus service improvements that can be made soon with modest cost
- long-term bus service improvements to implement over time
- partnerships with cities, the county and businesses to improve access to bus and light rail stops

Relevance to the Comprehensive Plan/TSP Update: Trimet provides service to Sauvie Island (Route 16) so potential service changes or enhancements to this area should be monitored and opportunities for improving transit should be explored in the Sauvie Island/Multnomah County TSP Update process.

COMMUNITY-WIDE TRANSIT PLAN AND HIGHWAY 30 TRANSIT ACCESS PLAN (2009)

[http://www.ci.scappoose.or.us/vertical/sites/%7B057DE76A-C977-4C5C-A3EF-593B648863F4%7D/uploads/Columbia County Transit Plan - Report.pdf](http://www.ci.scappoose.or.us/vertical/sites/%7B057DE76A-C977-4C5C-A3EF-593B648863F4%7D/uploads/Columbia%20County%20Transit%20Plan%20-%20Report.pdf)

In 2009 Columbia County updated previous community-wide and coordinated transit service plans, drafted in 2002 and 2008 respectively. This update provides direction to the County for planning and implementing transit services, operations, facilities, and funding within a 10-year horizon. This plan also incorporates the US 30 Transit Access Plan for transit facility improvements along the US 30 transit corridor.

The Plan provides a set of recommendations for transit services throughout Columbia County. These include fixed routes bus, demand-response bus, vanpool, and carpool, supported by transit facilities, including upgraded bus stops and new park and ride lots. Additionally, the document addresses fares, current and future routes, and coordination with neighboring transit services.

Relevance to the Comprehensive Plan/TSP Update: Several of Columbia County Transit's routes travel along roadways within Multnomah County to get reach destinations including Portland and Hillsboro. Opportunities for coordination of services should be identified.

SANDY TRANSIT MASTER PLAN (2009)

<http://www.ci.sandy.or.us/vertical/sites/%7B08758F4D-2A53-4D1D-B7C5-B13B658BB891%7D/uploads/%7B337CB89B-26AB-463F-A777-1E85DBC49314%7D.PDF>

Relevance to the Comprehensive Plan/TSP Update: Several of Sandy Transit's routes travel along Highway 26 in the West of Sandy River Rural Area to reach destinations including Gresham and Estacada. Opportunities for coordination of services should be identified.

Appendix B Existing and Future Conditions Memo



TECHNICAL MEMORANDUM #2

Multnomah County Comprehensive Plan Update

Existing and Future Transportation Conditions

Date: June 9, 2015 Project #: 17944
To: Joanna Valencia, Multnomah County
From: Susan Wright, PE, and Jenny Miner
cc: Matt Hastie, Angelo Planning Group

Multnomah County is currently updating their Comprehensive Plan, including the transportation element for rural areas. Today, the Comprehensive Plan is supported by separate Transportation System Plans (TSPs) for the Rural Westside, and West of Sandy River areas (taking into account the West Hills, Sauvie Island, and West of Sandy River Area Plans) and, the transportation components of the East of Sandy River Area Plan and the Columbia River Gorge Scenic Area Management Plan. The updated Multnomah County TSP will incorporate relevant elements from all of these plans into one document.

This memorandum provides an inventory and assessment of existing and future conditions of the transportation system in the unincorporated rural areas of Multnomah County. This information can provide a baseline for the TSP update, and was assembled using Geographic Information System (GIS) files, data provided by Multnomah County, inventory conducted using Google Earth aerial images, field observations, and studies provided or produced by Multnomah County and the Oregon Department of Transportation (ODOT).

The information contained in this memorandum is organized into a series of sections, listed below.

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The majority of the inventory and analysis results are presented in figures and tabular form with supplemental text provided, as needed, to further explain the illustrated information. The identified transportation needs contained herein are based on the County and ODOT’s adopted performance measures. Based on information summarized in this memorandum, a series of policies, projects, programs, pilot projects and refinement studies will be identified to support the transportation system over the next twenty years.

EXISTING CONDITIONS

The following section describes the population, demographics, and land uses within the rural areas (herein referred to as the “study area”), and provides an overview of the existing inventory and conditions (if applicable) for all transportation modes and major elements of the transportation system.

STUDY AREA

The Transportation System Plan (TSP) focuses on the five rural areas of the county, including West Hills, Sauvie Island, West of Sandy River, East of Sandy River, and Columbia River Gorge National Scenic Area. The study area for the TSP is illustrated in Figures 1A and 1B.

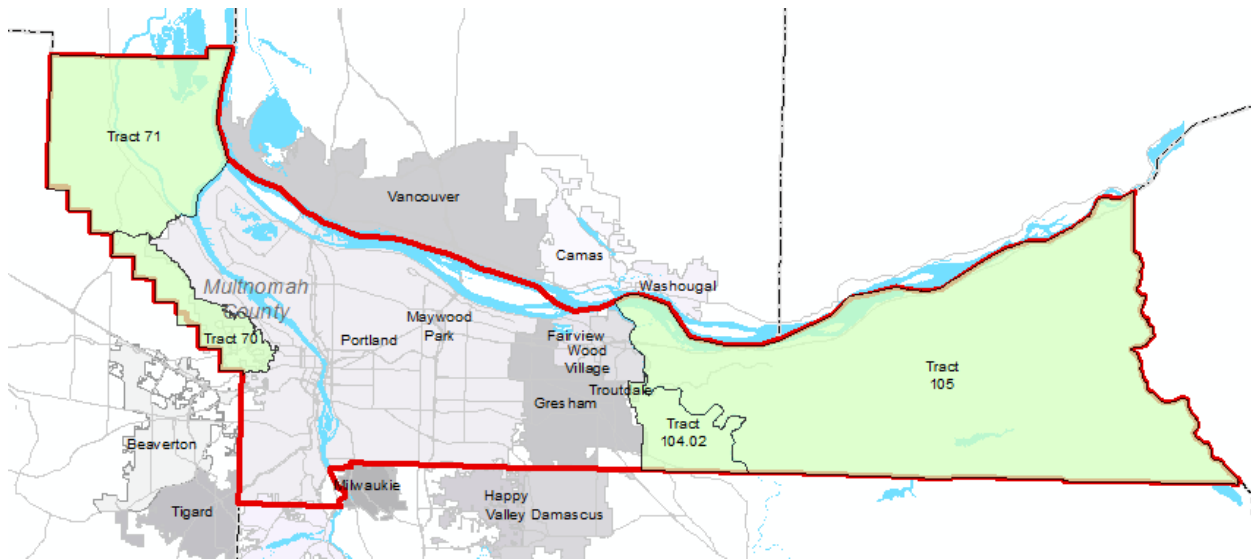
The Sauvie Island and Multnomah Channel (SIMC) TSP is being completed separately and in congruence with this TSP update. The SIMC area will still be included in this evaluation.

POPULATION AND DEMOGRAPHICS

Information about the rural area population and demographics was gathered to support the existing and future conditions analysis, particularly as the project team works with the community to develop future alternative scenarios that capture the County’s vision. This data presented is based on the best available information that can be obtained from US Census, given that the Census Block boundaries don’t perfectly align with the study areas and some information is not available. Given these

inconsistencies, this memo refers to the study areas as West Multnomah County and Eastern Multnomah County in some sections. West Multnomah County consists of Census Tracts 70 and 71 and the areas of Sauvie Island and West Hills. East Multnomah County consists of Census Tracts 104.02 and 105 and the areas of East of Sandy River and West of Sandy River. Exhibit 1 shows the study area census tracts.

Exhibit 1 Study Area Census Tracts (70, 71, 104.02, and 105)



For further information on land use and population, please see the “Population Demographics, Zoning, and Development” section of the Baseline Report memo prepared for the Comprehensive Plan Update by Angelo Planning Group dated December, 2014.

Population and Growth

Table 1 reports the population of Multnomah County and its sub-areas. Multnomah County’s population in 2010 was just over 735,000 whereas the 2000 Census figure was 660,446. The county grew by 11.3%, or about 1.08% per year, from 2000 to 2010. This growth follows a similar trend to that experienced by the overall State of Oregon, which grew by 11.97%, or about 1.14% per year, during the same period.

Table 1 Year 2010 Area Populations

Area	2010 Census
Multnomah County	735,334
East of Sandy River	3,926
West of Sandy River	10,184
West Hills	10,052
Sauvie Island	888

Source: 2010 Census Block Group Data

Table 2 reports the population growth in the rural areas of the County. In comparison to the County as a whole, the rural areas grew at a higher rate from 2000 to 2010. While the growth in the rural areas do not represent a significant change in total population of the County as a whole, the rate of growth is relatively high for a rural area in Oregon, particularly compared to other rural parts of the state.

Table 2 Change in Population from 2000 to 2010 Census

Area	2000	2010	% Change	Average Annual Growth	Population Density***
Multnomah County	660,486	735,334	11.3%	1.08%	2.47 People/Acre
West Multnomah County*	7,963	10,940	37%	3.2%	0.25 People/Acre
East Multnomah County**	8,668	10,061	16%	1.5%	0.11 People/Acre
State of Oregon	3,421,399	3,831,074	11.9%	1.14%	--

*Includes Sauvie Island and West Hills subareas

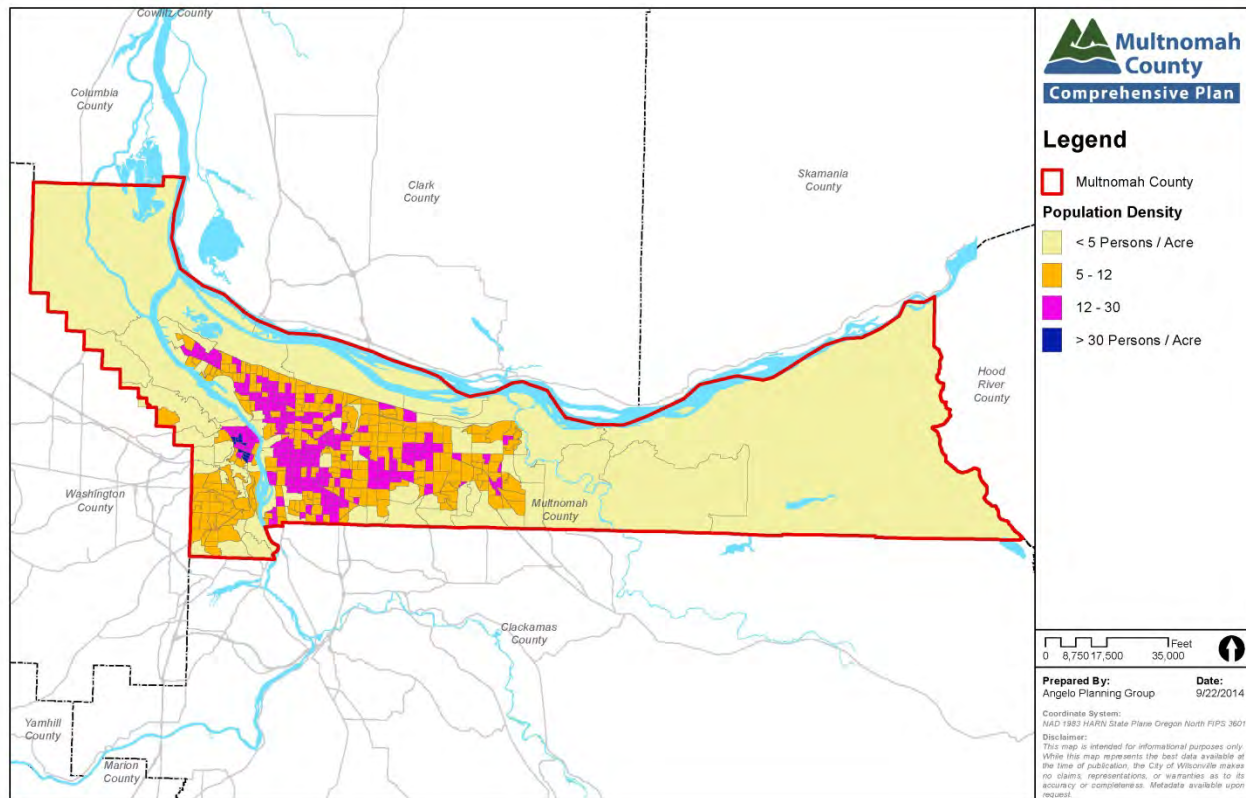
**Includes East of Sandy River and West of Sandy River subareas

***Calculated as 2010 population / total acres within Census Block Groups

Source: 2000 and 2010 Census Tract Level Data

In addition to growth rates, Table 2 also reflects the 2010 estimates of people per acre within the County. This information is graphically represented in Exhibit 2 and Figures 2A and 2B by Census Block group.

Exhibit 2 Population Density Map



Family and Household Data

Table 3 reports the number and type of households by area. A family household is defined by the US Census Bureau as “a group of two or more people related by birth, marriage, or adoption and residing together.” Approximately 53% of households meet this definition within Multnomah County. With the exception of Sauvie Island, which has about 57% family households, the rural areas of Multnomah County have higher than a 70% family household rate. The state as a whole has a family household rate of about 63%.

Multnomah County and the State of Oregon have similar median ages within the households with 35.7 and 38.4, respectively. The rural areas report a higher median age, in the range of 40 to 45, with the exception of Sauvie Island that has a median age of 50.

Table 3 Household Demographics

	East of Sandy River	West of Sandy River	West Hills	Sauvie Island	Multnomah County	State of Oregon
Number of Households	1,433 (100%)	3,573 (100%)	3,938 (100%)	410 (100%)	304,540 (100%)	1,518,938 (100%)
Family Households	1,063 (74.2%)	2,831 (79.2%)	2,832 (71.9%)	233 (56.8%)	163,539 (53.7%)	963,467 (63.4%)
Nonfamily Households	370 (25.8%)	742 (20.8%)	1,106 (28.1%)	177 (43.2%)	141,001 (46.3%)	555,471 (36.6%)
Mean Household Size	2.65	2.85	2.56	2.14	2.35	2.47
Median Age	44.8	40.1	43.9	50	35.7	38.4

Economic Characteristics

Table 4 describes selected economic characteristics of the study area. The rural areas of the county have a higher median household income than the county as a whole. West County generally has a higher income, lower unemployment rate, and lower poverty rate than East County or Multnomah County as a whole, particularly Tract 70, which approximates the West Hills rural plan area. Due to the small sample size, however, margins of error are fairly high.

Table 4 Economic Characteristics

	West County		East County		Multnomah County
	Tract 70	Tract 71	Tract 104.2	Tract 105	--
Median Household Income	\$148,832 (+/- \$19,429)	\$78,894 (+/- \$14,306)	\$76,630 (+/- \$9,464)	\$65,938 (+/- \$10,090)	\$51,582 (+/- \$739)
Unemployed	7.4% (+/-2.8%)	6.1% (+/-4.3%)	14.8% (+/-6.5%)	12.1% (+/-6.1%)	10.4% (+/-0.4%)
Individuals below poverty level in past 12 months	4.5% (+/-3.8%)	3.4% (+/-2.8%)	9.7% (+/-2.8%)	13.4% (+/-%7.3%)	17.1% (+/-0.6%)

LAND USE AND ZONING

This section describes the zoning designations, land use, parcel size, and vacancy status in each of the plan subareas. Figures 3A and 3B depict the zoning designations.

As shown, the majority of the rural areas of Multnomah County are zoned for agricultural and forest uses. Rural residential and single family residential make up most of the rest of the lands with little commercial and industrial development in the rural areas.

The East of Sandy River Rural Area is generally characterized by natural and commercial timber forests, much of which is within the Mt. Hood National Forest. The western-most portion of this Rural Area contains the most of the non-forest uses in the area, mainly consisting of agricultural, rural residential and rural service development.

The West of Sandy River Rural Area's predominant land uses in the plan area are nurseries, berry farms, and pastures, consistent with the agricultural zoning. The area is located in two major drainage basins, the Sandy River and the Willamette River via Johnson Creek. The area is open to urban influence to a greater degree than the other plan areas due to a lack of physical barriers, such as the steeper topography of West Hills, and the limited access to Sauvie Island and the East of Sandy River area.

Pleasant Valley and Interlachen are small unincorporated areas located due west of Columbia River Gorge National Scenic Area and West of Sandy River study areas, respectively. The Pleasant Valley subarea is under County zoning but lies within the urban growth boundary and is being planned by Gresham for eventual annexation into the City. The majority of the land in this area is currently zoned for rural residential use.

Interlachen is a small residential community located between Fairview Lake and Blue Lake and is surrounded by the City of Fairview. It is zoned entirely Urban Low Density Residential and largely built out.

The Columbia River Gorge National Scenic Area is zoned primarily for forest uses.

The West Hills Rural Area Plan is zoned for commercial forest use or exclusive farm use; lands zoned for rural residential use represents about a tenth of the total.

The Sauvie Island and Multnomah Channel Rural Area is zoned primarily for agricultural uses. Land Uses on the Island are predominantly farming-related (due to the fine soils on the island protected by the levees of the Sauvie Island Drainage District) as well as the wildlife refuge, various water-related uses on and along Multnomah Channel, ranging from protected wetlands to marinas, and recreational uses (due to proximity to the Portland Metropolitan Area). The rural area encompasses approximately 15,400 acres of land and several thousand additional acres of water. Approximately 11,800 of the 15,400 acres are designated in the Comprehensive Framework Plan as Exclusive Farm Use, with the remainder designated as Multiple Use Agriculture.

Key Destinations and Community Centers

Figures 4A and 4B show the key destinations and community centers in the rural areas that are likely origins and destinations for pedestrian, bicycle, and vehicle trips. As shown, many of the key destinations and community centers in the rural areas are schools. Others which are more likely to be accessed via vehicle include National Parks and public recreational areas. Sauvie Island has public beaches as well as farm lands that attract visitors with corn mazes, pumpkin patches, and fresh produce for sale. East County has a number of key destinations in National Forest, National Scenic Area and State parks including but not limited to recreation areas in the Mount Hood National Forest, Sandy River Delta Park, Multnomah Falls, Mt. Hood National Forest, and the Columbia River Gorge Scenic Area.

STREET SYSTEM AND TRAFFIC ANALYSIS

Primary roadway facilities, their characteristics, and existing operational performance are summarized below for each of the study areas.

Street System Overview

The following sections describe the key attributes of the roadways within the study area.

Roadway Jurisdiction

As shown in Figures 5A and 5B, the majority of the roads in the rural areas are under the County's or local jurisdiction. The state facilities within Multnomah County provide interstate, statewide, and regional connectivity. These facilities include Interstate 84 (I-84), Oregon Highway 30 (US 30), and a small section of Oregon Highway 26 (US 26). Highway 30 provides access to both the west and east sides of the county. I-84 serves the east area of the county.

Pavement Conditions

Figures 6A and B illustrate the pavement condition ratings for each of the roadways in the study area. The roadways are rated based on a pavement conditions index from 0 and 100, with 100 representing the best possible condition and 0 representing the worst possible condition. The County's goal is to maintain pavement conditions at 70 or above but accepts 50 and above for rural roadways. As shown in the figures, the majority of the roadways in the study area are rated at 50 or above. The areas not meeting the standard of 50 or above are primarily located in the West of Sandy River area as well as the West Hills.

Functional Classification

Functional classification systems are used to establish a hierarchy of roadways based on their primary function (e.g., moving people across regions or providing access to local destinations). These

classification levels are identified by ODOT for state facilities, the County for County facilities, and local agencies for their own classification levels within their community. The classification levels also determine the recommended roadway cross-section for different facilities. The functional classification of roadways that Multnomah County established is based on the following hierarchy:

Minor Arterials represent the lowest order arterial facility in the regional street network. They typically carry less traffic volume than principal and major arterials, but have a high degree of connectivity between communities. Access management may be implemented to preserve traffic capacity. Land uses along the corridor are a mixture of community and regional activities. Minor arterial streets provide major links in the regional road and bikeway networks; provide for truck mobility and transit corridors; and are significant links in the local pedestrian system.¹

Rural Arterials are the primary means of access into the County's large rural districts, and often connect between counties to accommodate through movements. Rural arterials connect to freeways or highways, and link rural collector and local roads to the urban area and other regions. Rural arterial roads carry greater traffic volumes than rural collector roads, including commuters and other home-based trips, natural resource trips involving trucks, and recreational trips involving autos, bicycles and equestrians.¹

Major Collectors serve several purposes including linking neighborhoods to the regional system of bicycle and automobile streets, and basic transit services. They typically provide direct access between residential and commercial developments, schools and parks and carry higher volumes of traffic than neighborhood streets. Major collector streets are also utilized to access industrial and employment areas and other locations with large truck and over-sized load volumes.¹

Neighborhood Collectors provide access primarily to residential land uses and link neighborhoods to higher order roads. They generally have higher traffic volumes than local streets.¹

Local Urban and Rural provide access to abutting land uses on low traffic volume and low speed facilities. Their primary purpose is to serve local pedestrian, bicycle and automobile trips and limited public transportation use in urban areas; and auto and farm vehicle circulation with local pedestrian, bicycle and equestrian use in rural areas.¹

Figures 7A and 7B depict the functional classifications of the roadways in the five rural study areas. As shown, the areas are mostly served by collectors and local roadways. Key arterials and state facilities that connect the rural areas to the regional system include I-84, Highway 30, Cornelius Pass Road, Orient Drive, Stark Street, Corbett Hill Road, and Troutdale Road.

¹ Multnomah County Functional Classification (Policy 34). <https://multco.us/transportation-planning/multnomah-county-functional-classification-policy-34>. Accessed May 2015.

Expectations about speed limits generally correspond with the functional classification of the roadway with higher classification (e.g. arterials) having greater speeds and lower classifications (e.g. locals) having lesser speeds. Figures 8A and 8B show the speed limits on roadways within the study area.

Roadway Cross-Section Standards

Expectations about roadway cross-sections are provided for each of the County's functional classifications. These cross-sections identify the required width for pedestrian facilities, bicycle facilities, landscaping/drainage, and number and width of vehicular travel lanes. The cross-section standards typically inform new roadways or roadway modification projects. Older roadways are typically upgraded to current standards when modified or reconstructed.

The County's current Design and Construction Manual² identifies rural roadway design standards. These standards are summarized below in Table 5.

As shown in the table, rural roadways in the County are not currently required to have bike lanes or marked bicycle facilities. The roadway design standards indicate that bicyclists shall be accommodated on the shoulder, when appropriate, based on the facility's traffic volumes. The Design and Construction Manual indicates that shoulders on collectors and arterials should be paved for a minimum of five feet. Rural roadways are also not required to have separate pedestrian facilities. Instead, rural roadway shoulders are typically used by pedestrians, bicycles, oversized vehicles, and for emergency pull-off purposes.

Table 5 Multnomah County Standards for Typical Rural Sections

Classification	Right-of-Way Width (ft)	Paved Width (ft)	Number of Lanes	Shoulder Width (ft)	Travel Lane Width (ft)
Arterial	60-90	20-55	2-4	6-8 (min. 5 ft. paved)	10-14
Collector	50-80	20-24	2	5-8 (5 ft. paved)	10-12
Local	50-60	20-24	2	5-6	10-12

Paved Width refers to the travel way and does not include shoulders

Figures 9A and 9B show the current width of roadways in the study area including both travel way and paved shoulders. As shown, most roads are 28 feet or less with many 23 feet or less. This indicates that many of the rural roadways have narrow or no paved shoulders.

² Multnomah County Design and Construction Manual. <https://multco.us/file/16499/download>.

Rural Intersections

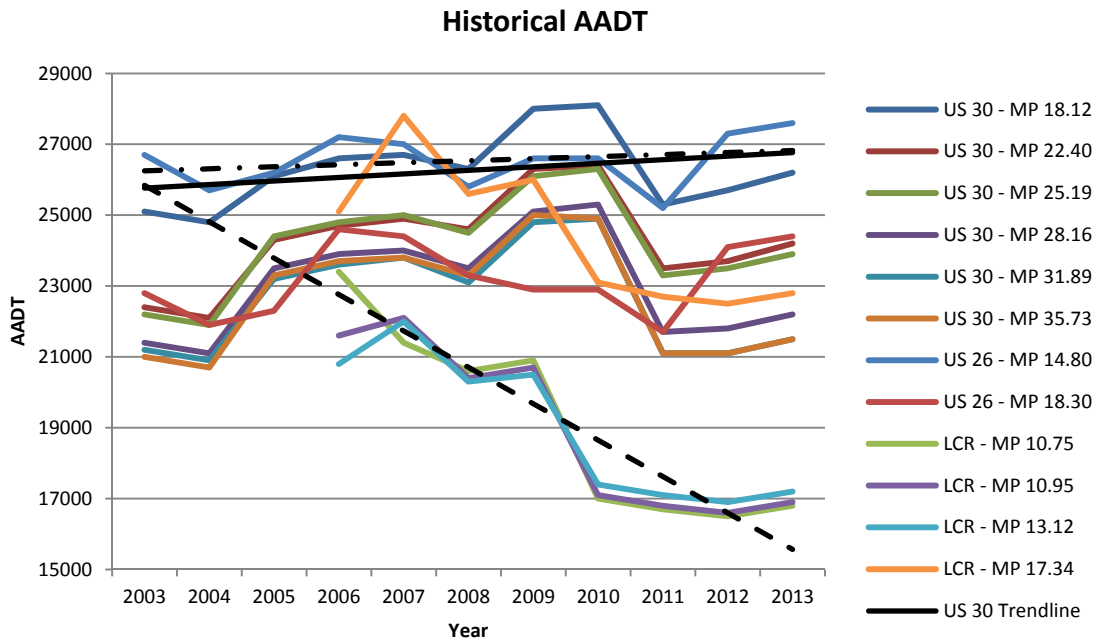
Figures 10A and 10B show the location of the all of the intersections within the study areas. Most of these locations are stop-controlled with the exception of two locations on the Westside. These include: Highway 30 and Sauvie Island Road, and Highway 30 and Cornelius Pass Road. Intersection operations and safety analyses will be conducted at key intersections serving the rural areas as part of the forthcoming Alternatives Analysis Memo.

Traffic Volumes

Average annual daily traffic on roadway segments throughout the study area are shown in Figures 11A and 11B. As shown, the majority of the roadways carry less than 1,000 vehicles per day on average. As expected, the arterial roadways, such as Cornelius Pass Road, SE Foster Road and Troutdale Road carry higher volumes of traffic.

From the Sauvie Island and Multnomah Channel TSP update, average daily traffic volumes on most of the roadways throughout Sauvie Island are less than 3,000 vehicles per day serving residents and daily business operations. The popularity of the beaches, hunting and fishing areas, recreational cycling opportunities, seasonal festivals, and agri-tourism activities lead to significant fluctuations in average daily traffic volumes during the peak seasons, summer and fall. During these times, the Sauvie Island Road can have as many as 17,000 vehicles per day. The peak traffic conditions are a result of both seasonal all-day events (such as access to public beaches and pumpkin patches) as well as limited duration events (such as concerts and farm-to-table dinners).

ODOT records annual average daily traffic (AADT) volumes on all state highways. depicts the historical AADTs, as well as trendlines, for the state facilities in the study area. Table 7 provides a summary of historical AADTs for the state facilities in the study area. As shown in Exhibit 3, traffic volumes generally followed the overall state trends related to decreases during the recession and an increase since 2011. Volumes on the Lower Columbia River (US 30) have gone down since 2006 and is reflected in the trendline. Overall growth between 2003 and 2013 has averaged to less than one percent per year on US 26 and US 30 in East County. Volumes on US 30 (Lower Columbia River Highway) in West County are still at levels lower than recorded in 2007. Appendix 3 provides a table with more details on the historical AADT.



LCR – Lower Columbia River (US 30); No counts were recorded on LCR for 2003, 2004, and 2005

Exhibit 3 Historical AADT on State Highways in Rural Multnomah County

HISTORIC CRASH ANALYSIS

Crash data from the latest five years (January 1, 2009 through December 31, 2013) was obtained from ODOT for all State and County roadways within the study areas.

County Crash Patterns

A total of 1,403 crashes were reported in the study areas between 2009 and 2013. Of the 1,403 crashes, 401 were reported on I-84. Table 6 summarizes the reported crashes by severity. Half of the reported crashes involved an injury, and 24 crashes involved a fatality. Of the fatal crashes, 14 were reported as a fixed object crash. The second most common crash type reported for fatalities was head-on collisions. One fatality was the result of a collision between a pedestrian and motor vehicle. This crash occurred under dark light and wet road conditions. The report states the pedestrian was in the roadway illegally and wearing non-visible clothing. The majority of the fatal crashes occurred in clear weather, on dry roads, and in the daylight. Excessive speed was reported in 10 of the 24 fatal crashes.

Figures 12A and 12B provide the location of each of the recorded crashes in the study areas. As shown, many of the recorded crashes occurred along I-84 and US 30, as well as key arterials such as Cornelius Pass Road, Skyline Boulevard, Germantown Road, and Corbett Hill Road.

Table 6 Reported Crashes by Severity in Multnomah County Rural Areas (2009 – 2013)

	Crash Severity			Total
	Fatal	Injury	Property Damage Only	
Number of Reported Crashes	24	511	467	1,002
Percentage of Total Crashes	2%	51%	47%	100%

Seasonal Trends

To understand any possible weather and/or seasonal trends, Exhibit 4 shows the number of crashes reported by month over the five year period.

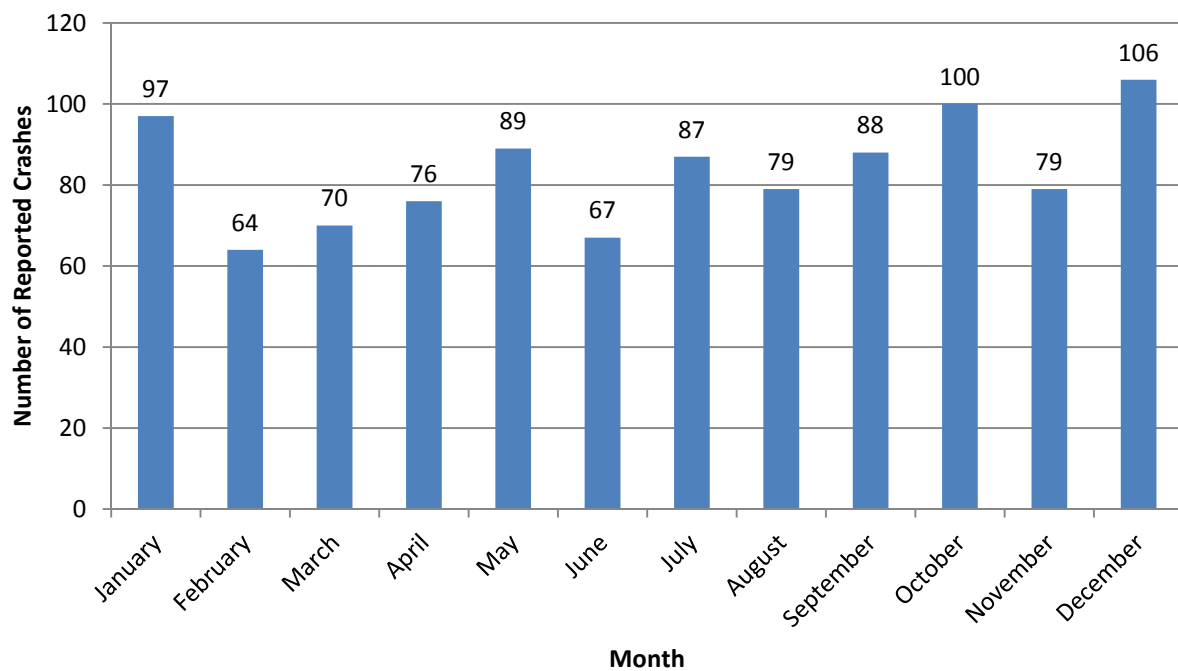


Exhibit 4 Reported Crashes by Month (2009-2013)

As shown in Exhibit 4, the highest crash frequency occurred during late fall winter months, from October through January. Winter months in Multnomah County can include inclement weather conditions producing wet, icy, and/or snowy conditions. Further review of crashes in October, November, December, and January (382 crashes) indicate that 60% (228 crashes) occurred on roadway surfaces that were wet, icy, or snow-covered. Additionally, 55% (210 crashes) occurred in dark, dawn, or dusk lighting conditions.

Crash Type Analysis

Over the study period, 54% of crashes (537 crashes) were single vehicle crashes including fixed object, overturn, and non-collision crashes. Speed was a contributing factor in one-third (327 crashes) of all crashes. Over 40% (409 crashes) occurred on roadway surfaces that were wet, icy, or snow-covered. Forty-two percent (417 crashes) occurred in dark, dawn, or dusk lighting conditions.

Four pedestrian crashes were reported in the study period with one resulting in a fatality. The fatality occurred in dark, rainy conditions. The report states the pedestrian was in the roadway illegally and wearing non-visible clothing. The pedestrian crashes occurred at the following locations:

- US 30 – 2,000 feet south of Watson Road
- Lusted Rd – 3,300 feet from Cottrell Road
- Hurlburt Rd – 260 feet east of Kimbley Rd (west access)
- Haines Road and Thompson Mill Road

Eleven bicycle crashes were reported in the study period all resulting in non-fatal injuries. All but one crash occurred under clear weather conditions, dry road surface, and in the daylight. The majority (seven) of the crashes were attributed to not yielding to the right-of-way. The other causes were following too closely, non-motorist illegally in the roadway, and other improper driving. The bicycle crashes occurred at the following locations:

- Skyline Boulevard and Brooks Road
- Laidlaw Road and Thompson Road – two crashes occurred here
- HCRH and Crown Point Highway – two crashes occurred here
- Foster Road and Richey Road
- Lusted Road 2,000 ft north of Dodge Park Boulevard
- Lusted Road at Sam Barlow High School
- HCRH – 400 feet west of Lucas Road
- Dodge Park Boulevard and Short Road
- HCRH and Evans Road

Intersection and Segment Crash Analysis

In addition to the countywide data, ten locations, four intersections and six segments within the study areas, were analyzed and compared to statewide averages for similar facilities, when possible.

Intersection Crash Rates

Reported crashes at four key intersections are summarized in Table 7. Intersection exposure was measured in terms of total entering vehicles (TEV), derived from the link volumes data. To provide a basis of comparison, ODOT identifies 90th percentile crash rates for similar facilities in the Analysis

Procedures Manual, Exhibit 4-1 (Reference 1). As shown, all of the study intersections reported higher crash rates than ODOT's 90th percentile crash rates for the respective intersection type.

Table 7 Reported Crashes at Study Intersections

Intersection ID and Name	# of Crashes	TEV (in millions)	Crash Rate	90 th Percentile Crash Rates	Crash Type						Severity		
					Angle	Rear-End	Turning	Ped/Bike	Fixed-Object	Other	PDO	Injury	Fatality
A - Reeder Road/Sauvie Island Road	6	4.95	1.21	0.475	0	0	2	0	4	0	3	2	1
B - Foster Road/172 nd Avenue	25	17.82	1.40	0.475	0	14	8	0	2	1	6	19	0
C - Foster Road/Richey Road	10	17.82	0.56	0.475	1	2	1	0	4	2	5	5	0
D - Orient Drive/282 nd Avenue	17	13.78	1.23	0.579	3	6	6	0	2	0	9	8	0

¹TEV = Total entering vehicles

²PDO = Property damage only

³Crash Rate = Crashes per million entering vehicles

One fatality occurred at the study intersections above. It was a single-vehicle, fixed-object crash that occurred at the Reeder Road/Sauvie Island Road intersection. It occurred in the rain, with wet road surface, and in the dark. Speeds too fast for conditions was a contributing factor.

Segment Crash Rates

Reported crashes along study roadway segments are summarized in Table 8. Exposure on the segments was measured based on average daily traffic (ADT) volumes from available link volume data. ODOT publishes statewide average roadway segment crash rates for the past five years for urban and rural areas, by functional classification. The statewide average roadway segment crash rates for rural minor collectors are provided in Table 8 for comparison to calculated crash rates for highways in the study areas. As shown, all of the study segments reported higher crash rate than the state average crash rates for the respective functional classification.

Table 8 Reported Crashes at Study Roadway Segments

ID	Segment Name	Segment Boundaries	Segment Length (miles)	Number of Crashes	ADT	Crash Rate (2009 – 2013 average)	State Average	Crash Type		Severity		
								Fixed-Object	Other	PDO	Injury	Fatality
E	Germantown Road	Between Skyline Road and Old Germantown Road	2.0	25	4800	2.85	1.30	14	11	12	11	2
F	Skyline Boulevard	From ½ miles north of Rock Creek Road to ¾ miles south of Rock Creek Road	1.25	8	1340	3.27	1.30	6	2	1	7	0
G	Corbett Hill Road	Between I-84 and Historic Columbia River Highway	1.4	29	2520	6.32	0.71	6	23	12	17	0
H	Lusted Road	¼ of a mile east starting 1/3 of a mile east of Cottrell Road	0.25	7	650	5.90	1.30	4	3	3	3	1
I	Hurlburt Road	From Springdale School to Kimbley Road (East)	1.5	11	1490	4.05	1.30	5	6	4	7	0
J	Stark Street	Between 36 th Street and Historic Columbia River Highway	1.3	21	5410	2.13	0.71	12	9	8	11	2

Findings from the study intersection and segment crash analysis indicate the following:

- Corbett Hill Road, which is an arterial connecting to I-84, has the highest crash frequency among the study segments.
- The intersection of Reeder Road and Sauvie Island Road has the highest crash frequency among the study intersection.
- Over 46% of reported crashes along the studied intersections and segments areas occurred on a wet, icy, or snowy roadway.
- Over a third (52 crashes) of the crashes recorded at the study intersections and segments indicated speeding or speed too fast for conditions as a contributing cause.
- Of the six fatal crashes on the study segments, five were fixed object crashes with four of attributing speed too fast for conditions or speeding as a contributing factor. The other fatal crash involved a pedestrian who was in the roadway illegally.

- Four pedestrian and bicycle crashes were reported at the study intersections and segments throughout the five year analysis period, one of which was fatal and described above. Three of the four crashes occurred with clear weather conditions, on dry roadways, in the daylight. The two reported causes were “did not yield right-of-way” and “non-motorist illegally in roadway.”
- Among the injury crashes, the majority were single-vehicle crashes. Speed was a contributing factor in approximately half of the reported injury crashes. Over half of the injury crashes occurred with some sort of precipitation on the roadway.

Potential Countermeasures

Given that many of the recorded crashes are single vehicle, low-cost systemic treatments such as shoulder widening and installation of centerline and shoulder rumble strips may be effective in helping to reduce the severity and frequency of crashes on rural roadways in the study area. Treatments addressing speed as well as informing drivers of inclement roadway conditions may also be effective measures. A summary of potential countermeasures is provided below.

Shoulder Widening

Wider paved shoulders could provide drivers more opportunity to recover before departing the roadway and/or to slow their vehicles to a controlled stop, thereby reducing single vehicle crashes.

Shoulder Rumble Strips

Installing shoulder rumble strips on both sides of the roadway has the potential to reduce vehicles inadvertently “running off the road.” Although shoulder rumble strips for rural two-lane roads are not currently included in the Highway Safety Manual (HSM) (Reference 2), NCHRP Report 641 *Guidance for the Design and Application of Shoulder and Centerline Rumble Strips* evaluated their effectiveness in a rural two-lane road setting (Reference 3). NCHRP Report 641 indicates shoulder rumble strips on rural two-lane roads can reduce run off the road crashes by 15 percent. The report also indicates shoulder rumble strips on rural two-lane roads can reduce fatal and injury run off the road crashes by 29 percent.

NCHRP Report 641 indicates shoulder rumble strips are more effective when placed close to the edgeline than when they are placed further from the edgeline. The report also stated shoulder rumble strips appear to have a positive safety benefit in low-light conditions.

Centerline Rumble Strips

Research has shown centerline rumble strips can help reduce rural roadway crashes. NCHRP Report 641 indicates the presence of centerline rumble strips can result in a nine percent reduction in total crashes and 12 percent reduction in fatal/injury crashes. The largest crash reduction for centerline

rumble strips is realized for targeted crashes which are defined as head-on and opposite-direction sideswipe crashes. On low volume roads, crashes involving a vehicle crossing the centerline end up recorded as single-vehicle run off the road crash. Research shows the combination of centerline and shoulder rumble strips could potentially reduce the total number of crashes along a corridor; including fatal and injury crashes.

Speed Treatments

Speed Feedback Signs

Electronic signs can measure and dynamically display the speed of approaching vehicles. Certain signs may also be accompanied by a “SLOW DOWN” or similar message. Average speed reductions of approximately 6 miles per hour have been observed with installation of the feedback signs.

Optical Speed Bars

Transverse markings placed in and across travel lanes with the intent of increasing the optical flow of information and creating a sense of increasing speed could be installed leading up to horizontal curves and intersections. Studies have shown speed reductions of 1 to 9.5 mph.

High Friction Surface Treatment

To address weather-related crashes, the County and ODOT could consider installing high friction surface treatment (HFST) to increase traction for vehicles. HFST maintains pavement friction by applying durable aggregates using a polymer binder to a specific area. The Federal Highway Administration (FHWA) has tested HFST in a number of types of applications. HFST may be applied on areas where high friction or anti-skidding properties are particularly desired. This could include segments having horizontal curves or pavement surfaces susceptible to icing like bridges.

BRIDGES

Within the study areas, the County owns 26 bridges and associated supporting structures. With the exception of the Willamette River bridges, the majority of the County’s bridges are in the rural areas. The locations of the County bridges are shown Figures 13A and 13B as well as Table 11. The table also provides information about the structural sufficiency rating for each bridge. ODOT maintains an inventory of bridge conditions within Multnomah County. State, County, and City owned facilities over 20-feet in length are assigned a sufficiency rating based on inspections conducted at regular intervals, usually every two years. The sufficiency rating is a measure between 0 and 100 calculated by the Federal Highway Administration (FHWA), based on factors such as condition, materials, load capacity, and geometry (i.e., dimensions). FHWA uses the rating as a tool to prioritize the allocation of funds for bridge repairs. In general, bridges with a sufficiency rating of less than 50 are given priority. The sufficiency rating is used to identify deficiencies, which may include structural issues or functional

issues. For example, older bridges may be narrow and not designed to the same width or height clearance of today's standards. Therefore, a sufficiency rating does not necessarily indicate a structural issue. Structural sufficiency rating data was limited for the study areas; information was provided for four of the 26 bridges. The Latourell Falls Road Bridge is currently considered structurally deficient.

Table 9 Multnomah County Bridges

Map ID	County Bridge ID	Name	Sufficiency Rating	Sufficiency
1	511	Burnside Bridge	N/A	N/A
2	2757	Hawthorne Bridge	N/A	N/A
3	2758	Morrison Bridge	N/A	N/A
4	4522	Beaver Creek Bridge	N/A	N/A
5	6757	Broadway Bridge	N/A	N/A
6	6879	Sellwood Bridge	N/A	N/A
7	9321	223rd/Marine Drive Overpass	N/A	N/A
8	11112	Stark Street Bridge	N/A	N/A
9	11113	Stark Street Viaduct	N/A	N/A
10	17211	207th Ave over UPRR	N/A	N/A
11	17356	238th Ave over UPRR	N/A	N/A
12	18206	207th over Fairview Creek	N/A	N/A
13	20136	Sauvie Island Bridge	N/A	N/A
14	20722	282nd over Johnson Creek	N/A	N/A
15	25T05	Halsey Street Box Culvert	N/A	N/A
16	25T08	252nd Avenue Bridge	N/A	N/A
17	25T16	Jenne Road/174th Av Bridge	N/A	N/A
18	51B002	Highland Drive over Johnson Creek	N/A	N/A
19	51C09	Littlepage Rd Box Culvert	N/A	N/A
20	51C10	Latourell Falls Road Bridge	32.9	Structurally Deficient
21	51C12	Smith Road Bridge	91	Not Deficient
22	51C13	Gordon Creek Road Viaduct	59.7	Not Deficient
23	51C14	Gordon Creek Bridge	57	Not Deficient
24	51C15	Circle Avenue Bridge #1	N/A	N/A
25	51C34	Circle Avenue Bridge #2	N/A	N/A
26	6967A	257th over UPRR	N/A	N/A

RAIL

Figures 14A and 14B depict the railroads traversing Multnomah County as well as the locations of public and private railroad crossings in the rural areas. The Portland and Western railroad has two routes through the west side of the County, one going up the West Hills and the other along Highway 30. Union Pacific has a route on the east side of the County that follows I-84. The majority of the

railroad crossings throughout the rural areas are private crossings (crossings of private roads, driveways, and accesses). There are two public County owned crossings in the Multnomah Channel area; one at-grade crossing located on Lower Rocky Point Road on the east side of Highway 30 and one grade-separated crossing on NW McNamee Road.

BICYCLE SYSTEM

Figures 15A and 15B depict the bicycle system in the study area. As shown, only three facilities have on-street bike facilities, including Highway 30 (ODOT facility) in West County, and Highway 26 (ODOT facility) and Stark Street in East County. Figures 15A and 15B identify three design treatments used to accommodate bicycle travel on roadways and four design treatments used to accommodate bicycle travel that is separated from the roadway. These design treatments are described below.

Bike Lane — Some roadways dedicate a portion of the roadway for preferential use by bicyclists. Bike lanes are appropriate on urban arterials and major collectors where motor vehicle speeds are significantly higher than bicycle speeds. Bike lanes on local streets are appropriate where bicycle volumes are high, vehicle speeds are higher than 25 miles per hour, and/or poor sight distance exists. Bike lanes must always be well-marked to call attention to their preferential use by bicyclists.

Shoulder Bikeways — In rural areas, paved shoulders that are a minimum of 4 feet wide, are commonly considered shoulder bikeways. These facilities are not shown on the map as paved shoulder width data is not currently available. However, Figures 9A and 9B show paved widths. Two-lane roadways with a paved width of 28 – 31 may have 4 foot paved shoulders. Two-lane roadways with a paved of 32 feet or greater are likely to include 4 foot paved shoulders on each side of the roadway. As shown in Figures 9A and 9B, very few rural facilities have a 28 foot or greater paved width.

Bicycle Boulevard — The bicycle boulevard is a refinement of the shared roadway treatment. On bicycle boulevards, the typical operation of a local street is modified to function as a through street for bicyclist while maintaining local access for motor vehicles. Traffic calming devices reduce motor vehicle speeds and through trips and traffic controls limit the potential for conflicts between bicyclists and motorists.

Low Traffic Through Street (Shared Roadway) — On a shared roadway, bicyclists and motorists share the same travel lanes. A motorist will usually have to cross over into the adjacent travel lane to pass a bicyclist. Shared roadways are common on neighborhood streets and on low volume rural roads and highways and may, or may not, include “sharrows” (pavement marking that indicate the shared use of the roadway). Allowing bicycle traffic to mix with automobile traffic is acceptable where the average daily traffic (ADT) on a roadway is less than 3,000 vehicles per day. Generally, most collectors in the rural parts of Multnomah

County carry less than 3,000 ADT, but most arterials, and some collectors within UGBs, carry more than 3,000 ADT.

Regional, Community, and Local Multi-Use Trails — Multi-use trails are separated from the roadway by an open space or barrier. Multi-use trails are typically used by pedestrians and bicyclists as two-way facilities. Multi-use trails are appropriate in corridors with high traffic volumes not well served by the street system. Such paths can also be used to create pedestrian and bicycle short cuts and can serve as elements of a community recreational trail system. They can be used for regional travel as well as within a community and locally.

Despite the lack of bike lanes and shoulder bikeways, many of the County's rural roadways are popular cycling routes.

PUBLIC TRANSPORTATION SYSTEM

Three transit agencies serve Multnomah County's rural areas, including TriMet, Columbia County Rider, and Sandy Area Metro. The highlights of this service include:

- TriMet primarily serves Portland Metro urban areas but has transit stops located near the perimeter of several of the County's rural areas including the West Hills, Sauvie Island, Troutdale and Gresham.
- TriMet has a Park-and-Ride located on Sauvie Island and several in Gresham that could serve residents of East County.
- Columbia County Rider has a route along Highway 30 but it does not currently stop on Sauvie Island but may in the future.
- Sandy Area Metro has a route along Highway 26 in the West of Sandy River area.

Figures 16A and 16B show the transit routes, stops, centers, and park n' ride locations in and near the rural areas. As shown in Figures 16A and 16B, the County's rural areas are not served by fixed route transit; however, fixed route transit and park-and-ride facilities are provided at the urban fringes to help provide access to commuters from rural areas.

TRUCK FREIGHT ROUTES

Figures 17A and 17B show the freight routes in the study areas. ODOT has two freight routes through the rural areas: Highway 30 in West County and on Interstate 84 in East County. Multnomah County has a number of freight routes extending into the rural areas from the ODOT freight routes.

AIR TRANSPORTATION SYSTEM

The Sandy River Airport is the only public airport located in the study areas. In addition, Lehman Airport is a private airport located three miles southeast of Corbett. Portland International Airport serves most air passenger and freight transportation needs for Multnomah County.

FUNDING ANALYSIS

This section summarizes the historical transportation funding sources for Multnomah County. The information summarized below will be used to assist in identifying potential funding gaps associated with future county projects and programs.

Historically, transportation funds have been collected through local sources, private contributions, state government, federal government, and non-jurisdiction work which includes non-road and street work and work for other jurisdictions. Local sources include, but are not limited to, fuel taxes and local governments such as cities. Motor vehicle registration fees were introduced and collected starting in the year 2011 and are a part of the funds from local sources. Federal stimulus funds (ARRA) dedicated to transportation projects represent a new federal funding source for 2010. The transportation program includes streets, sidewalks, bike paths, railroad crossings, and transit.

Exhibit 5 reports the total transportation funding for Multnomah County for the year 2005 through 2014. Table 12 details the County's transportation funding by source. As shown, 2013 and 2014 received the most funding over the last decade with over double the funding of prior years. In 2013, funding from local sources spiked due to sales of bonds totaling \$128,000,000. Funds from fuel tax have remained fairly consistent over the last decade contributing between \$6,500,000 and \$7,400,000 each year. Like fuel tax, state funds have remained within a relatively narrow range, between \$29,000,000 and \$39,000,000, with the exception of 2005 which saw a contribution of about \$55,600,000. State funding is the biggest funding source throughout the past ten years, excluding the 2013 sale of bonds as previously mentioned.

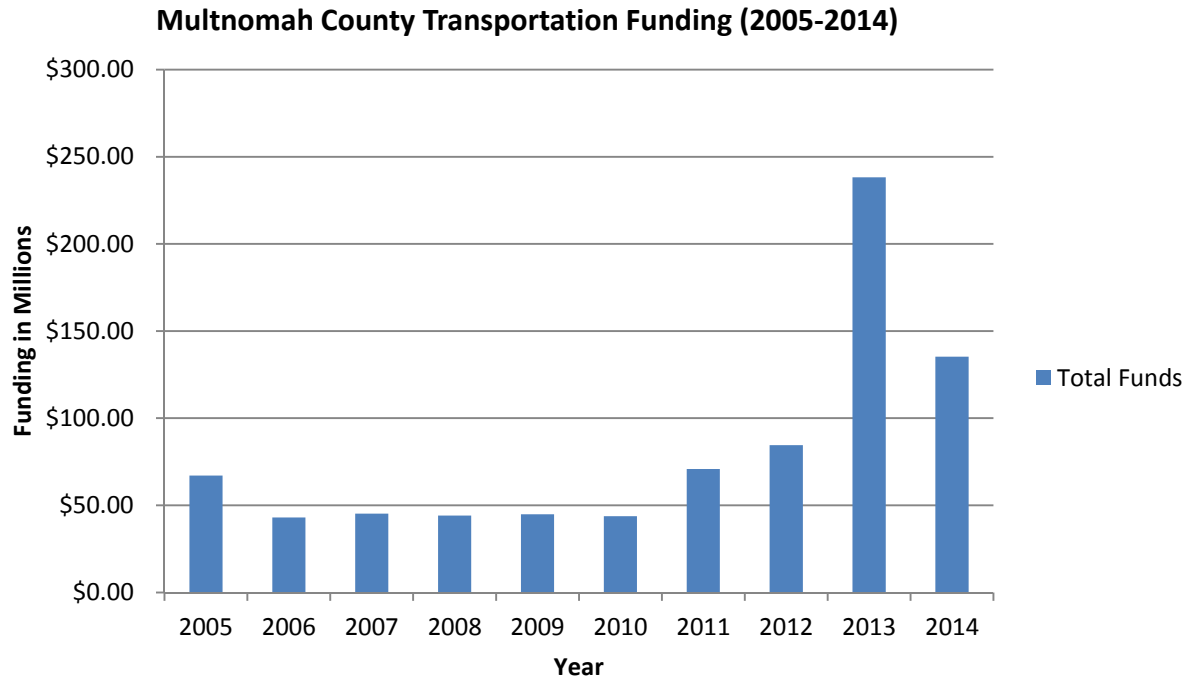


Exhibit 5 Multnomah County Funding for Transportation (2005-2014)

Table 10 Multnomah County Funding for Transportation Years 2005-2014

Year	Source						Total
	Fuel Tax	Local Sources	Private Contributions	State Funding	Federal Funding	Non-Jurisdictional Work	
2005	\$6,744,233	\$2,037,616	\$0	\$55,586,395	\$1,869,318	\$837,315	\$67,074,877
2006	\$7,114,721	\$2,337,147	\$213,243	\$31,040,765	\$1,417,995	\$943,352	\$43,067,223
2007	\$7,110,272	\$1,567,375	\$130,880	\$32,385,736	\$1,105,605	\$2,963,682	\$45,263,550
2008	\$7,356,083	\$1,339,539	\$0	\$29,298,036	\$3,418,294	\$2,681,591	\$44,093,543
2009	\$6,878,197	\$2,569,042	\$0	\$30,370,214	\$2,884,584	\$2,179,068	\$44,881,105
2010	\$6,982,150	\$1,311,827	\$0	\$29,004,662	\$4,363,057	\$2,121,595	\$43,783,291
2011	\$7,052,045	\$17,519,052	\$0	\$33,561,224	\$9,883,713	\$2,856,357	\$70,872,391
2012	\$6,811,257	\$26,294,096	\$0	\$36,227,457	\$12,990,232	\$2,222,274	\$84,545,316
2013	\$6,573,115	\$188,254,386	\$0	\$38,972,767	\$2,399,555	\$1,992,451	\$238,192,274
2014	\$6,627,984	\$61,920,847	\$0	\$38,527,230	\$26,201,381	\$2,059,726	\$135,337,168

Exhibit 6 reports the total expenditures of Multnomah County for transportation in the years 2005 through 2014. Table 11 summarizes the County's transportation expenditures by source. Years 2013 and 2014 had the most spending with over double what the majority of the other years spent. Those years also saw additional local funding from bonds as discussed above. Spending on Capital Projects

and Payments to other Governments/Jurisdictions were the two largest expenditures over the past decade. Payments to other governments and jurisdictions included payments to counties, cities, other local agencies, and state and state highway projects.

Spending on capital projects increased significantly starting in 2012. The majority of the spike in spending went to system preservation. The year 2012 increase was almost evenly split between project engineering and system preservation, each with approximately \$21 million, but 2013 and 2014 spent about \$56 million and \$73 million, respectively, on system preservation alone. Prior to the bond funds, average annual spending on capital projects was approximately \$13 million including both engineering and preservation projects.

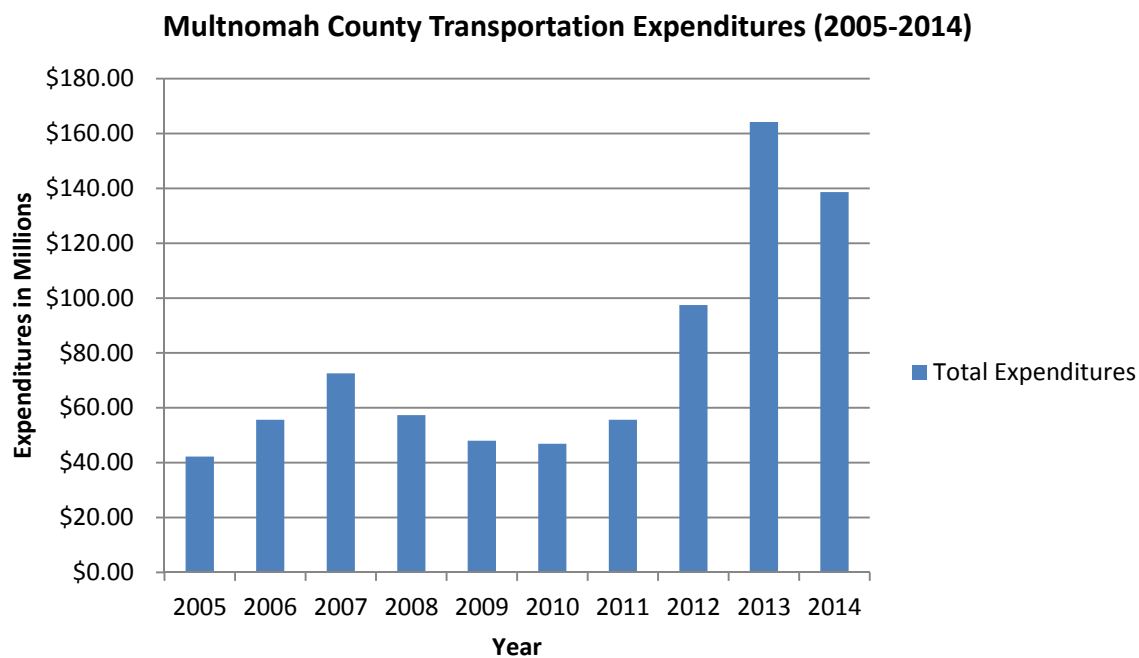


Exhibit 6 Multnomah County Expenditures for Transportation (2005-2014)

Table 11 Multnomah County Expenditures for Transportation Years 2005-2014

Year	Source							Total
	Capital Projects	Operations & Maintenance	Administration & General Engineering	Match Payments for Local Agency Projects	Debt Service on Local Obligations	Payments to Other Governments /Jurisdictions	Reimburse -ments ¹	
2005	\$8,822,124	\$7,403,780	\$3,423,016	\$0	\$288,022	\$21,349,429	\$942,708	\$42,229,079
2006	\$7,788,562	\$7,164,162	\$3,943,756	\$0	\$291,289	\$35,333,705	\$1,440,134	\$55,661,608
2007	\$21,856,624	\$5,821,601	\$4,080,165	\$14,534,934	\$287,996	\$23,493,283	\$2,513,914	\$72,588,517
2008	\$18,669,634	\$5,942,808	\$3,931,355	\$3,065,694	\$287,996	\$22,903,091	\$2,508,531	\$57,309,109
2009	\$11,156,600	\$7,797,336	\$4,318,754	\$1,356,283	\$288,000	\$20,885,234	\$2,179,068	\$47,981,275
2010	\$8,481,991	\$9,107,884	\$3,126,007	\$1,458,258	\$288,000	\$20,008,305	\$2,432,796	\$46,903,241
2011	\$15,646,108	\$8,445,260	\$2,828,115	\$1,487,761	\$288,000	\$24,673,775	\$2,263,774	\$55,632,793
2012	\$54,067,309	\$9,061,593	\$3,215,765	\$780,522	\$701,151	\$27,415,906	\$2,222,275	\$97,464,521
2013	\$69,568,440	\$8,075,180	\$4,563,300	\$0	\$52,495,665	\$27,523,385	\$1,990,000	\$164,215,970
2014	\$85,669,337	\$7,554,458	\$4,582,540	\$0	\$9,929,719	\$28,793,395	\$2,109,428	\$138,638,877

¹Expenditures that are reimbursed for work done on others' roads/streets

EXISTING CONDITIONS SUMMARY

The key highlights of the existing conditions are summarized below.

- The primary transportation issue in Multnomah County's rural areas is safety. Identifying and prioritizing safety improvements will be a primary objective of the TSP Update.
- General County-wide trends indicate that some low-cost systemic treatments such as shoulder widening and installation of centerline and shoulder rumble strips may be effective on County facilities in addition to treatments addressing speed and improving intersections with poor geometry.
- Paved shoulders serve multiple functions in rural areas. They increase safety for vehicles, provide space for farm equipment and emergency pull-offs, but they also act as pedestrian and bicycle facilities. The needs and priorities for shoulder improvements for vehicle safety should also be coordinated with additional considerations below.
- Despite the lack of shoulder bikeways, many of the County's rural roadways are popular cycling routes. A desired network and priorities of shoulder bikeway facilities for the purpose of transportation and tourism should be included in the TSP Update.
- County's rural areas are not served by fixed route transit; however, fixed route transit and park-and-ride facilities are provided at the urban fringes to help provide access to commuters from rural areas. Access to these park-and-rides for pedestrians and bicycles should be considered in the TSP Update.
- Multnomah County has a number of designated freight routes extending into the rural areas from the ODOT freight routes. These should be considered in the prioritization of shoulder improvements.

FUTURE CONDITIONS

The following describes future projections for population and employment in unincorporated Multnomah County, projected traffic volumes on ODOT facilities, and an overview of currently planned projects to address existing and future needs.

EMPLOYMENT AND HOUSEHOLD PROJECTIONS

Metro provided information about anticipated employee and household growth in Multnomah County's unincorporated areas. This information is summarized in Table 12. Employment is projected to grow at approximately 3.5 percent per year from 2010 to 2040. Households are projected to grow at about 3.2 percent per year from 2010 to 2040. However, these projections include both the urban and rural areas of unincorporated Multnomah County.

Table 12 Employee and Household Projections for Unincorporated Areas in Multnomah County

Year	2010	2025	2035	2040	2010-2040 Growth	Annual % Growth
Employees	3,961	5,866	7,170	8,100	4,139	3.48%
Households	4,911	6,555	7,092	9,579	4,668	3.16%

Figures 18A and 18B and 19A and 19B depict the projected changes in employees and households by TAZ from 2010 to 2040, respectively. As shown, minimal increases in jobs and housing are projected for the majority of the East County rural areas with the exception of moderate projected growth in households and employment in the western portions of the West of Sandy River area. In West County, Sauvie Island is projected to have moderate growth in employment and the northern portion of the West Hills Rural Area is projected to have moderate growth in both employment and households.

FUTURE TRAFFIC VOLUMES

As discussed in the existing conditions, ODOT collects traffic volumes on all state facilities. They also provide information about future anticipated growth on these same facilities. Table 13 provides estimates of future traffic volumes at the state facilities in the rural areas.

Table 13 Projected Future State Highway Traffic Volumes

Primary Road	HWY	MP	Description	Future Year		Annual Growth Rate (from 2013 to 2033)
				2033	Source	
Columbia River Highway (US 30)	002	18.12	0.30 mile east of Jordan Interchange	31,900	Historic Growth	1.09
	002	22.40	0.30 mile east of Corbett Interchange	30,200	Historic Growth	1.24
	002	25.19	0.20 mile east of Rooster Rock State Park Interchange	30,400	Historic Growth	1.36
	002	28.16	0.30 mile east of Bridal Veil connection	28,400	Historic Growth	1.40
	002	31.89	0.50 mile east of Multnomah Falls Interchange	27,400	Historic Growth	1.37
	002	35.73	0.10 mile east of Historic Columbia Highway (US30)	27,500	Historic Growth	1.40
Mt. Hood Highway (US 26)	026	14.80	0.05 mile south of S.E. Palmquist Road	32,500	Model	0.89
	026	18.30	0.05 mile northwest of S.E. Haley Road	33,300	Model	1.82
Lower Columbia River (US 30)	092	10.75	0.08 mile south of Sauvie Island Road	23,300	Model	1.93
	092	10.95	0.12 mile north of Sauvie Island Road	23,800	Model	2.04
	092	13.12	0.10 mile south of Cornelius Pass Road	24,200	Model	2.03
	092	17.34	0.05 mile south of Rocky Point Road	30,300	Model	1.64

PLANNED PROJECTS

Multnomah County has several different plans that identify transportation improvements in the County's rural unincorporated areas. These projects will be evaluated in the Alternatives Analysis phase of this project to determine if they are still warranted, how they should be prioritized, and if there are additional needs that require additional projects, programs, or policies to address them. Table 14 provides a summary of the currently planned projects by area in the County's Capital Improvement Plan (CIP) and in each of the Rural Area Plans and TSPs (if applicable). The multimodal project locations are shown in Figures 20A, 20B, 21A and 21B.

Table 14 Planned Projects

Document	Project Number	Project Name	Project Description
Sauvie Island/Multnomah Channel			
Westside Rural TSP	1	Sauvie Island Road	Safety improvement – Add to shoulders (4 ft) and add guardrail from Gillihan Road to Reeder Road. Replace culverts. \$3,675,000
	2	US 30	Commuter rail study – Conduct study to determine feasibility of commuter rail from Portland to Astoria. \$100,000
	3	Gillihan Road	Safety improvement – Add to shoulders (4 ft). \$2,055,000
	4	Reeder Road	Safety improvement – Add to shoulders (4 ft). \$5,925,000
	5	US 30	Ride share parking – Provide parking for 100 spaces next to truck scale near county line. \$325,000
	6	US 30	Speed zone study – Conduct speed zone study to determine safe speed zone from Linnton north. \$5,000
	7	US 30/Cornelius Pass Road	Public transportation – Provide commuter transit service from Columbia County over Cornelius Pass Road to Washington County. \$78,000/year
	8	Reeder Road	Improve parking and intersection safety with Sauvie Island Road. \$250,000
	9	US 30	RAZ service expansion – Expand assuming 20 hours of additional service per work day for one bus. \$78,000/year
	10	Sauvie Island Wildlife Refuge	Recreational bike path – Conduct study to determine feasibility of a bike path north of Reeder Road for recreational purposes only, followed by implementation of the findings. \$1,060,000
	11	Sauvie Island Road	Improve park and ride – Delineate parking and traffic circulation. \$300,000
	12	US 30	Exclusive car pool lane study – Conduct study to determine feasibility and cost of adding a reversible exclusive car pool lane on US 30. \$100,000
	13	US 30	Harborton sign installation – Provide signing for Harborton. \$ 1,000
	14	US 30	Scenic viewing opportunities – Access provided across railroad tracks adjacent to Burlington Bottoms using existing road approaches (per location). Exact locations to be determined. Providing pull outs of widening along US 30 will not be acceptable on the basis of safety. \$350,000
Multnomah County CIPP	15	Sauvie Island Road: Bridge to Reeder Road (PN 159)	Reconstruct road to rural collector standards with 2 travel lanes. Requires working on dike. \$8,275,636
	16	Sauvie Island Road: Gillihan Road to Reeder Road	Bike path. \$2,114,214
	17	Sauvie Island: Reeder to Ferry Road	Shoulder bikeway. \$535,851
Sauvie Island/Multnomah Channel Rural Area Plan	18	Multnomah Channel/U.S. 30	<i>Ride share parking</i> – Provide parking for 100 spaces next to truck scale near county line. Project to be coordinated with ODOT, Multnomah, and Columbia Counties.
	19	U.S. 30/Cornelius Pass Road	<i>Public transportation</i> – Provide commuter van pool or transit service from Columbia County over Cornelius Pass

			Road to Washington County.
	21	U.S. 30	<i>Scenic viewing opportunities</i> – Access provided across railroad tracks adjacent to Burlington Bottoms using existing road approaches (per location). Exact locations to be determined. Providing linear pull outs or widening adjacent to U.S. 30 will not be acceptable on the basis of safety and access management standards.
	21	Cornelius Pass Road	<i>U.S. 30 intersection improvements</i> – Include a northbound turn lane and shared northbound left-turn/right-turn lane.
	22	Gillihan Loop Road	<i>Safety improvement</i> – Add to 6.13 miles of shoulders (4 ft).
	23	Reeder Road	<i>Safety improvement</i> – Add to 4.33 miles of shoulders (4 ft).
	24	Reeder Road	<i>Safety improvements</i> – Improve intersection sight distance with Sauvie Island Road.
	25	Sauvie Island Road	<i>Safety improvement</i> – Add to 2.15 miles of shoulders (4 ft) and add guardrail from Gillihan Road to Reeder Road. Replace culverts.
	26	Sauvie Island Road	<i>Create park and ride</i> – Delineate parking and traffic circulation. (Completed since 1998 TSP)
West Hills			
Westside Rural TSP	27	Cornelius Pass Road	Safety improvement – Find ways to enforce posted speed limits and safe travel speeds. Install photo radar. \$20,000
	28	Cornelius Pass Road	Safety improvement – Install reflectors, delineators, and traffic striping. \$200,000
	29	Newberry Road	Safety spot improvement – Install guardrail ¼ mile south of US 30 and install speed hump 1.2 miles from US 30. \$450,000
	30	Cornelius Pass Road	Speed Zone Study – Conduct speed zone study to determine average running speed, safe operating speed, and needs for enforcement. \$5,000
	31	Germantown Road	Safety improvement – Add to 2.22 miles of shoulders (4 ft). \$6,744,000
	32	Skyline Boulevard	Safety improvement – Add to shoulders from UGB to Cornelius Pass Road (1.49 miles). \$ 2,039,000
	33	Skyline Boulevard	Safety improvement – Add to shoulders from Cornelius Pass Road to Rocky Point Road (4 ft). \$ 11,153,000
	34	Skyline Boulevard	Cornelius Pass Road intersection improvements – install signal, provide westbound left-turn lane and through/right lane on Skyline Boulevard. \$695,000
	35	Cornelius Pass Road	Safety and capacity needs – Study to look at climbing lanes, guardrail, drainage, addition of shoulders, and alternate routes. \$180,000
	36	Germantown Road	Safety spot improvements – Widen lanes on curves only, install center skip like reflective markers, and install mirror at intersection with Old Germantown Road. \$750,000
	37	Cornelius Pass Road	Safety Improvement – contract with the City of Portland for speed enforcement. Assume 0.25 staff per year including equipment and overhead. \$50,000/year

	38	Skyline Boulevard	Speed zone study – Conduct speed study to determine appropriate speed limit for Skyline Boulevard from Cornelius Pass Road east to city limits of Portland. \$5,000
	39	Springville Road	Safety improvement – Add to shoulders (4 ft). \$3,160,000
	40	Laidlaw Road	Safety improvement – Add to shoulders (4 ft). \$643,000
	41	Thompson Road	Safety improvement – Add to shoulders (4 ft). \$100,000
	42	Cornelius Pass Road	Realignment – Reduce curvature and eliminate switchback while minimizing grade increase of 1,500-foot section (assume average cut of 60 feet). \$2,020,000
	43	Skyline Boulevard	Safety improvement – Install traffic calming devices such as speed humps to reduce speeds from UGB to Cornelius Pass Road. \$485,000
	44	Skyline Boulevard	Scenic viewing opportunities – Acquire property through fee or donation for development of parking area adjacent to roadway. \$350,000
	45	Cornelius Pass Road	Safety improvement – Construct pullouts at a number of locations for the purposes of speed enforcement. \$750,000
	46	Germantown Road	Safety improvement – Install traffic calming devices such as speed humps to reduce speeds. \$887,000
Multnomah County CIPP	47	Cornelius Pass Road: MP 3.0 to MP 3.5 (PN 103a)	Realign and widen Cornelius Pass Road to provide southbound passing lane. \$35,135,976
	48	Cornelius Pass Road: MUS 30 to MP 2 (PN 389)	Reconstruct Cornelius Pass Road including passing lane, safety, shoulder and drainage improvements. \$54,159,714
	49	Cornelius Pass Road: MP 2 to MP 3 (PN 103)	Widen Cornelius Pass Road, including new box culvert and passing lane. \$21,893,536
	50	Germantown Road/Old Germantown Road (PN 726)	Widen Germantown Road to create left turn pocket and improve sight distance. \$780,835
	51	Skyline Boulevard: McNamee to Cornelius Pass	Shoulder bikeway. \$2,629,164
	52	Skyline Boulevard: Cornelius Pass to Rocky Point	Shoulder bikeway. \$15,153,851
	53	Springville Road: Skyline Boulevard to County Line	Shoulder bikeway. \$4,254,950
	54	Cornelius Pass Road: (old) St. Helens Road to MP 2	Shoulder bikeway. \$3,684,602
East of Sandy River			
Multnomah County CIPP	55	Ogden Road: Mershon to Woodard	Shoulder bikeway. \$463,789
	56	Larch Mt. Road: HCRH to End of Road	Shoulder bikeway. \$26,341,706
	57	Knieriem Road: Littlepage Road to HCRH	Shoulder bikeway. \$3,122,720
	58	Hurlburt Road: HCRH to Littlepage Road	Shoulder bikeway. \$4,344,240
	59	Evan Road: Hurlburt Road to HCRH	Shoulder bikeway. \$4,463,908
	60	Woodard Road: HCRH to Ogden Road	Shoulder bikeway. \$2,338,065

	61	Mershon Road: Ogden to HCRH	Shoulder bikeway. \$4,009,646
East of Sandy River Rural Area Plan			
No major capital improvement improvements are proposed within the study area			
West of Sandy River			
West of Sandy River Rural Area Plan	62	Orient Road/Dodge Park Boulevard Realignment	Realign the intersection to create a more perpendicular angle. Driveway modifications would be required to serve the autobody shop in the northwest quadrant of the intersection.
	63	Division Drive/Troutdale Road Realignment	Eliminate the northeast leg of the intersection between SE Division Drive and SE Troutdale Road to create one intersection. Realign each end of the segment proposed for closure. While projected 2020 PM peak hour traffic volumes satisfy signal warrants, signalization is not recommended until additional warrants are satisfied. All-way stop control would provide LOS D with projected 2020 PM peak hour traffic volumes, while adding an eastbound right turn lane would provide LOS C.
	64	302 nd Avenue/Orient Drive/Bluff Road Realignment	Potential options include realigning SE Orient Drive to intersect SE Bluff at a more perpendicular angle or creating a left turn lane for eastbound traffic on SE Orient Drive. Either option may require realignment of SE Teton Drive. Further engineering analysis will be necessary to determine a preferred alignment. Signalize realigned intersection when warranted.
	65	Oxbow Drive/327 th Avenue Realignment	Channelizing the broad paved area on SE 327 th Avenue at the approach to SE Oxbow Drive to create a more perpendicular intersection is recommended to improve sight distance and reduce the potential for conflict between westbound left turns and northbound left turns.
	66	Lusted Road/302 nd Avenue/Pipeline Road Realignment/Intersection Consolidation	Further engineering analysis is recommended to determine if intersection consolidation is feasible given the surrounding vertical grades and the location of a sewage holding tank in the center of the intersection. Recent parking restrictions enacted by the County may be adequate for the near term.
	67	Lusted Road/Powell Valley Road/282 nd Avenue Consolidation	Realignment to connect SE Lusted Road directly with SE Powell Valley Road is included in the County's Capital Improvement Plan and Program. The project would require further engineering analysis and coordination with the City of Gresham to develop a recommend alignment. A traffic signal is warranted based on projected 2020 PM peak hour volumes, and would provide LOS B operations.
	68	282 nd Avenue/Stone Road Turn Lanes	The addition of turn lanes in the northbound and southbound direction on 282 nd would reduce the high incidence of rear end crashes at this location. Some roadway widening would be necessary.
	69	Shoulder Widening to Meet Updated Standards	Prioritization for shoulder improvements within the West of Sandy River rural area should be given to roadways connecting to school sites, especially Barlow High School. Proposed shoulder widening should be evaluated based on potential impacts on drainage and adjacent productive lands. For shoulders wider than 1.8 meters, the adopted County standards require paved width of 1.5 meters. The remaining 0.3 meters may be unpaved. Shoulder widening should be incorporated into routine roadway maintenance wherever possible.
Multnomah County CIPP	70	Cochran Drive: Troutdale Road to westerly 2175' (PN 145)	Reconstruct to major collector standards: 2 travel lanes, center lane/median, sidewalks, bike lanes, and culvert replacement. \$7,442,765

	71	Troutdale Road: Stark St to Division Drive (PN TBD)	Reconstruct with 2 travel lanes; construct center turn lane/median, sidewalks, bicycle lanes between Stark and Strebin. Reconstruct Troutdale Road/Division Drive intersection including new fish culverts. \$8,297,000
	72	Sweetbriar Road: Troutdale Road to E City Limit (PN 149)	Widen to neighborhood collector standards with 2 travel lanes, sidewalk and bike lanes. \$2,740,748
	73	Orient Drive/Bluff Road (PN 706)	Widen Orient Drive to create eastbound left turn lane to Bluff Road, realign Bluff and Teton to create perpendicular intersection. \$685,247
	74	Orient Drive/Dodge Park Boulevard (PN 703)	Widen Orient Drive to create eastbound left turn lane. \$373,616
	75	Oxbow Drive/Altman Road (PN 707)	Widen Oxbow Drive to create westbound left turn lane to Altman Road, realign intersection to a 5 perpendicular intersection. \$ 790,693
	76	302 nd Avenue/Lusted Road (PN 704)	Realign Lusted Road and Pipeline Road to create perpendicular intersection at 302 nd , add left turn lane to each leg of intersection. \$5,613,717
	77	Division Drive/Troutdale Road (Included in Collector project above) (PN 186)	Realign intersection, eliminating NE leg, producing a 4-way intersection. Replace 3 existing culverts identified as fish barriers. \$ -
	78	Dodge Park Boulevard: 302 nd to County Line	Shoulder bikeway. \$7,592,686
	79	302 nd Avenue: Division to Bluff	Shoulder bikeway. \$3,878,852
	80	Orient Drive: Welch Road to Dodge Park Boulevard	Shoulder bikeway. \$1,523,441
	81	Oxbow Park Road: Oxbow Drive to Road End	Shoulder bikeway. \$1,834,695
	82	Oxbow Drive: Division Drive to Hosner Road	Shoulder bikeway. \$5,393,681
	83	Oxbow Drive: Hosner Terrace to Oxbow Park Road SE	Shoulder bikeway. \$1,259,838
	84	SE Division Drive: UGB to Troutdale Road	Bike lanes. \$945,518
	85	Troutdale Road: Strebin Road to 282 Avenue	Bike lanes. \$3,292,979
	86	SE Division Drive: Troutdale to Oxbow Parkway	Bike lanes. \$3,371,407
Pedestrian Master Plan	87	Stark St: Eavans Ave to 35th St	Add sidewalk to south side
Columbia River Gorge National Scenic Area			
Multnomah County CIPP	88	Historic Columbia River Highway RR Overcrossing: Half miles east of 244 th Avenue (PN 199)	Reconstruct railroad bridge to accommodate wider travel lanes, sidewalks, and bike lanes. \$9,314,500
	89	Corbett Hill Road/Historic Columbia River Highway (PN 147)	Improve intersection alignment by making stops at right angle. \$3,770,920
Other Plans and Projects			

East Metro Connections Plan	90	Sandy River to Springwater multi-modal connection	Projects to provide multi-modal connections from Downtown Troutdale to Mt. Hood Community College and the Springwater Corridor Trail. CATALYST PROJECTS: Master plan for new multi-modal corridor.
	91	Pleasant Valley	Projects develop the necessary public infrastructure for development of Pleasant Valley Community Plan. CATALYST PROJECTS: Improvements to 174 th and Foster.
	92	Catalyst for Springwater District	Projects help develop the necessary public infrastructure for private investment and jobs in this regionally significant employment area. Projects include a new interchange on US 26 and an extension of Rugg Road to connect US 26 and Hogan, as well as collector street improvements to provide needed access for future jobs and employment. CATALYST PROJECTS: New interchange on US 26 and arterial connections.
Pedestrian Master Plan	93	Interlachen Lane: Marine Dr to Blue Lake Rd	Add sidewalks to both sides

FUTURE CONDITIONS SUMMARY

The following highlights key information that can be used as part of future alternatives analyses tasks.

- Population and employment in the rural areas is expected to grow at approximately 3 – 3.5 percent per year. Although not projected to result in traffic congestion in the rural areas, this growth will continue to have impacts on safety and conflicts between different modes.
- Multnomah County has several different plans that identify transportation improvements in the County’s rural unincorporated areas. These projects will be evaluated in the Alternatives Analysis phase of this project to determine if they are still warranted, how they should be prioritized, and if there are additional needs that require additional projects, programs, or policies to address them.

NEXT STEPS

The information in this memorandum will be reviewed by County staff and shared with the Transportation Subcommittee of the County’s Comprehensive Plan Update Project Advisory Committee. Input will be requested on the existing and future conditions and currently planned project list to provide direction for the alternatives analysis.

REFERENCES

1. ODOT Analysis Procedures Manual
2. Highway Safety Manual
3. NCHRP Report 641 *Guidance for the Design and Application of Shoulder and Centerline Rumble Strips*

MAP ATLAS

Figure 1	Study Area
Figure 2	Existing Housing Density
Figure 3	Existing Zoning
Figure 4	Activity Centers
Figure 5	Roadway Jurisdiction
Figure 6	Roadway Pavement Conditions
Figure 7	Roadway Functional Classification
Figure 8	Speed Limits
Figure 9	Pavement Width
Figure 10	Roadway Intersections
Figure 11	Existing Traffic Volumes
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Figure 13	Bridge Locations
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Figure 15	Bicycle Facilities
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Figure 17	Truck Routes
Figure 18	Change in Employees by TAZ – 2010 to 2040
Figure 19	Change in Households by TAZ – 2010 to 2040
Figure 20	Planned Projects
Figure 21	Bicycle Master Plan

Appendix 1 Map Atlas

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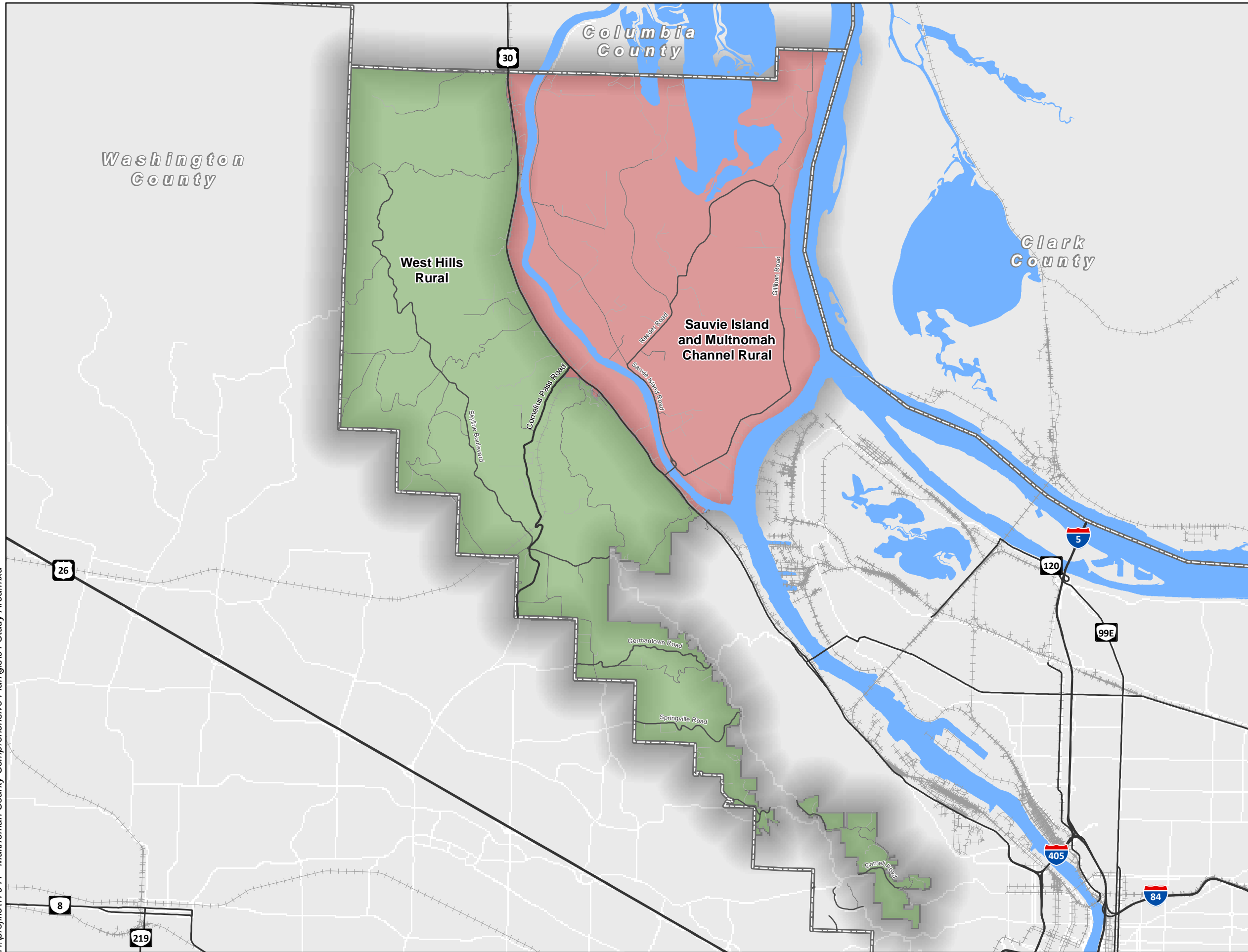


Figure 1A
Study Area

- Plan Areas**
-  Sauvie Island and Multnomah Channel Rural
 -  West Hills Rural
 -  County Boundaries

0 0.5 1 2 Miles

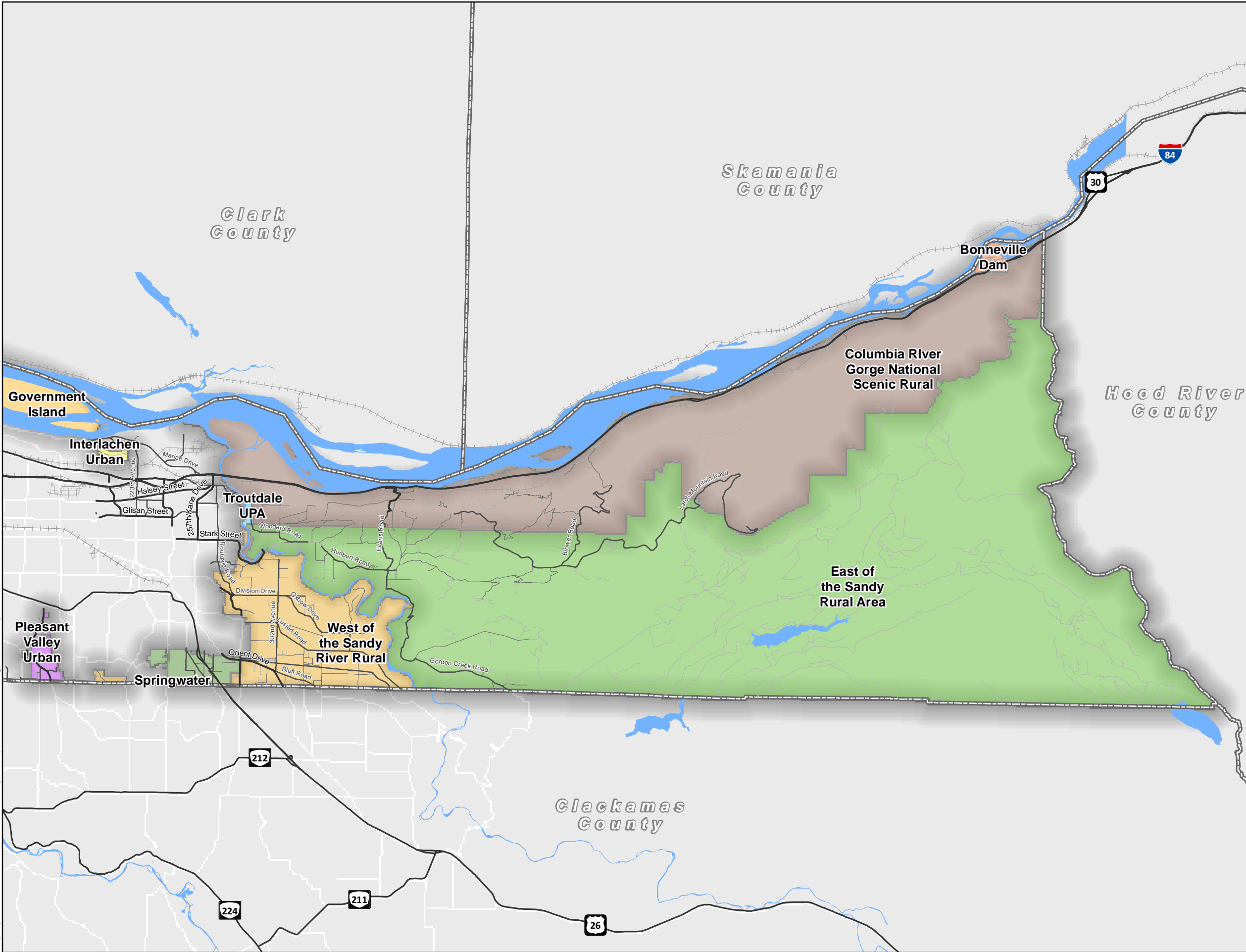


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Comprehensive Plan

Figure 1B

Study Area

Plan Areas

- Bonneville Dam
- Columbia River Gorge National Scenic Rural Area
- East of Sandy Rural Area
- Government Island
- Interlachen Urban
- Pleasant Valley Urban
- Springwater
- Troutdale UPA
- West of the Sandy River Rural
- County Boundaries

0 1 2 4 Miles

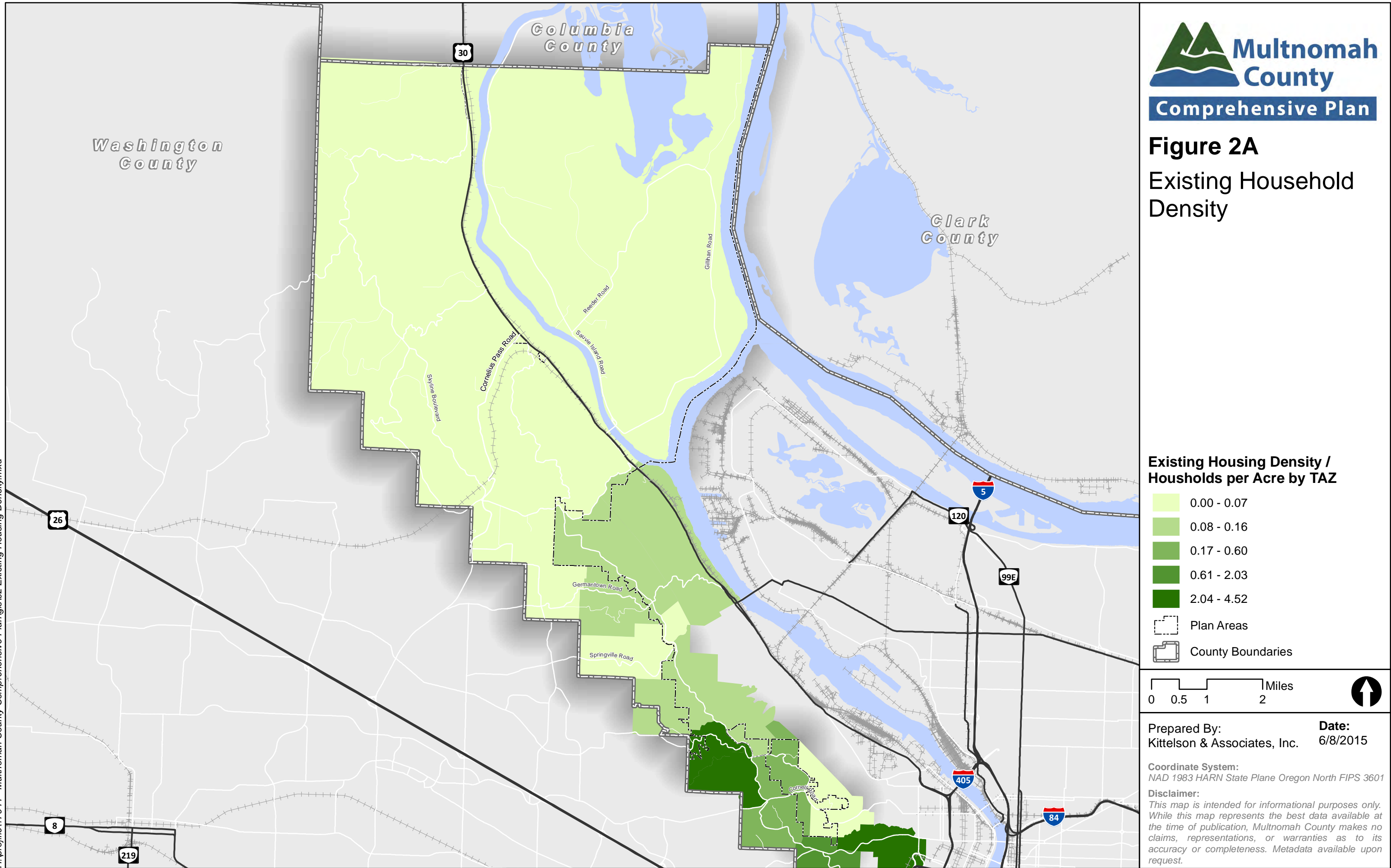


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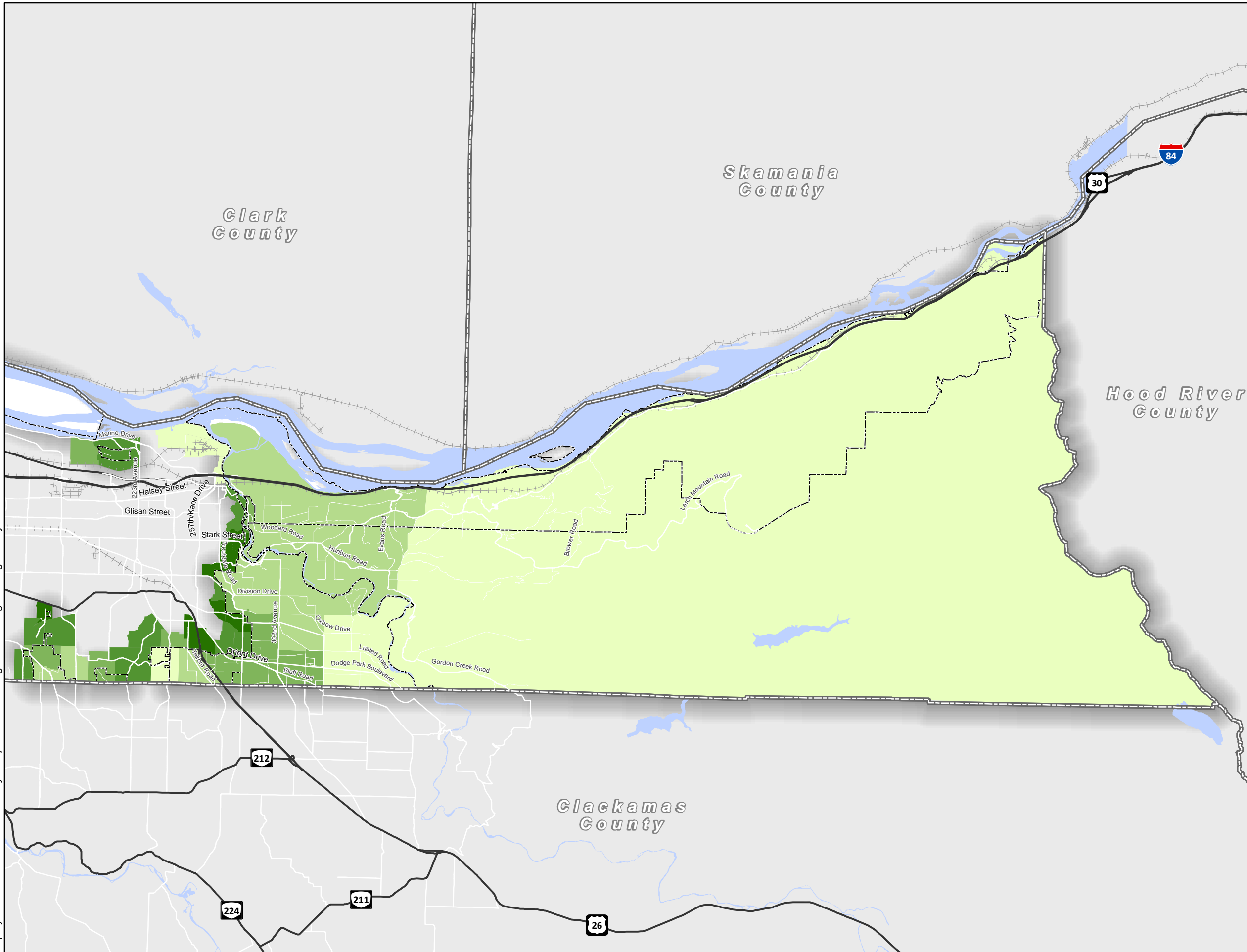
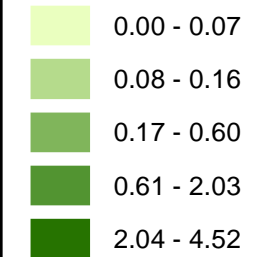




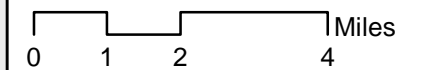
Figure 2B

Existing Household Density

Existing Housing Density / Households per Acre by TAZ



-  Plan Areas
-  County Boundaries

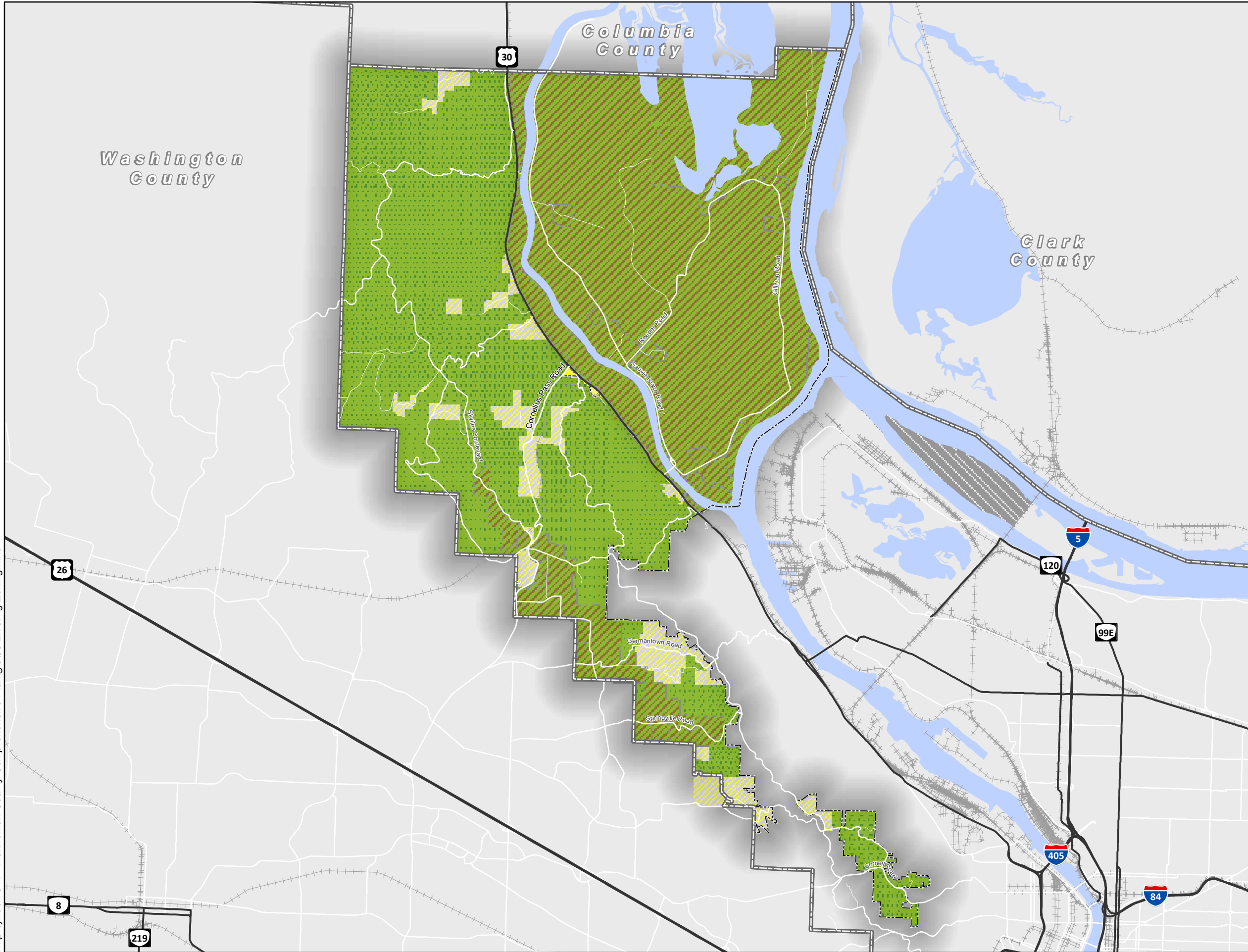


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Comprehensive Plan

Figure 3A
Existing Zoning

Zoning

- Rural Residential
- Rural Center Residential
- Farm Use Areas
- Forest Use Areas
- Portland Zoning Management
- Rural Plan Areas
- County Boundaries

0 0.5 1 2 Miles

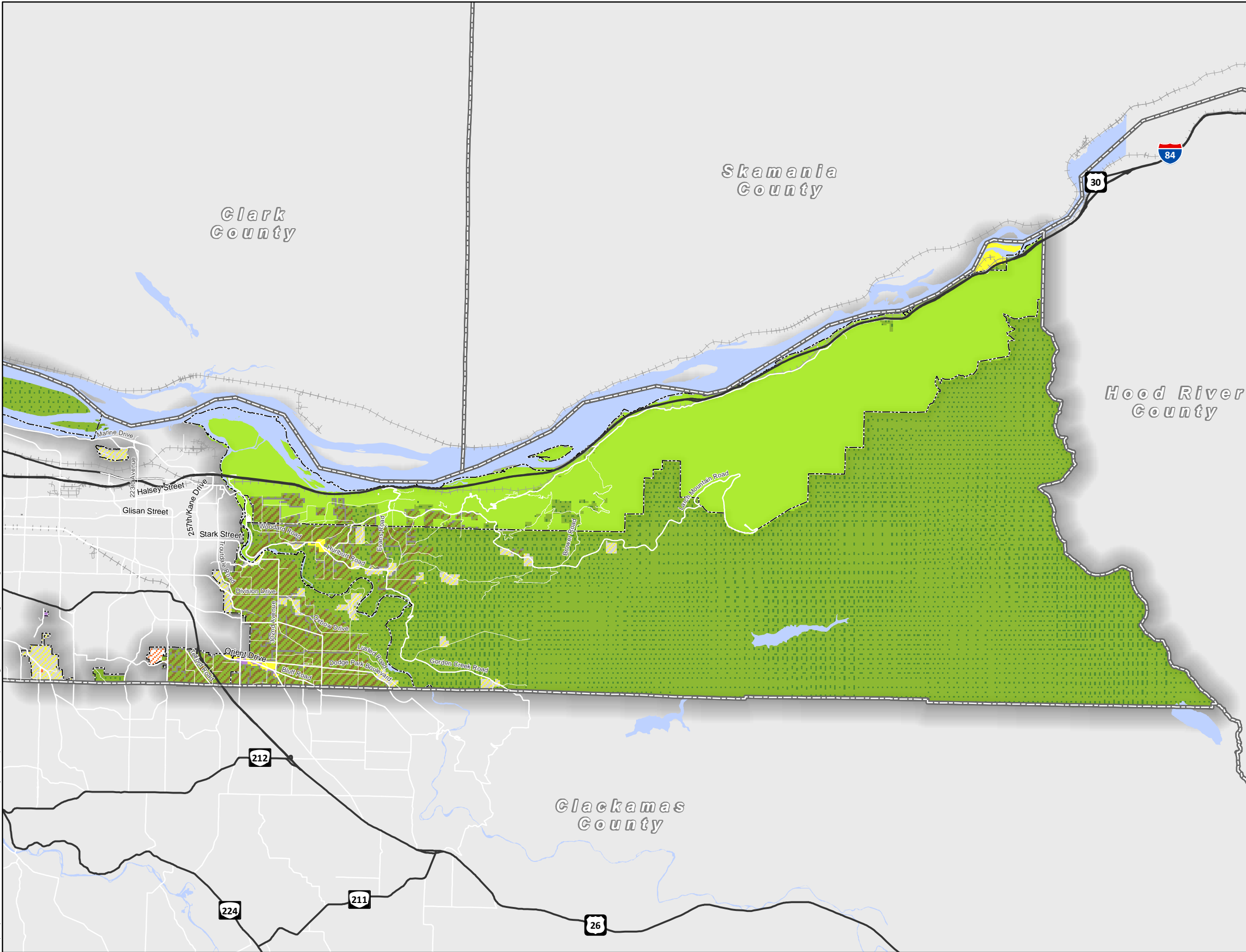


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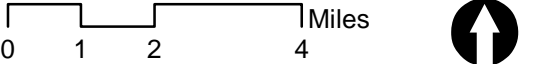
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Comprehensive Plan

Figure 3B
Existing Zoning

- Zoning**
- Urban Future District
 - Rural Residential
 - Retail Commercial
 - Rural Center Residential
 - Industrial, Manufacturing
 - Farm Use Areas
 - Forest Use Areas
 - Columbia River Gorge NSA General Management Area
 - Gresham Zoning Management
 - Rural Plan Areas
 - County Boundaries

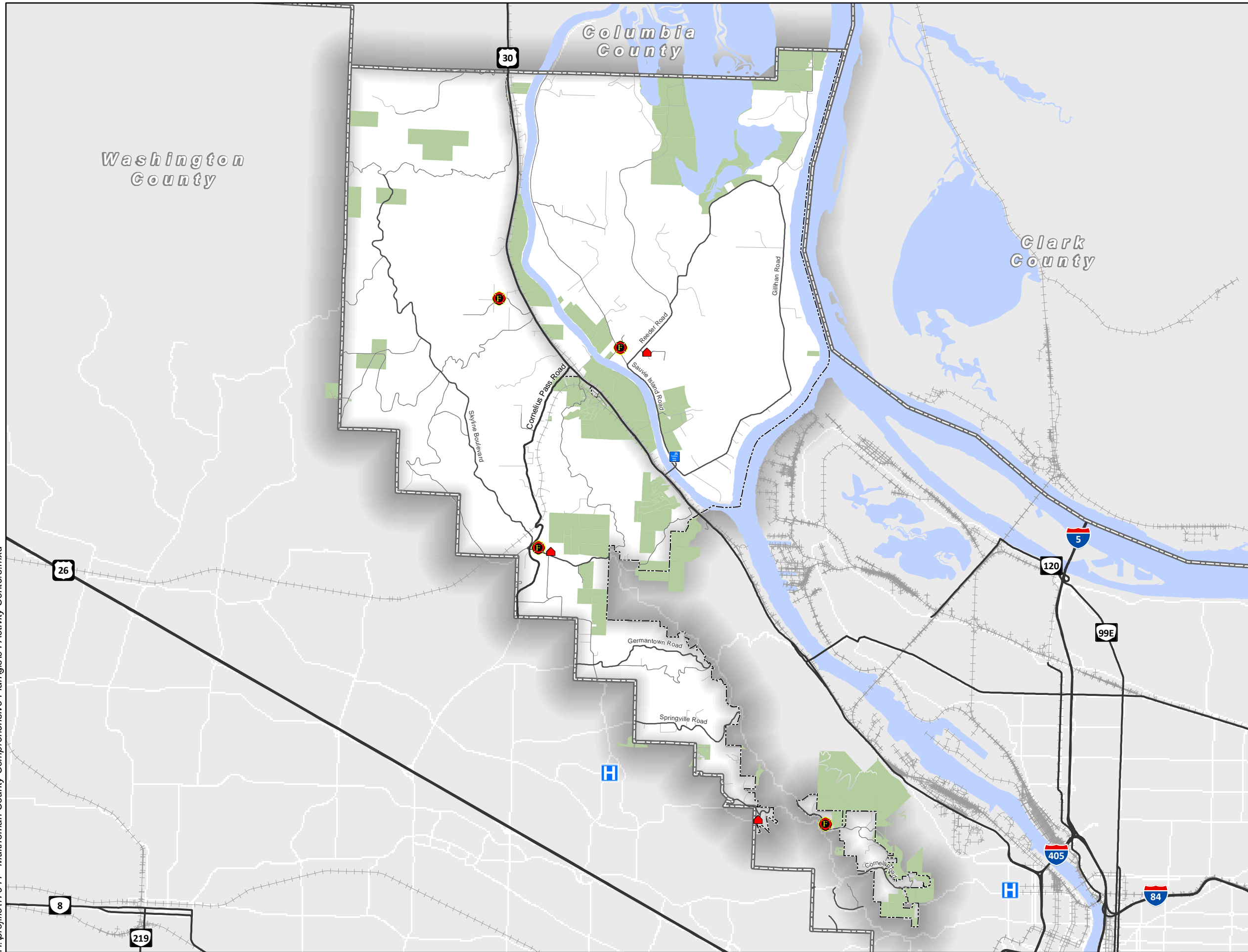


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

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Comprehensive Plan

Figure 4A
Activity Centers

Activity Centers

-  Hospital
-  School
-  Park N' Ride
-  Fire Station
-  Public Lands
-  Plan Areas
-  County Boundaries

0 0.5 1 2 Miles



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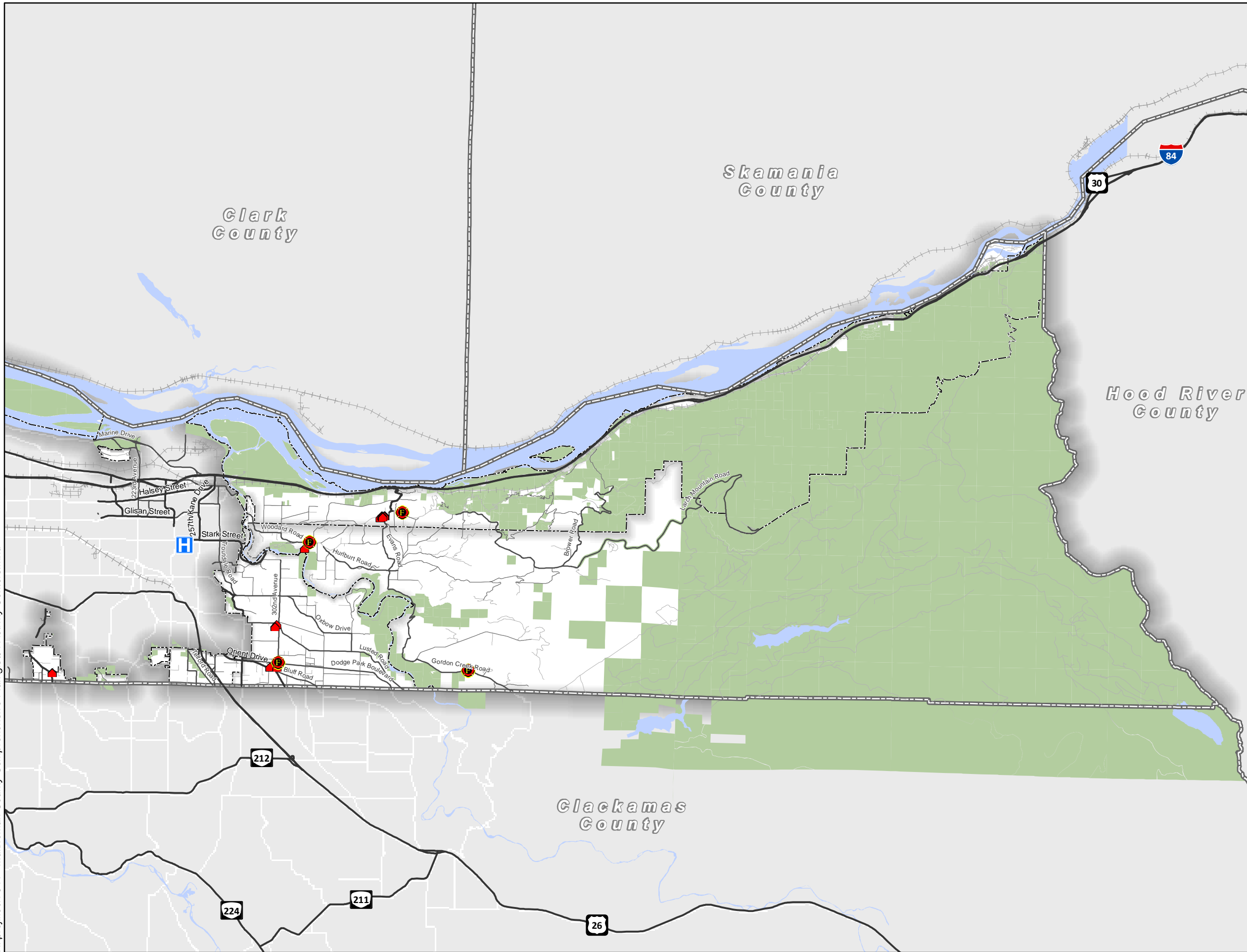









Figure 4B

Activity Centers

Activity Centers

-  Hospital
-  School
-  Park N' Ride
-  Fire Station
-  Public Lands
-  Plan Areas
-  County Boundaries

0 1 2 4 Miles

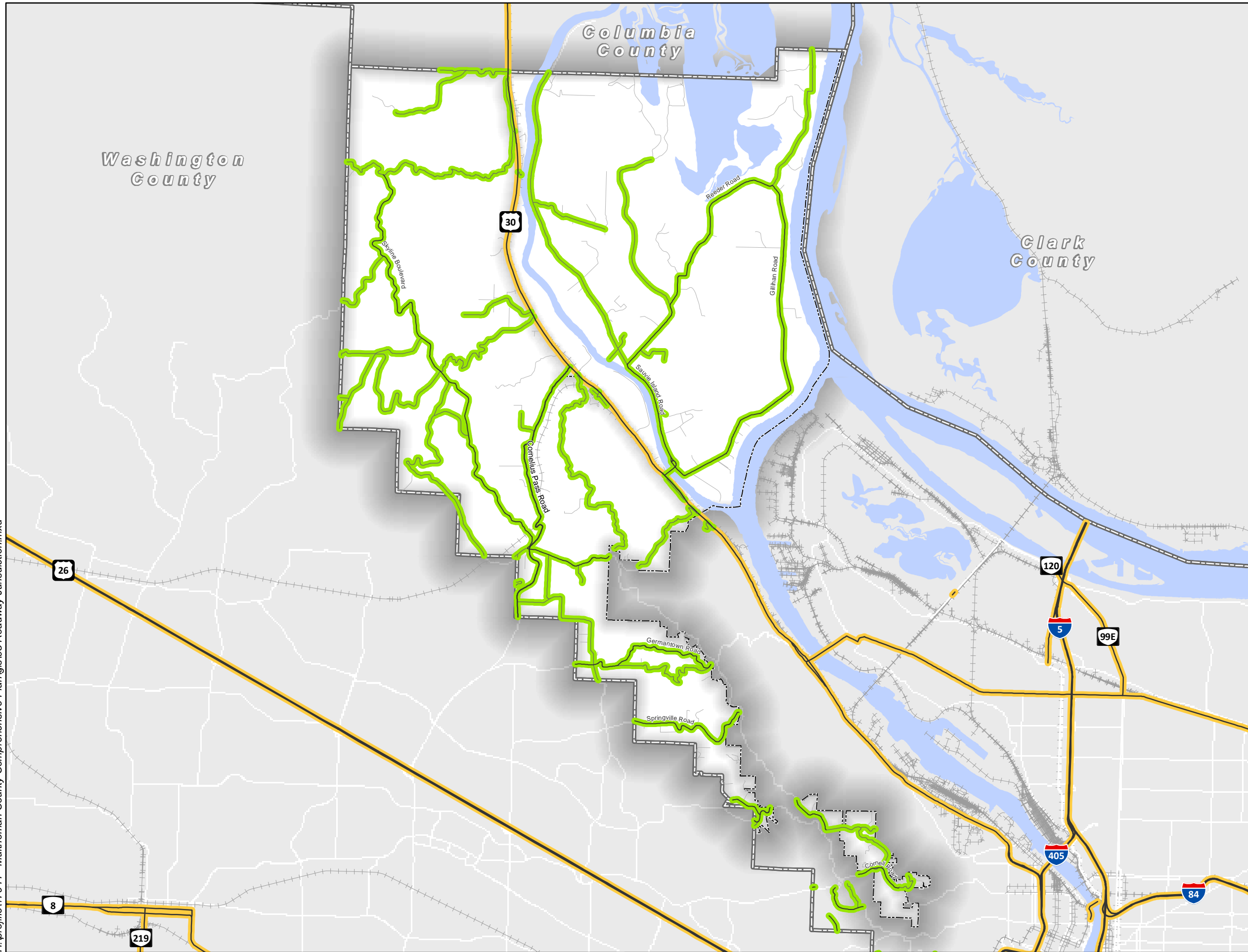


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Comprehensive Plan


Figure 5A
Roadway Jurisdiction

 Multnomah County Roadways

 ODOT Roadways

 Local Roads (not maintained by county)

 Plan Areas

 County Boundaries

0 0.5 1 2 Miles



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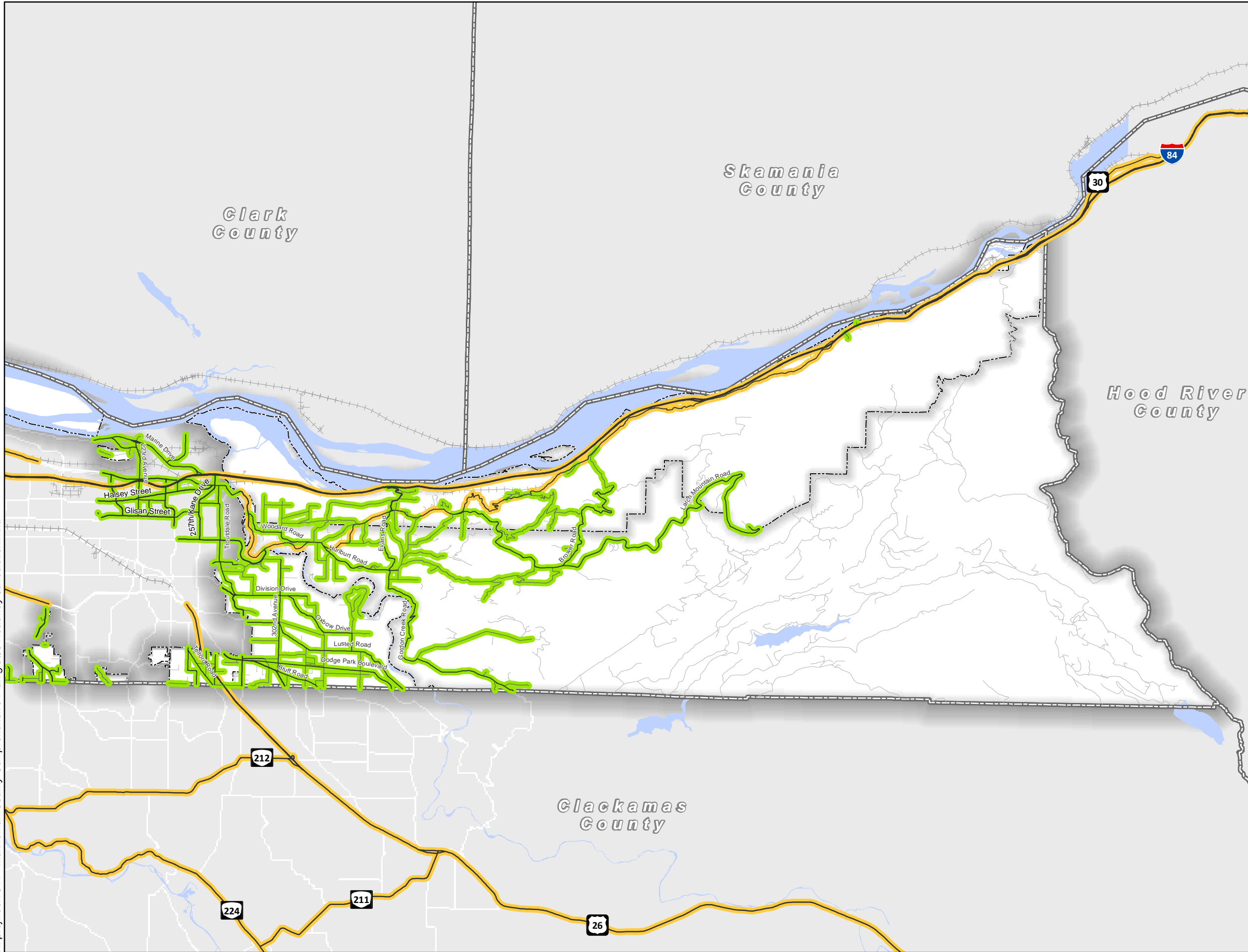







Figure 5B
Roadway Jurisdiction

-  Multnomah County Roadways
-  ODOT Roadways
-  Local Roads (not maintained by county)
-  Plan Areas
-  County Boundaries

0 1 2 4 Miles

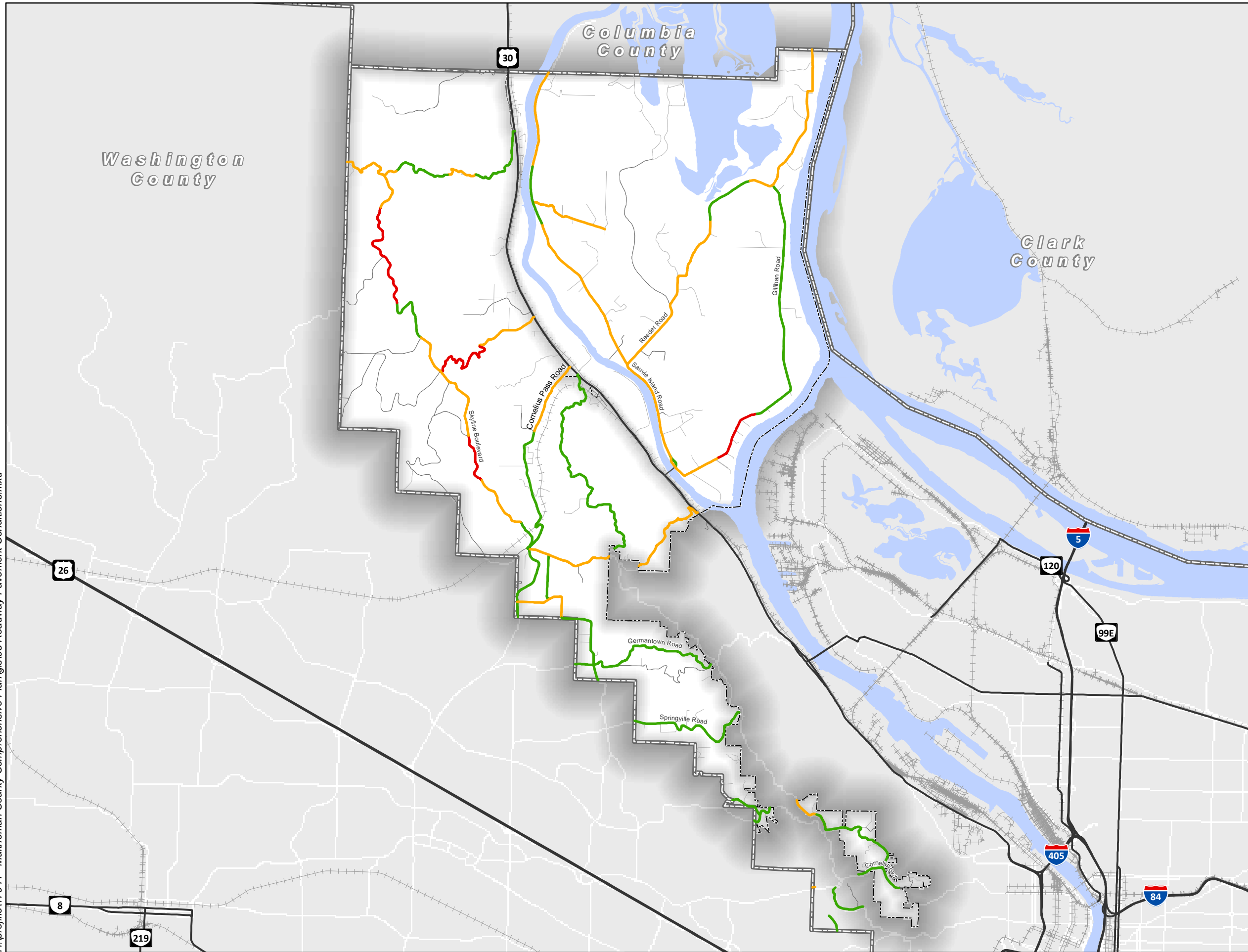


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Comprehensive Plan

Figure 6A Roadway Pavement Conditions

Current Pavement Conditions Index

- <50 (does not meet county standard)
- 50 - 70 (acceptable for rural roads)
- >70 (meets county standard)

- Plan Areas
- County Boundaries

0 0.5 1 2 Miles



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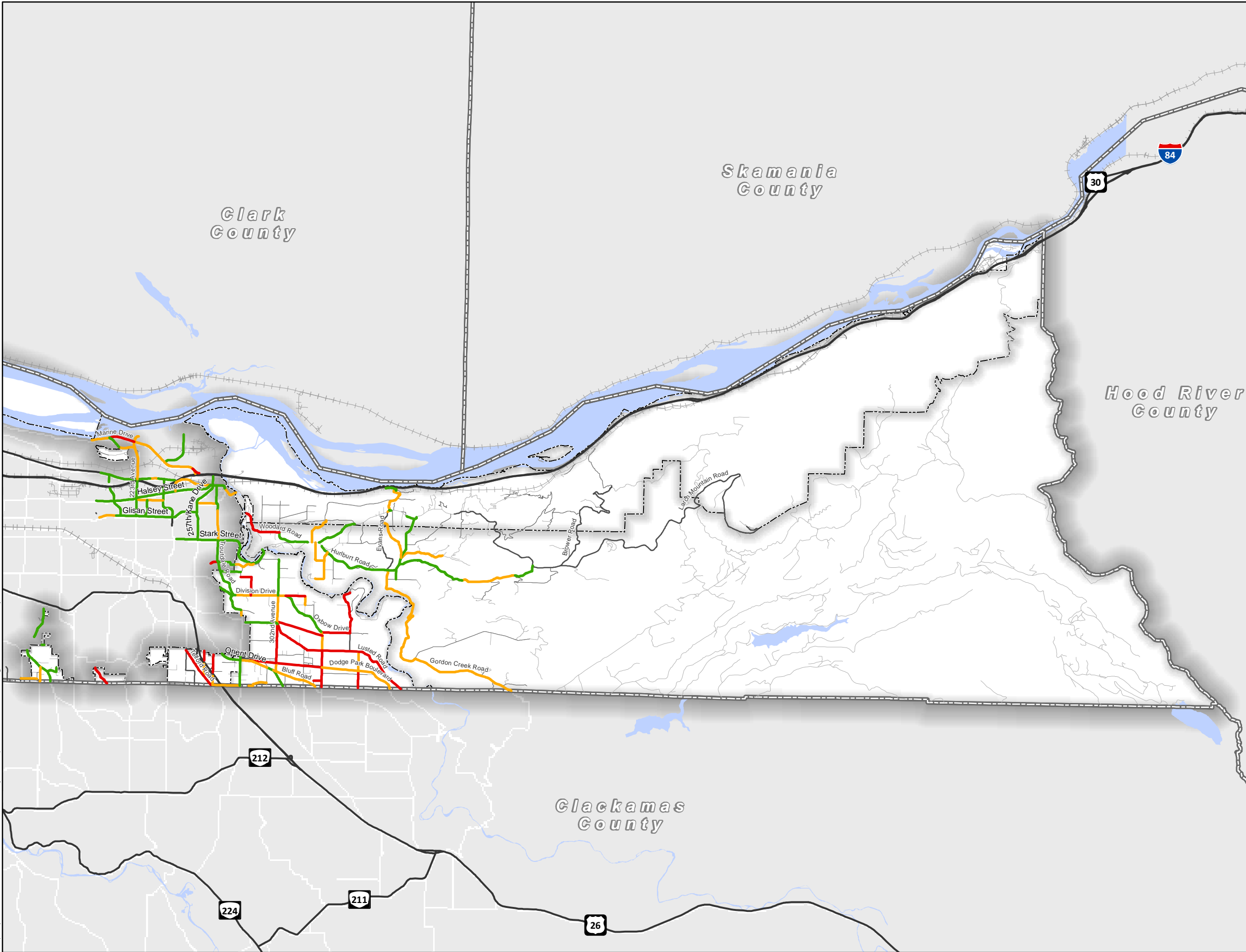





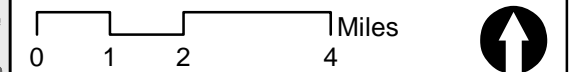


Figure 6B
Roadway Pavement Conditions

Current Pavement Conditions Index

-  <50 (does not meet county standard)
-  50 - 70 (acceptable for rural roads)
-  >70 (meets county standard)

-  Plan Areas
-  County Boundaries

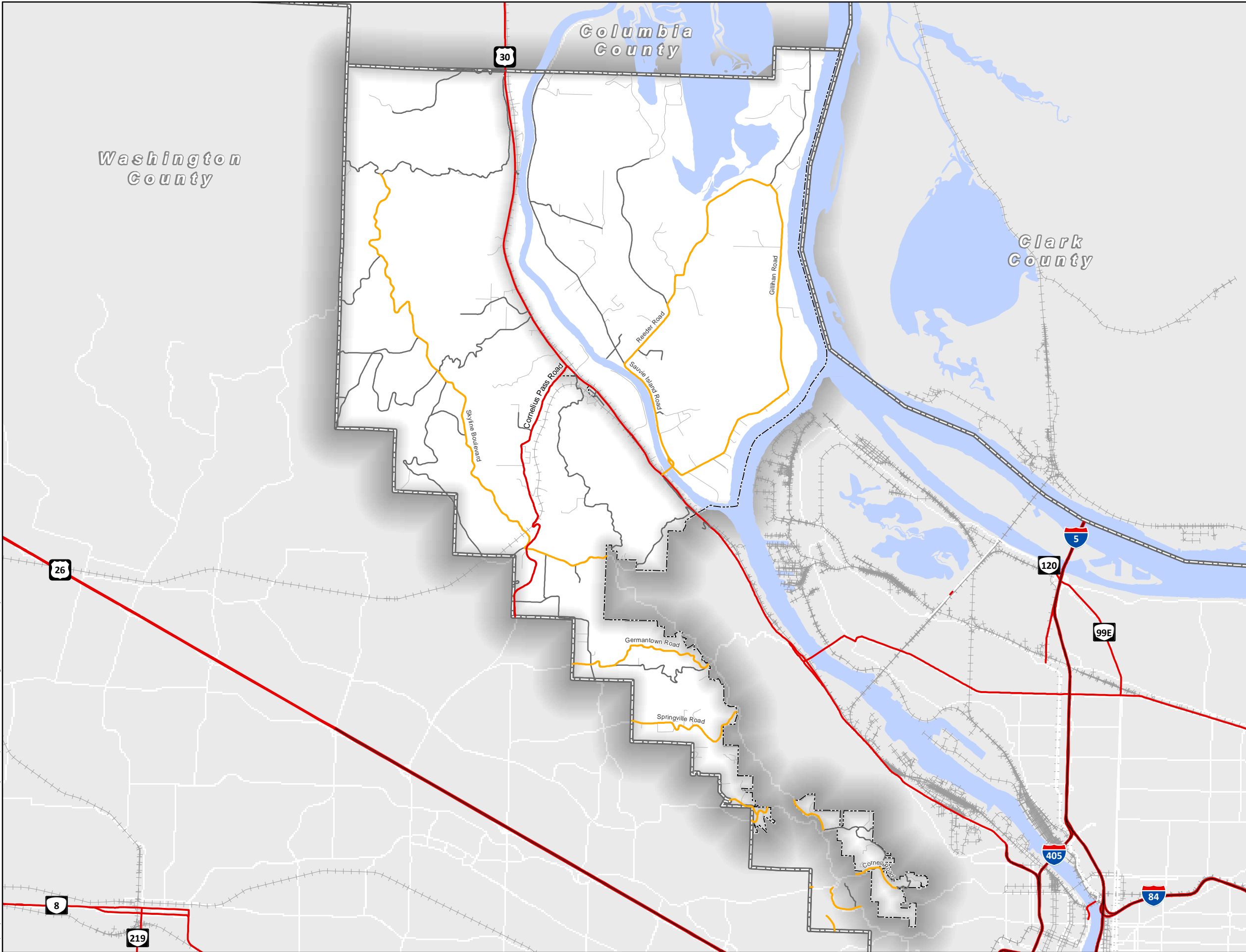


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Comprehensive Plan

Figure 7A
Roadway Functional
Classifications

Roadway Functional Classification (MultCo)

- Interstate / Expressway
- Arterials
- Collectors
- Local
- Local (not maintained by county)
- Railroad (ODOT)
- Plan Areas
- County Boundaries

0 0.5 1 2 Miles

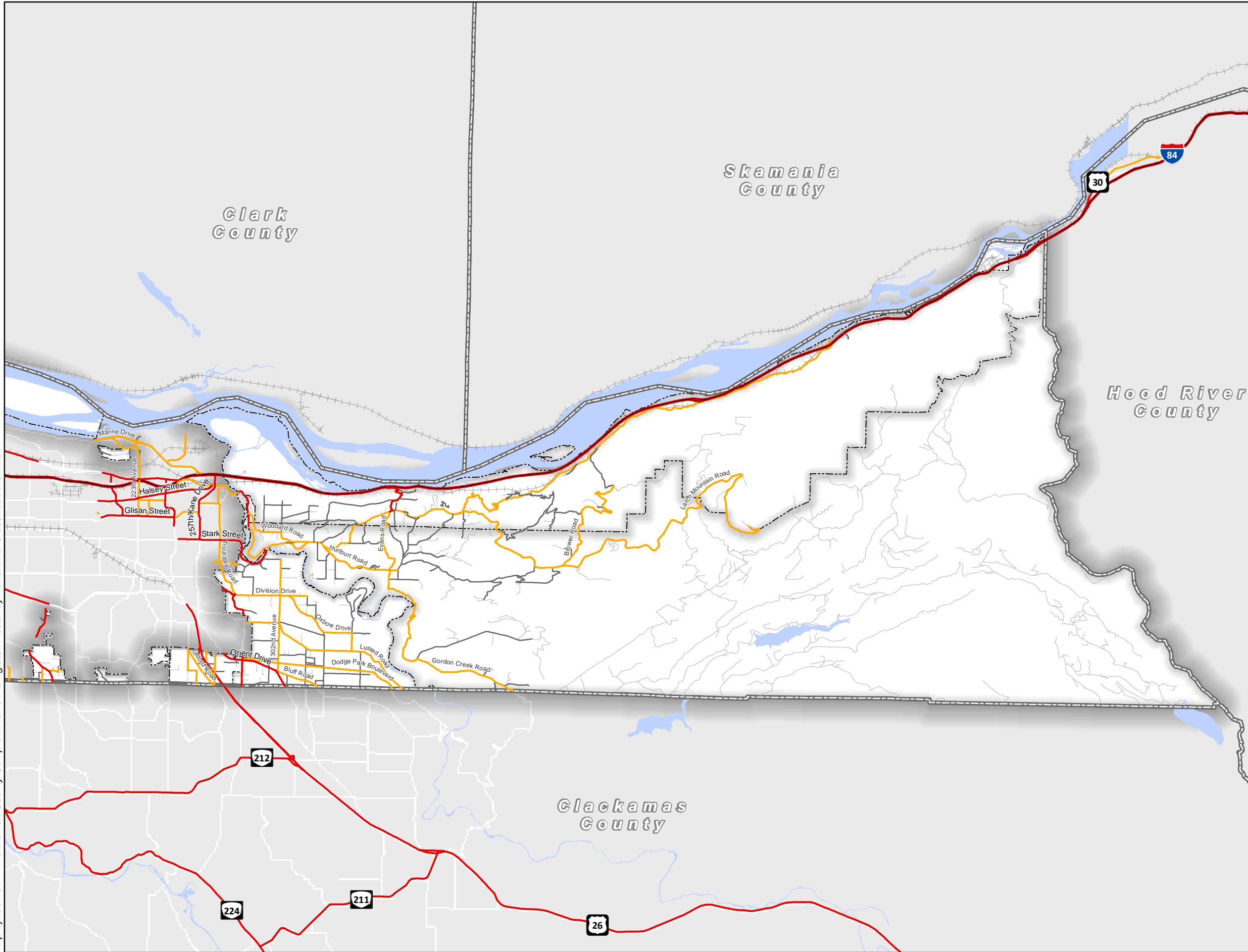


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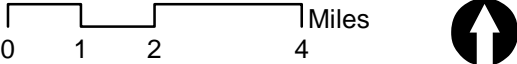


Comprehensive Plan

Figure 7B
Roadway Functional
Classifications

Roadway Functional
Classification (MultCo)

- Interstate / Expressway
- Arterials
- Collectors
- Local
- Local (not maintained by county)
- Railroad (ODOT)
- Plan Areas
- County Boundaries

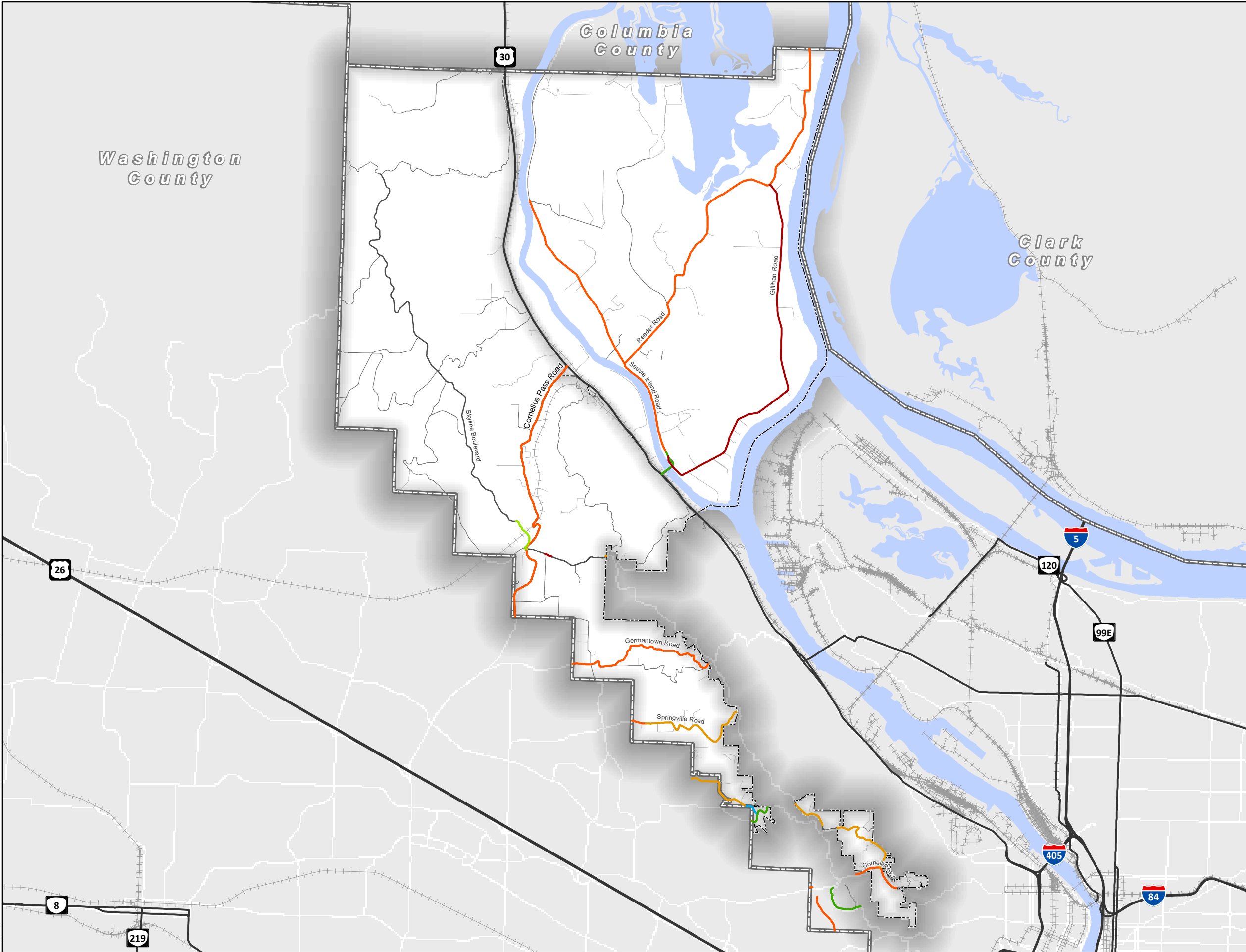


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Comprehensive Plan

Figure 8A Speed Zones

Speed Zones MPH

- 20
- 25
- 30
- 35
- 40
- 45
- 55

Plan Areas

County Boundaries

0 0.5 1 2 Miles



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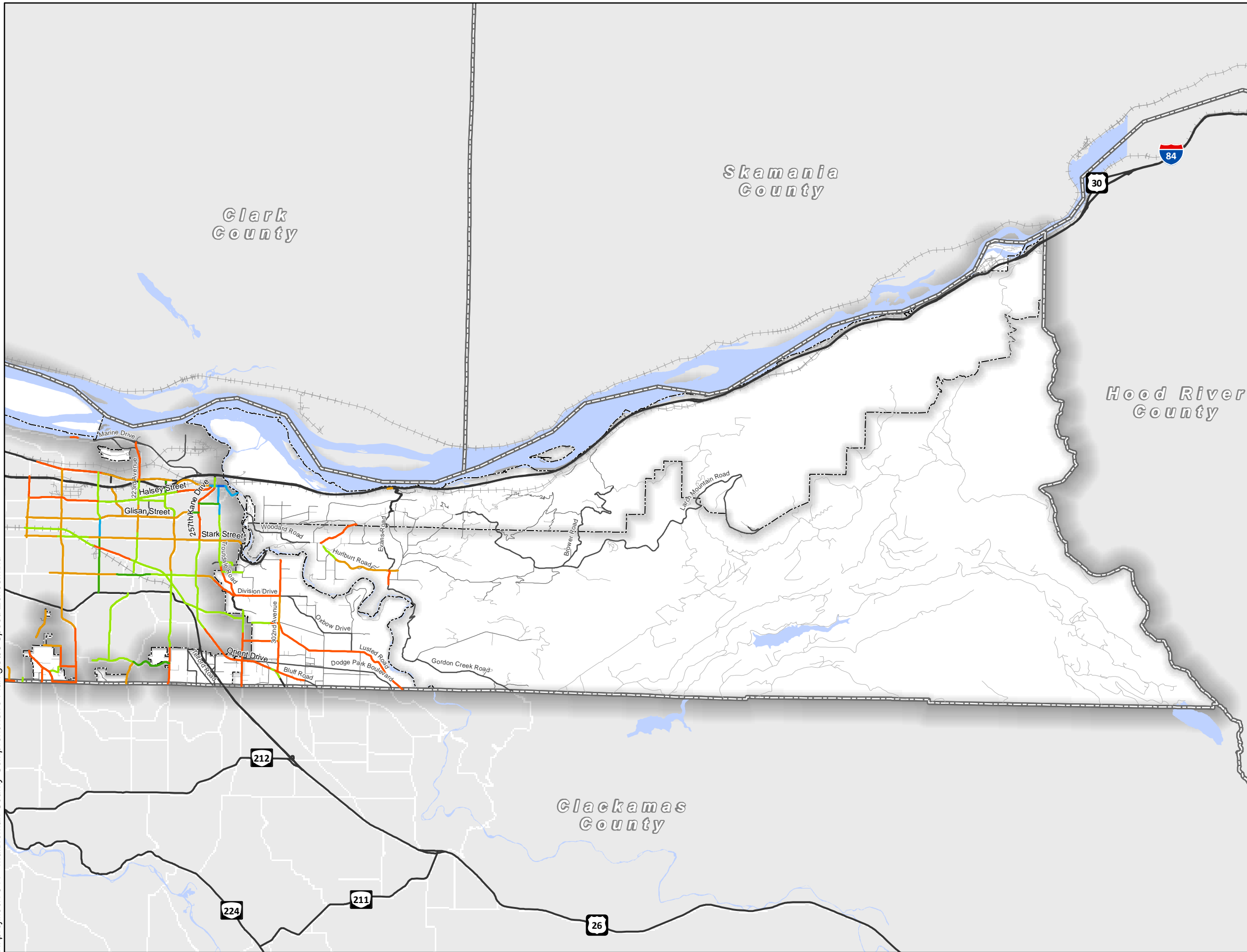
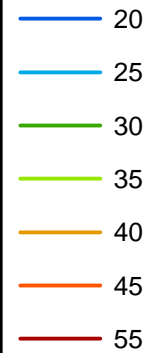


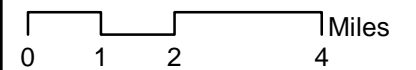


Figure 8B
Speed Zones

Speed Zones MPH



-  Plan Areas
 County Boundaries

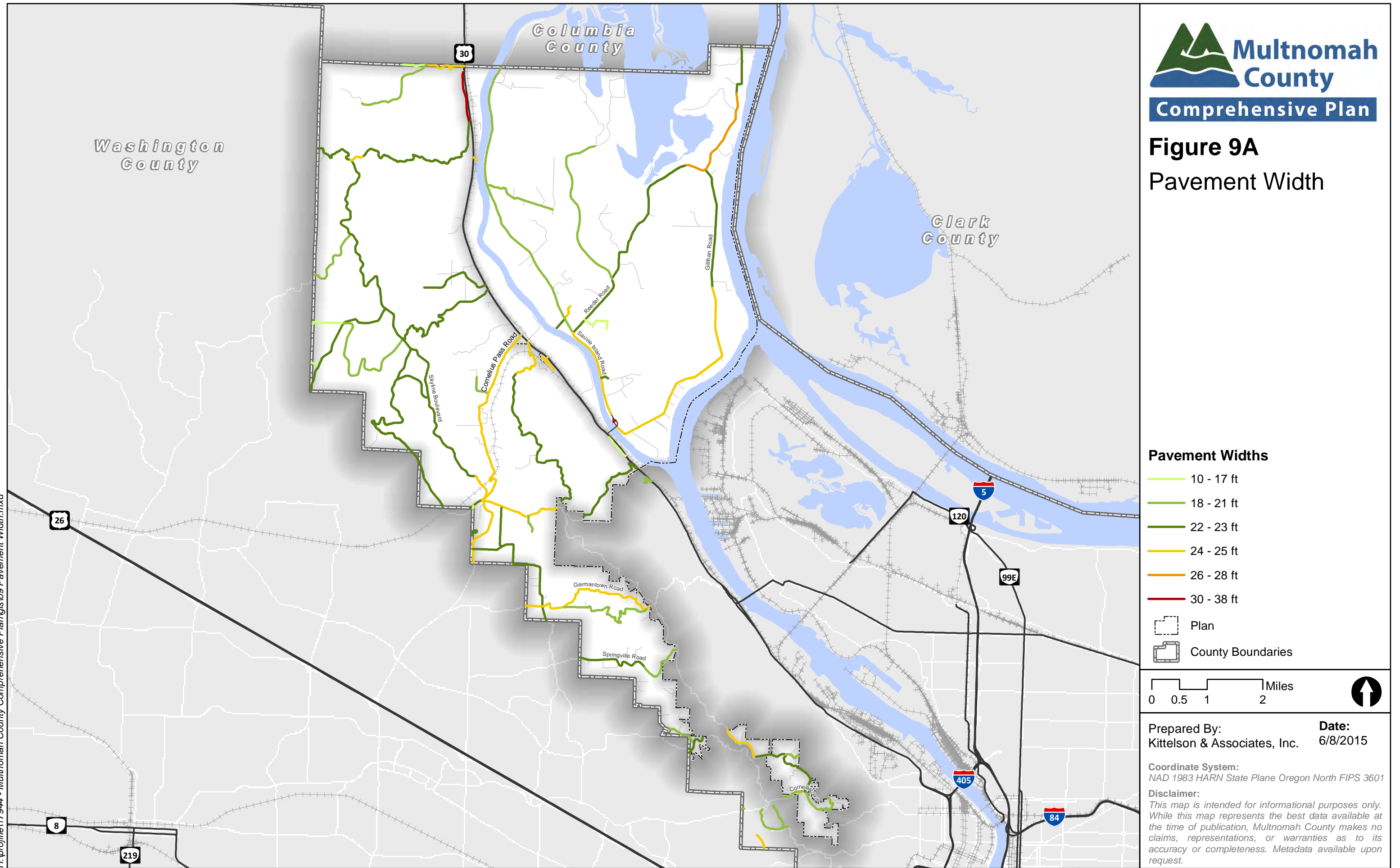


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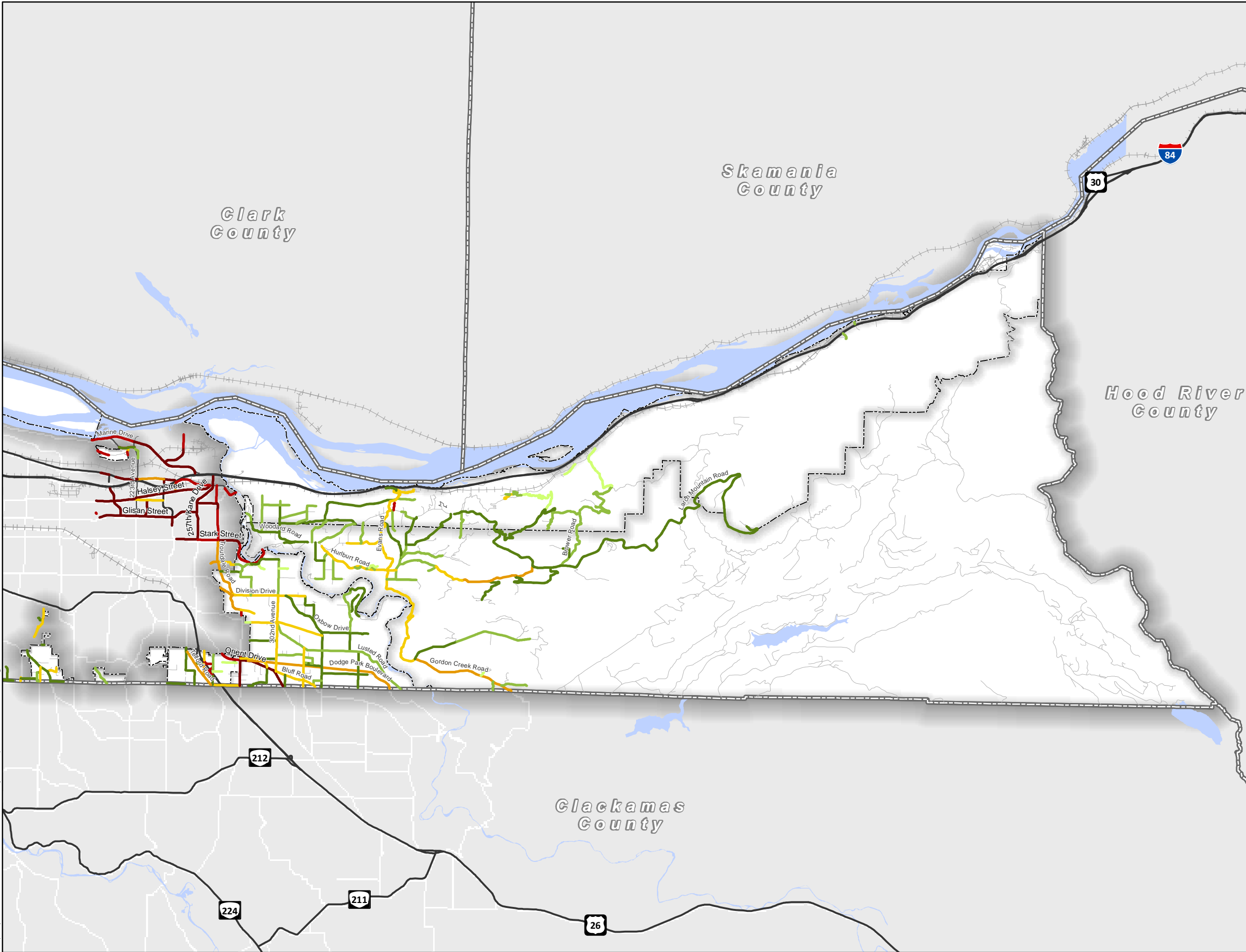
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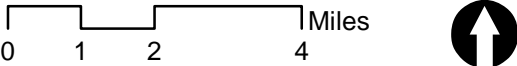
Comprehensive Plan

Figure 9B
Pavement Width

Pavement Widths

- 10 - 17 ft
- 18 - 21 ft
- 22 - 23 ft
- 24 - 25 ft
- 26 - 28 ft
- 30 - 38 ft
- >39 ft

- Plan
- County Boundaries

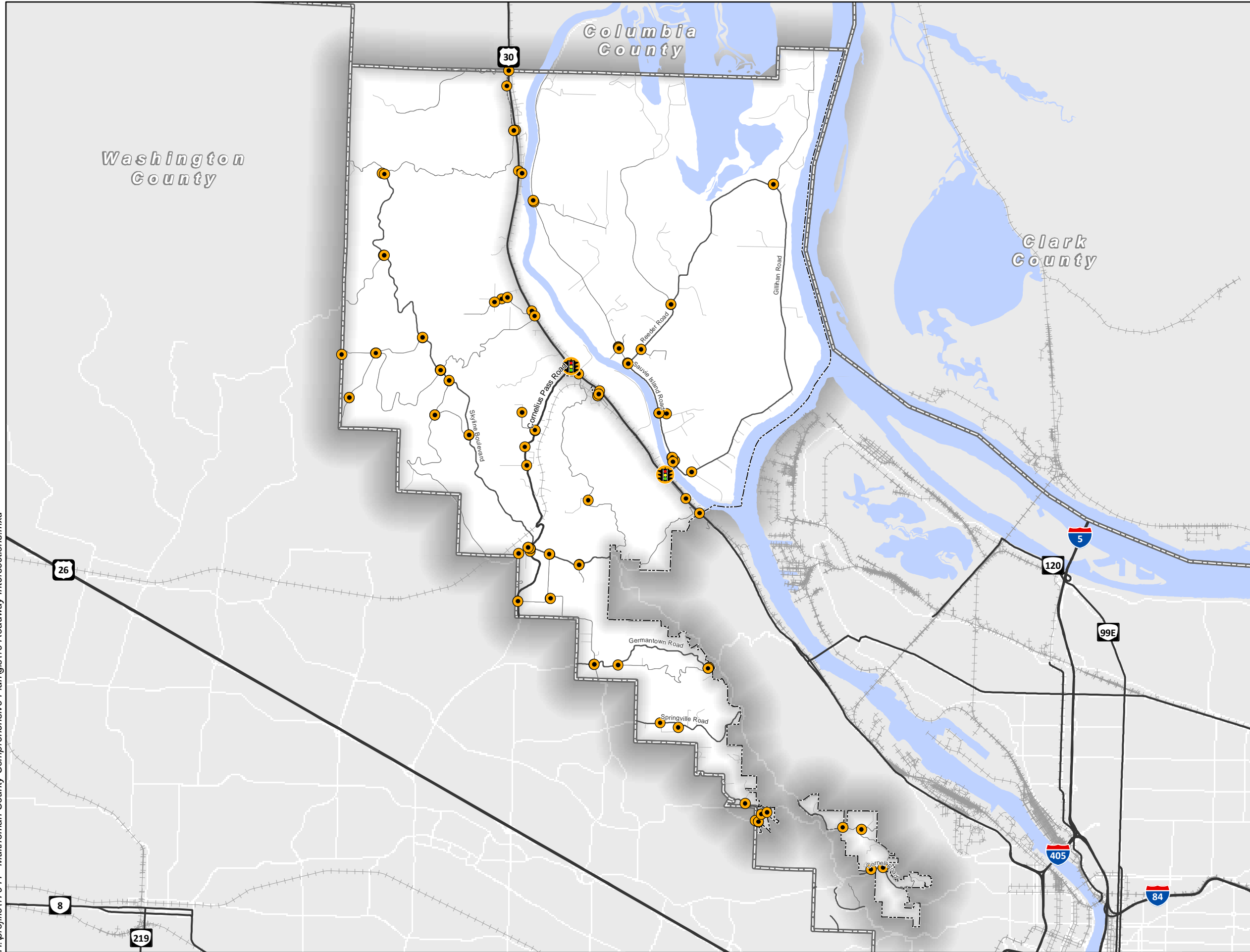


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Comprehensive Plan

Figure 10A
Roadway
Intersections

- Signalized Intersection
- Non-Signalized Intersection
- Rural Plan Areas
- County Boundaries

0 0.5 1 2 Miles

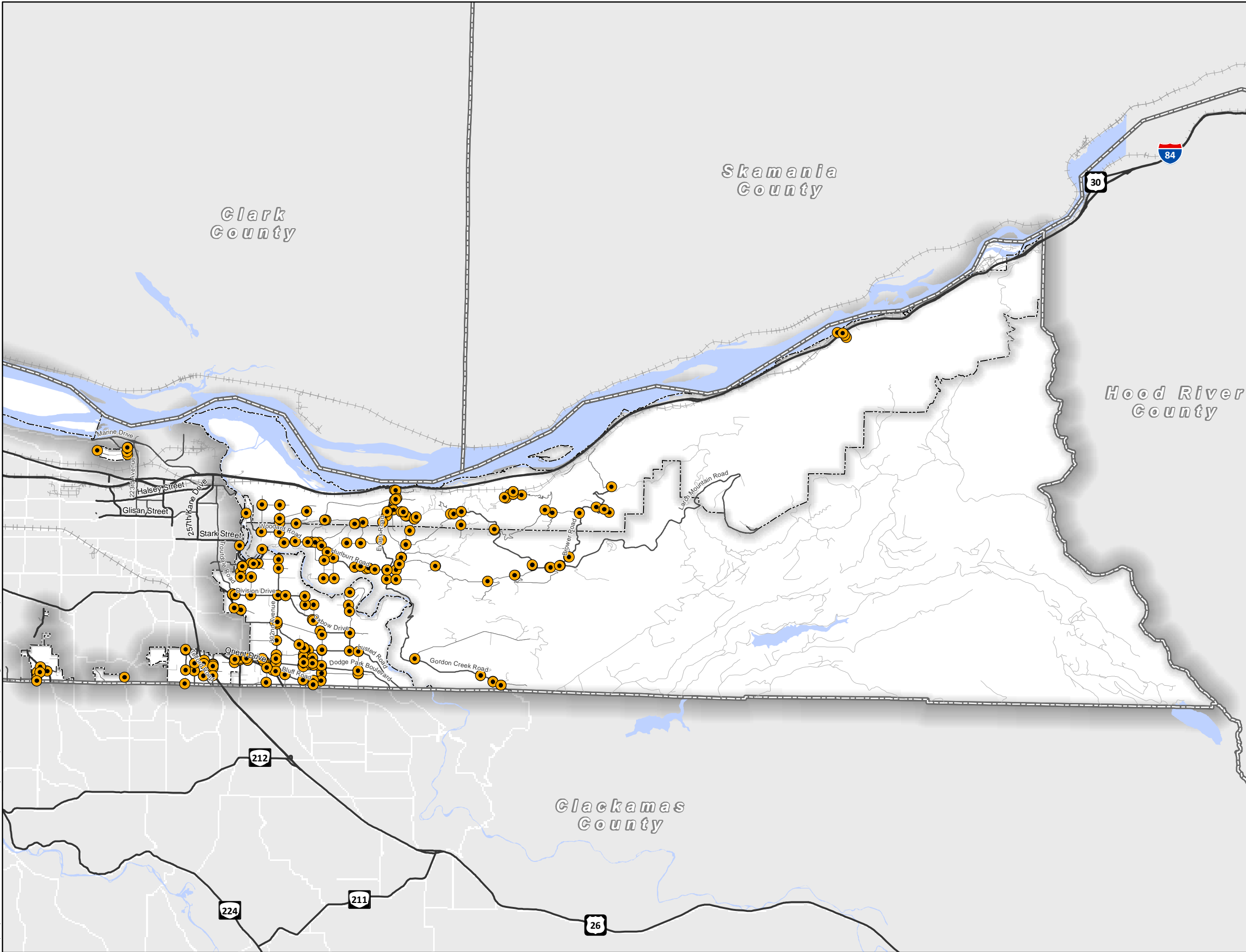


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Comprehensive Plan

Figure 10B
Roadway
Intersections

-  Non-Signalized Intersection
-  Rural Plan Areas
-  County Boundaries

0 1 2 4 Miles

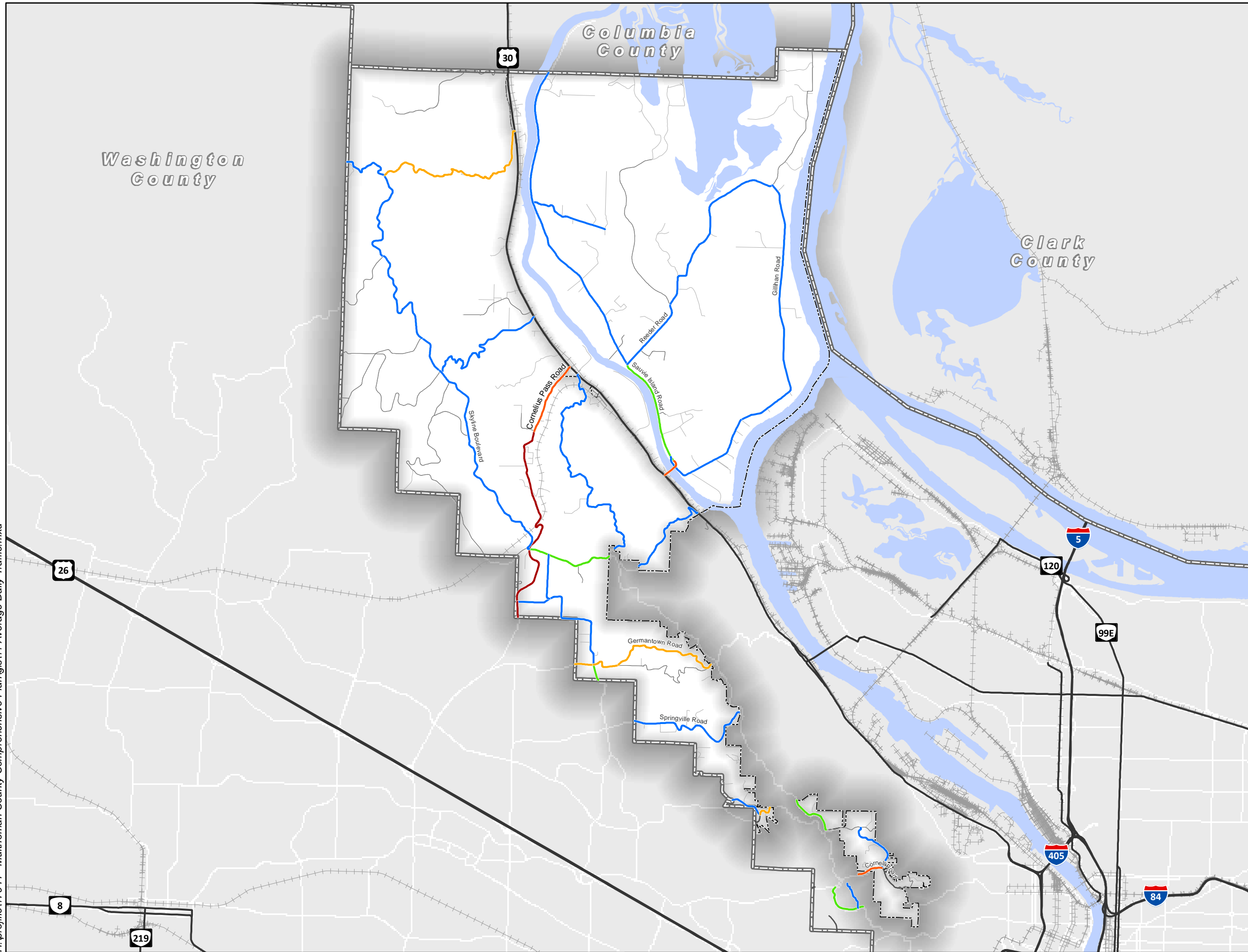


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H:\profile\17944 - Multnomah County Comprehensive Plan\gis\11 Average Daily Traffic.mxd



Comprehensive Plan

Figure 11A Average Daily Traffic

Average Daily Traffic (records from 2006 to 2014)

- <1,500
- 1,500 - 3,000
- 3,001 - 5,000
- 5,001 - 10,000
- >10,000

- Plan Areas
- County Boundaries

0 0.5 1 2 Miles

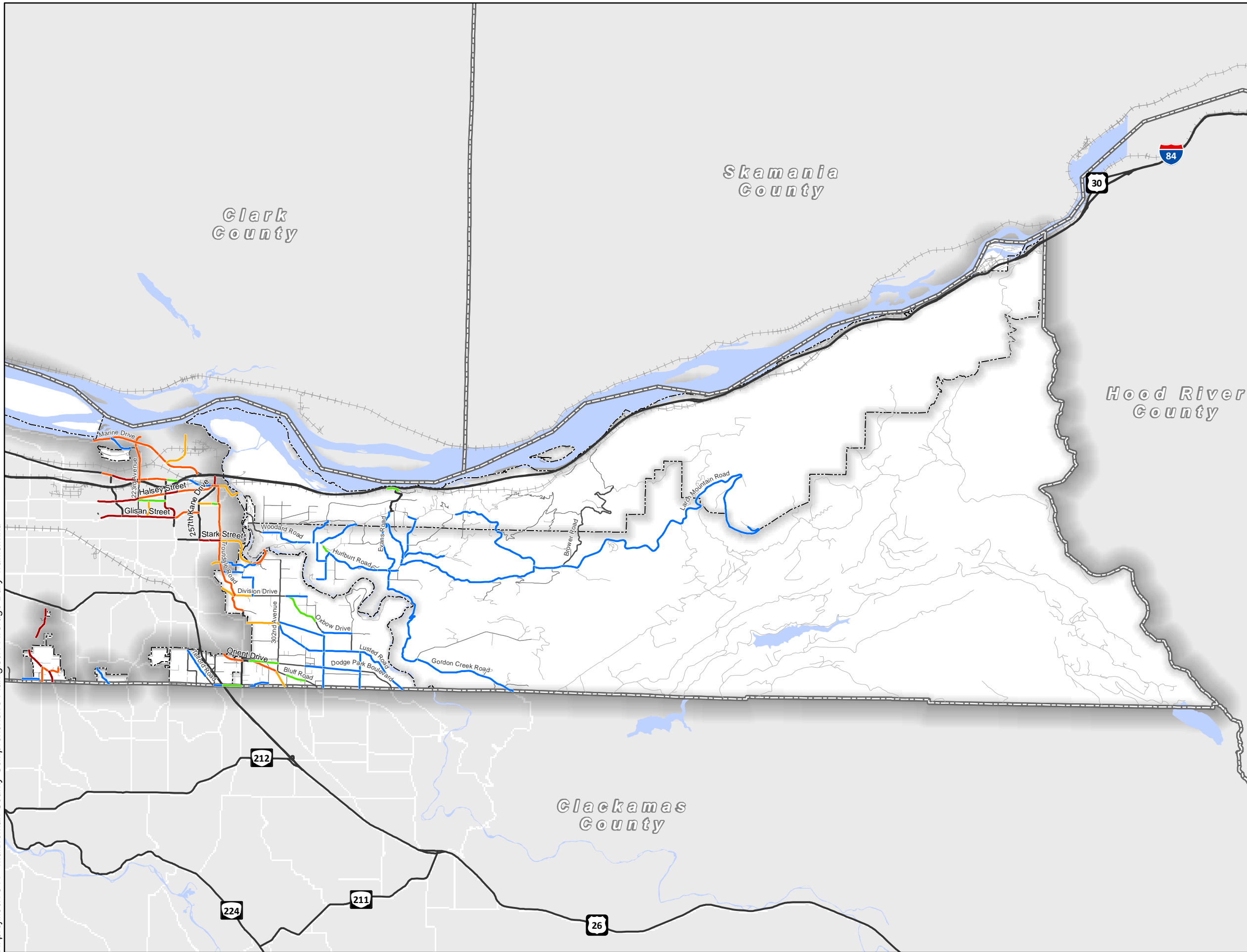


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H:\profile\17944 - Multnomah County Comprehensive Plan\gis\11 Average Daily Traffic.mxd



Comprehensive Plan

Figure 11B
Average Daily Traffic

Average Daily Traffic
(records from 2006 to 2014)

- <1,500
- 1,500 - 3,000
- 3,001 - 5,000
- 5,001 - 10,000
- >10,000

- Plan Areas
- County Boundaries

0 1 2 4 Miles

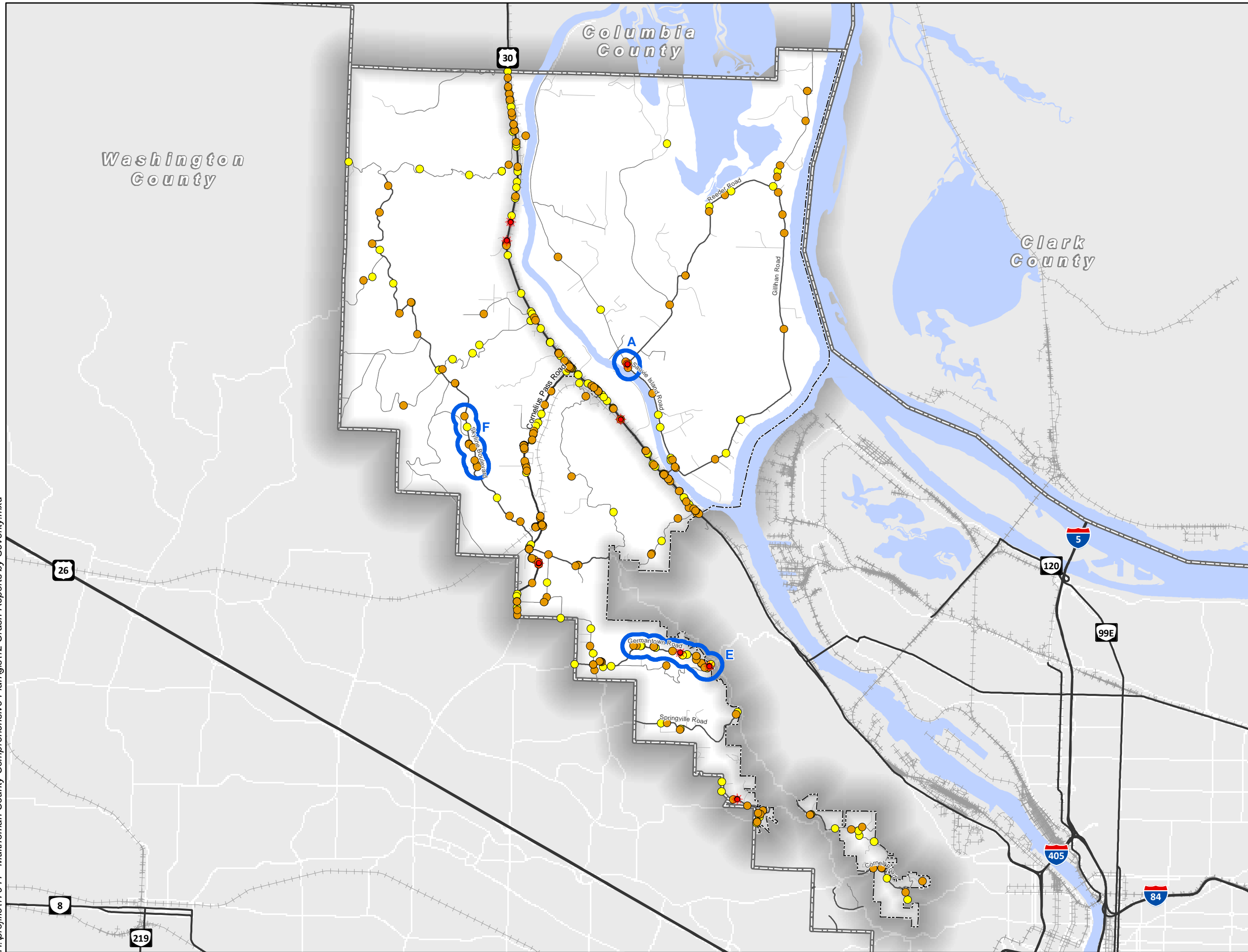


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H:\profile\17944 - Multnomah County Comprehensive Plan\gis\12 Crash Reports by Severity.mxd



Comprehensive Plan


Figure 12A
Crash Reports by
Severity

**Reported Crashes by Severity
from 1/1/2009 thru 1/3/2014**

-  Fatal crash
-  Non-fatal injury crash
-  Property damage only crash (PDO)

 Crash Analysis

 Plan Areas

 County Boundaries

0 0.5 1 2 Miles

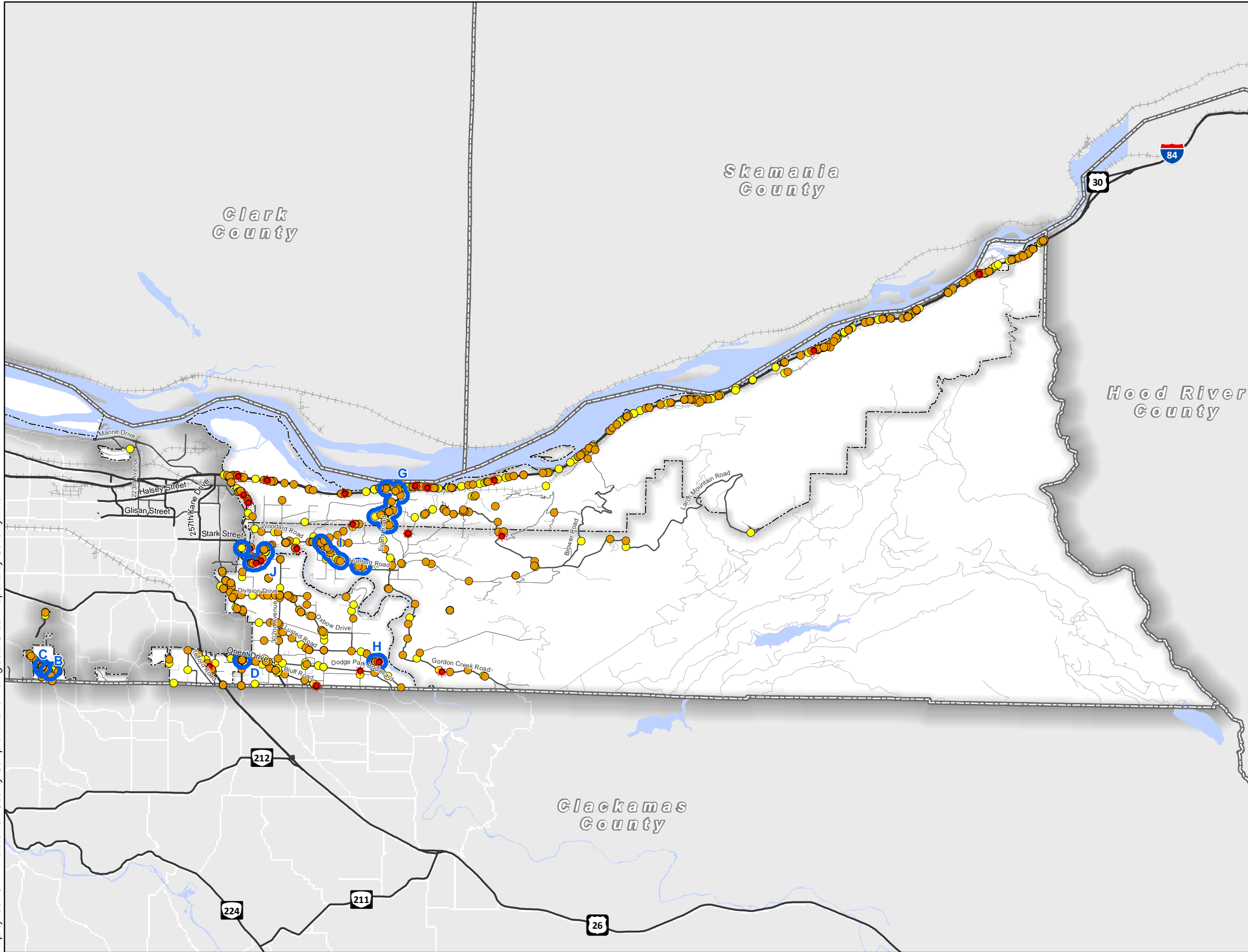


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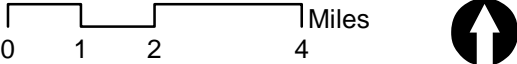


Comprehensive Plan

Figure 12B
Crash Reports by
Severity

**Reported Crashes by Severity
from 1/1/2009 thru 1/3/2014**

- Fatal crash
- Non-fatal injury crash
- Property damage only crash (PDO)
- Crash Analysis
- Plan Areas
- County Boundaries

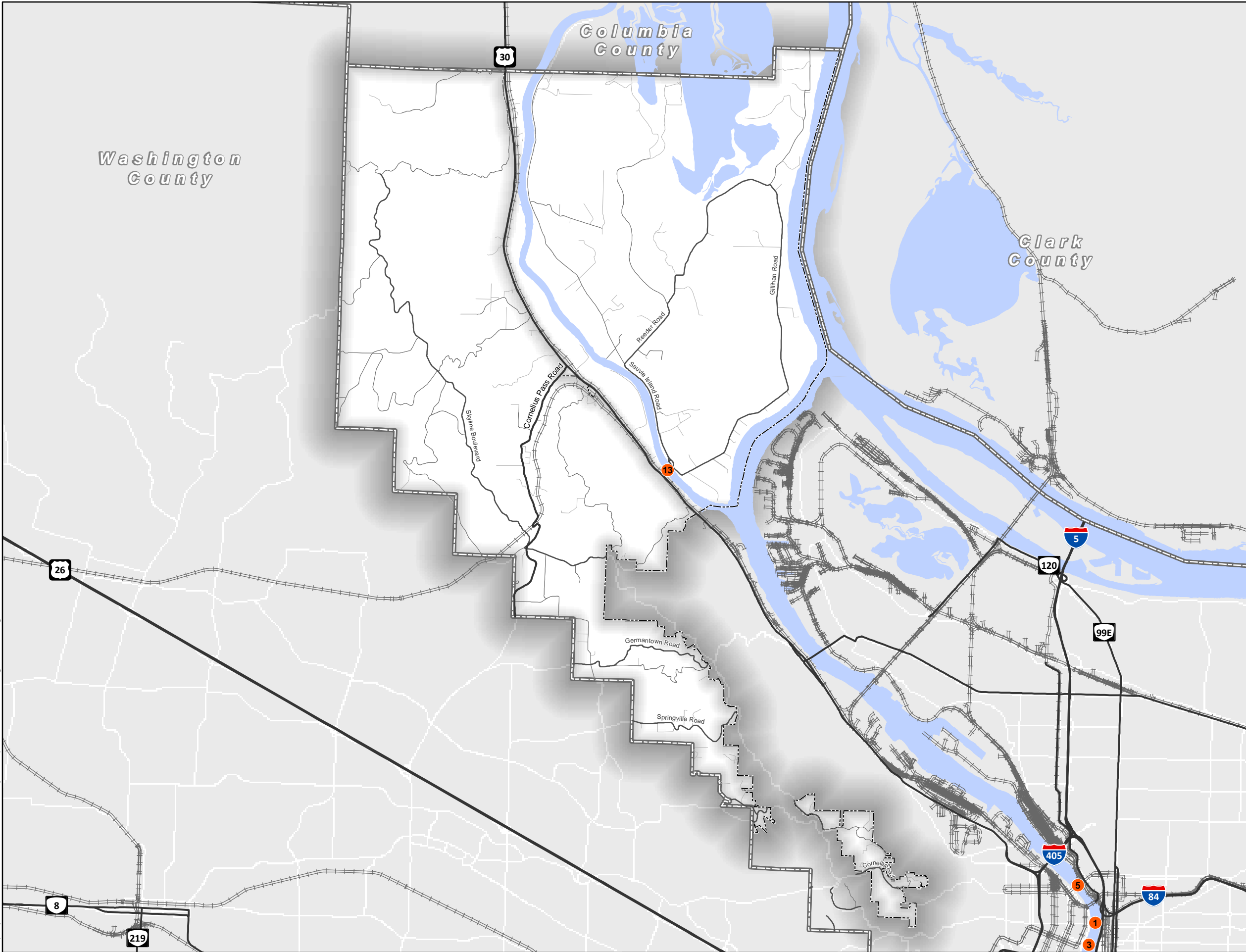


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H:\profile17944 - Multnomah County Comprehensive Plan\gis113 Bridge Locations.mxd



Comprehensive Plan

Figure 13A
Bridge Locations

- Bridge Locations
- Plan Areas
- County Boundaries

0 0.5 1 2 Miles

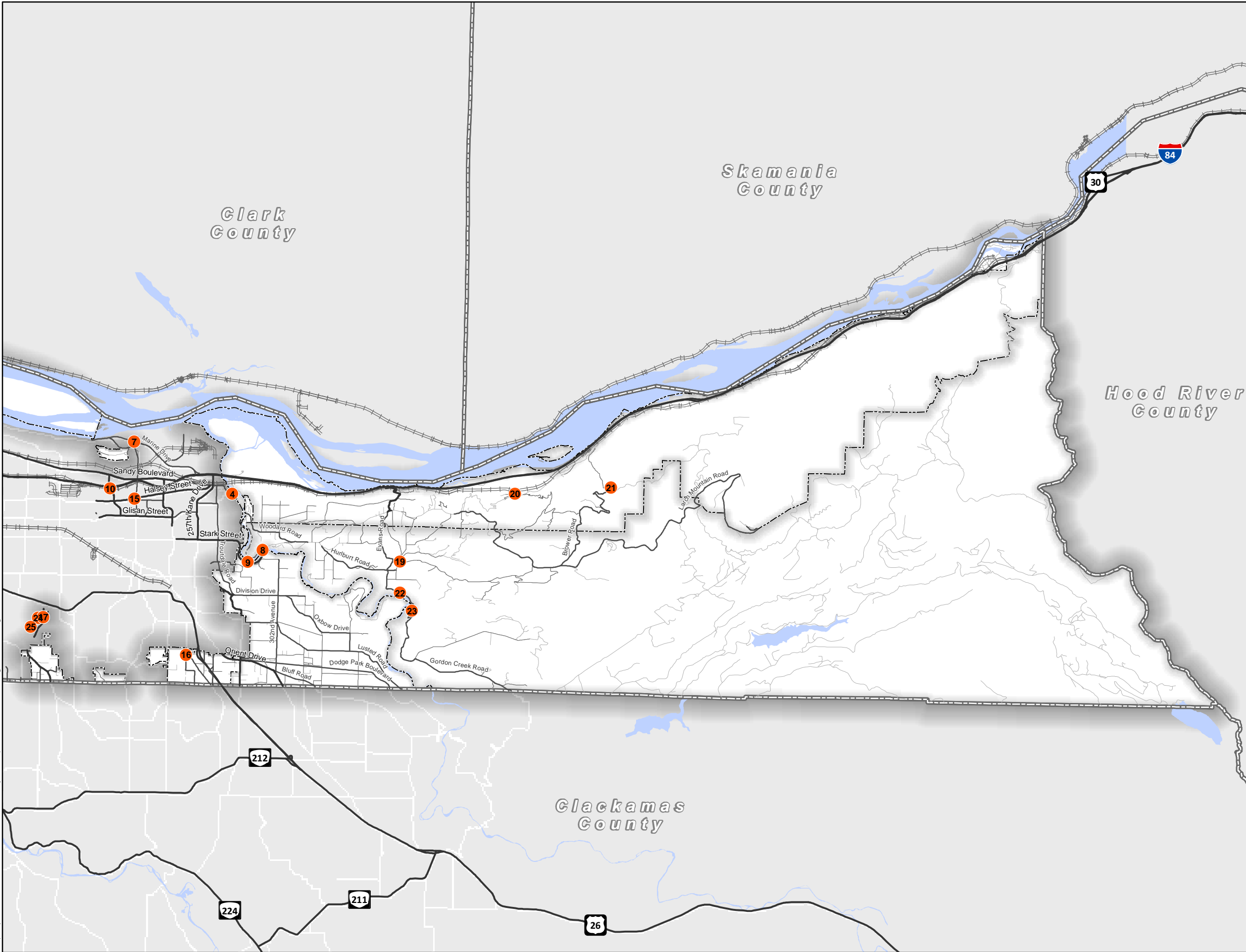


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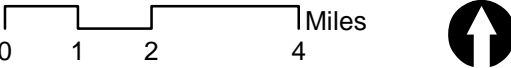
H:\profile\17944 - Multnomah County Comprehensive Plan\gis\13 Bridge Locations.mxd



Comprehensive Plan

Figure 13B
Bridge Locations

- Bridge Locations
- Plan Areas
- County Boundaries

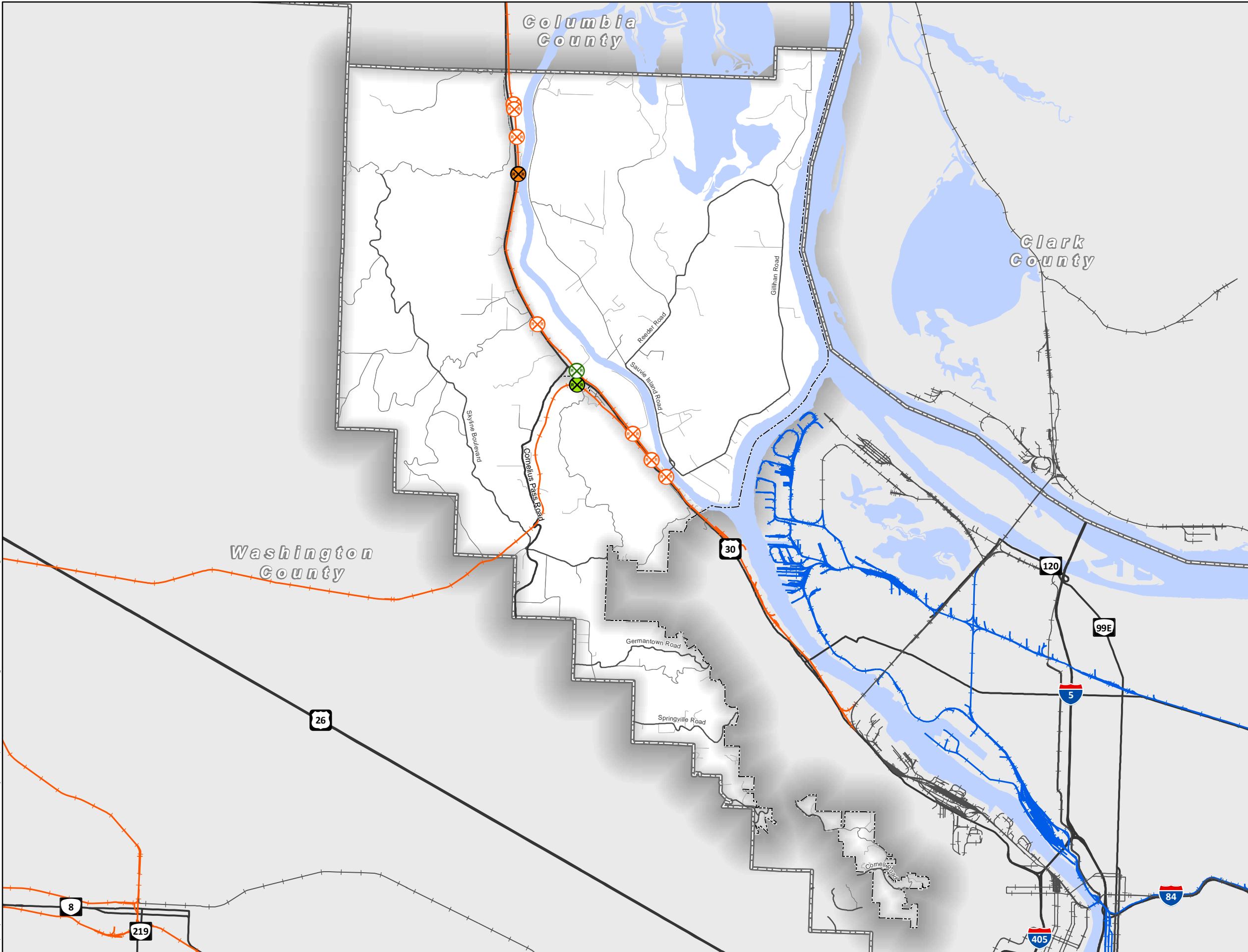


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Comprehensive Plan






Figure 14A

Railroad Crossings

Edit, Crossing

-  Private At-Grade RR Crossing
-  Private Grade-Separated RR Crossing
-  Public At-Grade RR Crossing
-  Public Grade-Separated RR Crossing

Railroad Lines

-  Portland and Western
-  Union Pacific
-  Other Railroad Lines
-  Plan Areas
-  County Boundaries

0 0.5 1 2 Miles

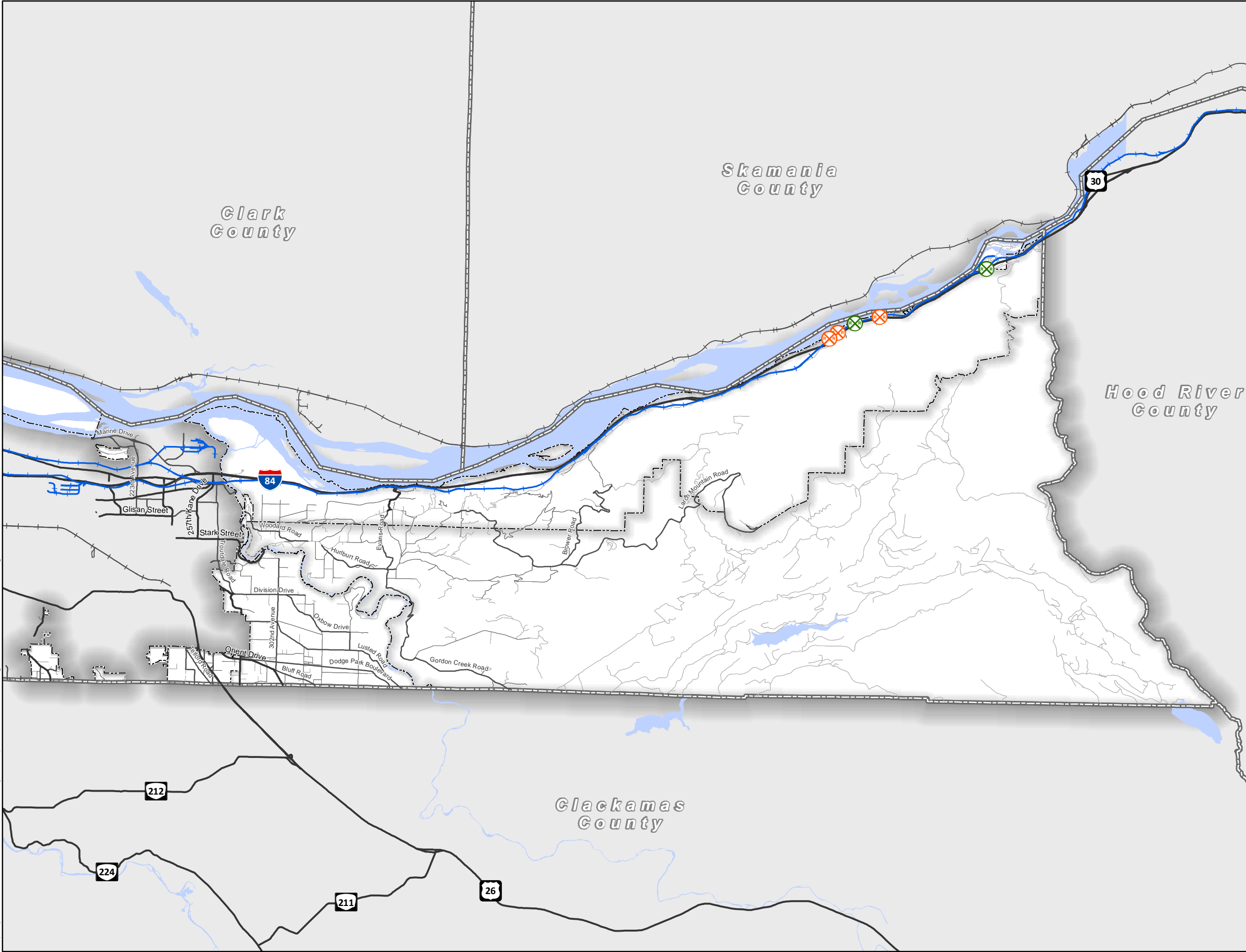


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Comprehensive Plan






Figure 14B

Railroad Crossings

Edit, Crossing

-  Private At-Grade RR Crossing
-  Private Grade-Separated RR Crossing
-  Public At-Grade RR Crossing
-  Public Grade-Separated RR Crossing

Railroad Lines

-  Portland and Western
-  Union Pacific
-  Other Railroad Lines
-  Plan Areas
-  County Boundaries

0 1 2 4 Miles



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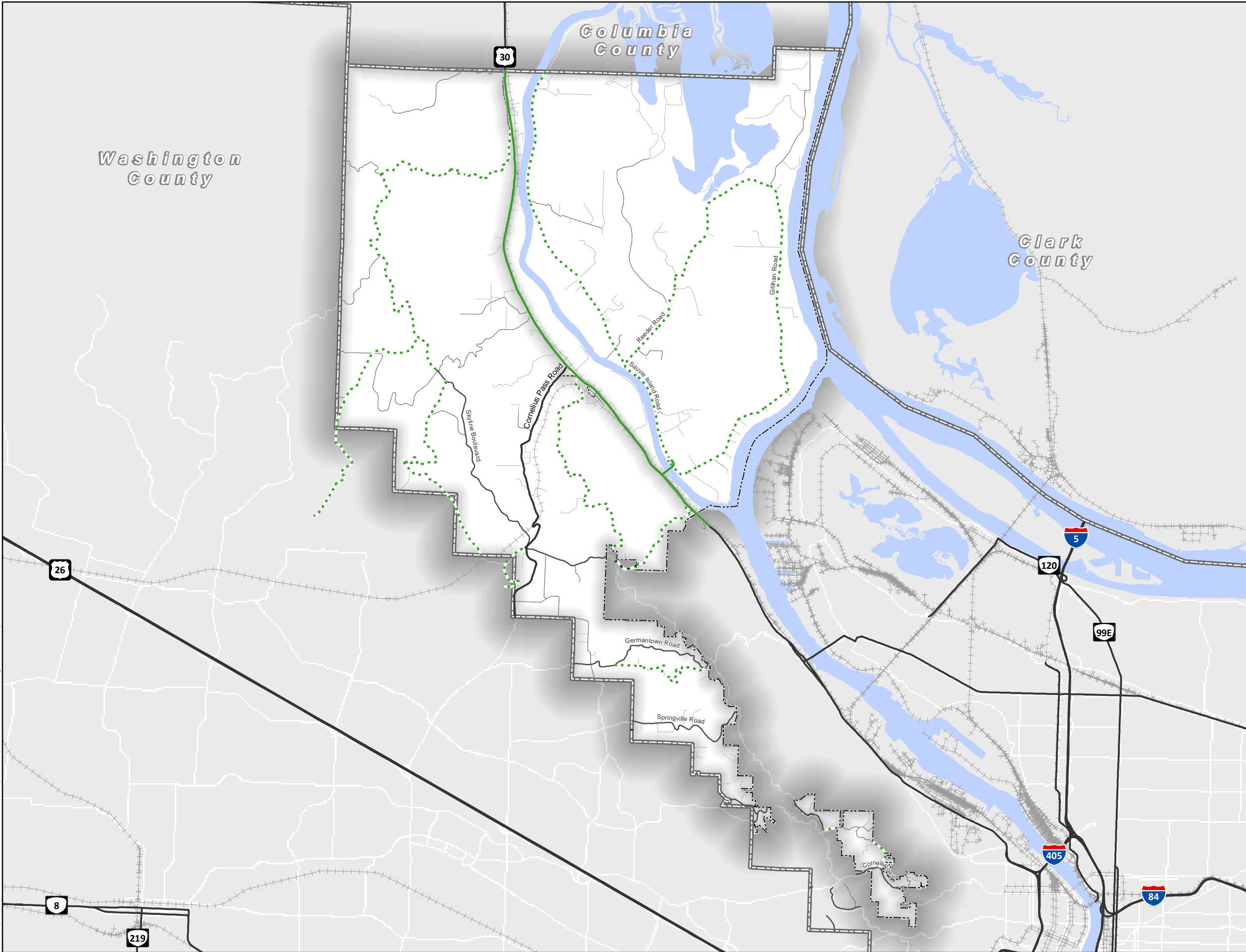


Figure 15A
Bicycle Facilities

- Bike Routes**
- Established bikeway
 - Bike friendly street
 - Dedicated bike lane
 - Helpful connection
 - County Boundaries
 - Plan Areas

0 0.5 1 2 Miles



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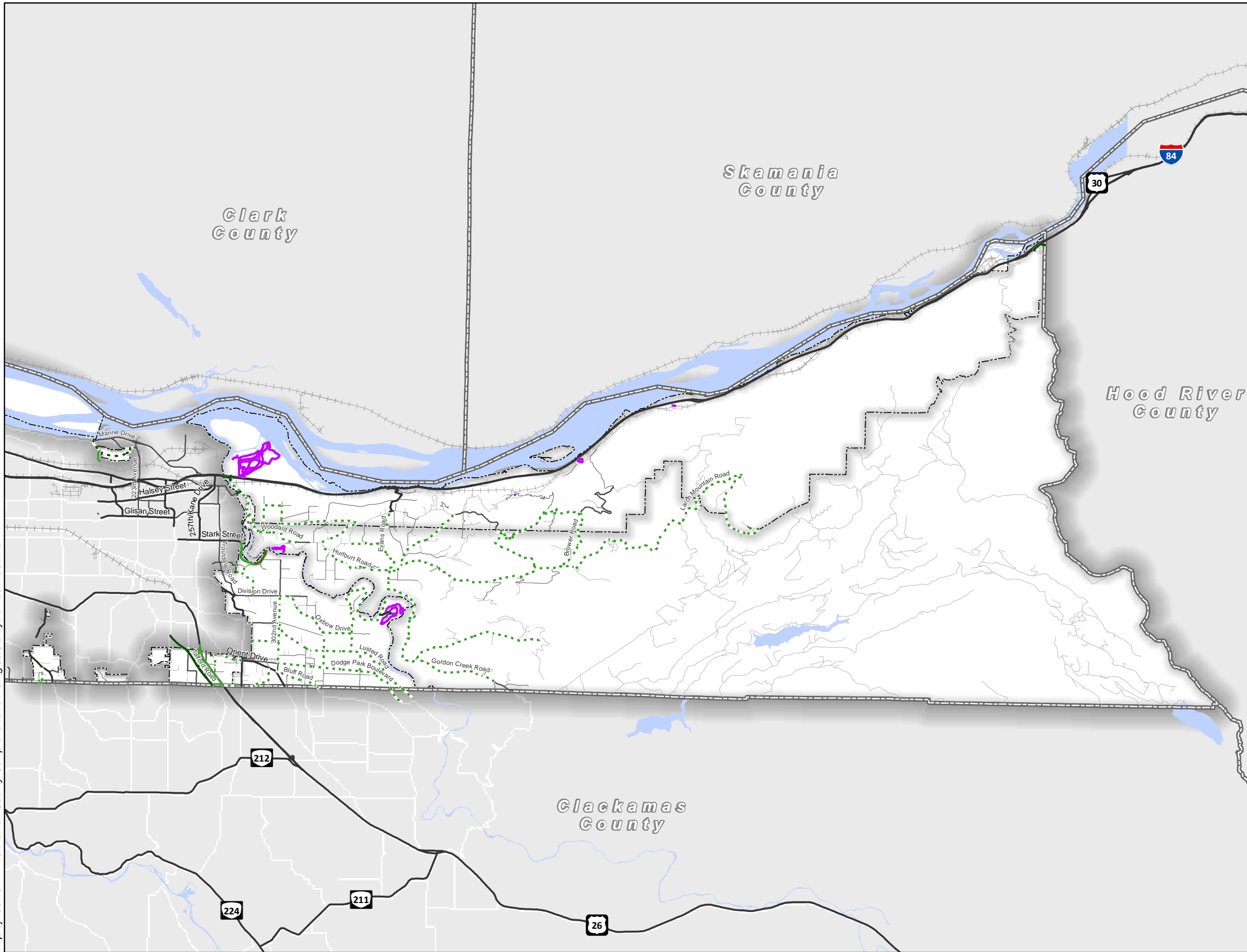


Figure 15B
Bicycle Facilities

Bike Routes

-  Established bikeway
-  Bike friendly street
-  Dedicated bike lane
-  Helpful connection
-  Local trail
-  Bike with caution
-  County Boundaries
-  Plan Areas

0 1 2 4 Miles

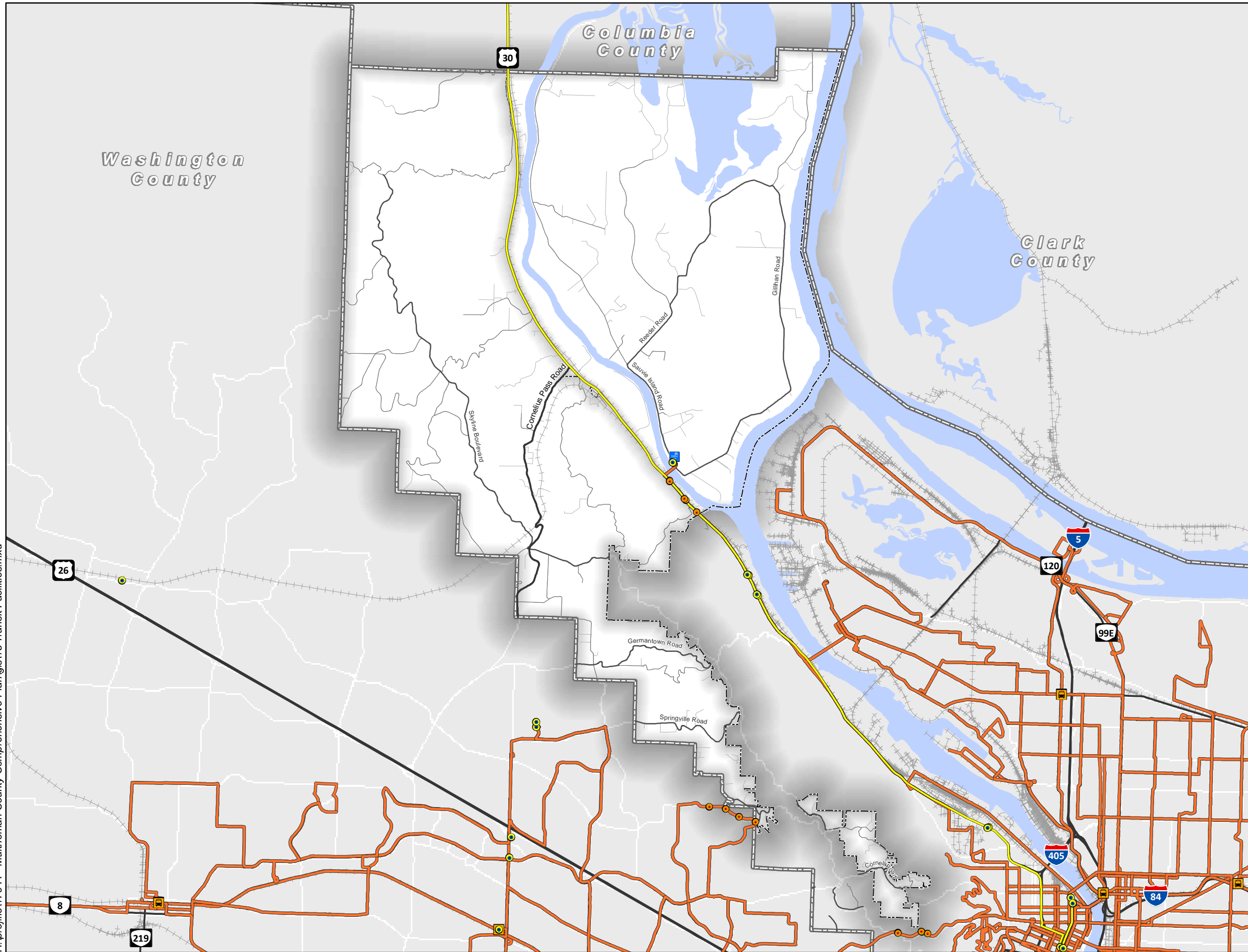


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Comprehensive Plan

Figure 16A
Transit Facilities

- TriMet Stops
- Columbia County Rider Stops
- Transit Centers
- Park N' Ride
- TriMet Routes
- Columbia County Rider Routes
- Plan Areas
- County Boundaries

0 0.5 1 2 Miles



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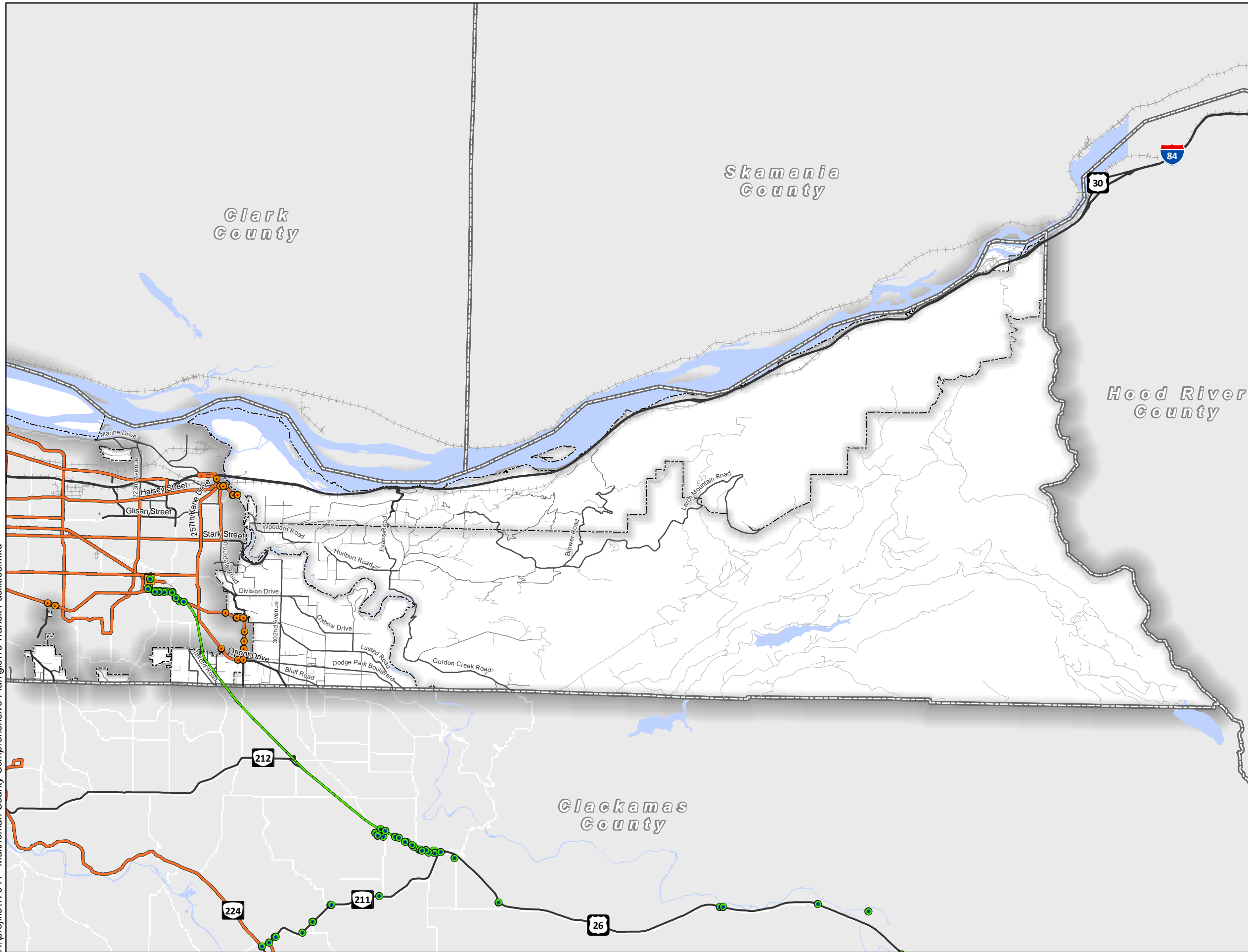









Figure 16B
Transit Facilities

-  TriMet Stops
-  Sandy Area Metro Stops
-  Transit Centers
-  TriMet Routes
-  Sandy Area Metro Routes
-  Plan Areas
-  County Boundaries

0 1 2 4 Miles

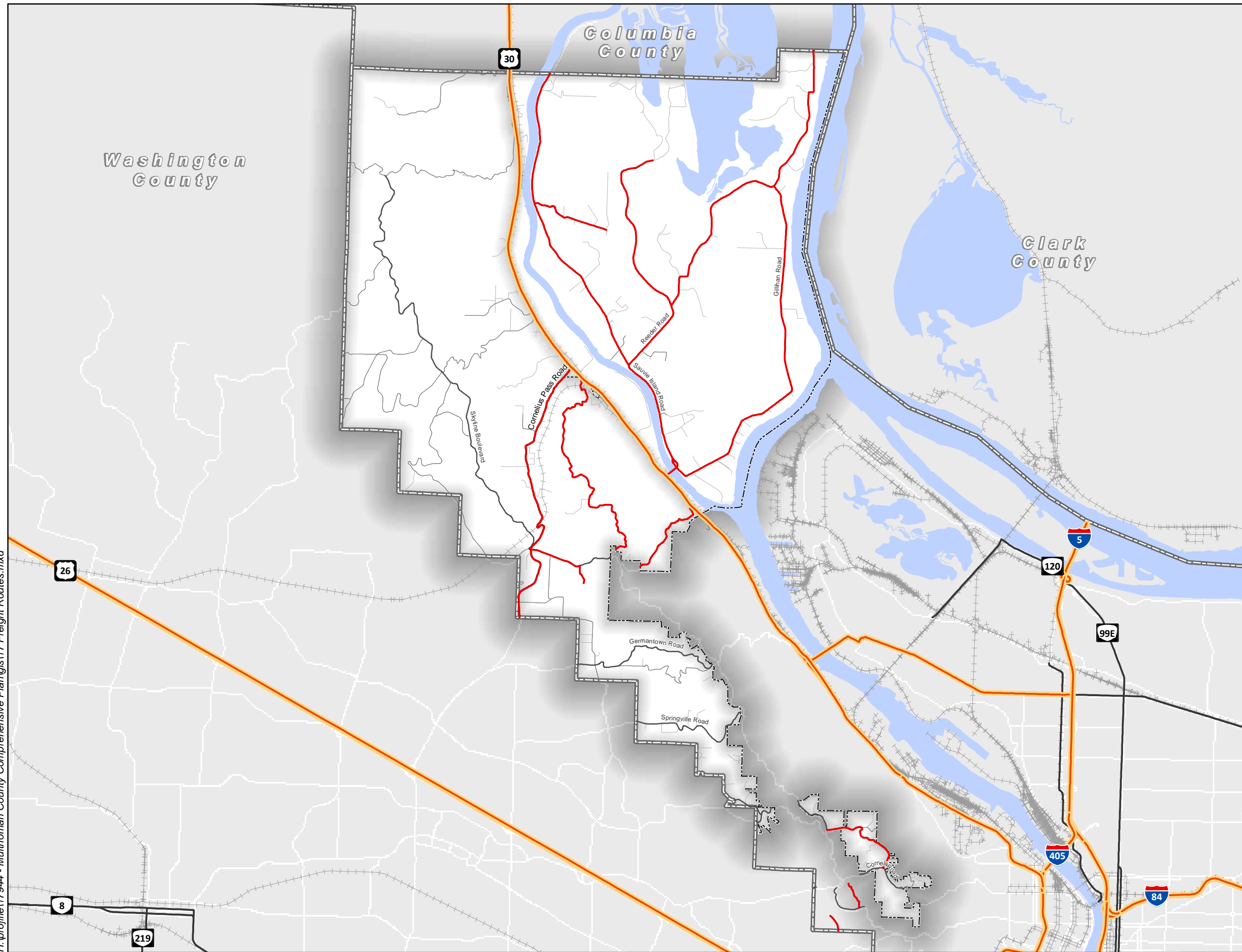


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Comprehensive Plan

Figure 17A
Freight Routes

- Multnomah Co. Truck Routes
- ODOT Freight Routes
- Plan Areas
- County Boundaries

0 0.5 1 2 Miles



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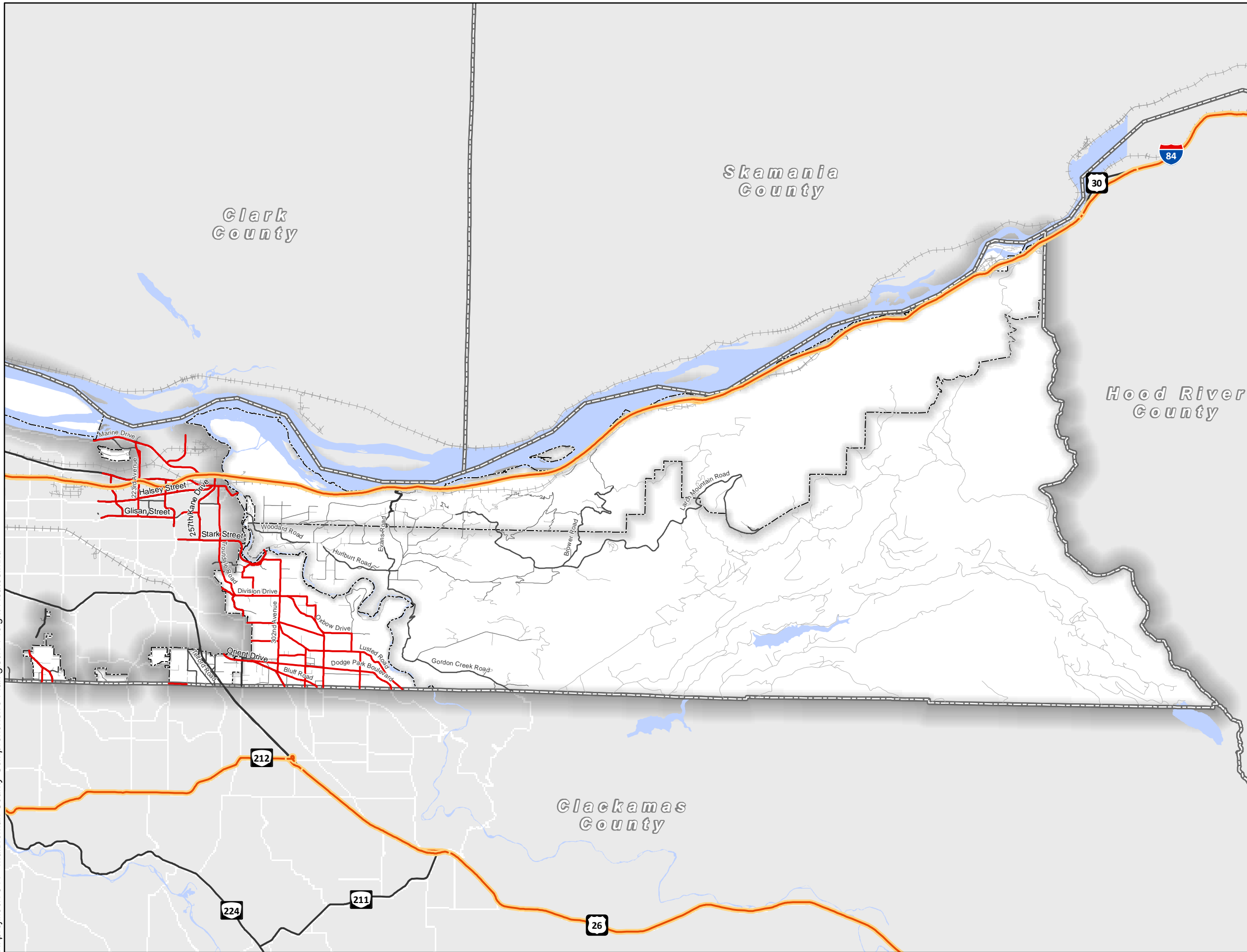




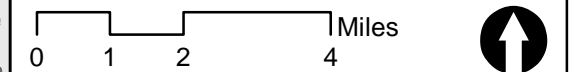


Figure 17B
Freight Routes

-  Multnomah Co. Truck Routes
-  ODOT Freight Routes
-  Plan Areas
-  County Boundaries

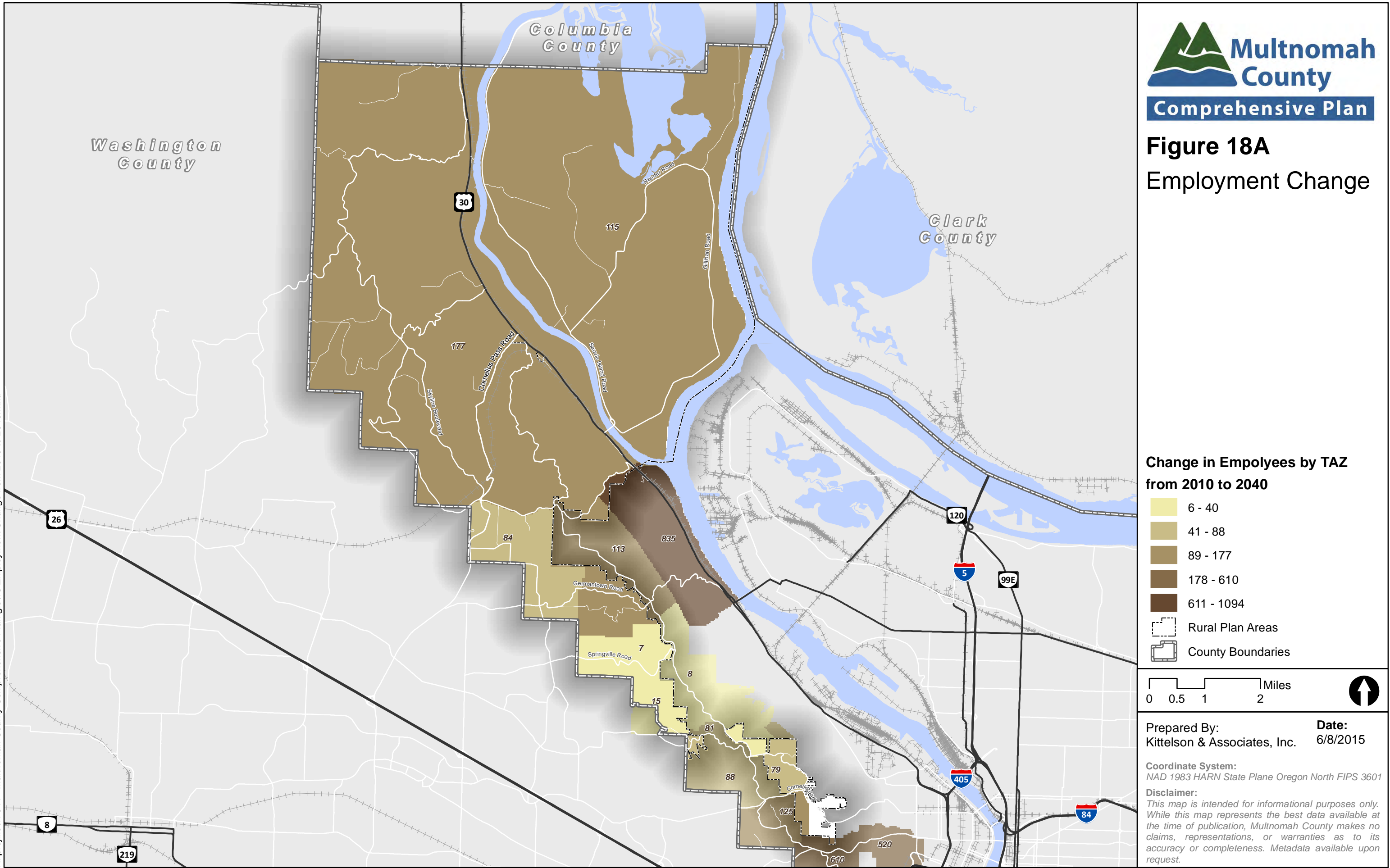


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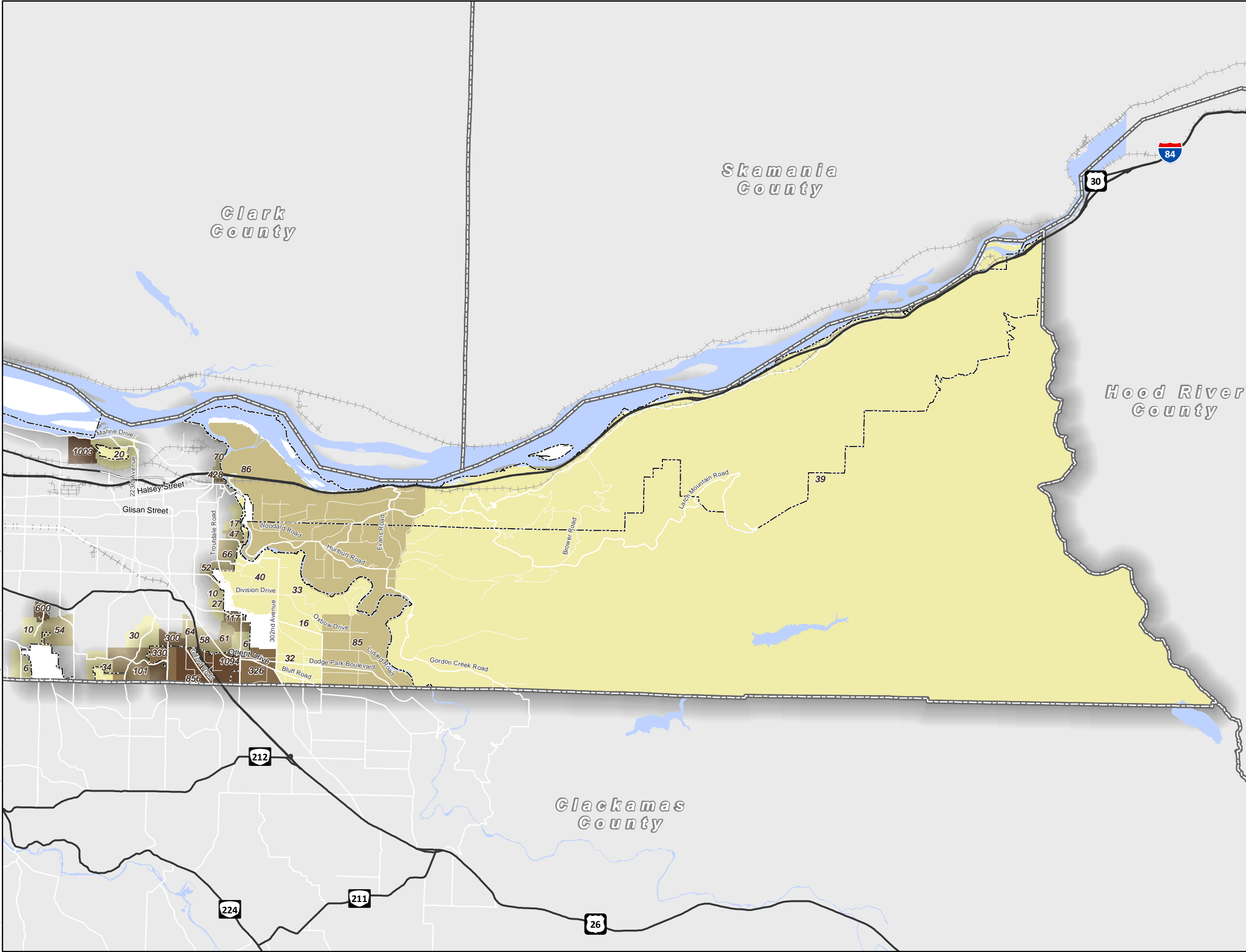
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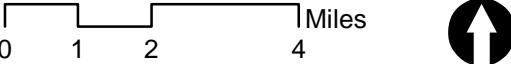


Comprehensive Plan

Figure 18B
Employment Change

**Change in Employees by TAZ
from 2010 to 2040**

- 6 - 40
- 41 - 88
- 89 - 177
- 178 - 610
- 611 - 1094
- Rural Plan Areas
- County Boundaries

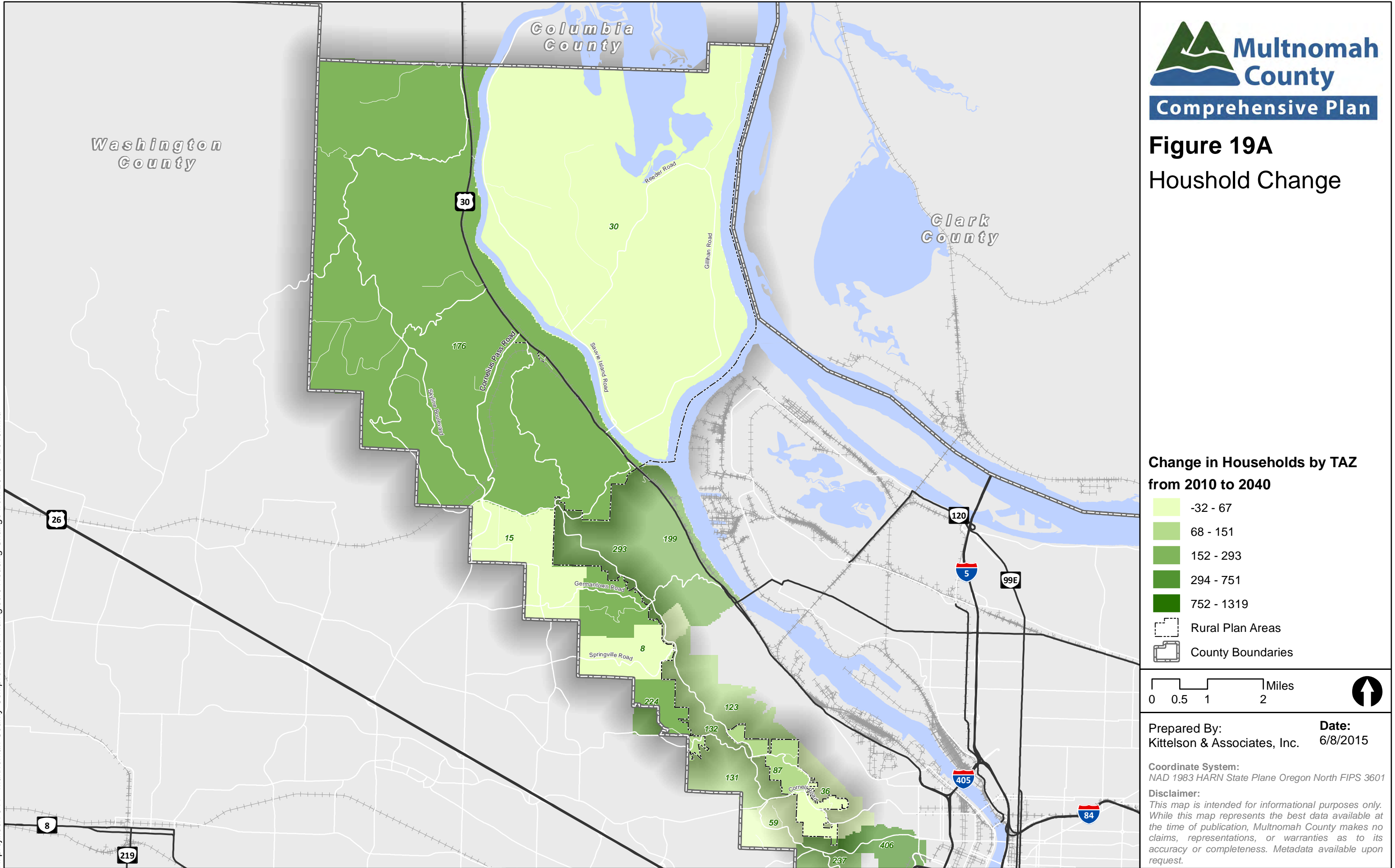


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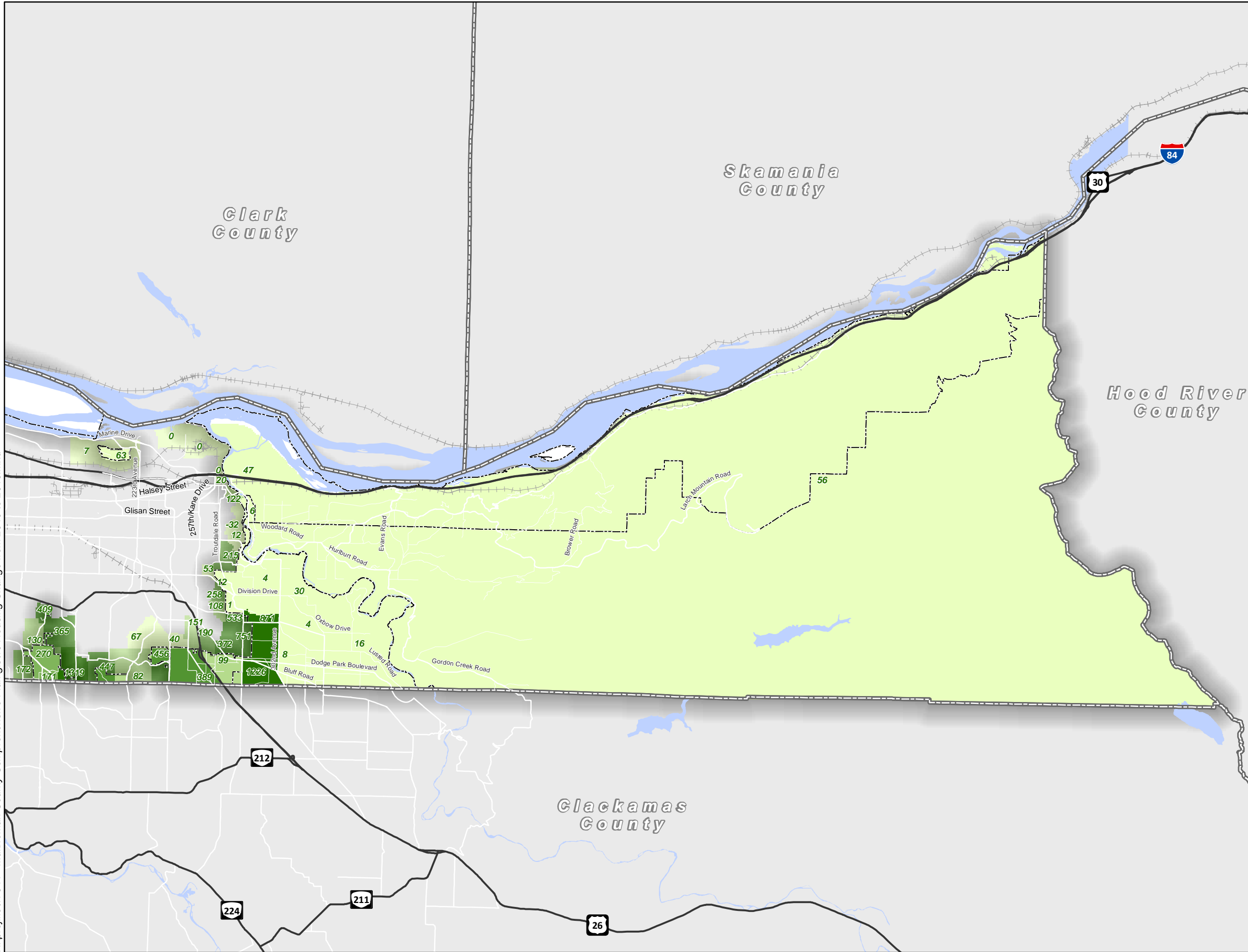
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Comprehensive Plan

Figure 19B
Houshold Change

Change in Households by TAZ
from 2010 to 2040

- 32 - 67
- 68 - 151
- 152 - 293
- 294 - 751
- 752 - 1319

- Rural Plan Areas
- County Boundaries

0 1 2 4 Miles

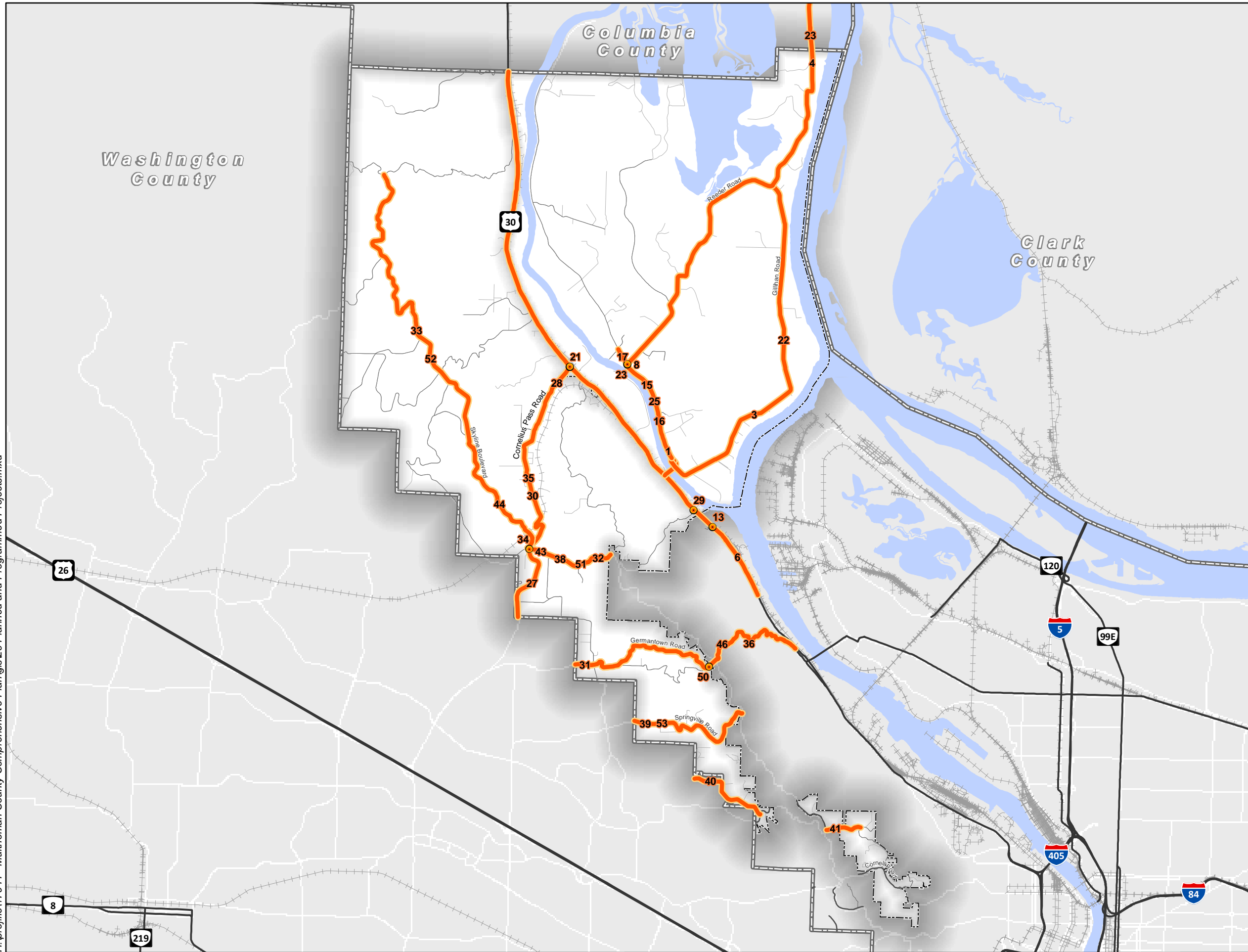


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Comprehensive Plan

Figure 20A Planned and Programmed Projects

- Project Points
- Project Segments
- Plan Areas
- County Boundaries

0 0.5 1 2 Miles

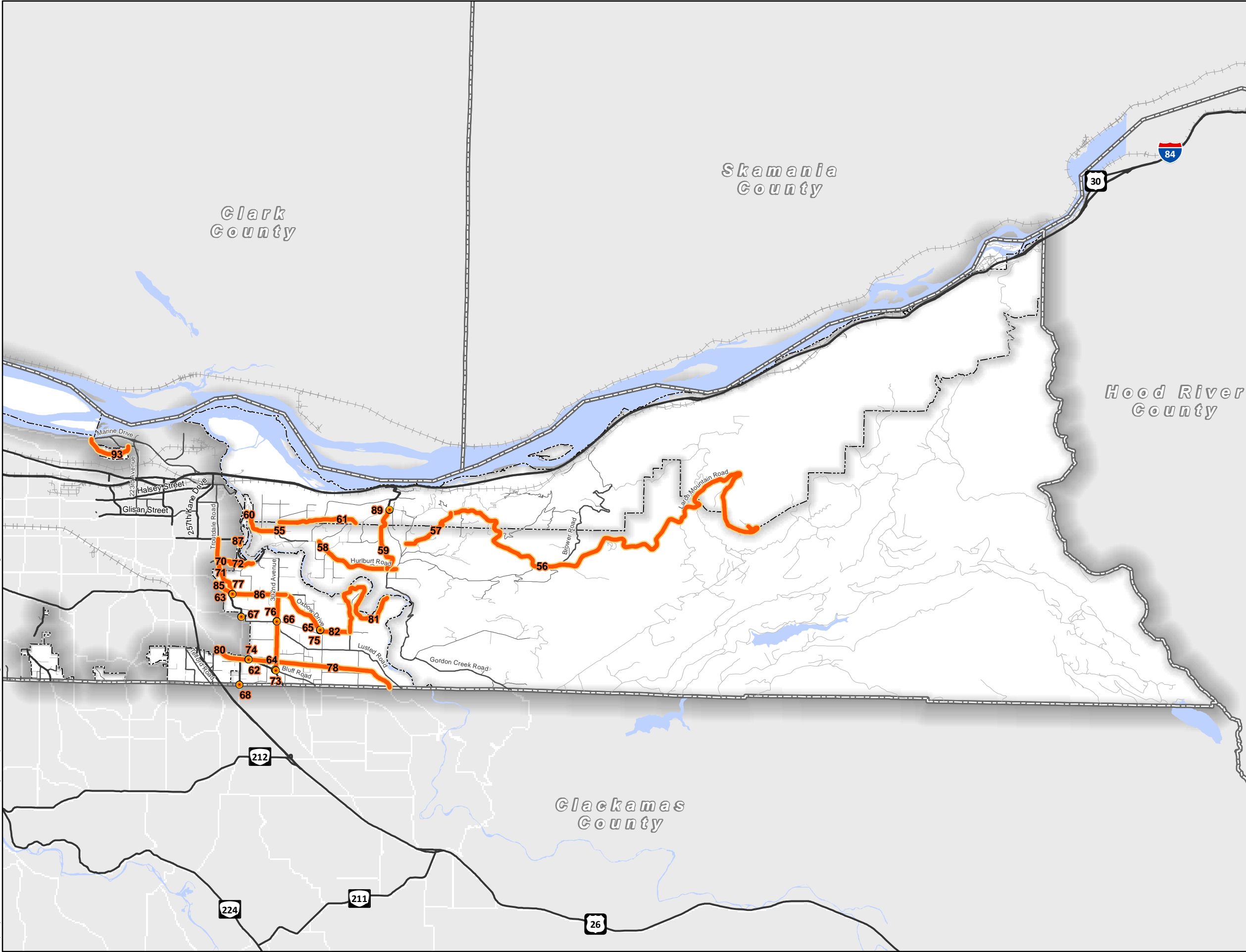


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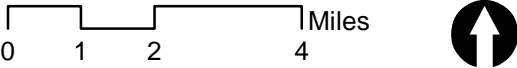
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Comprehensive Plan

Figure 20B
Planned and
Programmed Projects

- Project Points
- Project Segments
- Plan Areas
- County Boundaries



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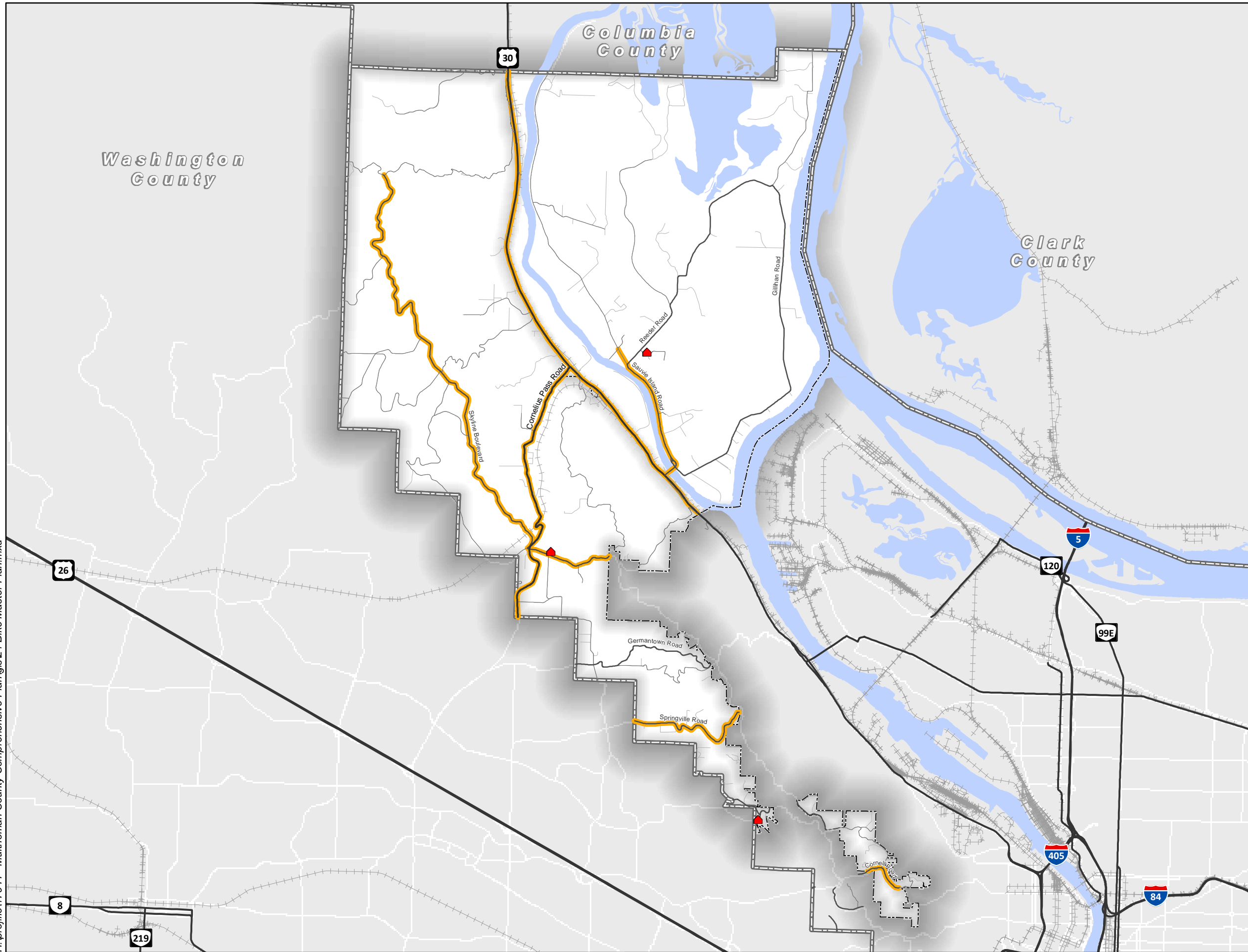






Figure 21A
Master Bike Plan

-  Schools
-  Bikeways Plan
-  Plan Areas
-  County Boundaries

0 0.5 1 2 Miles



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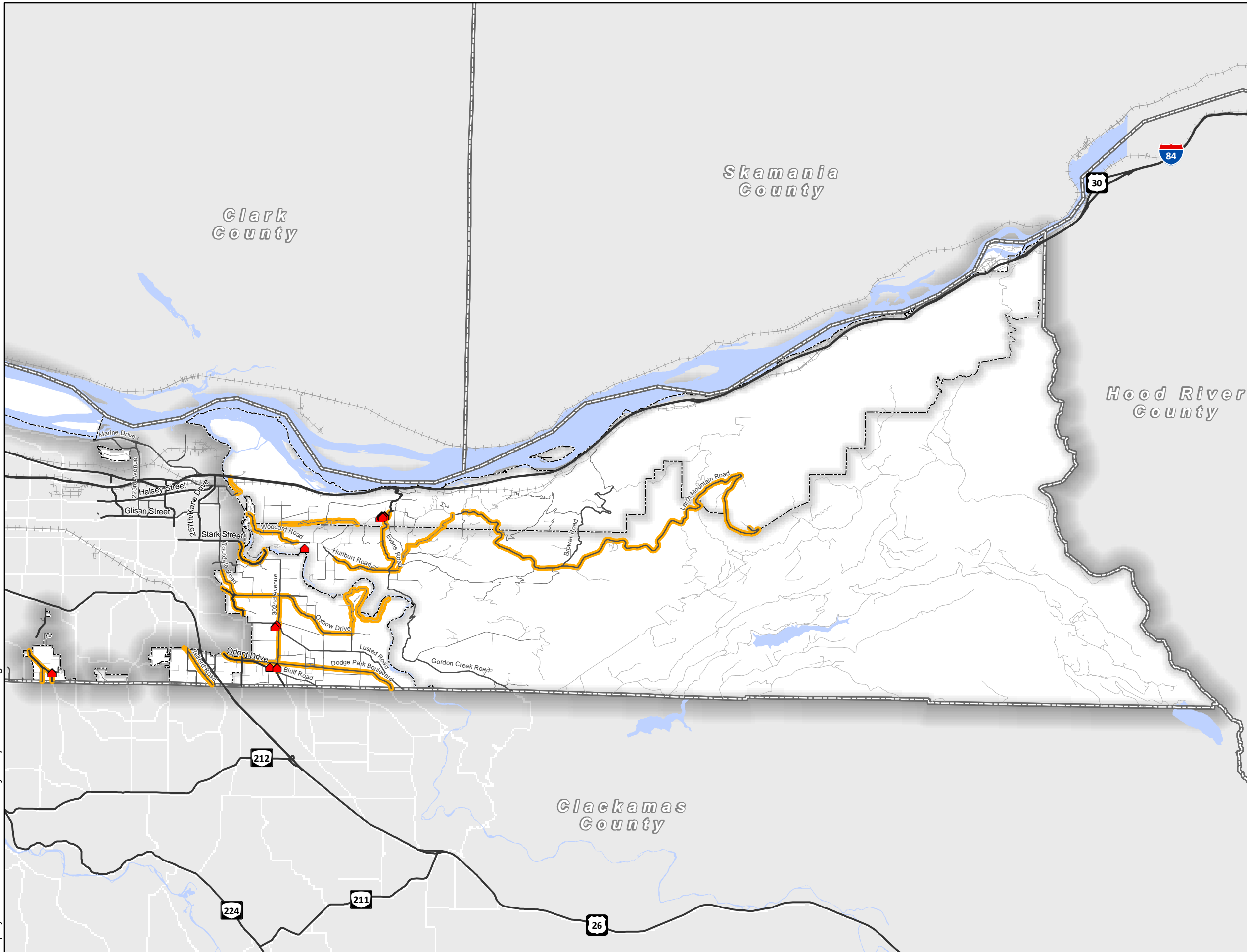






Figure 21B

Master Bike Plan

-  Schools
-  Bikeways Plan
-  Plan Areas
-  County Boundaries

0 1 2 4 Miles



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Appendix 2 TAZ Map and Data

Appendix 3 Historical AADT

Table 15 Historical AADT on State Highways in Rural Multnomah County

Primary Road	HW Y	MP	Description	AADT by Year										
				2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Columbia River Highway (US 30)	002	18.12	0.30 mile east of Jordan Interchange	25,100	24,800	26,100	26,600	26,700	26,300	28,000	28,100	25,300	25,700	26,200
	002	22.40	0.30 mile east of Corbett Interchange	22,400	22,100	24,300	24,700	24,900	24,600	26,300	26,400	23,500	23,700	24,200
	002	25.19	0.20 mile east of Rooster Rock State Park Interchange	22,200	21,900	24,400	24,800	25,000	24,500	26,100	26,300	23,300	23,500	23,900
	002	28.16	0.30 mile east of Bridal Veil connection	21,400*	21,100*	23,500*	23,900*	24,000	23,500	25,100	25,300	21,700	21,800	22,200
	002	31.89	0.50 mile east of Multnomah Falls Interchange	21,200	20,900	23,200	23,600	23,800	23,100	24,800	24,900	21,100	21,100	21,500
	002	35.73	0.10 mile east of Historic Columbia Highway (US30)	21,000*	20,700*	23,300*	23,700*	23,800	23,300	25,000	24,900	21,100	21,100	21,500
Mt. Hood Highway (US 26)	026	14.80	0.05 mile south of S.E. Palmquist Road	26,700*	25,700*	26,200*	27,200*	27,000*	25,800	26,600	26,600	25,200	27,300	27,600
	026	18.30	0.05 mile northwest of S.E. Haley Road	22,800*	21,900*	22,300*	24,600*	24,400*	23,300	22,900	22,900	21,700	24,100	24,400
Lower Columbia River (US 30)	092	10.75	0.08 mile south of Sauvie Island Road	**-	**-	**-	23,400	21,400	20,600	20,900	17,000	16,700	16,500	16,800
	092	10.95	0.12 mile north of Sauvie Island Road	**-	**-	**-	21,600	22,100	20,400	20,700	17,100	16,800	16,600	16,900
	092	13.12	0.10 mile south of Cornelius Pass Road	**-	**-	**-	20,800	22,000	20,300	20,500	17,400	17,100	16,900	17,200

	092	17. 34	0.05 mile south of Rocky Point Road	-**	-**	-**	25,10 0	27,80 0	25,6 00	26,0 00	23,1 00	22,7 00	22,5 00	22,8 00
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*Count location shifted 0.1 mile or less from where counts are recorded currently; no major intersections were included or excluded with the shift

**No counts were recorded on the segment for the year reported

Appendix C Sauvie Island and Multnomah
Channel Rural Area
Transportation System Plan

Transportation System Plan
Multnomah County, Oregon

SAUVIE ISLAND AND MULTNOMAH CHANNEL RURAL AREA TRANSPORTATION SYSTEM PLAN

August 2015

Prepared for:

Multnomah County
1600 SE 190th Avenue
Portland, Oregon 97233
(503) 823-4000

Prepared by:

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610 SW Alder Street, Suite 700
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Transportation System Plan

Sauvie Island and Multnomah Channel Rural Area Transportation System Plan

Multnomah County, Oregon

August 2015

Transportation System Plan

Sauvie Island and Multnomah Channel Rural Area TSP

Multnomah County, Oregon

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Project No. 17964

August 2015

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

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- Appendix 2 Existing Plans and Policies Review
- Appendix 3 Needs, Opportunities, Constraints, and Tools Technical Memorandum
- Appendix 4 Technical Information Memorandum

PREFACE

The development of this plan was guided by the Project Management Team (PMT) and the Community Advisory Committee (CAC). The PMT and CAC rosters are below, along with members of the consultant team. The CAC members devoted a substantial amount of time and effort and their participation was instrumental in the development of the Sauvie Island and Multnomah Channel Rural Area Transportation System Plan (TSP). The Sauvie Island and Multnomah Channel Rural Area's future transportation system has been enhanced because of their commitment.

Project Management Team

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Section 1

Introduction

INTRODUCTION

The Sauvie Island and Multnomah Rural Area Transportation System Plan (TSP) forms the transportation element of the Multnomah County Comprehensive Plan. The TSP is the master plan for how the rural transportation system will evolve and develop for the next 20 years. The plan's primary focus is on enhancing the safety of the transportation system and improving options for agricultural, visitor, residential, bicycle, and pedestrian travel to and from the rural areas. The TSP supports an economically vital and healthy community.

Transportation is the movement of people and goods from one place to another. Our transportation systems affect nearly every aspect of life. We import the basic necessities of life – food, clothing, and building materials – to our homes. A constant flow of freight supplies our lives. We travel to work and school, and move about to socialize and play. Streets create the framework around which our cities and counties are built. Personal choices about how we travel affect our daily lives and our physical and mental well-being. Transportation is the backbone that supports a community as it grows and evolves.

This TSP covers the areas of the County reflected in Figure 1 and is an update to the policies and projects identified in the 1998 Westside Rural Multnomah County TSP. Figure 1 also depicts the functional classification of the roadways within the study area.

This TSP provides Multnomah County with guidance for operating and improving the multimodal transportation system. The TSP includes transportation policies and priorities for projects and programs to implement over the next 20 years. It also provides a vision for longer term projects that could be implemented, should additional funding become available. The TSP is intended to be flexible to respond to changing community needs and revenue sources over the next 20 years and will be updated approximately every 5 to 10 years. The TSP builds consensus among the County, ODOT, and other agencies on area transportation needs and priority projects and informs local citizens on the projects that will be carried forward for funding from local, state, and federal sources.

GOALS AND POLICIES

Review of the previous TSP, the Multnomah Channel Rural Area Plan (RAP), and input from the Project Management Team (PMT) and Citizen's Advisory Committee (CAC) provided the base for which the goals for this plan were developed. The goals provide a clear vision of what Sauvie Island and Multnomah Channel aims to achieve.

- Goal 1: Implement a transportation system that is safe and efficient in meeting the needs of area residents and those traveling through the area.
- Goal 2: Implement a balanced transportation system that supports all modes of travel.
- Goal 3: Develop a transportation system that supports the rural character of West Multnomah County.
- Goal 4: Develop a transportation system the supports a healthy economy.

- Goal 5: Provide transportation improvements in a timely manner according to funding capability.

KEY TRANSPORTATION ISSUES

The plan focuses on addressing both current as well as year 2035 needs of the transportation system. The central needs are:

- **Reducing conflicts between different modes** – Sauvie Island is served by two-lane narrow rural roadways. A variety of users with diverse needs and varying speeds (e.g., farm equipment, an active cycling community, pedestrians, and motorists) use the roadway, which can result in conflicts between modes.
- **Increasing safety for all system users** – Recent crash history reflects a tendency toward single vehicle crashes with fixed objects after leaving the roadway. One of the fixed object crashes resulted in a fatality.
- **Managing travel demand** – Peak traffic conditions, resulting from seasonal all-day events (such as access to public beaches and pumpkin patches) and limited duration events (such as concerts and farm-to-table dinners), result in traffic congestion and long vehicle queues. During these times, vehicle queues consistently occur at the US 30/Sauvie Island Road intersection and at the access points to key visitor destinations. In addition to causing delays, highly congested roadways concern Island residents because of the potential impact on emergency response times.

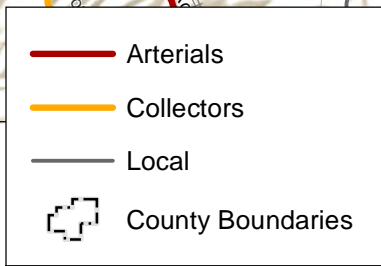
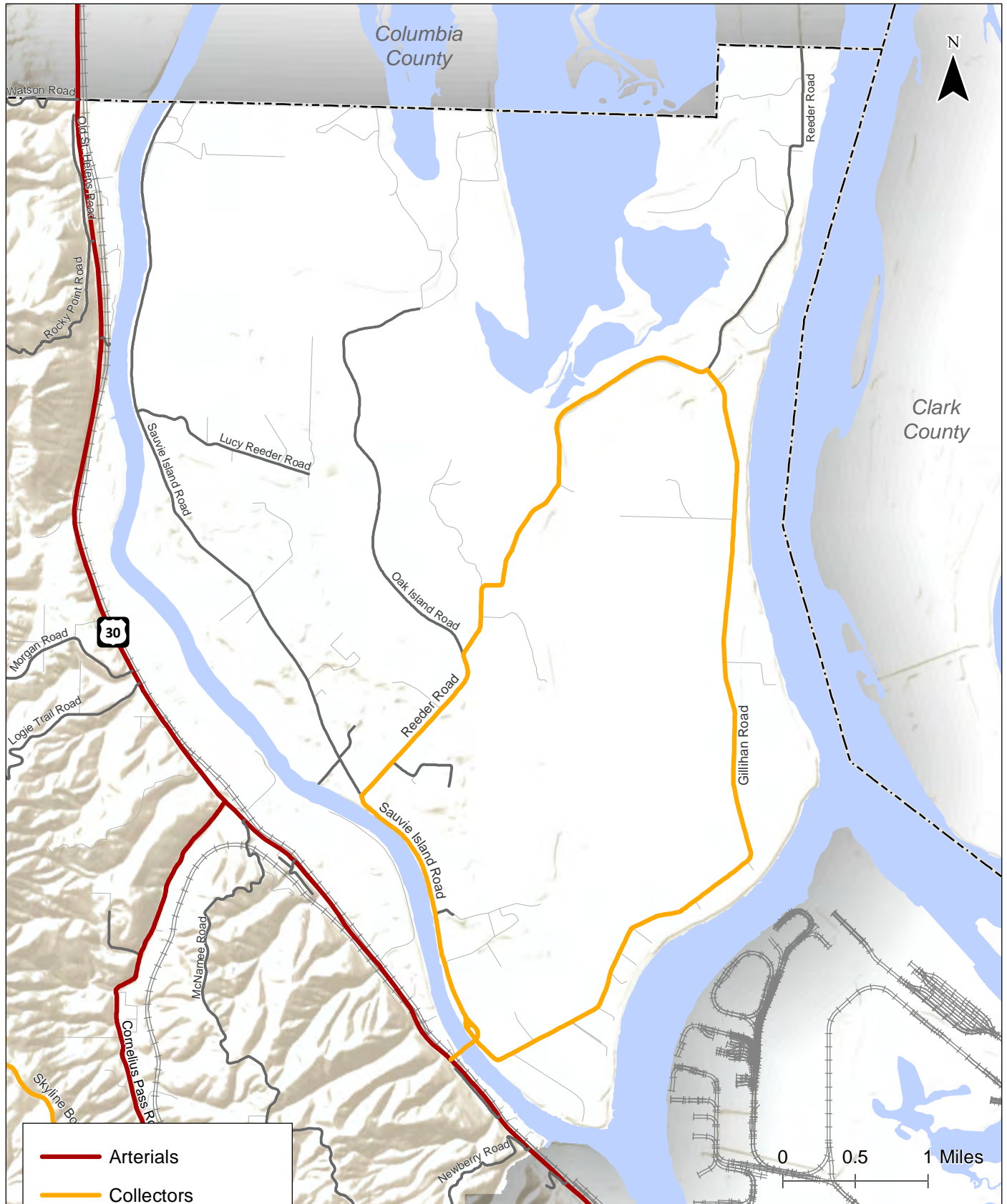
Sections 2 through 4 comprise Volume 1 of the TSP and provide the main substance of the plan. Technical Appendices in Volume 2, which contains the technical memoranda, supplement Volume 1.

Section 2 describes the transportation system existing conditions and needs.

Section 3 presents an overview of each of the solutions included in the TSP.

Section 4 is the Transportation System Plan. This section describes the projects, studies, and programs to implement over the next 20 years.

\\nitelison.com\is\VL_Portland\profiles\17694 - Westside Rural\Multnomah Co. TSP Update\gis\01 Functional Classifications.mxd - jstormenville - 8/28 AM 8/5/2015



**Functional Roadway Classifications
Multnomah County, Oregon**

**Figure
1**

TSP UPDATE PROCESS

The TSP Update process included a series of technical memoranda, meetings with the Citizens Advisory Committee (CAC), and two plan development workshops. The technical memoranda included a review of existing plans and policies, a traffic data summary, and an overview of the transportation need, opportunities, and constraints. Regular meetings with the PMT allowed for effective coordination throughout the project. All technical memoranda can be found in the Technical Appendices.

The contents of the Needs, Opportunities, Constraints, and Tools memo were presented at a CAC meeting and at a public workshop in April 2015. Based on those meetings, the team developed and summarized feedback in the Draft Plan Development Workshop Report during and after the first workshop and made recommendations on proposed solutions. The team held a second workshop in May 2015 to present potential TSP amendments and discuss the feedback from the previous workshop. Workshop #1 focused on the range of applicable improvement options whereas Workshop #2 focused on details of the recommended treatments and corresponding potential projects. The full workshop report is Appendix 1.

Section 2

Existing Conditions

EXISTING CONDITIONS

The following describes the existing plans, policies, and transportation system needs within the study area of the Sauvie Island and Multnomah Channel Rural Area TSP.

PLANS AND POLICIES

Plans and documents addressing the Sauvie Island and Multnomah Channel Rural Area that include policies relevant to the Transportation System Plan (TSP) include:

- Sauvie Island Drainage Improvement Company policies;
- Sauvie Island & The Multnomah Channel Rural Area Plan (2015);
- Rural Westside TSP (1998);
- Multnomah County Transportation Capital Improvement Plan and Program Fiscal Years 2014-2018 (2014);
- Sauvie Island Wildlife Area Management Plan (2012); and
- Sauvie Island Wildlife Area Beach Use Plan (1993).

The Existing Plans and Policies Review Memo dated March 2015 in Appendix 2 contains the description of these documents and policies.

EXISTING TRANSPORTATION SYSTEM NEEDS

This TSP addresses current transportation issues, particularly related to the increasing number of visitors and the need to provide safe, multimodal transportation facilities for residents, visitors, and businesses. A key component of the plan is identifying a range of potential programs, policies, and projects that the County can implement over the next 20 years. The Needs, Opportunities, Constraints, and Tools memo dated May 2015 in Appendix 3 documents the transportation needs as well as tools, opportunities, and potential constraints to future implementation of a variety of policies, programs and projects.

The following sources provided insights on existing transportation needs:

- public outreach related to the County's TSP Update project scoping work in 2013;
- review of relevant plans and policies (see January 22, 2015 Plans and Policies Memo prepared by Kittelson & Associates, Inc.);
- a review of traffic data (see January 27, 2015 Traffic Data Technical Memo prepared by Multnomah County);
- the implementation needs for transportation related policies in the Sauvie Island & Multnomah Channel Rural Area Plan; and,

- stakeholder interviews from November 2014 through February 2015 conducted by the project team to identify needs.

Based on information from the above efforts, the transportation needs in the study area generally fall into the following categories:

- reducing conflicts between different modes;
- increasing safety for all system users; and,
- managing travel demand.

The following sections outline the relevant needs to consider for each of these categories.

Reducing Modal Conflicts

Sauvie Island is served by two-lane narrow rural roadways. A variety of users with diverse needs and varying speeds (e.g., farm equipment, an active cycling community, pedestrians and motorists) use the roadway, which can result in conflicts between modes. Some of the issues related to these potential conflicts are below.

Roadways on Sauvie Island are operated and maintained by Multnomah County, while ODOT operates Highway 30. Primary travel on the island occurs along a main loop comprised of three rural collector roadways: Gillihan Road, Reeder Road, and Sauvie Island Road. Other roads on Sauvie Island provide access to private property and Oregon Department of Fish and Wildlife (ODFW) lands for recreation and are local roads.

There are no dedicated pedestrian or bicycle facilities along the Island's roadways today, and roadway shoulders are narrow or non-existent in most places. The 1998 Transportation System Plan identified the need for 4 foot shoulders along major segments of Sauvie Island Road, Reeder Road, and Gillihan Road, but the County has not yet implemented these projects. Constraints on most of these roadways include limited right-of-way to provide wider shoulders or a parallel multi-use path and potential improvement costs and construction constraints near the levees create significant barriers to implementation. A complete list of the study area projects included in the County's 2014-2018 Capital Improvement Program (CIP) is provided in the Existing Plans and Policies Review memo in Appendix 2.

Sauvie Island is also a popular destination for recreational cyclists. On the weekends and peak seasons, visitors and residents enjoy cycling along the Island's roadways. In October 2014, daily weekend bicycle volumes were as high as 365 cyclists on Sauvie Island Road north of the Cracker Barrel store. In total, 1,765 cyclists were recorded there during the month of October.

In addition to safer facilities, stakeholders identified the need to provide wayfinding and information related to restrooms, water, and parking locations as well as education and outreach for all road users on sharing and obeying the rules of the road.

Many areas along Sauvie Island Road and Reeder Road are within the Sauvie Island Drainage Improvement Company (SIDIC) levee right-of-way and set back area. Construction along these sections of the roadways require special permitting from the Army Corps of Engineers and can only be considered if they will enhance the structural integrity of the levee. The County or Corps of Engineers would need to determine if construction of a multi-use path parallel to the loop roadways, on the island side of the levee could enhance the structural integrity of the levee and be approved by the Corps.

Enhancing Safety

Both the County's policies and stakeholder feedback identify the importance of improving safety for all transportation system users on Sauvie Island and the Multnomah Channel.

Multnomah County staff reviewed reported crash data from 2007 through 2013 to establish a baseline for identifying potential safety-related improvements. This review revealed the following:

- There was only one reported crash in the Multnomah Channel area that was not located on Highway 30.
- There were no reported crashes involving pedestrians or bicycles on County facilities on Sauvie Island.
- The majority of crashes on Sauvie Island were reported as fixed object/run off the road.
- There were two recorded fatal crashes. One occurred at the Sauvie Island Road/Reeder Road intersection and one occurred along Gillihan Road south of the Reeder Road intersection.
- Areas with a pattern of crashes include:
 - Sauvie Island Road/US 30
 - Sauvie Island Road/Gillihan Road
 - Sauvie Island Road/Reeder Road
 - Reeder Road/Gillihan Road
 - Reeder Road curves
 - Sauvie Island Road along the levee

County staff also reviewed operating speeds along the rural collector roadway system in an effort to understand how speeds and potential speed differentials may affect safety. Most of the roadways have a posted speed limit of 45 miles per hour, with the exception of Gillihan Road which is not currently

posted and as such Oregon's "Basic Rule"¹ applies. Based on a 2014 County speed study, Reeder Road, Gillihan Road, and Sauvie Island Road all have 85th percentile speeds between 44 and 48 miles per hour, which is consistent with the posted speeds. Even with this speed consistency, this TSP includes treatments that can enhance safety by reducing conflicts between vehicles traveling the speed limit with slower moving agricultural vehicles, pedestrians, and cyclists. The Traffic Data Technical Memo in Appendix 4 provides additional information on the crash reports and speed data.

Stakeholder interviews and reviewed documents identified other safety concerns related to the multiple crossings of the railroad that runs north-south between US 30 and the Multnomah Channel. These concerns primarily relate to the lack of active crossing measures, such as gates and flashing lights at these crossings.

Manage Travel Demand

The majority of the year the transportation network primarily serves residents, agricultural uses, and daily business operations on the Island and the rural areas. Average daily traffic volumes on most of the roadways throughout Sauvie Island are typically less than 3,000 vehicles per day. The popularity of the beaches, hunting and fishing areas, recreational cycling opportunities, seasonal festivals, and agri-tourism activities lead to significant fluctuations in daily traffic volumes during the summer and fall peak seasons. During these times, Sauvie Island Road can serve as many as 17,000 vehicles per day and 1,800 cyclists per month. These higher demand periods result in traffic congestion and long vehicle queues, especially at the US 30/Sauvie Island Road intersection and at access points to key visitor destinations. In addition to causing delays, highly congested roadways concern Island residents because of the potential impact on emergency response times.

This TSP includes solutions for managing traffic on Sauvie Island during peak events and seasons to ensure safe multimodal travel while supporting a vibrant agricultural and recreational economy over the next 20 years.

¹ The "Basic Rule" is that you may only drive a speed that is "reasonable and prudent" considering traffic, road, weather and other conditions.

Section 3

Range of Solutions

RANGE OF SOLUTIONS

The project team identified four categories of opportunities to address transportation needs: bicycle and pedestrian facilities, safety, signage and signal treatments, and transportation demand management.

Table 1 summarizes the solutions that are included in the TSP. The following pages provide additional information on each of the solutions. The May 2015 Needs, Opportunities, Constraints, and Tools memo in Appendix 3 contains a full list of solutions identified.

Table 1 Solutions Summary Table

Reference Number	Potential Solutions	Transportation Needs Addressed
Bicycle and Pedestrian Facilities		
BPF-1	Multi-use path	Reduce Modal Conflicts
BPF-2	Advisory bike lane	Reduce Modal Conflicts
BPF-3	Paved shoulder	Reduce Modal Conflicts
BPF-4	Shared-lane roadways	Reduce Modal Conflicts
BPF-5	Bike map	Reduce Modal Conflicts, Manage Travel Demand
Safety		
SA-1	Increased shoulder width	Reduce Modal Conflicts, Additional Safety Issues
SA-2	Curve improvements	Additional Safety Issues
SA-3	Rural intersection improvements	Reduce Modal Conflicts, Additional Safety Issues
SA-4	Railroad crossing improvements	Additional Safety Issues
Signage and Signal Treatments		
SI-1	Wayfinding signage	Reduce Modal Conflicts, Manage Travel Demand
SI-2	Warning/advisory signs	Reduce Modal Conflicts
SI-3	Speed limit signs	Reduce Modal Conflicts, Additional Safety Issues
SI-4	Signal Controller/Timing Plans	Additional Safety Issues
Transportation Demand Management		
D-1	User-generated parking information	Manage Travel Demand
D-2	Real-time parking information	Manage Travel Demand
D-3	Pricing parking permit	Manage Travel Demand
D-4	Parking enforcement	Manage Travel Demand
D-5	Off-island park-n-ride lots	Manage Travel Demand
D-6	On-Island shuttle service	Manage Travel Demand
D-7	Event permit calendar	Manage Travel Demand
D-8	Event-based "TDM" plan	Manage Travel Demand

The following pages serve as a toolbox of information on the four categories of solutions in Table 1. Each solution has one page describing the solution, pros, cons, applicability to the TSP area, and other information.



Bicycle and Pedestrian Facilities

MULTI-USE PATH



Springwater Trail, Portland, OR



Multi-use paths are paved, bi-directional trails separated from roadways that serve both pedestrians and bicyclists. Multi-use paths increase the safety and comfort level of the user. They play an integral role in recreation, commuting, and accessibility due to their appeal to users of all ages and skill levels.

TSP Area Applicability

The main loop road that consists of Sauvie Island Road, Reeder Road, and Gillihan Loop Road could benefit from a multi-use path. A multi-use path on Sauvie Island would improve accessibility for residents on the Island and increase safety for all users including recreational cyclists.

Pros

- Provides facility for both pedestrians and bicyclists in less space than separated facilities.
- Providing separation from motor vehicles can attract pedestrians and cyclists of all ages and abilities.
- Would improve accessibility for residents on the Island and increase safety for all users including recreational cyclists.

Cons

- May result in conflicts between modes in areas with frequent crossings or driveways.
- May result in conflicts between bicyclists and pedestrians.
- When parallel to roadways, the path must be buffered from motorists which requires substantial right-of-way.
- Speed differentials between more experienced cyclists and slower cyclists and pedestrians can cause conflicts on a shared facility.

Design Considerations

- Best suited in areas where roadway crossings can be minimized (such as parallel to travel barriers such as highways, railroad tracks, rivers, shorelines, natural areas, etc.). High-visibility treatments are needed at path crossings.
- A minimum width of 10 feet is recommended for low-pedestrian/bicycle-traffic contexts and would be appropriate for some areas of the Island; 12 to 20 feet should be considered in areas with moderate to high levels of bicycle and pedestrian traffic such as the loop.
- Pavement markings can be used to indicate separate space for pedestrian and bicycle travel.
- May need right-of-way acquisition and levee restrictions may alter design and alignment.
- Permeable paving options could help minimize surface water runoff and be compatible with the rural character of the area.

Complementary Strategies

- Bike map, Wayfinding signage



Bicycle and Pedestrian Facilities

ADVISORY BIKE LANE



,Numansdorp, The Netherlands



Hanover, NH
Photo: Danny Kim,
The Dartmouth

Advisory bike lanes, also known as “suggestion lanes,” are bicycle lanes that motor vehicles can use to pass oncoming motor vehicles after yielding to bicyclists. Advisory bicycle lanes are used in combination with a single center lane (without a centerline) for bi-directional motor vehicle travel on relatively low-volume streets.

TSP Area Applicability

This treatment is applicable to streets with less than 6,000 average daily motorized traffic (ADT) that do not have sufficient width for dedicated bicycle only facilities. Most Sauvie Island roadways have annual average ADT below 3,000; however seasonal traffic peaks result in ADT up to 17,000 vehicles in a day on Sauvie Island Road. Therefore, this treatment is likely to be suitable only on local roads that are not part of “the loop” but that are popular cycling routes.

Pros

- Provides striped bicycle facility on roadways with very limited right-of-way or pavement width.
- Encourages slower motor vehicle speeds and motorists yielding to bicyclists.
- Inexpensive treatment consisting of only signing and striping.

Cons

- Motorists may not initially understand advisory lanes due to limited applications in the US to date; education would be required.
- Does not provide physical protection from vehicles and may not attract bicyclists of all levels.
- Does not improve pedestrian environment.
- No US design guidelines available.

Design Considerations

- Advisory bike lanes can be striped as 5-7 foot lanes with a single center motorized vehicle lane of 10 to 18 feet.
- Explanatory signage may be helpful in US contexts to communicate to motorists that they must yield to bicyclists before passing oncoming vehicles.

Complementary Strategies

- Bike map
- Wayfinding
- Speed limit signs



Bicycle and Pedestrian Facilities

PAVED SHOULDER



A paved road shoulder can serve as a bicycle and pedestrian facility that provides space separated from motor vehicle traffic in rural areas.

TSP Area Applicability

Paved shoulders can be applied to any roadway in the study area but would require special permits to be constructed on roadways on the levee.

Pros

- Provides a space separated from motorists.
- Requires less right-of-way than a separated multi-use path.
- Standard treatment for Multnomah County and equipment for maintenance available.

Cons

- Does not provide physical protection from vehicles and may not be comfortable for all users.
- Shoulders serving other uses, such as disabled vehicles, farm equipment, or pedestrians may require bicyclists and pedestrians to use travel lanes.

Design Considerations

- A 6-foot width is preferred to accommodate bicycle and pedestrian travel, with a 4-foot minimum in constrained areas. Greater widths can be used in higher-speed locations.
- Rumble strips or profiled striping can be used to enhance safety and minimize motorists encroaching on the shoulder.
- May require right-of-way acquisition.
- Levee restrictions may alter design or prohibit construction.

Complementary Strategies

- Bike map
- Wayfinding
- Rumble strips





Bicycle and Pedestrian Facilities

SHARED LANE ROADWAYS



Shared lane roadways are those where motorists and cyclists share the same travel lanes. Shared lane roadways that are part of a designated bicycle network may include shared lane markings (“sharrows”) or signage to indicate the legal presence of bicyclists in the travel lane.

TSP Area Applicability

All of the roadways on Sauvie Island are currently shared facilities. Posting “Bikes on Roadway” signs would indicate to road users that bicyclists may be present and are on the roadway.

Pros

- Allows for bicycle travel when other treatments are not feasible.
- Low- to no-cost.

Cons

- Does not provide any separation from vehicles.
- Without additional traffic-calming treatments, it is likely to attract only strong and fearless bicyclists.
- Does not improve pedestrian environment.

Design Considerations

- Provide guidance signage to alert drivers of the shared road. See warning/advisory signs section.
- Educate drivers on the rules of sharing the road.
- Increase signage and pavement markings.

Complementary Strategies

- Pedestrian path
- Bike map





Bicycle and Pedestrian Facilities

BIKE MAP



Source: FMATS Bike Map

Bike maps generally include the type of bicycle facilities available as well as destinations and other useful information within a defined area.

TSP Area Applicability

- Bike maps can provide guidance to infrequent cyclists regarding potential areas of interest such as types and location of recreational activities, bike parking locations, restrooms, and access to drinking water on Sauvie Island.
- Could be privately funded by bike friendly businesses.

Pros

- Provides valuable information to bicyclists.
- Reduces trespassing.
- Map is portable and could also be available electronically.

Cons

- Cost of production and regular updates to ensure information remains relevant.

Complementary Strategies

- Multi-use paths
- Pedestrian side-path
- Advisory bike lanes
- Paved shoulder
- Shared lane roadways
- Off-island Park-N-Rides

Safety Treatments

INCREASED SHOULDER WIDTH



A wide shoulder can be used to provide a separated space for cyclists and pedestrians, assist with vehicular recovery during driver inattentiveness, assist with incidence response and emergency situations, and provide space for motorists to bypass slow moving vehicles such as farm equipment.

TSP Area Applicability

During the past five years, nearly 70 percent of the reported crashes on Sauvie Island were single vehicle crashes. Widening the shoulders could be effective at reducing these types of crashes by providing space for recovery, especially along Reeder Road, Sauvie Island Road, and Gillihan Road.

Pros

- Provides drivers more opportunity to recover before departing the roadway or slow their vehicle to a controlled stop.
- Wider shoulders may be used by pedestrian and bicyclists when other facilities are not present.
- Widening the shoulder could allow for shoulder rumble strips.
- As a current Multnomah County standard, knowledge and equipment for maintenance is available.

Cons

- Additional right-of-way may be required.

Design Considerations

- Adequate right-of-way is necessary.
- Levee restrictions may alter design or prohibit construction.

Complementary Strategies

Safety Treatments

CURVE IMPROVEMENTS



Source: MUTCD

Curve improvements include a variety of treatments that help to inform the driver of the presence and characteristics of curves. Treatments include, but are not limited to, curve warning signs, decreased speed signs, curve delineation posts, and illumination.

TSP Area Applicability

Many of the roads on Sauvie Island are winding with limited warning to drivers of the impending curves. In addition, many of the reported crashes on Sauvie Island occur on or around roadway curves. Providing curve warning signs and delineation posts may help to reduce crashes along Island roadways, especially along Reeder Road and Gillihan Road.

Pros

- Provides advanced notification to road users of location and characteristics of potentially unexpected curves.
- May help to decrease crashes on curves.

Cons

- Contributes to sign clutter.
- Requires additional cost and maintenance

Complementary Strategies

- Increased shoulder width

Safety Treatments

RURAL INTERSECTION IMPROVEMENTS



Intersection improvements include a variety of treatments to help all modes efficiently and safely travel through intersections. Treatments include, but are not limited to changing intersection control type or changing the stop-controlled approaches, adding turn lanes, adding marked or active crossing treatments, and providing adequate roadway illumination.

TSP Area Applicability

Four locations on Sauvie Island would benefit from intersection improvements that help all modes move safely and efficiently on the roadway system. These include:

- Sauvie Island Road/US 30
- Sauvie Island Road/Gillihan Road
- Sauvie Island Road/Reeder Road
- Reeder Road/Gillihan Road

More in depth analysis is necessary to provide recommendations on specific treatments to the intersections.

Pros

- Lighting increases night-time visibility of roadway users and animals and sense of security for all roadway users.
- Possible improved operations of the intersection.

Cons

- Cost of design and construction.
- Potential right-of-way acquisition.
- Increased maintenance costs with signals and illumination

Complementary Strategies

- Shoulder widening
- Rumble strips
- Wayfinding signage

Safety Treatments

RAILROAD CROSSING IMPROVEMENTS



Source: www.iqtrafficcontrol.com



Source: urbanpostmortem.wordpress.com

Railroad crossings can have passive control (devices that mark the location of a crossing such as cross-bucks and yield or stop signs) or active control (devices that mark the location of a crossing and indicate the approach or presence of a train such as flashing lights and gate arms). Active crossings are relatively expensive to install and maintain but provide increased safety compared to a passive crossing.

Design Considerations

For private railroad crossings (those at a driveway or private road), improving the crossing from passive control to active control requires railroad permission and a contract between the property owner and the railroad. Public crossings in Oregon (generally those at a crossing of a public road) are regulated by the Oregon Department of Transportation (ODOT). ODOT's Rail Division follows a federal mandate to consolidate at-grade railroad crossings. The federal direction has resulted in a requirement to close one or more crossings when a new crossing is constructed or an existing crossing is upgraded.

Upgrading crossings to active control in rural areas typically ranges from \$200,000 - \$500,000. In addition, railroad companies typically require crossing owners to pay \$5,000 - \$10,000 per year per crossing in annual maintenance fees to compensate for additional weekly inspections and maintenance required over the life of the crossing.

When railroad crossings are upgraded to active crossings the railroad tracks and the road bed typically also require reconstruction to current standards. The road grade at the crossing must have no more than approximately a three inch rise or fall within 30 feet of either side of the tracks per national standards. This can result in the need to re-grade the roadway or railroad track approaches to the crossing.

TSP Area Applicability

There are approximately eight passive railroad crossings in the study area along Highway 30. Private property owners may be able to get permission to upgrade crossings from the railroad; however, public crossing upgrades will require a plan to consolidate and close one to two other public or private crossings. The best candidates for crossing upgrades are those with flat crossings with good visual clearance.

Pros

- Provide active control and effectively communicates to vehicles, pedestrians, and bicyclists the need to stop at the railroad crossing.

Cons

- Costly and likely to require closure of other crossings.

Complementary Strategies

- Warning/advisory signs

Signage and Signal Treatments

WAYFINDING SIGNAGE



Source: Andy Daleiden, Kittelson & Associates, Inc.



Signage indicating to bicyclists and pedestrians the direction and distance to points of interest along a corridor. Wayfinding signs can also be used to inform drivers of key recreational destinations, parking, etc.

TSP Area Applicability

Provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations.

Pros

- Encourages walking and biking by providing access information to major attractions.

Cons

- Additional cost and maintenance.
- Potential for sign clutter.

Design Considerations

- Place in key locations/decision points such as intersections.

Complementary Strategies

- Multi-use paths
- Bike lanes
- Pedestrian paths
- Bike map

Signage and Signal Treatments

WARNING/ADVISORY SIGNS



Source: KAI



<http://msue.anr.msu.edu/>

Signage providing guidance or warning about unexpected conditions for all users of the roadway.

TSP Area Applicability

Signs can be used on Island roadways to inform motorists of bicycles sharing the road, locations of frequent pedestrian crossings, and roadway curvature. Signage may be particularly helpful along those roadways that remain “shared use” as well as areas with limited visibilities of roadway curvature and upcoming intersections.

Pros

- Provides advanced notification to road users of unexpected conditions; i.e. pedestrians entering the roadway, curves, etc.
- Creates more awareness by motorists of the shared use and to look for bicyclists.

Cons

- Contributes to sign clutter.
- Additional cost and maintenance.

Complementary Strategies

- Curve improvements
- Shared lane roadways

Signage and Signal Treatments

SPEED LIMIT SIGNS



Source: KAI

Signage providing guidance on appropriate speeds for traveling the roadway.

TSP Area Applicability

Most roadways have posted speeds today, except Gillihan Road.

Pros

- Alerts the driver to speeds appropriate for the roadway.
- Informs pedestrians and bicyclists about the suitability of the road for their comfort level.

Cons

- Contributes to sign clutter.
- Additional cost and maintenance.

Complementary Strategies

- Shoulder bikeways and shared lane roadways

Signage and Signal Treatments

SIGNAL CONTROLLER/TIMING PLANS



A traffic signal controller runs the signal timing and phase plan for a given traffic signal. Various timing plans can be used for different times of day (e.g. peak and off peak hour), time of years, and special events.

TSP Area Applicability

The existing controller at the intersection of Sauvie Island Road and Highway 30 is programmed but operation has degraded with age. The internal clock that controls the timing plans is faulty. Upgrading the controller to a newer version could provide more effective signal operations.

Pros

- Effective movement of vehicles through an intersection.
- Better efficiency reduces congestion which can lead to safety benefits.

Cons

- Controller upgrades can be expensive.

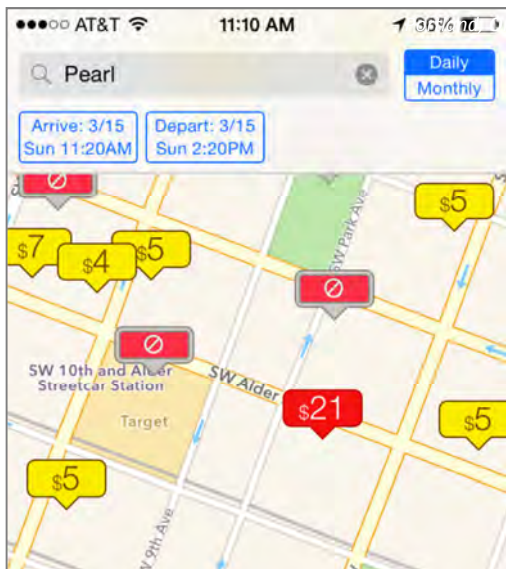
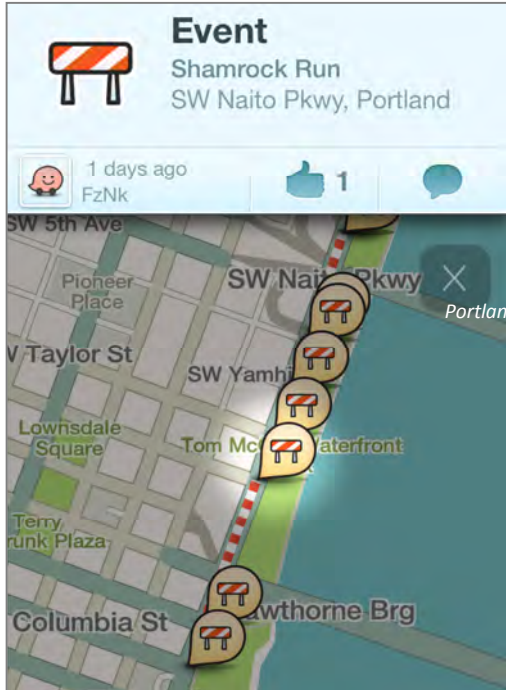


Complementary Strategies

- Event permit calendar
- Event-based TDM plans

Transportation Demand Management

USER-GENERATED PARKING INFORMATION



User-generated parking information would provide visitors and/or event participants with information about public or privately-held parking availability. This information is “shared” amongst system users through “apps” and other electronic means. This type of strategy has been implemented successfully for real-time user-generated traffic information by apps such as Waze, where users can report incidents or other temporary issues affecting traffic.

TSP Area Applicability

On Sauvie Island, this strategy could be implemented through the development of a smart-phone app and corresponding installation of real-time signage at key locations on the Island. These signs could be useful to:

- Visitors arriving at popular locations, such as the beaches, that are to encouraged to log-in to the app and report on the current availability of parking.
- Provide users arriving on the Island with information about parking availability and traffic congestion.
- Business owners and event organizers that can advise potential visitors to come later or park at alternate locations.

Pros

- Can help avoid unnecessary trips when no parking is available.
- After the development of the app and installation of the signage, does not require additional staffing or investment.

Cons

- Relies on users to generate information, which may result in inconsistent or infrequent updates.
- Limited cell phone coverage on the Island. Only users with smartphones and cell service can access.

Design Considerations

- Signage should be visible and easy to understand
- App could be designed with a “points” system and rewards for consistent users that report parking information, such as discounts on permits.

Complementary Strategies

- Parking permit pricing
- Park-N-Ride lots

Transportation Demand Management

REAL-TIME PARKING INFORMATION

Real-time parking information can help avoid unnecessary trips by letting visitors know when and where parking is already fully occupied. Digital displays are frequently used in parking garages, where automated counting or sensing is installed. Lower-tech options are also possible that rely upon a person to update the sign message. This information is provided by a designated staff person or through the use of parking sensors or video, rather than relying on users to report parking availability to other users.

TSP Area Applicability

Due to the predominance of graveled parking on Sauvie Island, it is not currently feasible to install detection or sensor on most parking locations. Instead, this strategy could be implemented through lower-tech methods such as:

- Informational maps of all parking locations can be readily available for visitors to the island, with various locations numbered or color-coded for easy “real-time” information communication
- On the busiest weekends, patrol officers, ODF&W, paid attendants, or volunteers at busy locations could relay information to the Cracker Barrel store, where information about the parking locations shown on the map would be posted for visitors arriving to the Island.
- In cases where popular parking locations are full, an information board could suggest alternate parking locations.
- Video cameras could be installed at key parking areas with complementary displays posted near the entrance to the Island and online.

Pros

- Can help avoid unnecessary trips when no parking is available.
- Provides a low-tech way to provide information to all visitors

Cons

- May require manual updates from people at the locations of parking and a display board, unless video cameras are installed.
- Video cameras may raise privacy concerns

Design Considerations

- Signage with information about parking locations and availability should be positioned so that it is easily understood and visible to visitors entering Sauvie Island.

Complementary Strategies

- Parking permit Pricing
- Park-N-Ride lots

Transportation Demand Management

OPTIMIZE PARKING PERMIT PRICING



Photo: Statesman Journal, Sauvie Island, OR

Pricing parking is a powerful tool for managing demand. Requiring payment for parking can influence travelers' choice to carpool or use other modes.

TSP Area Applicability

Visitors to Sauvie Island currently pay \$7 for a daily permit to park in wildlife areas on the island. Annual permits cost \$22. Additional strategies for consideration include:

- Permit pricing could be increased during high-traffic times, such as prime weekends, and decreased during lower-traffic times, such as week days or winter months, to help smooth out the flow of visitors.
- Annual permit costs could be increased or split into two "season" permits, with winter season having a much lower cost.
- Requiring permits for all vehicles entering the Island. Resident parking could be free or at a low cost covering only permit administration.
- Additional fees for parking could be collected in popular or congested locations, such as the beaches.

Pros

- Can generate revenue as long as administrative costs are not substantial.
- Is demonstrated to help manage demand, since people are price-sensitive.

Cons

- May be perceived as unfair or bad for business by some Island businesses if all visitors are required to obtain permits. Today, only those visitors desiring to use a public parking facility are required to buy permits.
- Cost of enforcement.

Design Considerations

- Any increases or changes to the pricing structure could be accompanied by an explanation of where the additional revenue will be used. In examples where people are able to see the local benefit of the parking revenue, they are much more likely to support the increased costs.

Complementary Strategies

- Off-Island Park-N-Ride

Transportation Demand Management

PARKING ENFORCEMENT



Regular enforcement of existing parking regulations can improve compliance. If people expect to receive a ticket for improper parking, they are more likely to seek other options.

TSP Area Applicability

Enforcement officers could increase the amount of patrolling and ticketing on peak weekends during the summer in wildlife parking areas or in areas not designated for parking. Communication about the increased enforcement could motivate visitors to follow parking regulations before getting tickets.

Depending on results, enforcement efforts could be limited to specific times or days to minimize the additional staffing investment.

Pros

- Provides an economic incentive to follow the rules on parking locations by fining people for breaking them.
- Can generate additional revenue.

Cons

- Requires parking enforcement staff
- May anger visitors or residents that have been accustomed to more relaxed parking enforcement.

Complementary Strategies

- Parking Information
- Off-Island Park-N-Ride

Transportation Demand Management

OFF-ISLAND PARK-N-RIDE LOTS



Park-n-ride lots offer people a place to park their cars when transferring to a different mode, such as carpooling with another person, bicycling, or taking transit.

TSP Area Applicability

An off-island park-n-ride could be located along Highway 30 south of the island in an industrial area. Partnerships for shared parking could be established for existing private parking that is used primarily during the week. This could enable:

- Beach-goers to form carpools to go to the island, leaving other vehicles at the park-n-ride locations off-island.
- Bicyclists to leave their cars and ride their bicycles from parking locations on Highway 30.
- Provision of shuttle service from the park-n-rides during events or high-traffic weekends.

Pros

- Facilitates use of carpooling and can reduce need for parking on the island.
- Can more effectively utilize off-island parking spaces that are normally used primarily during the week.

Cons

- Would need to negotiate public access to existing location along Highway 30.
- More distant park-n-ride lots may not appeal to bicyclists, since Highway 30 may not be a comfortable bike route for many riders.
- May raise liability issues for parking arrangements on private properties.

Design Considerations

- Signage and online information to promote the park-n-ride lot would need to be prominent to ensure that visitors know its location and that they can use it.

Complementary Strategies

- Shuttle service
- Parking pricing
- Event TDM strategies



Portland, OR, Google Earth

Transportation Demand Management

ON-ISLAND SHUTTLE SERVICE



A branded on-island shuttle circulator service could provide access to popular island locations during peak weekend days during the summer.

TSP Area Applicability

- An on-island shuttle service could operate as a circulator during peak weekend days, allowing people to park once and then travel in the shuttle to popular locations. This shuttle could run between the Cracker Barrel store and the beach during the peak summer days. In addition, shuttles could be chartered for particular event weekends, or by large events, to serve special event visitors. In these cases, shuttles could also travel to and from off-island park-n-ride locations.

Pros

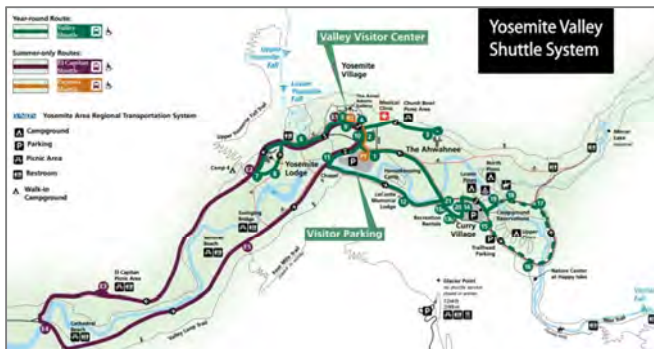
- Could provide an alternative to driving and parking on the island.
- If effectively utilized, could allow for more visitors with fewer traffic and parking impacts on the island.

Cons

- Funding shuttle service may be difficult to sustain.
- Without consistent service, people may not be able to rely on the shuttle being available.

Design Considerations

- Signage and online information to promote the shuttle service would need to be prominent to ensure that visitors know its location and how they should use it.



Complementary Strategies

- Parking pricing
- Event permits / calendar
- Park-n-ride

Transportation Demand Management

EVENT PERMITS / CALENDAR

A system of event permits requires event organizers to register events through a central calendar system. A permit issued for each event states the requirements that each would have to meet.

TSP Area Applicability

On Sauvie Island, where events occur frequently throughout the year, this system could allow for coordination between same day events. This idea builds on the existing voluntary event permit system through the Sauvie Island Community Association and could remain informal or could be administered by a local TMA or by the County. This system could include:

- Events over a certain size limit could be required to implement a transportation demand management (TDM) plan for the event which would outline how the event will utilize any number of different TDM strategies to reduce traffic impacts.
- Provision of incentives, such as partial reimbursement for shuttle costs, for events demonstrating a certain level of non-drive-alone mode share.
- Provision of a daily “cap,” if necessary, on the total number of event attendees arriving to the island in private vehicles, in order to help avoid days with the highest levels of congestion. For example, under the same cap, one large event or four smaller events may be able to occur on the same day – but all five would not be able to be held concurrently.

Pros

- Allows for anticipation of heavy traffic days
- By capping total anticipated event attendance per day, events can be spread more evenly throughout the year
- Provides a mechanism for coordination TDM strategies among event planners

Cons

- Administration of the permit system and calendar may require additional staff time.
- Event planners may have to commit to certain dates earlier than they would otherwise.
- Could result in conflicts between event organizers/local businesses in the competition for popular dates.

Complementary Strategies

- Park-n-ride
- Event-based shuttle system
- Modified signal timing

Transportation Demand Management

EVENT-BASED “TDM” PLANS



Events of a certain size would be required to submit a transportation demand management (TDM) plan in order to receive an approved event permit.

TSP Area Applicability

Organizers of large events would need to provide a transportation demand management plan to demonstrate ways that they will manage impacts. Transportation demand management plans could include:

- Traffic management plan – organizers must demonstrate how they would manage the arrivals and parking for attendees of the event, including:
 - providing adequate parking to accommodate attendees
 - employing flaggers, if needed
 - arranging for overflow parking in alternate locations, if needed
 - coordinating with other events occurring in the same time-frame.
- Demand management strategies – organizers can draw on a number of demand management strategies to reduce vehicle trips:
 - Carpool / ride-matching for event attendees
 - Promotion of park-n-ride location for carpools, bicyclists, or other recreational visitors
 - Provide shuttle or van service from a park-n-ride location
 - Charging fees for event parking



Photo: Thomas Cobb, Travel Portland

Pros

- Reduces congestion on Island roadways.
- Adds accountability for events
- Will encourage thorough planning and help mitigate impacts of larger events

Cons

- Increases the organizational burden for event planners
- Requires staff time to review TDM plans and work with event planners.

Complementary Strategies

- Park-n-ride
- Event permit / calendar
- Shuttle service
- Valet bike parking
- Modified signal timing

Section 4

Transportation System Plan

TRANSPORTATION SYSTEM PLAN

This section details the projects, programs, and policies needed to serve Sauvie Island and Multnomah Channel Rural Areas through 2035. They represent the culmination of the existing needs and guidance from citizens, business owners, and governmental agencies within Sauvie Island and Multnomah Channel Rural Area, the PMT and the CAC. The projects, policies, and programs help to ensure and support the efficient and safe multimodal movement of people and goods throughout the Sauvie Island and Multnomah Channel Rural Area.

TRANSPORTATION GOALS AND POLICIES

The Sauvie Island and Multnomah Channel Rural Area Plan (RAP) provides transportation policies for the study area. This TSP update implements the RAP policies, and uses the policies as guidance in developing goals, objectives, and policies. The applicable RAP policies, categorized by the three issue focus areas, are below.

- Reduce Modal Conflicts
 - Policy 5.2 – Identify and implement short- and long- term solutions to safely accommodate bicyclists, pedestrians, and motor vehicles on Sauvie Island including on-road bikeways, separated multi-use paths, and funding options.
 - Policy 5.4 - Consider context sensitive design when reviewing rural roadway standards to determine appropriate paved shoulder widths to preserve the rural character of roads. Shoulder widening should aim to achieve a minimum 3 foot paved width.
 - Policy 5.7 – Promote a transportation system that prioritizes and supports the efficient and safe movement of farm vehicles and equipment.
 - Policy 5.8 – Maintain and improve the transportation system for all modes of travel with the following goals: reducing vehicle miles traveled, minimizing carbon emissions, reducing conflict between travel modes, and improving the natural environment by minimizing stormwater runoff and facilitating wildlife movement. Ensure that the transportation system reflects the community’s rural character while ensuring efficiency and connectivity.
- Additional Safety Issues
 - Policy 5.5 – Coordinate with ODOT Rail and Public Transit Division to promote appropriate safety devices at crossings.
 - Policy 5.11 – Promote effective use of signage designed to educate the public about farm equipment using roadways, wildlife crossings and bicycle and pedestrian

safety. Work with businesses to create additional way-finding signs that can help visitors get to their destinations more efficiently.

- **Manage Travel Demand**

- Policy 5.6 – Coordinate with the Oregon Department of Fish and Wildlife (ODFW) and Columbia County to manage and reduce demand on the Sauvie Island transportation system, especially during peak use periods, by making more efficient use of capacity on the system through strategies such as user fees, shuttles, and parking management programs. Strategies may include, but are not limited to:
 - **(a)** Encourage and support action by the Oregon Fish and Wildlife Commission to increase daily fees during peak use periods to an amount that will effectively reduce the traffic burden on Sauvie Island roads and reduce adverse wildlife impacts resulting from heavy traffic, noise and dust.
 - **(b)** Encourage Columbia County and the Columbia County Sheriff to prohibit parking on county roads outside designated parking areas and to post and enforce its parking restrictions.
 - **(c)** Encourage the use of ride sharing, and support safe and convenient park-and-ride facilities for carpools and transit service in convenient and appropriate off-island locations.
 - **(d)** Explore options for shuttle support and traffic reduction strategies such as traffic fees and parking management programs.
 - **(e)** Coordinate with transit agencies and service providers to identify existing transit deficiencies and the improvements necessary to increase accessibility to transit service by potential users.
- Policy 5.9 – Implement a range of Transportation Demand Management (TDM) policies encouraging existing businesses and requiring new development (beyond single family residential use and agricultural uses) to help reduce vehicle miles traveled (VMT), and alleviate congestion on US 30 and county roads caused by seasonal and special event traffic.

Descriptions of the five TSP goals and respective objectives, policies, and implementation strategies, which implement the RAP policies listed above, are below. These will guide the development of the transportation system over the next 20 years.

Goal 1: Implement a transportation system that is safe and efficient in meeting the needs of area residents and those traveling through the area.

Objective A: *Provide a transportation system that addresses safety concerns for all modes of travel*

Policy: Continuously improve safety levels all motorized and non-motorized traffic.

Implementation strategies:

- I. Monitor accident rates for all modes of transportation and recommend implementation of low-cost operational improvements within budgetary limits. Target resources to reduce accident potential in the top 10 percent of accident locations
- II. Continue to monitor high accident location sites for all modes of transportation
- III. Implement access management standards to reduce vehicle conflicts and maintain the rural character of the area

Policy: Actively support safe travel speeds on the transportation system. Reduce speeds limits to ensure they are compatible with adjacent land uses, support safety for all modes of travel. Speeds shall be consistent with corresponding implementation documents.

Implementation strategies:

- I. Support speed limit enforcement (i.e. use of radar), traffic calming and education concepts.
- II. Apply design standards that encourage appropriate motor vehicle and truck speeds.
- III. Coordinate with ODOT to reduce speeds on rural roadways.

Objective B: *Provide a transportation system that is convenient and limits congestion while safely accommodating all modes of travel.*

Policy: Adopt rural road design standards specific to Sauvie Island that are appropriate to safely meet the needs of all roadway users.

Implementation strategies:

- I. Support the Street Design Guidelines for 2040 and apply them appropriately to maintain the rural character of Multnomah County as well as support the Rural Reserve requirements.
- II. Support Title 6 of the Urban Growth Management Functional Plan and apply level of service standards appropriately to maintain the character of rural Multnomah County.

Goal 2: Implement a balanced transportation system that supports all modes of travel.

Objective A: *Establish a transportation system that accommodates a variety of methods of travel and minimizes reliance on a single travel mode.*

Policy: Encourage the use of ride sharing facilities.

Implementation strategies:

- I. Support safe and convenient park and ride facilities for car pools and transit service in convenient and appropriate locations.

- II. Encourage the placement of bike lockers at all park and ride/park and car pool locations. Support and promote their use.
- III. Coordinate with other agencies to assist users with convenient services (e.g. ride share matching).

Policy: Encourage mobility for the transportation disadvantaged.

Implementation strategies:

- I. Work with public transportation providers to monitor and provide for the transportation needs of the transportation disadvantaged. Strategies could include establishing focus groups for conducting outreach to these groups.

Policy: Support the development of multi-use paths.

Implementation strategies:

- I. Coordinate multi-use trail transportation needs with Metro Parks and Green Spaces.
- II. Coordinate with the Sauvie Island Drainage Company for potential multi-use trails on Sauvie Island.

Goal 3: Develop a transportation system that supports the rural character of West Multnomah County.

Objective A: *Maintain a transportation system that supports the surrounding rural land use designations.*

Policy: Discourage through traffic on trafficways with functional classification of rural local road.

Implementation strategies:

- I. Reduce travel conflicts by providing appropriate facilities, signs, and traffic markings based upon user type and travel mode.
- II. On rural local roads with heavy through traffic, consider implementing appropriate traffic-calming measures to reduce such traffic.

Objective B: *Provide a transportation system that minimizes impacts to wildlife and agricultural resources.*

Policy: Apply roadway design safety standards appropriately by balancing the needs of the travelling public and minimizing negative impacts to the environment.

Implementation strategies:

- I. Develop and implement a design exception process that considers the relative and incremental benefits of implementation, costs and impacts to the environment.
- II. Assess implications of fish passage requirements on county facilities and develop a program for retrofitting drainage facilities.
- III. Adopt and apply drainage system design guidelines and standards to accommodate fish passage.
- IV. Adopt and apply rural roadway shoulder standards that preserve the rural character of the area.

- V. Adopt and apply rural roadway standards that maintain and improve safe wildlife movement and ensure wildlife connectivity in the SIMC planning area.
- VI. Assess Natural Resource strategies and explore design elements to minimize impacts to fish and wildlife habitat.
 - 1. Where possible, avoid harm to wildlife, including wildlife movement, from new, existing, or improved transportation facilities, and where not possible, minimize harm to wildlife. Mitigate any unavoidable harm to wildlife.
 - 2. Potential mitigation measures include, but are not limited to: wildlife crossings; improved culverts with shelves or dry paths built into the sides; mechanisms to funnel wildlife into the culverts; signage; habitat modification; asking drivers to turn on running lights; public awareness programs; and other wildlife mitigation measures that have been demonstrated to be effective.
- VII. Explore incorporation of wildlife criteria for the Capital Improvement Plan and Program (CIPP).
- VIII. Work with agencies to address impacts of boat traffic on the environment (e.g. shoreline).
- IX. Consider climate change and the Climate Action Plan when planning transportation investments and service delivery strategies.

Objective C: *Maintain the beauty of the area by preserving critical view sheds.*

Policy: Encourage the placement of new pipelines and transmissions lines in existing right-of-way whenever possible.

Implementation strategies:

- I. Develop general guidelines for utility placement within the county right-of-way that reduce the number of conflicts and cost of implementation.
- II. Enhance the rural character and scenic qualities of the area by placing utilities underground when possible.
- III. Coordinate improvements with utility companies through regular status meetings to maintain and preserve the beauty of the rural character of west Multnomah County.

Objective D: *Ensure the transportation plan meets federal, state and regional air, water, and noise standards.*

Policy: Coordinate transportation improvement projects with appropriate regulatory agencies.

Implementation strategies:

- I. Retrofit existing facilities to meet regulatory requirements within budgetary limits.
- II. Obtain permits as necessary for transportation improvement projects and maintenance activities.

Goal 4: Develop a transportation system the supports a healthy economy.

Objective A: *Provide a convenient access while maintaining movement of freight along the U.S. Corridor 30.*

Policy: Provide ongoing coordination with state, regional, and local business interests to assure efficient movement of goods and services.

Implementation strategies:

- I. Participate in, support, and adopt the U.S. 30 Corridor Plan.
- II. Provide for auxiliary turn lanes on road connections to U.S. 30 to achieve acceptable operating levels of service.

Policy: Promote transportation alternatives for the movement of freight.

Implementation strategies:

- I. Encourage rail operators to maintain rail service within the U.S. 30 corridor.
- II. Support the movement of freight on the Columbia River, including the U.S. Army Corps of Engineers' study of deepening the Lower Columbia River navigation channel to accommodate deep draft ships.

Objective B: *Preserve the function and safety of the transportation system.*

Policy: Provide a transportation system that ensures economically viable transportation of goods from farm to market.

Implementation strategies:

- I. Conduct a study of Cornelius Pass Road.

Policy: Coordinate transportation system management activities with interested and affected stakeholders.

Implementation strategies:

- I. Work with property owners to consolidate existing accesses when possible and as appropriate to access management standards.
- II. Support limited accesses along U.S. 30 to the extent possible. Support access management along U.S. 30 in accordance with ODOT's Access Management Standards.

Goal 5: Provide transportation improvements in a timely manner according to funding capability.

Objective A: *Maximize cost-effectiveness of transportation improvements using the Capital Improvement Plan process.*

Policy: Invest in safety and maintenance improvements.

Implementation strategies:

- I. Accelerate shoulder paving to safely accommodate automobile, bicycle, and pedestrian use.
- II. Make intersection improvements to improve safety, sight distance, and intersection efficiency.
- III. Continue to provide opportunities to educate and inform citizens with easy-to-understand materials on transportation finance.
- IV. Ensure the Capital Improvement Plan evaluation criteria adequately evaluate rural needs.

IMPROVEMENT PROJECTS

Two community workshops and multiple CAC meetings provided feedback on the potential range of solutions in Section 3 and informed a 20-year list of programs and policies for TSP implementation. The resultant set of solutions intends to help manage traffic on Sauvie Island and ensure safe multimodal travel for Sauvie Island residents, visitors, and businesses during the next 20 years. Project priority categorizes the projects into one of three timeframes: near-, mid-, and long-term. Short-term projects include those that could be addressed within the next five years. Mid-term projects could be addressed within the next six to ten years. Long-term could be addressed within 11 to 20 years. Figure 2 and Table 2 illustrate the project list.

Table 2 Planned Projects and Programs

Project Number	Project/Program Name	Project/Program Description	Estimated Cost	Priority
1	Sauvie Island Road Multi-Use Path	Construct multi-use path parallel to sections of Sauvie Island Road located on the levee.	\$\$	Near-term
2	Advisory Bike Lane Study	Conduct engineering study to identify potential locations for an advisory bike lane pilot test and verify adequate sight distance.	\$	Near-term
3	Advisory Bike Lane Pilot Project	Implement advisory lane pilot test project. The project will temporarily implement an advisory lane and be monitored for compliance and use.	\$	Near-term
4	Sauvie Island and Multnomah Channel (SIMC) Bike Map	Work with Sauvie Island Community Association (SICA) and other Sauvie Island stakeholders to develop a bike map that includes wayfinding and education	\$	Near-term
5	Gillihan Road Curve Improvements	Provide warning signs and delineation posts on curves along the loop roads.	\$\$	Near-term
6	Gillihan Road/Reeder Road Intersection Improvement Study	Conduct an engineering/safety study to determine impacts and safety considerations for implementing three-way stop-control at the intersection of Gillihan Road and Reeder Road.	\$	Near-term
7	Gillihan Road/Reeder Road Intersection Upgrades	Implement a three-way stop control at the intersection of Gillihan Road and Reeder Road.	\$\$	Near-term
8	SIMC Wayfinding Upgrades	Install additional wayfinding to provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations.	\$	Near-term
9	Share the Road Improvements	Install warning/advisory signs are to inform motorists of bicycles and farm equipment sharing the road along facilities (all roads under existing conditions)	\$\$	Near-term
10	Gillihan Road Signage Improvements	Install speed limit signs on unsigned sections of Gillihan Road.	\$	Near-term
11	Sauvie Island Mobile Speed Radar Implementation	Obtain a mobile speed radar unit for Sauvie Island that can be relocated at regular intervals.	\$	Near-term
12	US 30/Sauvie Island Road Intersection Upgrades	Upgrade the traffic signal controller at the intersection of US 30 and Sauvie Island Road.	\$\$	Near-term

Project Number	Project/Program Name	Project/Program Description	Estimated Cost	Priority
13	US 30/Sauvie Island Road Intersection Signal Study	Conduct study of signal timing at the intersection of US 30 and Sauvie Island Road for possible truck extensions, westbound detection issues, and optimization of green and red time.	\$	Near-term
14	Parking Information Distribution Study	Study to determine the most effective and feasible method to implement distribution of parking information.	\$	Near-term
15	Permitting Study	Work with ODF&W to implement an increased parking permit fee and/or limit number of permits. Include bicycle permitting.	\$	Near-term
16	Sauvie Island Park-n-Ride and Shuttle Service Study	Study to determine location of off-island park-n-ride lots and plan for on-island shuttle service for events.	\$	Near-term
17	Event Permit Calendar	Develop event permit calendar and implement use.	\$	Near-term
18	Daily Trip Study	Study to explore a daily trip cap.	\$	Near-term
19	Ticket and Permit Enforcement Study	Study the implementation of increased permits and enforcement of permits; including illegally parked vehicles, beach day use permits, and existing permit compliance.	\$	Near-term
20	Sauvie Island Bridge Toll Study	Study the implications of a Sauvie Island Bridge toll for non-residents.	\$	Near-term
21	SIMC Travel Demand Management Plan	Develop a Travel Demand Management Plan for the island that further explores each of the potential TDM strategies and explores and identifies a potential Transportation Management Association (TMA) for Sauvie Island. Elements of the TDM plan should include input from projects 14-20.	\$\$	Near-term
22	Sauvie Island Road/Reeder Road Intersection Improvement Study	Conduct an engineering/safety study to determine impacts and safety considerations for implementing three-way stop-control and channelized right-turn for northbound traffic at the intersection of Sauvie Island Road and Reeder Road.	\$	Near-term
23	SIMC Rail Study	Conduct rail corridor study to identify feasible local street connections and railroad crossing consolidation and upgrades. Project will include coordinate with owners of the private rail crossings.	\$\$	Mid-term
24	Loop Road Shoulder Improvements	Provide 3-4 foot paved shoulders on the loop roads including Reeder Road, Sauvie Island Road, and Gillihan Road.	\$\$\$	Mid-term
25	Sauvie Island Speed Photo Radar Implementation	Implement permanent speed photo radar signs at several locations on Sauvie Island.	\$\$	Mid-term
26	Sauvie Island Speed Photo Radar Ticketing Implementation	Implement photo radar ticketing at several locations on Sauvie Island	\$	Mid-term
27	Sauvie Island Road Shoulder Improvements	Provide 3-4 foot paved shoulders on Sauvie Island Road from Reeder Road to the Columbia County line.	\$\$\$	Long-term
28	Reeder Road Shoulder Improvements	Provide 3-4 foot paved shoulders on Reeder Road from Gillihan Road to the Columbia County line.	\$\$\$	Long-term

\$ = \$0 - \$100,000;

\$\$ = \$100,000 - \$500,000;

\$\$\$ = > \$500,000

Near-term = 0-5 years

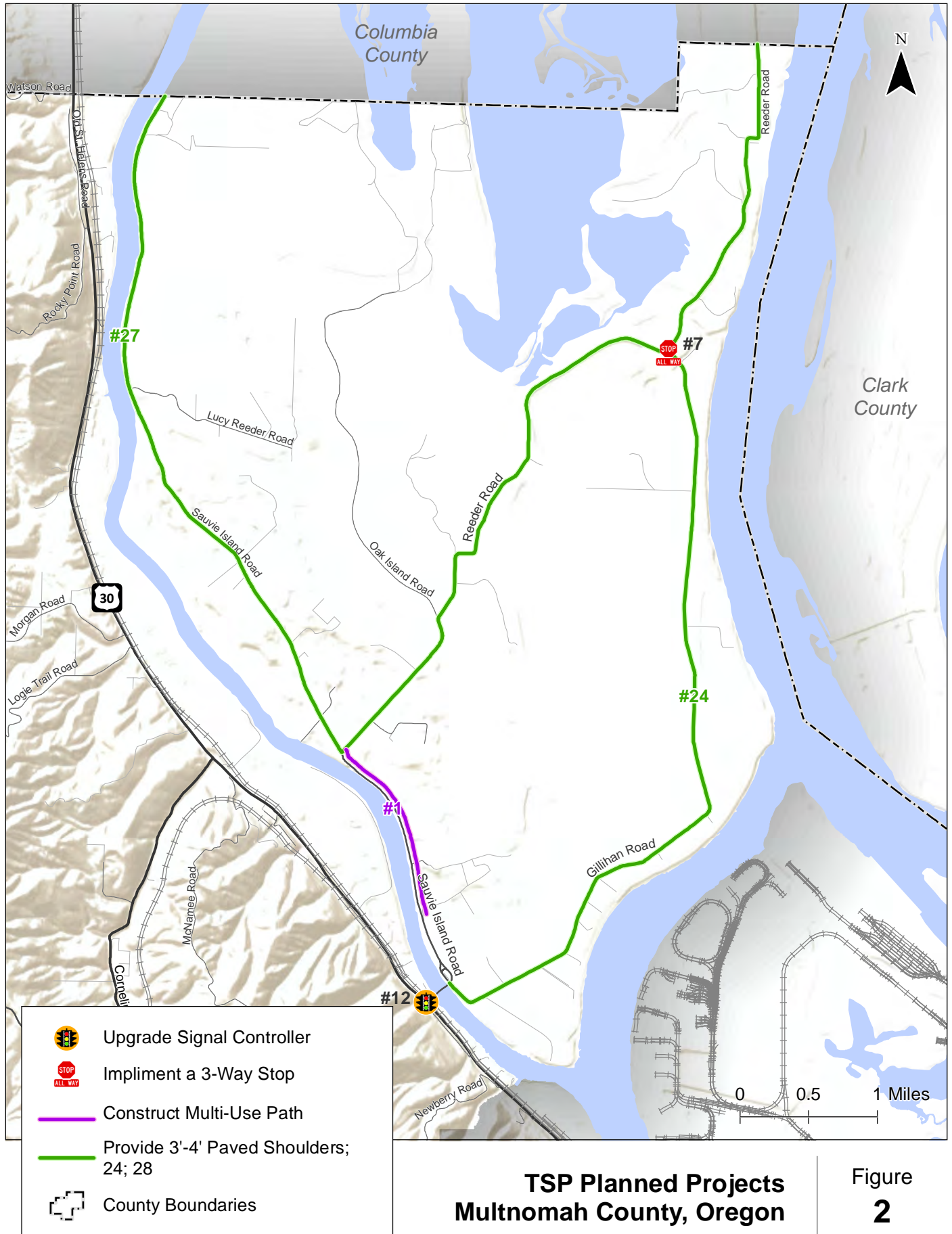
Mid-term = 6-10 years

Long-term = 11-20 years

KEY CODE AND POLICY AMENDMENTS

The Transportation Planning Rule (TPR), as codified in Oregon Administrative Rules (OAR) 660-012-0020(2)(h), requires that local jurisdictions identify land use regulations and code amendments needed to implement the TSP, and include them as the implementation element.

The Multnomah County Comprehensive Plan update includes this work; expected completion by June 2016.



Appendix 1
Plan Development Workshop
Report



KITTELSON & ASSOCIATES, INC.

TRANSPORTATION ENGINEERING / PLANNING

610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

TECHNICAL MEMORANDUM

Westside Rural Multnomah County TSP Update

Transportation System Update

Revised Plan Development Workshop Report

Date:	June 12, 2015	Project #:17694
To:	Joanna Valencia, Multnomah County	
From:	Susan Wright, PE, and Jenny Miner	
cc:	Terra Lingley, ODOT	

INTRODUCTION

Multnomah County is updating the Westside Rural Multnomah County Transportation System Plan, adopted in 1998, to address current transportation issues and implement the Rural Area Plan for Sauvie Island and Multnomah Channel. The project team identified and summarized transportation needs as well as tools, opportunities, and potential constraints to future implementation of a variety of policies, programs and projects. From that list, the team then identified and summarized these issues in the Needs, Opportunities, Constraints and Tools memo. The team presented contents of that memo to the Community Advisory Committee (CAC) at a meeting on April 9th, 2015 and at a public workshop on April 15th, 2015. The team requested feedback on the solutions and approach. Based on those meetings, the team developed and summarized feedback in the Draft Plan Development Workshop Report during and after the first workshop and made recommendations on proposed solutions. The team held a second workshop on May 14th, 2015 to present the potential TSP amendments and discuss the feedback from the previous workshop. The following summarizes the feedback received at Plan Development Workshop #1 and #2 and presents proposed TSP amendments.

WORKSHOP #1 FEEDBACK SUMMARY

Public Workshop #1 presented potential solutions to address issues within the project area and solicited feedback and comments on the solutions. Participants provided comments verbally, hand written, and via survey boards. The majority of the feedback was confirmed the identified needs and the desire to address the needs. The project team categorized solutions into the one of four categories: bicycle and pedestrian solutions, safety solutions, signage and signal modifications, and travel demand management solutions. Exhibits 1 through 4 show the survey boards for the four categories of solutions, respectively, with orange dots signifying the participant's opinions on applicability and implementation timeframe.

As shown, participants identified all solutions to be “applicable” or “very applicable” with the exception of rumble strips and shared lane roadways. The CAC agreed that rumble strips were not appropriate in the study area because of the negative effects on farm vehicles and equipment as well as cyclists. Participants identified most solutions as applicable in the near-term, but several solutions were identified as long-term solutions. These include mixed-use paths, shoulder widening, curve improvements, warning signs, off-island park-and-rides, and event based TDM plans.

Exhibit 1 Bicycle and Pedestrian Solutions Feedback Board

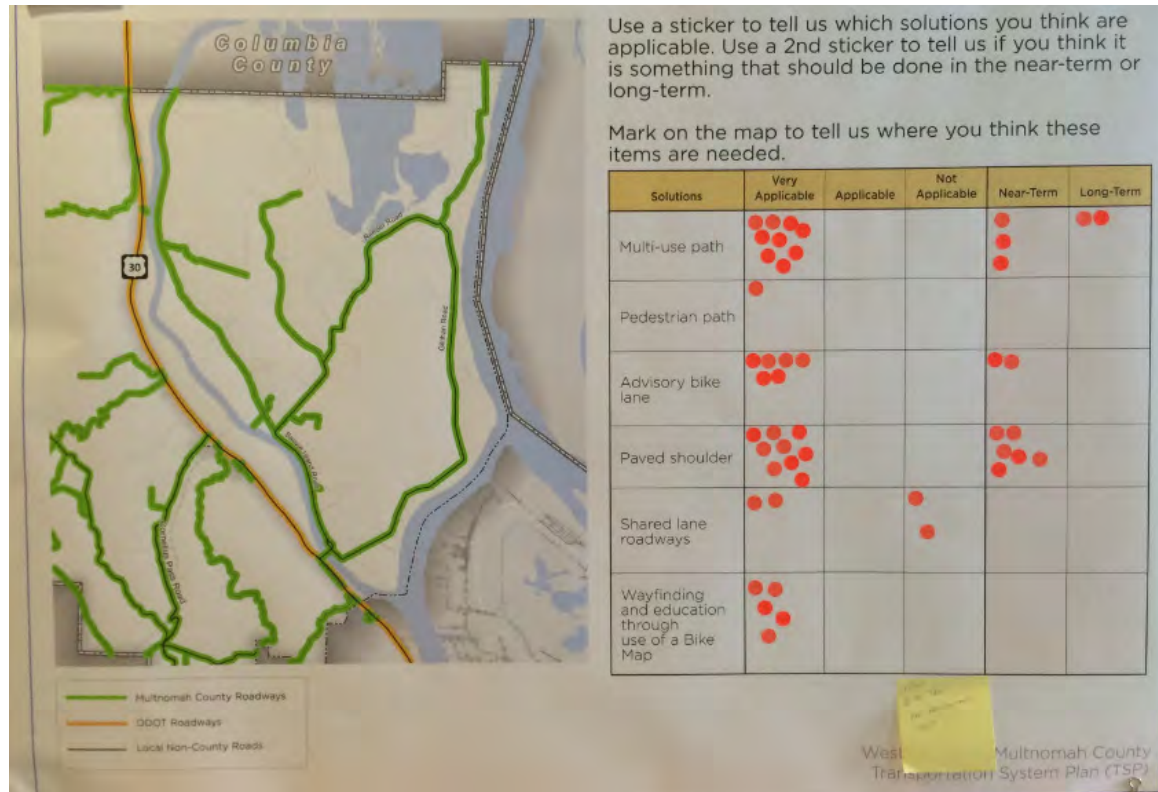


Exhibit 2 Safety Solutions Feedback Board

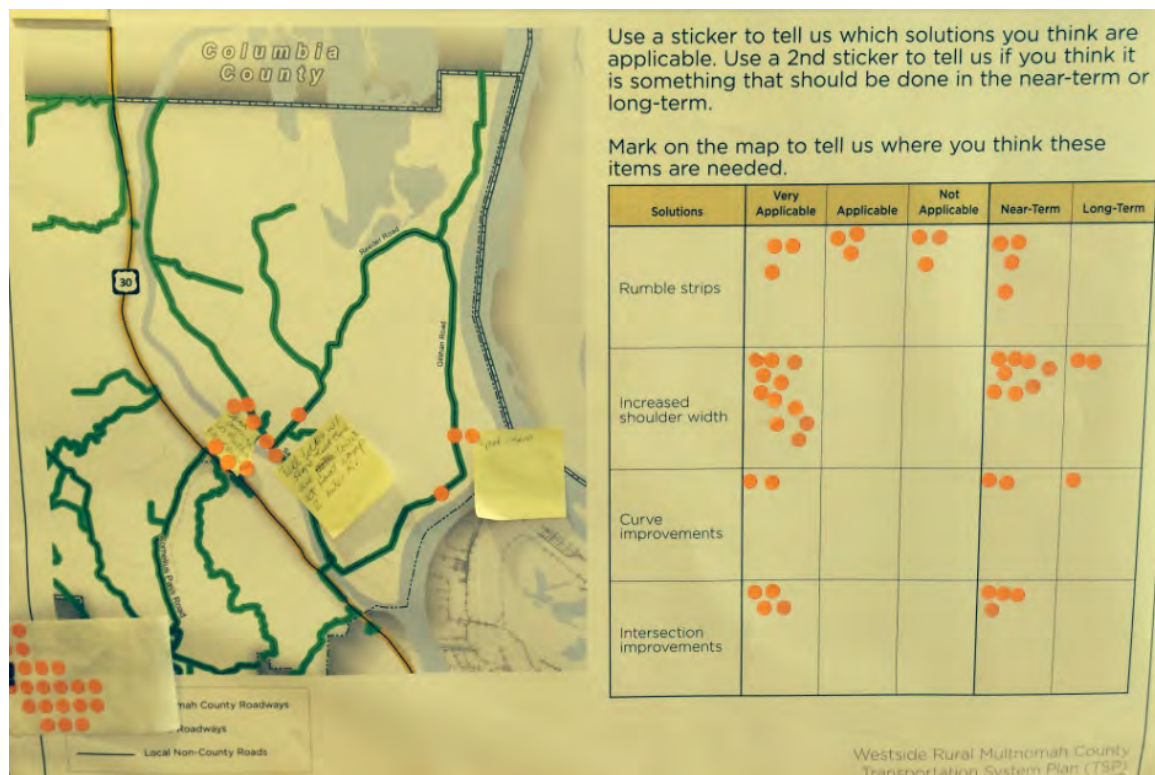


Exhibit 3 Signage and Signal Modification Feedback Board

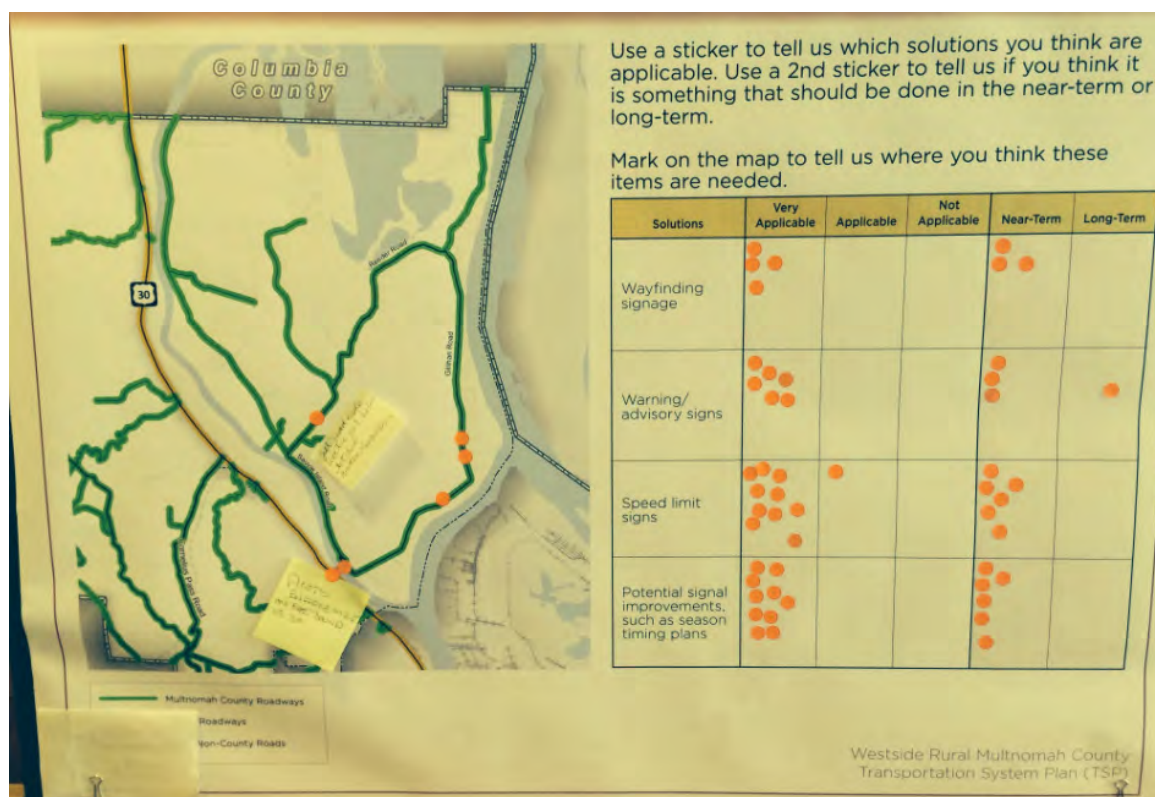


Exhibit 4 Travel Demand Management Solutions Feedback Board

Use a sticker to tell us which solutions you think are applicable. Use a 2nd sticker to tell us if you think it is something that should be done in the near-term or long-term.

Mark on the map to tell us where you think these items are needed.

Solutions	Very Applicable	Applicable	Not Applicable	Near-Term	Long-Term
User-generated parking information		•••		••	
Real-time parking information	•••	••		•••	
Optimize parking permit pricing	•••••	•		••••	
Parking enforcement	•••••	•		••••	
Off-island park-n-ride lots		•••		•	•
On-island shuttle service	•••	•		•••	
Event permits/calendar	••••	•		••	
Event based "TDM" plans	••••	••		•	•

Westside Rural Multnomah County Transportation System

Participants could use yellow sticky notes for additional written comments on the survey boards and a large aerial photo of the study area. The following is a summary of the written comments:

- Bicycle and Pedestrian Treatments - Collect a bike fee from recreational bikers on Sauvie Island. Construct a multi-use path on the levee and along Sauvie Island Road.
- Safety - Safety is a concern on Gillihan Road and for pedestrians and bicyclists traveling on Sauvie Island Road and near the bridge.
- Signage and Signal Modification - Install wayfinding signage indicating location of restrooms on Sauvie Island. Utilize photo radar enforcement on US 30.
- Emergency access and egress - Adequate emergency response times are a concern on Sauvie Island, especially during peak seasons. The lack of shoulders on the dike roads are a concern.
- Rural character - Maintain and preserve the Island's rural character and its roadways.

Additional comments provided on the aerial map of the study area and by the CAC include:

- Do not attract more bicycles to the area, but would like to improve safety for all road users including farm equipment.
- Implement shoulder widening to facilitate farm equipment movement but have concerns about losing the rural feel as a result of standard 6 foot paved shoulders and attracting more bicycles to the area.
- Implement more education and signage for bicyclists and motor vehicles about sharing the roadway.
- Implement curve signs on Gillihan Road and the intersection of Gillihan Road and Reeder Road converted to a three-way stop.
- Construct a roadway connection from Larson Road to Marina Way to provide connectivity and alternative routes to railroad crossings.
- Consider habitat and wildlife impacts from increased visitation to the island. Increased visitation is an impact in addition to the impact of more difficult roadway crossings.

WORKSHOP #2 FEEDBACK SUMMARY

Public Workshop #2 presented draft TSP amendments developed from Workshop #1 feedback. The recommendations included treatments, potential projects to implement the treatments, and estimated project and program costs and priority. The project team requested additional feedback at Workshop #2 to ensure the recommendations reflect the community needs. While the feedback from Workshop #1 focused on what treatments were favorable, Workshop #2 feedback focused on details of the recommended treatments and corresponding potential projects.

The following summarizes the comments received by topic:

Bicycle and Pedestrian Facilities

- Explore requiring Island bicycle permits
- Add bicycle paths and restrict bike road use

Signage and Signal Treatments

- Add photo radar ticketing
- Explore truck priority at the US 30 and Sauvie Island Road signal
- Study detection issues when there are only one or two vehicles exiting the Island at US 30 and Sauvie Island Road
- "Share the Road" signage should indicate sharing with farm equipment

- Add more signage for speeds and sharing the road
- Work with ODOT to monitor signal phasing

Transportation Demand Management

- Prioritize transportation demand management – to address high traffic months
- Add a daily trip or visitor cap
- More enforcement
 - Prioritize existing permits compliance
 - Ticket illegally parked vehicles more
 - Add fees to beach goers
- Close admissions shack when parking lot is at capacity

General Feedback

- Patrol beaches for visitors breaking the law
- Find a way to limit traffic and people during peak months (June through October)
- Put a toll on the bridge for non-island residents
- Address drainage issues on Reeder Road near Bailey Nursery

RECOMMENDATIONS

The following identifies the projects, programs, and policies to include in the Draft TSP based on the input received by the CAC and at Workshops #1 and #2. The strikeout and red text indicate the changes from Workshops #1 to #2, including addressing comments from the previous section.

Table 1 Solutions Recommendations

Potential Solutions	Transportation Needs Addressed	Implementation Notes	Proposed TSP Amendment		
			Project	Cost	Priority
Bicycle and Pedestrian Facilities					
Multi-use path	Reduce Modal Conflicts	Implement where shoulders cannot be widened such as on the levee	<ul style="list-style-type: none">Construct multi-use path parallel to sections of Sauvie Island Road located on the levee.	\$\$	Near-term
Pedestrian path	Reduce Modal Conflicts	-	-	-	-
Advisory bike lane	Reduce Modal Conflicts	Identify potential locations to pilot test	<ul style="list-style-type: none">Conduct engineering study to identify potential locations for an advisory bike lane pilot test and verify adequate sight distance.—	\$	Near-term
			<ul style="list-style-type: none">Implement advisory lane pilot test project.•	\$	Near-term
Paved shoulder	Reduce Modal Conflicts	Provide paved shoulders where feasible and adequate ROW exists Adopt a Sauvie Island specific roadway cross-section standard with 11 foot lanes and 4 foot shoulders to maintain a rural feel	<ul style="list-style-type: none">Provide 3-4 foot paved shoulders on the loop roads including Reeder Road, Sauvie Island Road, and Gillihan Road.—	\$\$\$	Near-term Mid-term
			<ul style="list-style-type: none">Provide 3-4 foot paved shoulders on Sauvie Island Road from Reeder Road to the Columbia County line.•	\$\$\$	Long-term
			<ul style="list-style-type: none">Provide 3-4 foot paved shoulders on Reeder Road from Gillihan Road to the Columbia County line.	\$\$\$	Long-term
Shared-lane roadways	Reduce Modal Conflicts	Represents existing condition. Identify locations for enhanced signage or markings as interim improvement.	See “Warning/advisory sign” projects below		
				-	-
Wayfinding and Education through use of Bike map		Requires County coordination with stakeholders.	<ul style="list-style-type: none">Work with SICA and other Sauvie Island stakeholders to develop a bike map that includes wayfinding and education	\$	Near-term
Safety					
Rumble strips	Additional Safety Issues	Not recommended	N/A	-	-
Increased shoulder width	Reduce Modal Conflicts, Additional Safety Issues	Adopt a Sauvie Island specific roadway cross-section standard with 11 foot lanes and 4 foot shoulders to maintain a rural feel	See “Paved shoulder” projects above		
Curve improvements	Additional Safety Issues	Consider curve warning signs on Gillihan Road	<ul style="list-style-type: none">Provide curve warning signs and delineation posts on curves along the loop roads.	\$\$	Near-term
Rural intersection improvements	Reduce Modal Conflicts, Additional Safety Issues	Consider converting intersection of Gillihan Road and Reeder Road to three-way stop	<ul style="list-style-type: none">Conduct an engineering/safety study to determine impacts and safety considerations for implementing three-way stop at the intersection of Gillihan Road and Reeder Road.	\$	Near-term

Potential Solutions	Transportation Needs Addressed	Implementation Notes	Proposed TSP Amendment		
			<ul style="list-style-type: none">		
			<ul style="list-style-type: none">Implement a three-way stop at the intersection of Gillihan Road and Reeder Road.	\$\$	Near-term
Railroad crossing improvements	Additional Safety Issues	Work with owners of the private rail crossings and private roads and conduct rail corridor study of feasible local street connections and crossing consolidation and upgrades.	<ul style="list-style-type: none">Conduct rail corridor study to identify feasible local street connections and railroad crossing consolidation and upgrades. Project will include coordinate with owners of the private rail crossings.	\$\$	Mid-term
Signage and Signal Treatments					
Wayfinding signage	Reduce Modal Conflicts, Manage Travel Demand	Need signs for restrooms and other destinations	<ul style="list-style-type: none">Install additional wayfinding to provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations.	\$	Near-term
Warning/advisory signs	Reduce Modal Conflicts	Consider installation of curve warning signs on loop roads	<ul style="list-style-type: none">Install warning/advisory signs are to inform motorists of bicycles and farm equipment sharing the road along facilities (all roads under existing conditions)	\$\$	Near-term
Speed limit signs	Reduce Modal Conflicts, Additional Safety Issues	-	<ul style="list-style-type: none">Install speed limit signs on unsigned sections of Gillihan Road..	\$	Near-term
			<ul style="list-style-type: none">Obtain a mobile speed radar unit for Sauvie Island that can be relocated at regular intervals	\$	Near-term
			<ul style="list-style-type: none">Implement permanent speed photo radar signs at several locations on Sauvie Island.	\$\$	Mid-term
			<ul style="list-style-type: none">Implement photo radar ticketing at several locations on Sauvie Island	\$	Mid-term
Signal Controller/Timing Plans	Additional Safety Issues	Upgrade signal controller at US 30/Sauvie Island Road	<ul style="list-style-type: none">Upgrade the traffic signal controller at the intersection of US 30 and Sauvie Island Road.	\$\$	Near-term
		Would require coordination with ODOT	<ul style="list-style-type: none">Conduct study of signal timing at the intersection of US 30 and Sauvie Island Road for possible truck extensions, westbound detection issues, and optimization of green and red time.	\$	Near-term
Transportation Demand Management					
User-generated parking information	Manage Travel Demand	Advance all strategies and develop near-term and long-term TDM plan.	<ul style="list-style-type: none">Develop a Travel Demand Management Plan for the island that further explores each of these strategies and explores and identifies a potential Transportation Management Association (TMA) for Sauvie Island. Elements of the TDM plan should include:		

Potential Solutions	Transportation Needs Addressed	Implementation Notes	Proposed TSP Amendment		
Real-time parking information	Manage Travel Demand		<ul style="list-style-type: none">• Study to determine the most effective and feasible method to implement distribution of parking information.• Work with ODF&W to implement an increased parking permit fee and/or limit number of permits. Include bicycle permitting.• Study to determine location of off-island park-n-ride lots and plan for on-island shuttle service for events.• Develop event permit calendar and implement use.• Study to explore a daily trip cap.• Study the implementation of increased permits and enforcement of permits; including illegally parked vehicles, beach day use permits, and existing permit compliance.• Study the implications of a Sauvie Island Bridge toll for non-residents.	\$ (all projects)	Near-term (all projects)
Pricing parking permit	Manage Travel Demand				
Parking enforcement	Manage Travel Demand				
Off-island park-n-ride lots	Manage Travel Demand				
On-Island shuttle service	Manage Travel Demand				
Event permit calendar	Manage Travel Demand				
Event-based “TDM” plan	Manage Travel Demand				
Valet bike parking	Manage Travel Demand	-	-	-	-

Note: Rows that are grey were removed from consideration based on public comments;
\$ = \$0-\$100,000;
\$\$ = \$100,000 - \$500,000;
\$\$\$ = > \$500,000

Based on the feedback, the project team recommends implementing the following solutions:

- **Widen and pave shoulders**
 - Widening and paving shoulders provides a more comfortable environment for bicycles and pedestrians traveling and would accommodate farm equipment. To reduce concerns about losing the rural feel, which may encourage faster speeds, as well as the desire to not encourage more bicyclists, the project team recommends 3 to 4 foot shoulders are recommended (with 11 or 12 foot travel lanes). Additional unpaved shoulder width could also be included which would provide additional space for farm equipment and additional safety for vehicles. Widening shoulders is a priority on the loop roads including Reeder Road, Sauvie Island Road, and Gillihan Road. All road widening projects should consider wildlife impacts and the need for wildlife crossings.
- **Multi-use path**
 - Construct multi-use paths where widening the roadway shoulder is not feasible, such as parallel to the levee where restrictions prohibit roadway widening.
- **Wayfinding signage**
 - Install additional wayfinding signs to provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations.
- **Curve improvements**
 - Add curve warning signs along the loop roads. Many of the roads on Sauvie Island are winding with limited driver warning. Many of the reported crashes on the Island occurred on or around roadway curves. Providing curve warning signs and delineation posts may help to reduce crashes along Island roadways.
- **Warning/advisory signs**
 - Add warning/advisory signs to warn motorists that bicycles are likely to share the road, indicate frequent pedestrian crossings, wildlife crossings, and roadway curves. Signage may be particularly helpful along those roadways that remain “shared use” as well as areas with limited visibilities of roadway curvature and upcoming intersections.
- **Intersection improvements and signal controller/timing plans**
 - Conduct additional analysis on converting the intersection of Gillihan Road and Reeder Road to a three-way stop intersection.
 - Work with ODOT to upgrade the signal controller at the intersection of US 30 and Sauvie Island Road.
- **Railroad crossing improvements**

- Work with owners of the private rail crossings and private roads and conduct rail corridor study to identify feasible local street connections and railroad crossing consolidation and upgrades.
- Travel Demand Management
 - Advance all strategies with the exception of bike valet parking (and any other strategies that would actively convert auto trips to bike trips) and develop an island TDM plan that includes near-term and long-term strategies. Strategies that had the most interest from the PAC and public include:
 - Event permit calendar (could be managed by SICA);
 - Limit parking permits and/or increase pricing;
 - Real-time parking information (user generated or other physical technology); and,
 - Off-island park-and-rides with shuttles for events.

NEXT STEPS

The project team will compile these recommended solutions into a list of projects, programs, and policies to include in the Draft TSP.

Appendix 2
Existing Plans and Policies
Review



KITTELSON & ASSOCIATES, INC.

TRANSPORTATION ENGINEERING / PLANNING

610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

MEMORANDUM

Date: March 16, 2015

Project #: 17694

To: Joanna Valencia, Multnomah County

cc: Terra Lingley, ODOT

From: Susan Wright, P.E., and Jenny Miner

Project: Westside Rural Multnomah County Transportation System Plan Update

Subject: Tech Memo #1 – Existing Plans and Policies

The following memorandum summarizes key policies of the Sauvie Island Drainage Improvement Company and policies and projects identified in Multnomah County and Oregon Department of Fish and Wildlife (ODFW) documents and that will help inform the Westside Rural Multnomah County's Transportation System Plan (TSP) Update. The documents reviewed include:

- Sauvie Island & The Multnomah Channel Rural Area Plan *Draft* (October 1997; 2014 Update in process)
- Rural Multnomah County Westside TSP (1998)
- Multnomah County Transportation Capital Improvement Plan and Program Fiscal Years 2014-2018 (2014)
- Sauvie Island Drainage Improvement Company
- Sauvie Island Wildlife Area Management Plan (2012)
- Sauvie Island Wildlife Area Beach Use Plan (1993)

In addition to the above documents, the project team also reviewed the Multnomah County Functional Classification of Trafficways Findings and Recommendations Technical Report (2003), Multnomah County Pedestrian Master Plan (1996), and Multnomah County Bicycle Master Plan (1990). This review revealed that no recommendations or projects were included in any of these documents that are within the Rural Westside TSP study area. *Attachment "A" includes a description of these documents.*

SAUVIE ISLAND DRAINAGE IMPROVEMENT COMPANY

Sauvie Island is protected by an 18-mile levee that surrounds most of the island. The Sauvie Island Drainage Improvement Company (SIDIC) maintains and manages the flood control works built by the Army Corps of Engineers. The company oversees over 11,170 acres along the 18-mile levee system and is the guiding agency for building on or near levee and drainage structures and implements set back rules.

SIDIC's right-of-way and set back rules impact potential improvements along or adjacent to parts of Sauvie Island Road and Reeder Road. In particular, the SIDIC requirements apply to potential road widening projects and the development of parallel multi-use paths. Per the requirements, no encroachment or additional encroachment is allowed on the levee, within SIDIC right-of-way, or within fifteen feet of the bottom of the levee slope. .

Recent conversations between SIDIC, Metro, and other stakeholders indicate there may be the potential for future multi-use paths within the encroachment area. Per the requirements, any possible paths within the established limits of the Sauvie Island Drainage Improvement Company's right-of-way will require submittal of a "408 Application" to the SIDIC. The Company will only consider projects that enhance the structural integrity of the levee. Upon approval from SIDIC, the application will be forwarded to the District Engineer of the Army Corps of Engineers for their review and approval. Additional information is available here: <http://sidrainage.org/district-and-charter-documents.html>.

SAUVIE ISLAND & THE MULTNOMAH CHANNEL RURAL AREA PLAN *DRAFT* (1997; 2014 UPDATE ADOPTION PROCESS)

This plan is a part of the Rural Area Planning Program and Multnomah County Comprehensive Framework Plan, and provides guidance on decision making regarding land use, capital improvements, and physical development of the Sauvie Island/Multnomah Channel area. It is in the process of being adopted. Chapter 5 of the new document describes the key transportation issues and policies.

Within the new document, policies that address cumulative traffic impacts generated by high levels of visitation the Wildlife Refuge and the beaches are noted with an asterisk (*). Policies that contain the word "consider" commit the County to propose amendments to the Multnomah County Code (MCC) in coordination with the Citizens Advisory Committee (CAC) and the community. These amendments could be considered as part of the TSP Update process.

The new document identifies the following key transportation issues as:

1. Need for strategies that reduce traffic conflicts between modes on Sauvie Island roads, particularly between bicycles and motorists, but also including farm equipment and pedestrians. There is a strong desire for better accommodations for bicycles and pedestrians. The lack of road shoulders and/or multi-use paths is a common theme.
2. Need for safety improvements for roads, intersections, and rail crossings.
3. Concern regarding the increasing numbers of visitors to Sauvie Island and related issues, such as increased traffic and increase demand on emergency service providers.

The policies identified to address these issues are:

- Policy 5.1 – The Multnomah County Bicycle and Pedestrian Advisory Committee should maintain continuous Sauvie Island representation to the extent possible.

- Policy 5.2 – Identify and implement short- and long- term solutions to safely accommodate bicyclists, pedestrians, and motor vehicles on Sauvie Island including on-road bikeways, separated multi-use paths, and funding options.
- Policy 5.3 – Oppose placement of new regional roadways in the Sauvie Island/Multnomah Channel Rural Area, should such roadways be contemplated by any regional transportation authority in the future.
- Policy 5.4 – Consider context sensitive design when reviewing rural roadways standards to determine appropriate paved shoulder widths to preserve the rural character of roads. Shoulder widening should aim to achieve a minimum 3 foot paved width.
- Policy 5.5 – Coordinate with ODOT Rail and Public Transit Division to promote appropriate safety devices at crossings.
- *Policy 5.6 – Coordinate with the Oregon Department of Fish and Wildlife (ODFW) and Columbia County to manage and reduce demand on the Sauvie Island transportation system, especially during peak use periods, by making more efficient use of capacity on the system through strategies such as user fees, shuttles, and parking management programs.
- Policy 5.7 – Promote a transportation system that prioritizes and supports the efficient and safe movement of farm vehicles and equipment.
- Policy 5.8 – Maintain and improve the transportation system for all modes of travel that reduce conflict and minimize impacts to the natural environment, and reflects the community's rural character while ensuring efficiency and connectivity.
- *Policy 5.9 – Implement a range of Transportation Demand Management (TDM) policies encouraging existing businesses and requiring new development (beyond single family residential use and agricultural uses) to help reduce vehicle miles traveled (VMT), maximize use of existing facilities, increase walking, biking and transit use and alleviate congestion on US 30 and county roads caused by seasonal and special event traffic.
- Policy 5.10 – Work with the Oregon Office of Emergency Management, Multnomah County Emergency Management and Multnomah County rural fire protection district to ensure that the transportation system supports effective responses to emergencies and disasters.
- Policy 5.11 – Promote effective use of signage designed to educate the public about farm equipment using roadways, wildlife crossings and bicycle and pedestrian safety and additional way finding signage.
- Policy 5.12 – Coordinate and work with transit agencies and service providers to identify existing transit deficiencies and the improvements necessary to increase access to transit services by potential users.

When adopted, the transportation policies in the 2014 Draft Rural Area Plan will supersede the policies in the 1998 TSP and will guide the TSP Update.

RURAL WESTSIDE TSP (1998)

The 1998 Rural Westside TSP evaluated multimodal transportation issues and needs for the Sauvie Island & Multnomah Channel Plan Area and the West Hills Plan Area. The TSP was intended as a blueprint to guide transportation project priorities through the year 2015. The TSP includes approximately 15 policies and five key goals and associated objectives. These goals, objectives, and policies largely relate to safety for all modes of travel, the provision and support of transportation options (such as ride-sharing and active transportation facilities), maintaining the proper function of local roadways, and freight movement.

The TSP goals, objectives, policies, and implementation strategies below apply to both the Sauvie Island & Multnomah Channel Rural Area and the West Hills Rural Area; however, the goals and policies in the 2014 Draft Sauvie Island & Multnomah Channel Rural Area Plan, when adopted, will supersede the goals, objectives, and policies included in the 1998 TSP. Those relevant to West Hills Plan Area will remain in-place until the new TSP is adopted.

Table 1 provides an overview of the goals, objectives, policies, and implementation strategies in the 1998 TSP as well as the proposed modifications discussed with the CAC during the Rural Area Plan update process. Additional recommendations for the CAC to consider are identified in red.

Table 1 1998 TSP Policies and Recommended Modifications

Existing Policy from Westside Rural Multnomah County Transportation System Plan	Proposed or Modified Policy from CAC Discussion during Rural Area Plan Process & Additional Recommendations
<p>Goal 1: Implement a transportation system that is safe and efficient in meeting the needs of area residents and those traveling through the area.</p> <p>Objective A: Provide a transportation system that addresses safety concerns for all modes of travel</p> <p>Policy: Improve roadways to attain appropriate safety levels for all motorized and non-motorized traffic.</p> <p>Implementation strategies:</p> <ul style="list-style-type: none">i. Monitor accident rates for all modes of transportation and recommend implementation of low-cost operational improvements within budgetary limits. Target resources to reduce accident potential in the top 10 percent of accident locationsii. Continue to monitor high accident location sites for all modes of transportationiii. Implement access management standards to reduce vehicle conflicts and maintain the rural character of the area	<p><i>RAP Recommendation: Keep policy</i></p> <p>Additional Recommendation: Reword policy statement to “Continuously improve safety levels for all motorized and non-motorized traffic.”</p>

<p>Policy: Actively support safe travel speeds on the transportation system.</p> <p>Implementation strategies:</p> <ul style="list-style-type: none"> i. Support speed limit enforcement ii. Apply design standards that encourage appropriate motor vehicle and truck speeds. 	<p>RAP Revised Policy: Actively support safe travel speeds on the transportation system. Reduce speeds limits to ensure they are compatible with adjacent land uses, support safety for all modes of travel. Speeds shall be consistent with corresponding implementation documents.</p> <ul style="list-style-type: none"> i. Support speed limit enforcement (i.e. use of radar), traffic calming and education concepts. ii. Apply design standards that encourage appropriate motor vehicle and truck speeds. iii. Coordinate with ODOT to reduce speeds on rural roadways.
<p>Objective B: Provide a transportation system that is convenient and limits congestion while meeting minimum safety standards</p> <p>Policy: Review adopted design standards to determine if 4 feet paved shoulders adequately meet safety standards for all modes of travel.</p> <p>Implementation Strategies:</p> <ul style="list-style-type: none"> i. Support the Street Design Guidelines for 2040 and apply them appropriately to maintain the rural character of Multnomah County ii. Support Title 6 of the Urban Growth Management Functional Plan and apply level of service standards appropriately to maintain the character of rural Multnomah County. 	<p><i>RAP Recommendation: Keep policy</i></p> <p>Additional Recommendation: Revise Objective B: Provide a transportation system that is convenient and limits congestion while safely accommodating all modes of travel.</p> <p>Additional Recommendation: Revise Policy: Adopt rural road design standards specific to Sauvie Island that are appropriate to safely meet the needs of all roadway users.</p> <p>Additional Recommendation: Revise Implementation Strategies related to design standards and add include support of Rural Reserve requirements.</p>
<p>*Goal 2: Implement a balanced transportation system that supports all modes of travel.</p> <p>Objective A: Establish a transportation system that accommodates a variety of methods of travel and minimizes reliance on a single travel mode.</p> <p>Policy: Encourage the use of ride sharing facilities</p> <p>Implementation Strategies</p> <ul style="list-style-type: none"> i. Support safe and convenient park and ride facilities for car pools and transit service in convenient and appropriate locations ii. Encourage the placement of bike lockers at all park and ride/park and car pool locations. Support and promote their use. iii. Coordinate with other agencies to assist users with convenient services (e.g. ride share matching) 	<p><i>RAP Recommendation: Keep policy</i></p>

<p>Policy: Encourage mobility for the transportation disadvantaged.</p> <p>Implementation Strategy</p> <ul style="list-style-type: none"> i. Work with public transportation providers to monitor and provide for the transportation needs of the transportation disadvantaged. 	<p>RAP Recommended Policy: Encourage mobility for the transportation disadvantaged.</p> <p>RAP Recommended Revised Implementation Strategy</p> <ul style="list-style-type: none"> i. Work with public transportation providers to monitor and provide for the transportation needs of the transportation disadvantaged. <u>Strategies could include establishing focus groups for conducting outreach to these groups.</u>
<p>*Policy: Support the development of multi-use paths.</p> <p>Implementation Strategy</p> <ul style="list-style-type: none"> i. Coordinate multi-use trail transportation needs with Metro Parks and Green Spaces. 	<p><i>RAP Recommendation: Keep policy</i></p> <p>Additional Recommendation: Add Implementation Strategy to coordinate with the Sauvie Island Drainage Company for potential multi-use trails on Sauvie Island.</p>
<p>Goal 3: Develop a transportation system that supports the rural character of West Multnomah County</p> <p>Objective A: Maintain a transportation system that supports the surrounding rural land use designations.</p> <p>Policy: Discourage through traffic on trafficways with functional classification of rural local road</p> <p>Implementation Strategies</p> <ul style="list-style-type: none"> i. Reduce travel conflicts by providing appropriate facilities, signs, and traffic markings based upon user type and travel mode ii. On rural local roads with heavy through traffic, consider implementing appropriate traffic-calming measures to reduce such traffic 	<p><i>RAP Recommendation: Keep policy</i></p>

<p>Objective B: Provide a transportation system that minimizes impacts to wildlife and agricultural resources.</p> <p>Policy: Apply roadway design safety standards appropriately by balancing the needs of the travelling public and minimizing negative impacts to the environment.</p> <p>Implementation Strategies</p> <ul style="list-style-type: none"> i. Develop and implement a design exception process that considers the relative and incremental benefits of implementation costs and impacts to the environment ii. Assess implications of fish passage requirements on county facilities and develop a program for retrofitting drainage facilities iii. Adopt and apply drainage system design guidelines and standards to accommodate fish passage iv. Adopt and apply rural roadway shoulder standards that preserve the rural character of the area v. Adopt and apply rural roadway standards that accommodate wildlife migration 	<p>*RAP Recommended Objective B: Provide a transportation system that minimizes impacts to wildlife and agricultural resources.</p> <p>RAP Recommended Policy: Apply roadway design safety standards appropriately by balancing the needs of the travelling public and minimizing negative impacts to the environment.</p> <p>RAP Recommended Revised Implementation Strategies</p> <ul style="list-style-type: none"> i. Develop and implement a design exception process that considers the relative and incremental benefits of implementation costs and impacts to the environment ii. Assess implications of fish passage requirements on county facilities and develop a program for retrofitting drainage facilities iii. Adopt and apply drainage system design guidelines and standards to accommodate fish passage iv. Adopt and apply rural roadway shoulder standards that preserve the rural character of the area v. Adopt and apply rural roadway standards that accommodate wildlife migration vi. <u>Assess Natural Resource strategies and explore design elements to minimize impacts to fish and wildlife habitat.</u> vii. <u>Explore incorporation of wildlife criteria for the Capital Improvement Plan and Program (CIPP).</u> viii. Work with agencies to address impacts of boat traffic on the environment (e.g. shoreline).
<p>Objective C: Maintain the beauty of the area by preserving critical view sheds</p> <p>Policy: Encourage the placement of new pipelines and transmissions lines in existing right-of-way whenever possible</p> <p>Implementation Strategies</p> <ul style="list-style-type: none"> i. Develop general guidelines for utility placement within the county right-of-way that reduce the number of conflicts and cost of implementation ii. Enhance the rural character and scenic qualities of the area by placing utilities underground when possible iii. Coordinate improvements with utility companies through regular status meetings to maintain and preserve the beauty of the rural 	<p><i>RAP Recommendation: Keep policy</i></p>

character of west Multnomah County.	
<p>Objective D: Ensure the transportation plan meets federal, state and regional air, water, and noise standards</p> <p>Policy: Coordinate transportation improvement projects with appropriate regulatory agencies</p> <p>Implementation Strategies</p> <ul style="list-style-type: none"> i. Retrofit existing facilities to meet regulatory requirements within budgetary limits. ii. Obtain permits as necessary for transportation improvement projects and maintenance activities 	<i>RAP Recommendation: Keep policy</i>
<p>Goal 4: Develop a transportation system the supports a healthy economy</p> <p>Objective A: Provide a convenient access while maintaining movement of freight along the U.S. Corridor 30</p> <p>Policy: Provide ongoing coordination with state, regional, and local business interests to assure efficient movement of goods and services</p> <p>Implementation Strategies</p> <ul style="list-style-type: none"> i. Participate in, support, and adopt the U.S. 30 Corridor Plan ii. Provide for auxiliary turn lanes on road connections to U.S. 30 to achieve acceptable operating levels of service 	<i>RAP Recommendation: Keep policy</i>
<p>Policy: Promote transportation alternatives for the movement of freight.</p> <p>Implementation strategies:</p> <ul style="list-style-type: none"> i. Encourage rail operators to maintain rail service within the U.S. 30 corridor ii. Support the movement of freight on the Columbia River, including the U.S. Army Corps of Engineers' study of deepening the Lower Columbia River navigation channel to accommodate deep draft ships. 	<i>RAP Recommendation: Keep policy</i>
<p>Objective B: Preserve the function and safety of the transportation system.</p> <p>Policy: Provide a transportation system that ensures economically viable transportation of goods from farm to market.</p> <p>Implementation Strategies</p> <ul style="list-style-type: none"> i. Conduct a study of the Sauvie Island Bridge ii. Conduct a study of Cornelius Pass Road 	<p>RAP Recommended Objective B: Preserve the function and safety of the transportation system.</p> <p>Policy: Provide a transportation system that ensures economically viable transportation of goods from farm to market.</p> <p>RAP Recommended Implementation Strategies</p> <ul style="list-style-type: none"> i. Conduct a study of the Sauvie Island Bridge ii. Conduct a study of Cornelius Pass Road

<p>Policy: Coordinate transportation system management activities with interested and affected stakeholders</p> <p>Implementation Strategies</p> <ul style="list-style-type: none"> i. Work with property owners to consolidate existing accesses when possible and as appropriate to access management standards ii. Support limited accesses along U.S. 30 to the extent possible. Support access management along U.S. 30 in accordance with ODOT's Access Management Standards. 	<p><i>RAP Recommendation: Keep policy</i></p>
<p>Goal 5: Provide transportation improvements in a timely manner according to funding capability.</p> <p>Objective A: Maximize cost-effectiveness of transportation improvements using the Capital Improvement Plan process.</p> <p>Policy: Invest in safety and maintenance improvements</p> <p>Implementing Strategies</p> <ul style="list-style-type: none"> i. Accelerate shoulder paving to safely accommodate automobile, bicycle, and pedestrian use. ii. Make intersection improvements to improve safety, sight distance, and intersection efficiency. iii. Continue to provide opportunities to educate and inform citizens with easy-to-understand materials on transportation finance. iv. Ensure the Capital Improvement Plan evaluation criteria adequately evaluates rural needs. 	<p><i>RAP Recommendation: Keep Policy</i></p>

The Existing Conditions section of the 1998 TSP identifies natural hazards and functional classifications for the ODOT (US 30) and County roadways within the plan area. This section also includes roadway inventory data, such as pavement width, pavement conditions, bridge/viaduct conditions, slope stability, access management, and roadway design standards. The existing conditions also summarizes traffic volumes, intersection operations, and provides an overview of pedestrian and bicycle systems, public transportation, and air, rail, water, and pipeline systems. In addition to the inventories, the existing conditions includes a review of safety of key roadways as well as where area residents have speed concerns. The new TSP will update existing conditions information from the 1998 document.

Based on a review of 2015 conditions, the 1998 TSP identifies the following roadway priorities within the Plan Area: study of key improvements to Cornelius Pass Road, future intersection improvements

along Highway 30, and study of the Sauvie Island Bridge needs (***the bridge has been replaced since the 1998 TSP***).

The 1998 TSP also identifies the need for formalizing a park-and-ride facility on Sauvie Island and providing a park-and-ride for regional commuters on US 30 near the Columbia County line (***a park-and-ride has since been constructed on Sauvie Island near the near the east end of the bridge***).

Based on a review of existing conditions, the TSP indicates that apart from US 30, none of the roadways studied have paved shoulders, and that they primarily serve recreational walking and cycling uses. The TSP prioritizes paving shoulders on key roadways within both the West Hills and Sauvie Island area.

In total, the TSP includes a list of nine transportation improvements within the Sauvie Island/Multnomah Channel Rural Plan Area (the Rural Westside TSP includes an additional eleven projects within the West Hills area). These improvement projects are outlined below. Of all of the projects identified in the 1998 TSP, only the Sauvie Island park-and-ride has been completed.

- **Multnomah Channel/U.S. 30 – Ride share parking** – Provide parking for 100 spaces next to truck scale near county line. Project to be coordinated with ODOT, Multnomah, and Columbia Counties.
- **U.S. 30/Cornelius Pass Road – Public transportation** – Provide commuter van pool or transit service from Columbia County over Cornelius Pass Road to Washington County.
- **U.S. 30 – Scenic viewing opportunities** – Access provided across railroad tracks adjacent to Burlington Bottoms using existing road approaches (per location). Exact locations to be determined. Providing linear pull outs or widening adjacent to U.S. 30 will not be acceptable on the basis of safety and access management standards.
- **Cornelius Pass Road – U.S. 30 intersection improvements** – Include a northbound turn lane and shared northbound left-turn/right-turn lane.

Sauvie Island:

- **Gillihan Loop Road – Safety improvement** – Add to 6.13 miles of shoulders (4 ft).
- **Reeder Road – Safety improvement** – Add to 4.33 miles of shoulders (4 ft).
- **Reeder Road – Safety improvements** – Improve intersection sight distance with Sauvie Island Road.
- **Sauvie Island Road – Safety improvement** – Add to 2.15 miles of shoulders (4 ft) and add guardrail from Gillihan Road to Reeder Road. Replace culverts.
- **Sauvie Island Road – Create park and ride** – Delineate parking and traffic circulation. (**Completed since 1998 TSP**)

The project list above with project rankings and potential funding sources can be found in Attachment “B”.

MULTNOMAH COUNTY TRANSPORTATION CAPITAL IMPROVEMENT PLAN AND PROGRAM FISCAL YEARS 2014-2018 (2014)

This document establishes a list of near-term priority transportation improvements to enhance and maintain the County's transportation system. The plan includes funding information, funding sources, and amounts .

The CIP includes the following projects within the Sauvie Island and Multnomah Channel areas of the Westside TSP Update:

Roadway Projects:

Collector Category – Rural

Sauvie Island Rd: Bridge – Reeder Rd (Project #159): Reconstruct road to rural collector standards with 2 travel lanes. Requires working on dike. (Estimated Cost: \$8.3 Million. Also included on Bike CIP.)

Bicycle Projects:

Sauvie Island Rd: Gillihan Rd – Reeder Rd: Bike Path (Estimated Cost: \$2.1 Million)

Sauvie Island: Reeder – Ferry Rd: Shoulder Bikeway (Estimated Cost: \$535,000)

SAUVIE ISLAND WILDLIFE AREA MANAGEMENT PLAN (2012)

This plan was developed by ODFW to maintain the Sauvie Island Wildlife Area (SIWA) while addressing the changes and challenges the area is experiencing. The identified challenges are associated with an increase in public use of the island, increase of wintering population of geese, developing new wetlands, and restoration efforts of other habitat types. The plan identifies four goals and associated objectives to guide SIWA in managing and addressing the area's challenges. Goals 1-3 are exclusively focused on wildlife and resources are included in Attachment "C". Goal 4 pertains to public use of the wildlife areas and references the 1993 SIWA Beach Use Plan, specifically focusing on the Parking Permit Program and adherence to it. This goal and its associated objectives are summarized below and will be considered as part of the TSP update.

Goal 4: To control other public uses to minimize impacts on fish and wildlife, their habitats, and fish and wildlife related recreation and to maintain the security of the wildlife area and reduce disturbance to neighboring private lands.

Objective 4.1: Manage non-wildlife oriented public use to minimize disturbance to wildlife species on SIWA.

Objective 4.2: Review the Parking Permit program to determine its effectiveness in providing appropriate levels of funding for maintenance, law enforcement and administration.

Objective 4.3: Continue implementation of the 1993 SIWA Beach Use Plan.

SAUVIE ISLAND WILDLIFE AREA BEACH USE PLAN (1993)

The Oregon Department of Fish and Wildlife (ODFW) manages a significant amount of land on Sauvie Island that is available for public recreational use. Much of this land includes public beaches along the Columbia River that are used for hiking, fishing, hunting, and other recreational activities by the public. ODFW also maintains parking facilities and an accompanying parking permit program. ODFW developed the Sauvie Island Wildlife Area Beach Use Plan to manage the public beach use to ensure minimal negative effects on the Sauvie Island Wildlife Area.

The goals identified in Beach Use Plan are:

1. Develop and manage the lands, wildlife, and public use to provide an area for waterfowl with emphasis on wintering waterfowl, wildlife management, wildlife oriented recreation, and a public hunting area.
2. Practice land and water stewardship that does not degrade the basic resources; soil, air, and water and with no net loss of existing wetlands.
3. Manage soil, water vegetation, and man-made structures to benefit wildlife and compatible uses.
4. Maintain natural areas for habitat diversity.
5. Plan and regulate human use and recreational opportunities so they are compatible with maintaining high quality wildlife resource. Discourage or eliminate incompatible recreational activity.
6. Maintain a minimum motor vehicle transportation system for public access, prohibiting off-road vehicle travel and encouraging foot travel.
7. Provide basic public use facilities to meet visitor needs.
8. Comply with all laws, regulations, ordinances, and adopted plans that affect the wildlife area.
9. Encourage governmental authorities and private land managers to plan, develop, and maintain all of Sauvie Island and proximate river basin lands in a manner beneficial to the wildlife objectives of Sauvie Island Wildlife Area.
10. Maintain flexibility to provide for new ideas and change through periodic review of the plan.

The TSP update will consider Goals 6, 7, and 8.

This document also includes a long range management plan for ODFW's lands. Section B is specific to transportation, focusing on parking.

B. Parking

The beach parking sites described below are not reserved for beach users, but are shared by anglers, dog trainers, hikers, hunters, picnickers, clothed sunbathers, clothing-optional sunbathers, wildlife watchers, and others on a first-come, first-served basis without regard to whether users go to the beaches or to the interior of the island. Any user may park in any designated parking site.

1. Walton Beach Parking Sites

<i>275</i>	<i>Walton Beach main lot</i>
<i><u>90</u></i>	<i>End of pavement to Collins Beach</i>
<i>365</i>	<i>Total Walton Beach Parking Sites</i>

2. Collins Beach Parking Sites (clothing-optional area)

<i>343</i>	<i>South end of Collins Beach to Gilbert River Road</i>
<i><u>130</u></i>	<i>1, 300 feet of new parking north of Gilbert River Road and south of private property</i>
<i>473</i>	<i>Total Collins Beach Parking Sites</i>

3. North Unit Beach Parking Sites

<i>35</i>	<i>End of Reeder Road parking lot</i>
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4. Parking Summary

<i>473</i>	<i>Parking opposite clothing optional Collins Beach</i>
<i>400</i>	<i>Parking opposite other beaches</i>

5. Other Parking-related Actions

5.1 Shoulder Parking

Work with Columbia County to post the shoulder of Reeder Road "No Parking" except where developed parking sites exist.

5.2 Towing Vehicles

The Area OAR now authorizes towing when vehicles block traffic or are left on the Area overnight. Oregon State Police and Columbia County Sheriff shall decide whether to

implement towing when a vehicle is in violation of the OAR or a county ordinance. Signing will be used to inform the public of towing regulations.

5.3 Handicap Parking

Two sites adjacent to handicap restrooms will be provided, one at Walton Beach and one at Collins Beach. (This may need to be reviewed to assure compliance with the American Disabilities Act.)

5.4 Undeveloped Sites

Except where new parking sites are developed, the Department will move the fence back to the road right-of-way along the west side of Reeder Road from Gilbert River Road north to private property. All of Gilbert River Road (both sides and the median strip) will be posted "No Parking" and barricaded.

The undeveloped area around the gate onto the Columbia Drainage Dike near the junction of the paved and gravel portions of Reeder Road will be posted "No Parking."

5.4 Bulletin Boards

All bulletin boards in parking areas opposite Walton Beach will say "Walton Beach (A Clothed Beach)." All bulletin boards in parking areas opposite Collins Beach will say "Collins Beach (A Clothing Optional Beach)." A bulletin board will be erected in the North Unit Beach parking area, and will say "North Unit Beach (A Clothed Beach)."

5.6 Parking Permits

Parking permits continue to be required year-around. All parking restrictions apply year-around. The Department intends to enforce permits and restrictions year-around.

The Beach Use Plan calls for reducing the number of non-wildlife oriented recreational uses in the area. To facilitate this, continuation of the parking permit system is outlined in the Oregon Revised Statutes (ORS) 635-008-0148 through 0151 with required parking permits, restricting the number of designated parking sites, and requiring vehicles to park in the designated sites. Specific areas, fees, and signage are described. The Sauvie Island parking ORSs are included in Attachment "D".

Attachment A – Additional Documents Reviewed

MULTNOMAH COUNTY FUNCTIONAL CLASSIFICATION OF TRAFFICWAYS FINDINGS AND RECOMMENDATIONS TECHNICAL REPORT (2003)

This technical report reviews, evaluates, and makes recommendations for updates and changes to the functional classification of roadways in Multnomah County in both urban and unincorporated areas. This document is more current than any of the County's Rural Area Plans (with the exception of the Draft 2014 Sauvie Island and Multnomah Channel Plan) and TSPs. Although largely focused on consistency with Metro and local agency plans in urban areas, it does include information on designated Scenic Routes, recommended updates to the Comprehensive Framework Plan Policies to provide compliance with the Transportation Planning Rule, discusses truck routes and identifies areas of truck restrictions and bridge weight restrictions.

There are no recommendations to the roadways or bridges within the study area of the Westside TSP Update.

MULTNOMAH COUNTY PEDESTRIAN MASTER PLAN (1996)

This plan provides a framework for developing a safe and convenient pedestrian system on both urban and rural roads. It includes a vision for walking in Multnomah County and includes objectives and policies that were recommended for adoption into the Comprehensive Framework Plan. The plan also contains an inventory of existing pedestrian facilities, deficiencies in the system, as well as a Pedestrian Capital Improvement Program (PCIP). The PCIP developed criteria for prioritizing pedestrian projects and identified funding sources for implementation. Objectives developed for the plan are:

1. Improve pedestrian circulation
2. Provide pedestrian facilities that promote transit use
3. Identify pedestrian improvement projects
4. Coordinate planning, programming, and development among citizen groups, government agencies, and transit providers

No pedestrian projects were identified in the study area of the Westside TSP Update.

MULTNOMAH COUNTY BICYCLE MASTER PLAN (1990)

The Multnomah County Bicycle Master Plan outlines development of a safe and efficient road and bicycle system. The plan amends the Comprehensive Framework Plan Bicycle Map to update the bicycle routes. It includes guidance on appropriate facility types (shared lanes or shoulder bikeways in the rural area) by roadway functional classification and characteristics. It also includes objectives and policies and a Bicycle Capital Improvement Plan (BCIP) as a means to implement the Plan.

Two objectives were developed in the plan:

1. Develop and maintain an extensive network of bicycle transportation facilities that provide safe, efficient and enjoyable bicycle travel.
2. Increase bicyclist and motorist knowledge and awareness so as to resolve hazards and conflicts of bicycling-related accidents.

No bicycle projects were identified in the Westside TSP study area.

Attachment B – 1998 TSP Project List

APPENDIX B

Task Force and Sounding Board Ranking of Projects

During the public involvement process, the Sounding Board and Task Force members were asked to validate the transportation needs and identify improvement projects. The participants were then asked to rank potential improvement projects based on project importance to the community. The list of improvement projects was refined further based upon comments received at the open house and agency review of the draft TSP.

TABLE B-1
Ranking of Candidate Projects

Transportation Improvement ¹	Jurisdiction ²	Score ³	Cost Estimate (1,000)	Process ⁴
Cornelius Pass Road	County	*33	\$20	CIP
Safety improvement—Find ways to enforce posted speed limits and safe travel speeds. Install photo radar.				
Cornelius Pass Road	County	*31	\$200	CIP
Safety improvement—Install reflectors, delineators, and traffic striping.				
Sauvie Island Road	County	30	\$3,675	CIP
Safety improvement—Add to shoulders (4 ft) and add guardrail from Gillihan Road to Reeder Road. Replace culverts.				
U.S. 30	ODOT	27	\$100	RTP STIP CIP
Commuter rail study—Conduct study to determine feasibility of commuter rail from Portland to Astoria.				
Gillihan Road	County	27	\$2,055	CIP
Safety improvement—Add to shoulders (4 ft).				
Reeder Road	County	27	\$5,925	CIP
Safety improvement—Add to shoulders (4 ft).				
Newberry Road	County	27	\$450	CIP
Safety spot improvements—Install guardrail ¼ mile south of U.S. 30 and install speed hump 1.2 miles from U.S. 30.				
U.S. 30	ODOT	26	\$325	RTP STIP
Ride share parking—Provide parking for 100 spaces next to truck scale near county line.				

TABLE B-1
Ranking of Candidate Projects

Transportation Improvement ¹	Jurisdiction ²	Score ³	Cost Estimate (1,000)	Process ⁴
Cornelius Pass Road	County	26	\$5	State
Speed zone study—Conduct speed zone study to determine average running speed, safe operating speed, and needs for enforcement.				
Germantown Road	County	26	\$6,744	CIP
Safety improvement—Add to 2.22 miles of shoulders (4 ft).				
Skyline Boulevard	County	26	\$2,039	CIP
Safety improvement—Add to shoulders from UGB to Cornelius Pass Road (1.49 miles).				
Skyline Boulevard	County	25	\$11,153	CIP
Safety improvement—Add to shoulders from Cornelius Pass Road to Rocky Point Road (4 ft).				
U.S. 30	ODOT	25	\$5	State
Speed zone study—Conduct speed zone study to determine safe speed zone from Linnton north.				
Skyline Boulevard	County	25	\$695	CIP
Cornelius Pass Road intersection improvements—Install signal, provide westbound left-turn lane and through/right lane on Skyline Blvd.				
U.S. 30/Cornelius Pass Rd.	ODOT	*24	\$78/year	RTP STIP
Public transportation—Provide commuter transit service from Columbia County over Cornelius Pass Rd. to Washington County				
Cornelius Pass Road	County	23	\$180	CIP
Safety and capacity needs—Study to look at climbing lanes, guardrail, drainage, addition of shoulders, and alternate routes.				
Cornelius Pass Road	County	23	\$695	STIP CIP
U.S. 30 intersection improvements—Include a northbound turn lane and shared northbound left-turn/right-turn lane.				
Germantown Road	County	23	\$750	CIP
Safety spot improvements—Widen lanes on curves only, install center skip line reflective markers, and install mirror at intersection with Old Germantown Road.				
Reeder Road	County	22	\$250	CIP
Improve parking and intersection safety with Sauvie Island Road.				

TABLE B-1
Ranking of Candidate Projects

Transportation Improvement ¹	Jurisdiction ²	Score ³	Cost Estimate (1,000)	Process ⁴
Sauvie Island Bridge Conduct bridge replacement study.	County	22	\$170	CIP
U.S. 30 RAZ service expansion—Expand assuming 20 hours of additional service per work day for one bus.	RAZ	21	\$78/year	Other
Sauvie Island Wildlife Refuge Recreational bike path—Conduct study to determine feasibility of a bike path north of Reeder Road for recreational purposes only, followed by implementation of the findings.	ODF&W ⁵	21	\$1,060	Other
Cornelius Pass Road Safety improvement—Contract with the City of Portland for speed enforcement. Assume 0.25 staff per year including equipment and overhead.	County	*20	\$50/year	Other
Skyline Boulevard Speed zone study—Conduct speed study to determine appropriate speed limit for Skyline Blvd. from Cornelius Pass Road east to city limits of Portland.	County	*20	\$5	State
Sauvie Island Road Improve park and ride—Delineate parking and traffic circulation.	Tri-Met	20	\$300	RTP
Springville Road Safety improvement—Add to shoulders (4 ft).	County	20	\$3,160	CIP
Laidlaw Road Safety improvement—Add to shoulders (4 ft).	County	20	\$1,930	CIP
Thompson Road Safety improvement—Add to shoulders (4 ft).	County	19	\$643	CIP
U.S. 30 Exclusive car pool lane study—Conduct study to determine feasibility and cost of adding a reversible exclusive car pool lane on U.S. 30.	ODOT	19	\$100	STIP
Cornelius Pass Road Realignment—Reduce curvature and eliminate switchback while minimizing grade increase of 1,500-foot section (assume average cut of 60 feet).	County	19	\$2,020	CIP

TABLE B-1
Ranking of Candidate Projects

Transportation Improvement ¹	Jurisdiction ²	Score ³	Cost Estimate (1,000)	Process ⁴
U.S. 30 Harborton sign installation—Provide signing for Harborton.	ODOT	18	\$1	State
Skyline Boulevard Safety improvement—Install traffic calming devices such as speed humps to reduce speeds from UGB to Cornelius Pass Road.	County	18	\$485	CIP
U.S. 30 Scenic viewing opportunities—Access provided across railroad tracks adjacent to Burlington Bottoms using existing road approaches (per location). Exact locations to be determined. Providing pull outs or widening along U.S. 30 will not be acceptable on the basis of safety.	Metro Parks and Green-spaces	15	\$350	Other
Skyline Boulevard Scenic viewing opportunities—Acquire property through fee or donation for development of parking area adjacent to roadway.	Metro Parks and Green-spaces	12	\$350	Other
Cornelius Pass Road Safety Improvement—Construct pullouts at a number of locations for the purposes of speed enforcement.	County	*11	\$750	CIP
Germantown Road Safety improvement—Install traffic calming devices such as speed humps to reduce speeds	County	*0	\$887	CIP

¹ Candidate projects are based upon public input, current needs, and future needs.

² Jurisdictional control over facility.

³ Ranking score as established by Sounding Board mailing. Projects with an asterisk (*) are projects that were added at the Task Force meeting on March 4.

⁴ Indicates the process most likely for securing funding for candidate project.

⁵ ODF&W is the Oregon Department of Fish and Wildlife.

Projects with an asterisk () are projects that were added at the Task Force meeting on March 4, 1998.

Attachment C - Sauvie Island Wildlife Area Management Plan (2012) Goals 1-3

Goal 1: To protect, enhance and manage wetland habitats to benefit fish and wildlife species.

Sturgeon Lake

Objective 1.1: Conduct research on methods and then implement these methods to improve the biological and hydrological function of the 3,000 acre Sturgeon Lake system.

Inside the levees

Objective 1.2: Protect, enhance and manage approximately 286 acres of palustrine seasonally flooded wetlands and convert approximately 200 acres of existing poorly drained agricultural land into a total of 486 acres of this wetland type to benefit a wide variety of fish and wildlife species.

Outside the levees

Objective 1.3: Protect and enhance approximately 2,922 acres of lacustrine seasonally flooded wetlands to benefit a wide variety of fish and wildlife.

Objective 1.4: Protect and manage 285 acres of lacustrine permanently flooded wetlands to benefit a wide variety of fish and wildlife species.

Objective 1.5: Protect, enhance and manage approximately 795 acres of palustrine permanently flooded wetlands to benefit a wide variety of fish and wildlife species.

Objective 1.6: Enhance and manage 62 acres of palustrine semi-permanently flooded and 52 acres of palustrine seasonally flooded wetland habitats to benefit a wide variety of fish and wildlife species.

Objective 1.7: Protect and enhance approximately 161 acres of riverine wetlands to benefit a wide variety of fish and wildlife species.

Objective 1.8: Maintain and improve critical physical and functional infrastructure affecting wetland and water management activities within and outside the levees.

Goal 2: To protect, enhance and manage upland habitats to benefit a wide variety of wildlife species.

Objective 2.1: Enhance habitat carrying capacity for wintering Canada geese by reviewing and modifying current habitat management practices on 2,230 acres of upland pastures/grasslands and 1,316 acres of agricultural cropland.

Objective 2.2: Maintain and improve the quality of 193 acres of existing Willamette Valley oak woodlands.

Objective 2.3: Maintain 2,867 acres of riparian/bottomland hardwood forest and improve the quality of these habitats.

Objective 2.4: Protect, enhance and manage approximately 2,230 acres of pasture/grassland habitats to benefit wildlife species, with emphasis on ground nesting birds.

Objective 2.5: Maintain and enhance SIWA facilities, structures, and equipment used to conduct habitat management, public use projects and other administrative functions.

Goal 3: To maintain waterfowl hunting programs and provide a variety of other fish and wildlife oriented recreational and educational opportunities to the public that are compatible with Goals 1 and 2.

Objective 3.1: Provide approximately 165,000 hunting, trapping, and angling use days annually.

Objective 3.2: Provide opportunities for individual dog training and up to 50 days of dog field trial use days annually which will not conflict with wildlife habitat management objectives or Objective 3.1.

Object 3.3: Provide 100,000 wildlife viewing, wildlife-oriented education and interpretation use days annually, compatible with Objective 3.1 and habitat management objectives.

Attachment D – Sauvie Island Parking OARs

635-008-0148

Purpose

The purpose of the Sauvie Island parking permit system is to limit the number and locations of parking spots in the Sauvie Island Wildlife Area to protect the wildlife and the wildlife habitat.

Stat. Auth.: ORS 496 Stats. Implemented: ORS 496 Hist.: FWC 12-1990, f. & cert. ef. 2-2-90

635-008-0149

Definition

For purposes of OAR 635-008-0148 through 635-008-0151:

(1) "Permit" means a vehicle permit that is issued as evidence of a grant of authority to park a motor-propelled vehicle in a designated parking area within the Sauvie Island Wildlife Area.

(2) "Parking" means a vehicle not in motion.

Stat Auth.: ORS 496.012, 496.138, 496.146 & 497.071

Stats. Implemented: ORS 496.012, 496.138, 496.146 & 497.071

Hist.: FWC 12-1990, f. & cert. ef. 2-2-90; FWC 8-1993, f. & cert. ef. 2-8-93

635-008-0151

Procedures for Issuance and Enforcement of Parking Permits for Sauvie Island Wildlife Area

The Oregon Department of Fish and Wildlife hereby adopts the following procedures relating to issuance and enforcement of parking permits for certain vehicles in Sauvie Island Wildlife Area parking areas:

(1) A parking permit is required at all times for all parking areas. Parking is permitted only in designated parking areas.

(2) Parking areas are designated by the following signs:

(a) "Entering Sauvie Island Wildlife Area -- Parking Permits Required Beyond This Point";

(b) "Parking allowed only in designated areas -- Sauvie Island Wildlife Area Parking Permit Required."

(3) There are two separate permits of different colors: an annual permit and a daily permit.

(4) The fee for parking permits is \$2.00 for permits issued on a daily basis or \$9.50 for permits issued on an annual basis beginning each January 1.

(5) Permits are issued by selected local agents to a party upon payment and may be transferred from vehicle to vehicle.

(6) The permits must be visible from outside the vehicle and be displayed in the front or rear window of the vehicle.

(7) No parking permits will be required for those vehicles which are owned or operated by government agencies.

(8)(a) A person who operates or parks a motor-propelled vehicle in violation of restrictions established and posted under OAR 635-008-0146 through 635-008-0151 commits an offense punishable as provided in ORS 496.992;

(b) Except as otherwise provided in subsection (8)(a) of this section, a person who is the owner of an unattended motor-propelled vehicle parked in violation of restrictions established and posted under OAR 635-008-0146 through 635-008-0151 is guilty of a violation punishable as described in ORS 161.635 without regard to culpable mental state;

(c) The procedure for a police officer to follow upon finding a non government vehicle parked in designated parking area without a permit shall consist of the issuance of a notice which shall be either delivered to the defendant or placed in a conspicuous place upon the vehicle in the violation.

Stat. Auth.: ORS. 496.012, ORS 496.138, ORS 496.146 & ORS 497.071

Stats. Implemented: ORS 496.012, ORS 496.138, ORS 496.146 & ORS 497.071

Hist.: FWC 12-1990, f. & cert. ef. 2-2-90; FWC 8-1993, f. & cert. ef. 2-8-93; DFW 30-2000, f. & cert. ef. 6-14-00

Appendix 3 Needs, Opportunities,
Constraints, and Tools
Technical Memorandum



TECHNICAL MEMORANDUM

Date:	May 14, 2015	Project #: 17694
To:	Joanna Valencia, Multnomah County	
Cc:	Project Management Team	
From:	Susan Wright, P.E., Jenny Miner, and Karla Kingsley	
Project:	Westside Rural Multnomah County TSP Update	
Subject:	Needs, Opportunities, Constraints and Tools	

INTRODUCTION

Multnomah County is updating the Westside Rural Multnomah County Transportation System Plan (TSP, adopted in 1998) to address current transportation issues, particularly related to the increasing number of visitors and the need to provide safe, multimodal transportation facilities for residents, visitors, and businesses. A key part of the update is to identify a range of potential programs, policies, and projects that the County can implement over the next twenty years. This memo outlines documented transportation needs as well as tools, opportunities, and potential constraints to future implementation of a variety of policies, programs and projects.

DOCUMENTED TRANSPORTATION NEEDS

The following sources helped the project team compile the list of needs:

- public outreach related to the County's TSP Update project scoping work in 2013;
- review of relevant plans and policies (see Kittelson & Associates' January 22, 2015 Plans and Policies Memo);
- a recent review of traffic data (see January 27, 2015 Traffic Data Technical Memo prepared by Multnomah County);
- the implementation needs for transportation related policies in the Draft Sauvie Island & Multnomah Channel Rural Area Plan; and,
- stakeholder interviews from November 2014 through February 2015 conducted by the project team as a means to identify needs.

Based on information from the above efforts, the transportation needs in the study area generally fall into the following categories:

- reducing conflicts between different modes;
- increasing safety for all system users; and,
- managing travel demand.

The following sections outline the relevant needs to consider for each of these categories.

Reducing Modal Conflicts

Sauvie Island is generally served by two-lane narrow rural roadways. These roadways serve a variety of users with diverse needs and varying speeds (e.g., farm equipment, an active cycling community, pedestrians and motorists) that can result in conflicts between modes. Some of the issues related to these potential conflicts are described below.

The roadways on Sauvie Island are predominantly operated and maintained by Multnomah County with the exception of those within Columbia County. Primary travel on the island occurs along a main loop comprised of three rural collector roadways: Gillihan Road, Reeder Road, and Sauvie Island Road. Other roads on Sauvie Island provide access to private property and Oregon Department of Fish and Wildlife (ODFW) lands for recreation and are classified as local roads.

Dedicated pedestrian or bicycle facilities are not provided along the Island's roadways, and roadway shoulders are narrow or non-existent in most places. The 1998 Transportation System Plan includes 4 foot shoulders along major segments of Sauvie Island Road, Reeder Road, and Gillihan Road, but the County has not implemented these projects yet. Most of these roadways have available right-of-way to provide wider shoulders or a parallel multi-use path; however, potential costs of the improvements and construction constraints near the levees represent significant barriers to implementation. *A complete list of the study area projects included in the County's Capital Improvement Program (CIP) is provided in the Existing Plans and Policies Review memo.*

Sauvie Island is also a popular destination for recreational cyclists. On the weekends and peak seasons, visitors and residents enjoy cycling along the Island's roadways. In October 2014, daily weekend bicycle volumes were as high as 365 cyclists on Sauvie Island Road north of the Cracker Barrel store. In total, 1,765 cyclists were recorded there during the month of October.

In addition to safer facilities to ride on, stakeholders have identified the need to provide wayfinding and information related to access to restrooms, water, and parking locations for cyclists as well as education and outreach for all road users on sharing and obeying the rules of the road.

Many areas along Sauvie Island Road and Reeder Road are within the Sauvie Island Drainage Improvement Company (SIDIC) levee right-of-way and set back area. As such, construction along these sections of the roadways require special permitting from the Army Corps of Engineers and can only be considered if they will enhance the structural integrity of the levee. Further analysis is required to determine if construction of a multi-use path parallel to the loop roadways, on the island side of the levee could be designed so as to enhance the structural integrity of the levee and be approved by the Corps.

The TSP update will need to look at the feasibility of providing multimodal facilities that can safely serve Sauvie Island residents, visitors, and businesses over the next twenty years.

Increase Safety

Both the County's policies and stakeholder feedback identify the importance of increasing safety for all users of the transportation system on Sauvie Island and the Multnomah Channel.

To establish a baseline for identifying potential safety-related improvements, Multnomah County staff reviewed reported crash data from 2007 through 2013. This review revealed the following:

- There was only one reported crash in the Multnomah Channel area that was not located on Highway 30.
- There were no reported crashes involving pedestrians or bicycles on County facilities on Sauvie Island.
- The majority of crashes on Sauvie Island were reported as fixed object/run off the road.
- There were two fatal crashes reported. One occurred at the Sauvie Island Road/Reeder Road intersection and one occurred along Gillihan Road south of the Reeder Road intersection.
- Areas with more than one reported crash include:
 - Sauvie Island Road/US 30
 - Sauvie Island Road/Gillihan Road
 - Sauvie Island Road/Reeder Road
 - Reeder Road/Gillihan Road
 - Reeder Road curves
 - Sauvie Island Road along the levee

In addition to reviewing reported crash reports, County staff also reviewed operating speeds along the rural collector roadway system in an effort to understand how speeds and potential speed differentials may affect safety. Most of the roadways have a posted speed limit of 45 miles per hour, with the exception of Gillihan Road which is not currently posted and as such Oregon's "Basic Rule¹" applies. Based on a 2014 speed study conducted by the County, Reeder Road, Gillihan Road, and Sauvie Island Road have average speeds below 45 miles per hour whereas 85th-percentile speeds vary from 44 to 48 miles per hour. The 85th-percentile speed is the speed which 85 percent of vehicles travel at or below. These 85th percentile speeds are consistent with the posted 45 mph limits. Additional information on the crash reports and speed data is included in the Traffic Data Technical Memo.

Finally, stakeholder interviews and reviewed documents identified other safety concerns related to the multiple crossings of the railroad that runs north-south between US 30 and the Multnomah Channel. These concerns primarily relate to the lack of active crossing measures, such as gates and flashing lights, at these crossings and related potential safety issues.

¹ The "Basic Rule" is that you may only drive a speed that is "reasonable and prudent" considering traffic, road, weather and other conditions.

Manage Travel Demand

The majority of the year the transportation network primarily serves the residents and daily business operations and average daily traffic volumes on most of the roadways throughout Sauvie Island are less than 3,000 vehicles per day. The popularity of the beaches, hunting and fishing areas, recreational cycling opportunities, seasonal festivals, and agri-tourism activities lead to significant fluctuations in average daily traffic volumes during the peak seasons, summer and fall. During these times, the Sauvie Island Road can have as many as 17,000 vehicles per day. In October 2014, Sauvie Island Road had between 12,000 and 17,000 vehicle trips each day the first three Saturday and Sundays of the month; whereas, the weekdays in October 2014 averaged approximately 5,000 trips per day.

The peak traffic conditions are a result of both seasonal all-day events (such as access to public beaches and pumpkin patches) as well as limited duration events (such as concerts and farm-to-table dinners). During these times, traffic congestion and long vehicle queues consistently occur at the US 30/Sauvie Island Road intersection and at the access points to key visitor destinations. In addition to causing delays, highly congested roadways concern Island residents because of the potential impact on emergency response times.

The TSP Update will need to identify potential solutions for managing traffic on Sauvie Island during peak events and seasons to ensure safe multimodal travel during the next twenty years.

Applicable Policies related to the Summary of Needs

There are multiple policies in the draft Sauvie Island & Multnomah Channel Rural Area Plan (RAP) and other applicable County documents that support the needs discussed above. The applicable draft RAP policies include:

- Equity
 - Policy 1.0 – Acknowledge the needs of low-income and minority populations in future investments and programs, including an equity analysis consistent with required federal, state and local requirements.
- Reduce Modal Conflicts
 - Policy 5.2 – Identify and implement short- and long- term solutions to safely accommodate bicyclists, pedestrians, and motor vehicles on Sauvie Island including on-road bikeways, separated multi-use paths, and funding options.
 - Policy 5.4 - Consider context sensitive design when reviewing rural roadway standards to determine appropriate paved shoulder widths to preserve the rural character of roads. Shoulder widening should aim to achieve a minimum 3 foot paved width.
 - Policy 5.7 – Promote a transportation system that prioritizes and supports the efficient and safe movement of farm vehicles and equipment.
 - Policy 5.8 – Maintain and improve the transportation system for all modes of travel in a manner that reduces conflict and minimizes impacts to the natural environment, and reflects the community's rural character while ensuring efficiency and connectivity.

- Additional Safety Issues
 - Policy 5.5 – Coordinate with ODOT Rail and Public Transit Division to promote appropriate safety devices at crossings.
 - Policy 5.11 – Promote effective use of signage designed to educate the public about farm equipment using roadways, wildlife crossings and bicycle and pedestrian safety. Work with businesses to create additional way-finding signs that can help visitors get to their destinations more efficiently.
- Manage Travel Demand
 - Policy 5.6 – Coordinate with the Oregon Department of Fish and Wildlife (ODFW) and Columbia County to manage and reduce demand on the Sauvie Island transportation system, especially during peak use periods, by making more efficient use of capacity on the system through strategies such as user fees, shuttles, and parking management programs. Strategies may include, but are not limited to:
 - **(a)** Encourage and support action by the Oregon Fish and Wildlife Commission to increase daily fees during peak use periods to an amount that will effectively reduce the traffic burden on Sauvie Island roads and reduce adverse wildlife impacts resulting from heavy traffic, noise and dust.
 - **(b)** Encourage Columbia County and the Columbia County Sheriff to prohibit parking on county roads outside designated parking areas and to post and enforce its parking restrictions.
 - **(c)** Encourage the use of ride sharing, and support safe and convenient park-and-ride facilities for carpools and transit service in convenient and appropriate off-island locations.
 - **(d)** Explore options for shuttle support and traffic reduction strategies such as traffic fees and parking management programs.
 - **(e)** Coordinate with transit agencies and service providers to identify existing transit deficiencies and the improvements necessary to increase accessibility to transit service by potential users.
 - Policy 5.9 – Implement a range of Transportation Demand Management (TDM) policies encouraging existing businesses and requiring new development (beyond single family residential use and agricultural uses) to help reduce vehicle miles traveled (VMT), maximize use of existing facilities and alleviate congestion on US 30 and county roads caused by seasonal and special event traffic. Support the use of bicycle transportation alternative to automotive use without encouraging purely recreational bicycle activities that may increase this level of vehicle conflict on roadways.

The TSP Update will identify projects, programs and policies that complement and are consistent with the policies identified above.

OPPORTUNITIES

Based on the identified needs and applicable RAP policies, the following section identifies opportunities related to providing pedestrian and bicycle facilities, safety improvements, signage and signal improvements, as well as implementing travel demand management measures during the next twenty years.

Table 1 outlines a variety of potential solutions to address the identified needs and policies. The first column in Table 1 refers to the applicable page in the appendix to this document that describes each potential solution in more detail. The following columns identify the policies from the Draft Rural Area Plan that the solution would help implement. This is followed by an identification of which of the transportation needs (described in the previous section) the potential solution helps to address. The right-most column in the table identifies the other potential solutions that are complementary to the implementation of the identified solution.

Table 1 Potential Solutions Summary Table

Appendix Page	Potential Solutions	Applicable Rural Area Policy	Transportation Needs Addressed	Complementary Solutions
Bicycle and Pedestrian Facilities				
BPF-1	Multi-use path	5.2	Reduce Modal Conflicts	BPF-6, SI-1
BPF-2	Pedestrian path	5.2	Reduce Modal Conflicts	BPF-3, BPF-4, BPF-5, BPF-6, SI-1
BPF-3	Advisory bike lane	5.2, 5.8	Reduce Modal Conflicts	BPF-6, SI-1, SI-3
BPF-4	Paved shoulder	5.2, 5.7	Reduce Modal Conflicts	BPF-6, SA-1, SI-1
BPF-5	Shared-lane roadways	5.2, 5.8	Reduce Modal Conflicts	BPF-2, BPF-66
BPF-6	Bike map	5.11	Reduce Modal Conflicts, Manage Travel Demand	BPF-1, BPF-2, BPF-3, BPF-4, BPF-5, D-5
Safety				
SA-1	Rumble strips	5.2, 5.7, 5.8	Additional Safety Issues	SA-2, BPF-1
SA-2	Increased shoulder width	5.2, 5.7, 5.8	Reduce Modal Conflicts, Additional Safety Issues	SA-1
SA-3	Curve improvements	5.2, 5.7, 5.8	Additional Safety Issues	SA-1, SA-2
SA-4	Rural intersection improvements	5.2, 5.7, 5.8	Reduce Modal Conflicts, Additional Safety Issues	SA-1, SA-2, SI-1
SA-5	Railroad crossing improvements	5.5	Additional Safety Issues	SI-2
Signage and Signal Treatments				
SI-1	Wayfinding signage	5.2, 5.7, 5.8, 5.11	Reduce Modal Conflicts, Manage Travel Demand	BPF-1—6
SI-2	Warning/advisory signs	5.2, 5.7, 5.8, 5.11	Reduce Modal Conflicts	SA-3, BPF-5
SI-3	Speed limit signs	5.2, 5.7, 5.8, 5.11	Reduce Modal Conflicts, Additional Safety Issues	BPF-4
SI-4	Signal Controller/Timing Plans	5.7, 5.8, 5.9	Additional Safety Issues	D-7, D-8
Transportation Demand Management				
D-1	User-generated parking information	5.6, 5.9	Manage Travel Demand	D-3, D-5
D-2	Real-time parking information	5.6, 5.9	Manage Travel Demand	D-3, D-5
D-3	Pricing parking permit	5.6, 5.9	Manage Travel Demand	D-1, D-2, D-4
D-4	Parking enforcement	5.6	Manage Travel Demand	D-1, D-2, D-5
D-5	Off-island park-n-ride lots	5.9	Manage Travel Demand	D-3, D-6, D-8
D-6	On-Island shuttle service	5.6, 5.9	Manage Travel Demand	D-5, D-7, D-8,
D-7	Event permit calendar	5.9	Manage Travel Demand	D-5, D-6, SI-4
D-8	Event-based "TDM" plan	5.9	Manage Travel Demand	D-5, D-6, D-7, D-9, S-4
D-9	Valet bike parking	5.9	Manage Travel Demand	D-7, D-8

OPPORTUNITIES FOR BICYCLE AND PEDESTRIAN FACILITIES

Future implementation of pedestrian and bicycle facilities on Sauvie Island needs to reflect the Island's rural character and context. Today, the rural two-lane roadways serve motorists, cyclists, pedestrians, equestrian users, and farm equipment. With its active agricultural areas and peak seasonal, recreational and agri-tourism activities, providing pedestrian and bicycle facilities along key roadways could be very beneficial for all road users. As such, the following treatments can be considered as part of the TSP Update:

- Multi-use path – BPF-1
- Pedestrian path (side-path) – BPF-2
- Advisory bike lane – BPF-3
- Paved shoulder – BPF-4
- Shared lane roadways – BPF-5
- Provision of wayfinding and education through the use of a Bike map – BPF-6



Bicycle and Pedestrian Facilities



MULTI-USE PATH



Springwater Trail, Portland, OR



Multi-use paths are paved, bi-directional trails separated from roadways that serve both pedestrians and bicyclists. Multi-use paths increase the safety and comfort level of the user. They play an integral role in recreation, commuting, and accessibility due to their appeal to users of all ages and skill levels.

Westside Rural Area Applicability

The main loop road that consists of Sauvie Island Road, Reeder Road, and Gillihan Loop Road could benefit from a multi-use path. A multi-use path on Sauvie Island would improve accessibility for residents on the Island and increase safety for all users including recreational cyclists.

Pros

- Provides facility for both pedestrians and bicyclists in less space than separated facilities.
- Providing separation from motor vehicles can attract pedestrians and cyclists of all ages and abilities.
- Would improve accessibility for residents on the Island and increase safety for all users including recreational cyclists.

Cons

- May result in conflicts between modes in areas with frequent crossings or driveways.
- May result in conflicts between bicyclists and pedestrians.
- When parallel to roadways, the path must be buffered from motorists which requires substantial right-of-way.
- Speed differentials between more experienced cyclists and slower cyclists and pedestrians can cause conflicts on a shared facility.

Design Considerations

- Best suited in areas where roadway crossings can be minimized (such as parallel to travel barriers such as highways, railroad tracks, rivers, shorelines, natural areas, etc.). High-visibility treatments are needed at path crossings.
- A minimum width of 10 feet is recommended for low-pedestrian/bicycle-traffic contexts and would be appropriate for some areas of the Island; 12 to 20 feet should be considered in areas with moderate to high levels of bicycle and pedestrian traffic such as the loop.
- Pavement markings can be used to indicate separate space for pedestrian and bicycle travel.
- May need right-of-way acquisition and levee restrictions may alter design and alignment.
- Permeable paving options could help minimize surface water runoff and be compatible with the rural character of the area.

Complementary Strategies

- Bike map, Wayfinding signage



Bicycle and Pedestrian Facilities

PEDESTRIAN PATH (SIDEPATH)



A pedestrian path is a hard-surface path adjacent to the roadway in lieu of providing a sidewalk in areas where other bicycle facilities exist. Unlike a multi-use path, pedestrian paths are narrower in width and not intended for bicycle travel.

Westside Rural Area Applicability

Pedestrian paths could be used on Sauvie Island Road where there is significant pedestrian activity and a multi-use path cannot be accommodated.

Pros

- Provides a hard surface for pedestrians buffered from the roadway.
- Requires less right-of-way than a multi-use path.

Cons

- May also attract bicyclists who are not comfortable riding on or adjacent to the roadway, creating the potential for conflicts between pedestrians and bicyclists.
- Drivers may perceive the path as intended for bicyclists and be concerned about cyclists sharing the roadway.

Design Considerations

- Paths are typically 5- to 8-foot wide asphalt surface.
- Pedestrian paths are typically separated from the roadway by a gravel or vegetated buffer instead of a curb and gutter.
- Should follow ADA standards to allow for universal access.
- Though not intended for bicyclists, pedestrian paths may attract bicyclists if a separate bicycle facility is not provided. Appropriate signage is needed to indicate the intent of the path.
- Pedestrian paths may require right-of-way.
- Levee restrictions constrain path design.
- Permeable paving options could help minimize surface water runoff and be compatible with the rural character of the area..

Complementary Strategies

- Advisory bike lane
- Paved shoulder
- Shared lane roadway
- Bike map
- Wayfinding signage



Bicycle and Pedestrian Facilities

ADVISORY BIKE LANE



Advisory bike lanes, also known as “suggestion lanes,” are bicycle lanes that motor vehicles can use to pass oncoming motor vehicles after yielding to bicyclists. Advisory bicycle lanes are used in combination with a single center lane (without a centerline) for bi-directional motor vehicle travel on relatively low-volume streets.

Westside Rural Area Applicability

This treatment is applicable to streets with less than 6,000 average daily motorized traffic (ADT) that do not have sufficient width for dedicated bicycle only facilities. Most Sauvie Island roadways have annual average ADT below 3,000; however seasonal traffic peaks result in ADT up to 17,000 vehicles in a day on Sauvie Island Road. Therefore, this treatment is likely to be suitable only on local roads that are not part of “the loop” but that are popular cycling routes.

Pros

- Provides striped bicycle facility on roadways with very limited right-of-way or pavement width.
- Encourages slower motor vehicle speeds and motorists yielding to bicyclists.
- Inexpensive treatment consisting of only signing and striping.

Cons

- Motorists may not initially understand advisory lanes due to limited applications in the US to date; education would be required.
- Does not provide physical protection from vehicles and may not attract bicyclists of all levels.
- Does not improve pedestrian environment.
- No US design guidelines available.



Design Considerations

- Advisory bike lanes can be striped as 5-7 foot lanes with a single center motorized vehicle lane of 10 to 18 feet.
- Explanatory signage may be helpful in US contexts to communicate to motorists that they must yield to bicyclists before passing oncoming vehicles.

Complementary Strategies

- Bike map
- Wayfinding
- Speed limit signs



Bicycle and Pedestrian Facilities

PAVED SHOULDER



A paved road shoulder can serve as a bicycle and pedestrian facility that provides space separated from motor vehicle traffic in rural areas.

Westside Rural Area Applicability

Paved shoulders can be applied to any roadway in the study area but would require special permits to be constructed on roadways on the levee.

Pros

- Provides a space separated from motorists.
- Requires less right-of-way than a separated multi-use path.
- Standard treatment for Multnomah County and equipment for maintenance available.

Cons

- Does not provide physical protection from vehicles and may not be comfortable for all users.
- Shoulders serving other uses, such as disabled vehicles, farm equipment, or pedestrians may require bicyclists and pedestrians to use travel lanes.



Design Considerations

- A 6-foot width is preferred to accommodate bicycle and pedestrian travel, with a 4-foot minimum in constrained areas. Greater widths can be used in higher-speed locations.
- Rumble strips or profiled striping can be used to enhance safety and minimize motorists encroaching on the shoulder.
- May require right-of-way acquisition.
- Levee restrictions may alter design or prohibit construction.

Complementary Strategies

- Bike map
- Wayfinding
- Rumble strips



Bicycle and Pedestrian Facilities

SHARED LANE ROADWAYS



Shared lane roadways are those where motorists and cyclists share the same travel lanes. Shared lane roadways that are part of a designated bicycle network may include shared lane markings (“sharrows”) or signage to indicate the legal presence of bicyclists in the travel lane.

Westside Rural Area Applicability

All of the roadways on Sauvie Island are currently shared facilities. Posting “Bikes on Roadway” signs would indicate to road users that bicyclists may be present and are on the roadway.

Pros

- Allows for bicycle travel when other treatments are not feasible.
- Low- to no-cost.

Cons

- Does not provide any separation from vehicles.
- Without additional traffic-calming treatments, it is likely to attract only strong and fearless bicyclists.
- Does not improve pedestrian environment.

Design Considerations

- Provide guidance signage to alert drivers of the shared road. See warning/advisory signs section.
- Educate drivers on the rules of sharing the road.
- Increase signage and pavement markings.

Complementary Strategies

- Pedestrian path
- Bike map





Bicycle and Pedestrian Facilities

BIKE MAP



Source: FMATS Bike Map

Bike maps generally include the type of bicycle facilities available as well as destinations and other useful information within a defined area.

Westside Rural Area Applicability

- Bike maps can provide guidance to infrequent cyclists regarding potential areas of interest such as types and location of recreational activities, bike parking locations, restrooms, and access to drinking water on Sauvie Island.
- Could be privately funded by bike friendly businesses.

Pros

- Provides valuable information to bicyclists.
- Reduces trespassing.
- Map is portable and could also be available electronically.

Cons

- Cost of production and regular updates to ensure information remains relevant.

Complementary Strategies

- Multi-use paths
- Pedestrian side-path
- Advisory bike lanes
- Paved shoulder
- Shared lane roadways
- Off-island Park-N-Rides

OPPORTUNITIES FOR SAFETY

Based on a detailed review of the reported crash data from 2009 - 2013, 39 crashes occurred on Sauvie Island roadways. Of these, 27 crashes were single car collisions with fixed objects after leaving the roadway. One of the fixed object crashes resulted in a fatality. The safety improvements identified below can help address fixed object and run off the road crashes, as well as provide other improvements that can contribute to a safe transportation system. These improvements can be applied along roadways or at spot locations such as intersections or railroad crossings.

This section discusses the following safety-based treatments:

- Rumble strips – SA-1
- Increased shoulder width – SA-2
- Curve improvements – SA-3
- Intersection treatments – SA-4
- Railroad crossing improvements – SA-5

Solutions and Opportunities

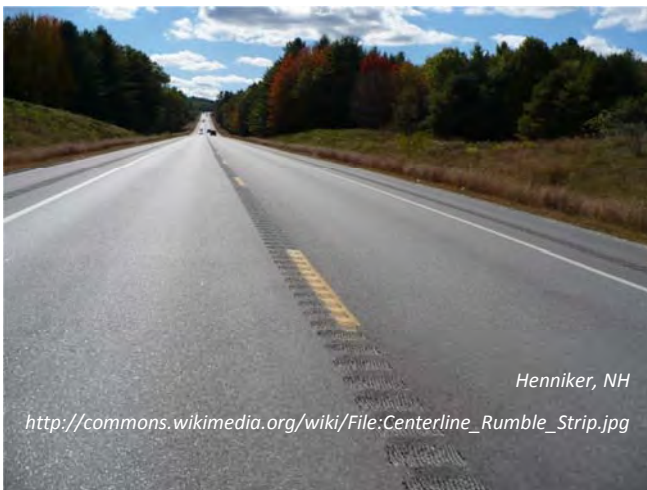
Safety Treatments



RUMBLE STRIPS



Kansas Cyclist



Henniker, NH

http://commons.wikimedia.org/wiki/File:Centerline_Rumble_Strip.jpg

A type of pavement treatment consisting of successive grooves cut in the pavement applied to lane edges, striped medians, and transversely across travel lanes that cause vibration and rumbling noise when tires drive on them. They are used as a method of alerting drivers of potential dangers of drifting across the centerline and leaving the roadway.

Westside Rural Area Applicability

Rumble strips are effective at reducing fixed object crashes, which make up the majority of the crashes occurring in the study area. Rumble strips could be installed along Reeder Road, Sauvie Island Road, and Gillihan Road (i.e., the roadways with the most crashes) if shoulder bikeways or a multi-use path was also installed.

Pros

- Shoulder rumble strips are effective at reducing run off the road crashes by 15 percent and fatal and injury run off the road crashes by 29 percent.
- Provides a “buffer” between cyclists and vehicles when a shoulder bikeway or parallel multi-use path is present.
- Warns inattentive drivers of exit from lane.

Cons

- Increased noise pollution when vehicles pass over.
- A safety hazard for bicyclists if adequate space for cycling is not provided.

Design Considerations

- Adequate shoulder width is necessary.
- Shoulder and centerline rumble strips can be used in combination for additional crash reduction.

Complementary Strategies

- Increased shoulder width
- Multi-use path

Solutions and Opportunities

Safety Treatments



INCREASED SHOULDER WIDTH



A wide shoulder can be used to provide a separated space for cyclists and pedestrians, assist with vehicular recovery during driver inattentiveness, assist with incidence response and emergency situations, and provide space for motorists to bypass slow moving vehicles such as farm equipment.

Westside Rural Area Applicability

During the past five years, nearly 70 percent of the reported crashes on Sauvie Island were single vehicle crashes. Widening the shoulders could be effective at reducing these types of crashes by providing space for recovery, especially along Reeder Road, Sauvie Island Road, and Gillihan Road.

Pros

- Provides drivers more opportunity to recover before departing the roadway or slow their vehicle to a controlled stop.
- Wider shoulders may be used by pedestrian and bicyclists when other facilities are not present.
- Widening the shoulder could allow for shoulder rumble strips.
- As a current Multnomah County standard, knowledge and equipment for maintenance is available.

Cons

- Additional right-of-way may be required.

Design Considerations

- Adequate right-of-way is necessary.
- Levee restrictions may alter design or prohibit construction.

Complementary Strategies

- Rumble strips

Solutions and Opportunities

Safety Treatments



CURVE IMPROVEMENTS



Curve improvements include a variety of treatments that help to inform the driver of the presence and characteristics of curves. Treatments include, but are not limited to, curve warning signs, decreased speed signs, curve delineation posts, and illumination.

Westside Rural Area Applicability

Many of the roads on Sauvie Island are winding with limited warning to drivers of the impending curves. In addition, many of the reported crashes on Sauvie Island occur on or around roadway curves. Providing curve warning signs and delineation posts may help to reduce crashes along Island roadways, especially along Reeder Road and Gillihan Road.



Source: MUTCD

Pros

- Provides advanced notification to road users of location and characteristics of potentially unexpected curves.
- May help to decrease crashes on curves.

Cons

- Contributes to sign clutter.
- Requires additional cost and maintenance

Complementary Strategies

- Rumble strips
- Increased shoulder width

Solutions and Opportunities

Safety Treatments



RURAL INTERSECTION IMPROVEMENTS



Anchorage, AK

Intersection improvements include a variety of treatments to help all modes efficiently and safely travel through intersections. Treatments include, but are not limited to changing intersection control type or changing the stop-controlled approaches, adding turn lanes, adding marked or active crossing treatments, and providing adequate roadway illumination.

Westside Rural Area Applicability

Four locations on Sauvie Island would benefit from intersection improvements that help all modes move safely and efficiently on the roadway system. These include:

- Sauvie Island Road/US 30
- Sauvie Island Road/Gillihan Road
- Sauvie Island Road/Reeder Road
- Reeder Road/Gillihan Road

More in depth analysis is necessary to provide recommendations on specific treatments to the intersections.

Pros

- Lighting increases night-time visibility of roadway users and animals and sense of security for all roadway users.
- Possible improved operations of the intersection.

Cons

- Cost of design and construction.
- Potential right-of-way acquisition.
- Increased maintenance costs with signals and illumination

Complementary Strategies

- Shoulder widening
- Rumble strips
- Wayfinding signage

Solutions and Opportunities

Safety Treatments



RAILROAD CROSSING IMPROVEMENTS



Source: www.iqtrafficcontrol.com



Source: urbanpostmortem.wordpress.com

Railroad crossings can have passive control (devices that mark the location of a crossing such as cross-bucks and yield or stop signs) or active control (devices that mark the location of a crossing and indicate the approach or presence of a train such as flashing lights and gate arms). Active crossings are relatively expensive to install and maintain but provide increased safety as compared to a passive crossing.

Design Considerations

For private railroad crossings (those at a driveway or private road), improving the crossing from passive control to active control requires railroad permission and a contract between the property owner and the railroad. Public crossings in Oregon (generally those at a crossing of a public road) are regulated by the Oregon Department of Transportation (ODOT). ODOT's Rail Division follows a federal mandate to consolidate at-grade railroad crossings. The federal direction has resulted in a requirement to close one or more crossings when a new crossing is constructed or an existing crossing is upgraded.

Upgrading crossings to active control in rural areas typically ranges from \$200,000 - \$500,000. In addition, railroad companies typically require crossing owners to pay \$5,000 - \$10,000 per year per crossing in annual maintenance fees to compensate for additional weekly inspections and maintenance required over the life of the crossing.

When railroad crossings are upgraded to active crossings the railroad tracks and the road bed typically also require reconstruction to current standards. The road grade at the crossing must have no more than approximately a three inch rise or fall within 30 feet of either side of the tracks per national standards. This can result in the need to re-grade the roadway or railroad track approaches to the crossing.

Westside Rural Area Applicability

There are approximately eight passive railroad crossings in the study area along Highway 30. Private property owners may be able to get permission to upgrade crossings from the railroad; however, public crossing upgrades will require a plan to consolidate and close one to two other public or private crossings. The best candidates for crossing upgrades are those with flat crossings with good visual clearance.

Pros

- Provide positive control and effectively communicates to vehicles, pedestrians, and bicyclists the need to stop at the railroad crossing.

Cons

- Costly and likely to require closure of other crossings.

Complementary Strategies

- Warning/advisory signs

OPPORTUNITIES FOR SIGNAGE AND SIGNAL MODIFICATIONS

Given the variety and growth of transportation users on Sauvie Island, the need to effectively communicate relevant transportation-related information has increased. Regulatory, warning, or informational/wayfinding signs can be used to convey guidance to system users. Signage can be cost effective in informing users about the location of key destinations and resources, such as restrooms, parking or water, and posting speed limits or informing users about unexpected conditions along the roadways. In addition to signage, effectively moving traffic through signalized intersections will help with overall system operations. This section discusses the following treatments:

- Wayfinding signage – SI-1
- Warning/Advisory signs – SI-2
- Speed limit signs – SI-3
- Potential signal improvements, such as seasonal timing plans – SI-4

Signage and Signal Treatments

WAYFINDING SIGNAGE



Source: Andy Daleiden, Kittelson & Associates, Inc.



Signage indicating to bicyclists and pedestrians the direction and distance to points of interest along a corridor. Wayfinding signs can also be used to inform drivers of key recreational destinations, parking, etc.

Westside Rural Area Applicability

Provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations.

Pros

- Encourages walking and biking by providing access information to major attractions.

Cons

- Additional cost and maintenance.
- Potential for sign clutter.

Design Considerations

- Place in key locations/decision points such as intersections.

Complementary Strategies

- Multi-use paths
- Bike lanes
- Pedestrian paths
- Bike map

Signage and Signal Treatments

WARNING/ADVISORY SIGNS



Signage providing guidance or warning about unexpected conditions for all users of the roadway.

Westside Rural Area Applicability

Signs can be used on Island roadways to inform motorists of bicycles sharing the road, locations of frequent pedestrian crossings, and roadway curvature. Signage may be particularly helpful along those roadways that remain “shared use” as well as areas with limited visibilities of roadway curvature and upcoming intersections.

Pros

- Provides advanced notification to road users of unexpected conditions; i.e. pedestrians entering the roadway, curves, etc.
- Creates more awareness by motorists of the shared use and to look for bicyclists.

Cons

- Contributes to sign clutter.
- Additional cost and maintenance.

Complementary Strategies

- Curve improvements
- Shared lane roadways



Source: KAI



Signage and Signal Treatments

SPEED LIMIT SIGNS



Source: KAI

Signage providing guidance on appropriate speeds for traveling the roadway.

Westside Rural Area Applicability

Most roadways have posted speeds today, except Gillihan Road.

Pros

- Alerts the driver to speeds appropriate for the roadway.
- Informs pedestrians and bicyclists about the suitability of the road for their comfort level.

Cons

- Contributes to sign clutter.
- Additional cost and maintenance.

Complementary Strategies

- Shoulder bikeways and shared lane roadways



Signage and Signal Treatments

SIGNAL CONTROLLER/TIMING PLANS



A traffic signal controller runs the signal timing and phase plan for a given traffic signal. Various timing plans can be used for different times of day (e.g. peak and off peak hour), time of years, and special events.

Westside Rural Area Applicability

Modern traffic signal controllers can be programmed with multiple timing plans to adjust to known seasonal peaks in traffic and associated events. With an upgraded traffic signal controller at the intersection of Sauvie Island Road and Highway 30, weekend and weekday signal timing plans for each season could be programmed into the traffic signal. This would eliminate the need for a request to ODOT each season to adjust the timing.

Pros

- Effective movement of vehicles through an intersection.
- Better efficiency reduces congestion which can lead to safety benefits.
- Reduce need for seasonal requests to ODOT for signal timing changes.

Cons

- Controller upgrades can be expensive.



Complementary Strategies

- Event permit calendar
- Event-based TDM plans

OPPORTUNITIES FOR TRANSPORTATION DEMAND MANAGEMENT

Sauvie Island attracts visitors year-round for a wide variety of activities. These visitors come to Sauvie Island using the same transportation facilities that must serve Island residents' daily activities and farm practices.

At times, the roadways on the island become highly congested, causing delays and impacting livability for Island residents. There are a number of strategies to help manage the cumulative impacts resulting from the variety of attractions and events that can occur concurrently. Generally, these strategies fall within a broader category of "transportation demand management" that manage, or reduce, the amount of vehicle travel. In more urban contexts, transportation demand management can cover a broad variety of strategies, ranging from charging for parking to providing better bike facilities to planning land uses closer together. This section elaborates on the opportunities for transportation demand management that are most applicable for Sauvie Island, given the existing activities on the Island.

As part of identifying appropriate TDM strategies, there are three general types of visitors throughout the year whose needs can be considered:

- **Recreational visitors** – this group includes bicyclists, beach-goers, and wildlife area visitors such as bird-watchers. People in this group tend to come to the Island on fair-weather weekends throughout the year, with higher levels of activity during the spring, summer, and fall months.
- **Seasonal attractions** – this group visits the Island for a particular seasonal attraction, such as fall harvest activities including the pumpkin patches and corn mazes. Their visits are focused on a specific time of the year due to the seasonal nature of the attraction.
- **Specific event visitors** – this group comes to the Island to attend a specific, scheduled event, such as a concert, farm-to-table dinner, or wedding².

² In addition there events such as runs and bike races that occur on the island that already implement travel demand management techniques to manage access and traffic for their events.

- Strategies to reduce the cumulative impacts of this visitor travel must be tailored to meet the unique needs of these types of visitors. Generally, these strategies fall into three general overarching categories:
- **On-island parking information and management**
 - Parking information
 - Permit pricing
 - Parking enforcement
- **Strategies to reduce the amount of vehicle travel**
 - Park-N-Ride locations off-island for beach-goers and other recreational users
 - Shuttle service during peak weekends
- **Special event management**
 - Event permits with coordinated calendar and cumulative visitor limits (i.e., establishing a potential cap or maximum)
 - Event-based “TDM” plans
 - Valet bike parking

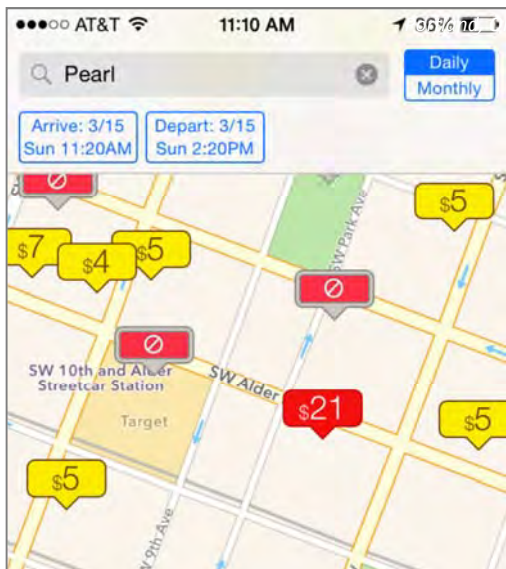
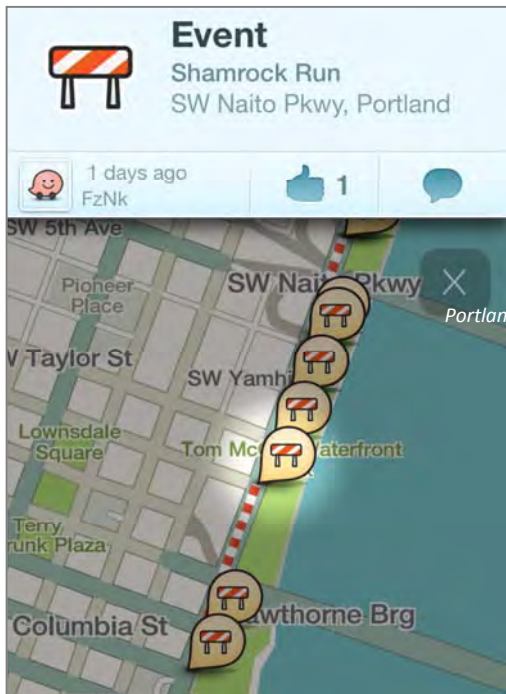
Some of these strategies are already in place on Sauvie Island, but may benefit from increased emphasis or implementation changes. A Transportation Management Association (TMA) may provide an opportunity to employ a half- or full-time staff person to coordinate transportation demand management strategies on the Island throughout the year. A TMA is an organization dedicated to solving local transportation concerns. TMAs can be funded through a variety of mechanisms, ranging from regional grants to private businesses within the association’s area. Multnomah County could explore options for initiating a TMA for Sauvie Island.

Strategies that can be accomplished by a TMA, by Multnomah County, or by other organizations are outlined below. The following treatments are discussed in this section:

- User-generated parking information – D-1
- Real-time parking information – D-2
- Optimize parking permit pricing – D-3
- Parking enforcement – D-4
- Off-island park-n-ride lots – D-5
- On-island shuttle service – D-6
- Event Permits/Calendar – D-7
- Event based “TDM” plans – D-8
- Valet bike parking – D-9

Transportation Demand Management

USER-GENERATED PARKING INFORMATION



User-generated parking information would provide visitors and/or event participants with information about public or privately-held parking availability. This information is “shared” amongst system users through “apps” and other electronic means. This type of strategy has been implemented successfully for real-time user-generated traffic information by apps such as Waze, where users can report incidents or other temporary issues affecting traffic.

Westside Rural Area Applicability

On Sauvie Island, this strategy could be implemented through the development of a smart-phone app and corresponding installation of real-time signage at key locations on the Island. These signs could be useful to:

- Visitors arriving at popular locations, such as the beaches, that are to encouraged to log-in to the app and report on the current availability of parking.
- Provide users arriving on the Island with information about parking availability and traffic congestion.
- Business owners and event organizers that can advise potential visitors to come later or park at alternate locations.

Pros

- Can help avoid unnecessary trips when no parking is available.
- After the development of the app and installation of the signage, does not require additional staffing or investment.

Cons

- Relies on users to generate information, which may result in inconsistent or infrequent updates.
- Limited cell phone coverage on the Island. Only users with smartphones and cell service can access.

Design Considerations

- Signage should be visible and easy to understand
- App could be designed with a “points” system and rewards for consistent users that report parking information, such as discounts on permits.

Complementary Strategies

- Parking permit pricing
- Park-N-Ride lots



Transportation Demand Management

REAL-TIME PARKING INFORMATION

Real-time parking information can help avoid unnecessary trips by letting visitors know when and where parking is already fully occupied. Digital displays are frequently used in parking garages, where automated counting or sensing is installed. Lower-tech options are also possible that rely upon a person to update the sign message. This information is provided by a designated staff person or through the use of parking sensors or video, rather than relying on users to report parking availability to other users.

Westside Rural Area Applicability

Due to the predominance of graveled parking on Sauvie Island, it is not currently feasible to install detection or sensor on most parking locations. Instead, this strategy could be implemented through lower-tech methods such as:

- Informational maps of all parking locations can be readily available for visitors to the island, with various locations numbered or color-coded for easy “real-time” information communication
- On the busiest weekends, patrol officers, ODF&W, paid attendants, or volunteers at busy locations could relay information to the Cracker Barrel store, where information about the parking locations shown on the map would be posted for visitors arriving to the Island.
- In cases where popular parking locations are full, an information board could suggest alternate parking locations.
- Video cameras could be installed at key parking areas with complementary displays posted near the entrance to the Island and online.

Pros

- Can help avoid unnecessary trips when no parking is available.
- Provides a low-tech way to provide information to all visitors

Cons

- May require manual updates from people at the locations of parking and a display board, unless video cameras are installed.
- Video cameras may raise privacy concerns

Design Considerations

- Signage with information about parking locations and availability should be positioned so that it is easily understood and visible to visitors entering Sauvie Island.

Complementary Strategies

- Parking permit Pricing
- Park-N-Ride lots

Transportation Demand Management

OPTIMIZE PARKING PERMIT PRICING



Photo: Statesman Journal, Sauvie Island, OR

Pricing parking is a powerful tool for managing demand. Requiring payment for parking can influence travelers' choice to carpool or use other modes.

Westside Rural Area Applicability

Visitors to Sauvie Island currently pay \$7 for a daily permit to park in wildlife areas on the island. Annual permits cost \$22. Additional strategies for consideration include:

- Permit pricing could be increased during high-traffic times, such as prime weekends, and decreased during lower-traffic times, such as week days or winter months, to help smooth out the flow of visitors.
- Annual permit costs could be increased or split into two "season" permits, with winter season having a much lower cost.
- Requiring permits for all vehicles entering the Island. Resident parking could be free or at a low cost covering only permit administration.
- Additional fees for parking could be collected in popular or congested locations, such as the beaches.

Pros

- Can generate revenue as long as administrative costs are not substantial.
- Is demonstrated to help manage demand, since people are price-sensitive.

Cons

- May be perceived as unfair or bad for business by some Island businesses if all visitors are required to obtain permits. Today, only those visitors desiring to use a public parking facility are required to buy permits.
- Cost of enforcement.

Design Considerations

- Any increases or changes to the pricing structure could be accompanied by an explanation of where the additional revenue will be used. In examples where people are able to see the local benefit of the parking revenue, they are much more likely to support the increased costs.

Complementary Strategies

- Off-Island Park-N-Ride



Transportation Demand Management

PARKING ENFORCEMENT



Regular enforcement of existing parking regulations can improve compliance. If people expect to receive a ticket for improper parking, they are more likely to seek other options.

Westside Rural Area Applicability

Enforcement officers could increase the amount of patrolling and ticketing on peak weekends during the summer in wildlife parking areas or in areas not designated for parking. Communication about the increased enforcement could motivate visitors to follow parking regulations before getting tickets.

Depending on results, enforcement efforts could be limited to specific times or days to minimize the additional staffing investment.

Pros

- Provides an economic incentive to follow the rules on parking locations by fining people for breaking them.
- Can generate additional revenue.

Cons

- Requires parking enforcement staff
- May anger visitors or residents that have been accustomed to more relaxed parking enforcement.

Complementary Strategies

- Parking Information
- Off-Island Park-N-Ride



Transportation Demand Management

OFF-ISLAND PARK-N-RIDE LOTS



Park-n-ride lots offer people a place to park their cars when transferring to a different mode, such as carpooling with another person, bicycling, or taking transit.

Westside Rural Area Applicability

An off-island park-n-ride could be located along Highway 30 south of the island in an industrial area. Partnerships for shared parking could be established for existing private parking that is used primarily during the week. This could enable:

- Beach-goers to form carpools to go to the island, leaving other vehicles at the park-n-ride locations off-island.
- Bicyclists to leave their cars and ride their bicycles from parking locations on Highway 30.
- Provision of shuttle service from the park-n-rides during events or high-traffic weekends.

Pros

- Facilitates use of carpooling and can reduce need for parking on the island.
- Can more effectively utilize off-island parking spaces that are normally used primarily during the week.

Cons

- Would need to negotiate public access to existing location along Highway 30.
- More distant park-n-ride lots may not appeal to bicyclists, since Highway 30 may not be a comfortable bike route for many riders.
- May raise liability issues for parking arrangements on private properties.



Portland, OR, Google Earth

Design Considerations

- Signage and online information to promote the park-n-ride lot would need to be prominent to ensure that visitors know its location and that they can use it.

Complementary Strategies

- Shuttle service
- Parking pricing
- Event TDM strategies

Transportation Demand Management

ON-ISLAND SHUTTLE SERVICE



A branded on-island shuttle circulator service could provide access to popular island locations during peak weekend days during the summer.

Westside Rural Area Applicability

- An on-island shuttle service could operate as a circulator during peak weekend days, allowing people to park once and then travel in the shuttle to popular locations. This shuttle could run between the Cracker Barrel store and the beach during the peak summer days. In addition, shuttles could be chartered for particular event weekends, or by large events, to serve special event visitors. In these cases, shuttles could also travel to and from off-island park-n-ride locations.

Pros

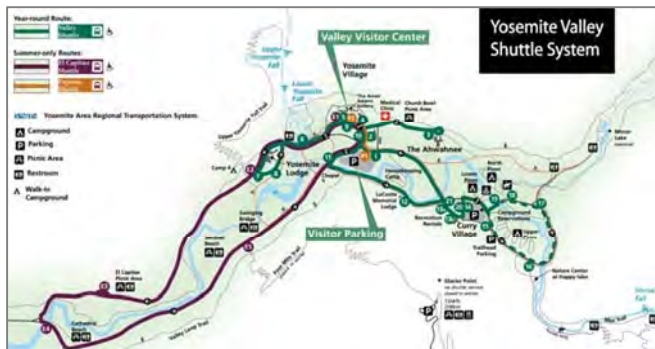
- Could provide an alternative to driving and parking on the island.
- If effectively utilized, could allow for more visitors with fewer traffic and parking impacts on the island.

Cons

- Funding shuttle service may be difficult to sustain.
- Without consistent service, people may not be able to rely on the shuttle being available.

Design Considerations

- Signage and online information to promote the shuttle service would need to be prominent to ensure that visitors know its location and how they should use it.



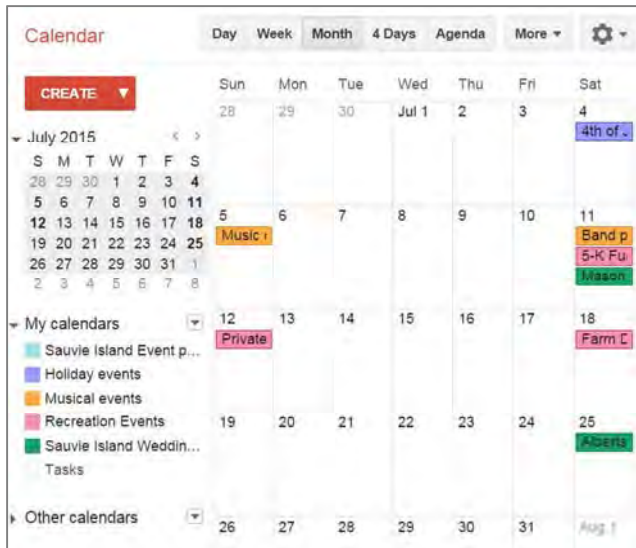
Complementary Strategies

- Parking pricing
- Event permits / calendar
- Park-n-ride



Transportation Demand Management

EVENT PERMITS / CALENDAR



A system of event permits requires event organizers to register events through a central calendar system. A permit issued for each event states the requirements that each would have to meet.

Westside Rural Area Applicability

On Sauvie Island, where events occur frequently throughout the year, this system could allow for coordination between same day events. This idea builds on the existing voluntary event permit system through the Sauvie Island Community Association and could remain informal or could be administered by a local TMA or by the County. This system could include:

- Events over a certain size limit could be required to implement a transportation demand management (TDM) plan for the event which would outline how the event will utilize any number of different TDM strategies to reduce traffic impacts.
- Provision of incentives, such as partial reimbursement for shuttle costs, for events demonstrating a certain level of non-drive-alone mode share.
- Provision of a daily “cap,” if necessary, on the total number of event attendees arriving to the island in private vehicles, in order to help avoid days with the highest levels of congestion. For example, under the same cap, one large event or four smaller events may be able to occur on the same day – but all five would not be able to be held concurrently.

Pros

- Allows for anticipation of heavy traffic days
- By capping total anticipated event attendance per day, events can be spread more evenly throughout the year
- Provides a mechanism for coordination TDM strategies among event planners

Cons

- Administration of the permit system and calendar may require additional staff time.
- Event planners may have to commit to certain dates earlier than they would otherwise.
- Could result in conflicts between event organizers/local businesses in the competition for popular dates.

Complementary Strategies

- Park-n-ride
- Event-based shuttle system
- Modified signal timing



Transportation Demand Management

EVENT-BASED “TDM” PLANS



Events of a certain size would be required to submit a transportation demand management (TDM) plan in order to receive an approved event permit.

Westside Rural Area Applicability

Organizers of large events would need to provide a transportation demand management plan to demonstrate ways that they will manage impacts. Transportation demand management plans could include:

- Traffic management plan – organizers must demonstrate how they would manage the arrivals and parking for attendees of the event, including:
 - providing adequate parking to accommodate attendees
 - employing flaggers, if needed
 - arranging for overflow parking in alternate locations, if needed
 - coordinating with other events occurring in the same time-frame.
- Demand management strategies – organizers can draw on a number of demand management strategies to reduce vehicle trips:
 - Carpool / ride-matching for event attendees
 - Promotion of park-n-ride location for carpools, bicyclists, or other recreational visitors
 - Provide shuttle or van service from a park-n-ride location
 - Charging fees for event parking



Photo: Thomas Cobb, Travel Portland

Pros

- Reduces congestion on Island roadways.
- Adds accountability for events
- Will encourage thorough planning and help mitigate impacts of larger events

Cons

- Increases the organizational burden for event planners
- Requires staff time to review TDM plans and work with event planners.

Complementary Strategies

- Park-n-ride
- Event permit / calendar
- Shuttle service
- Valet bike parking
- Modified signal timing

Transportation Demand Management

VALET BIKE PARKING



Photo: PeoplePowerSC

Valet bike parking provides staffed, secure bike parking for people arriving at a location by bike. Valet bike parking eliminates the need to have a bike lock and permanent racks at which to lock the bikes.

Westside Rural Area Applicability

Sauvie Island is already a popular place for bicyclists. By providing valet bike parking at events, recreational bicyclists could be encouraged to use bicycling as their transportation to and from the Island as well. Potential benefits of this strategy include:

- Valet bike parking provides one of the most secure forms of bike parking: when bicyclists drop off a bike, they are provided a ticket with which to reclaim the bike. The bike remains within a fenced, attended parking area until its owner returns.
- Often recreational bicyclists on Sauvie Island are riding expensive bicycles and would not feel comfortable leaving them unattended, even if locked; valet parking provides a solution to this
- Racks used for valet parking can be temporary and brought in specifically for events

Pros

- Provides highly secure form of bike parking
- Can be scaled up to provide hundreds of bike parking spots for a limited time
- Can be implemented on most surface types without substantial impacts

Cons

- Requires staff or volunteers during the event to monitor the valet parking area and check bikes in and out.

Complementary Strategies

- Event permit / calendar
- Event-based TDM plans

Appendix 4 Technical Information Memorandum

1600 SE 190th Avenue, Portland Oregon 97233-5910 • PH. (503) 988-3043 • Fax (503) 988-3389

MEMO

To: CAC

From: Joanna Valencia, Senior Transportation Planner

Date: January 27, 2015

RE: Sauvie Island/Multnomah Channel Transportation System Plan Update: Technical Info

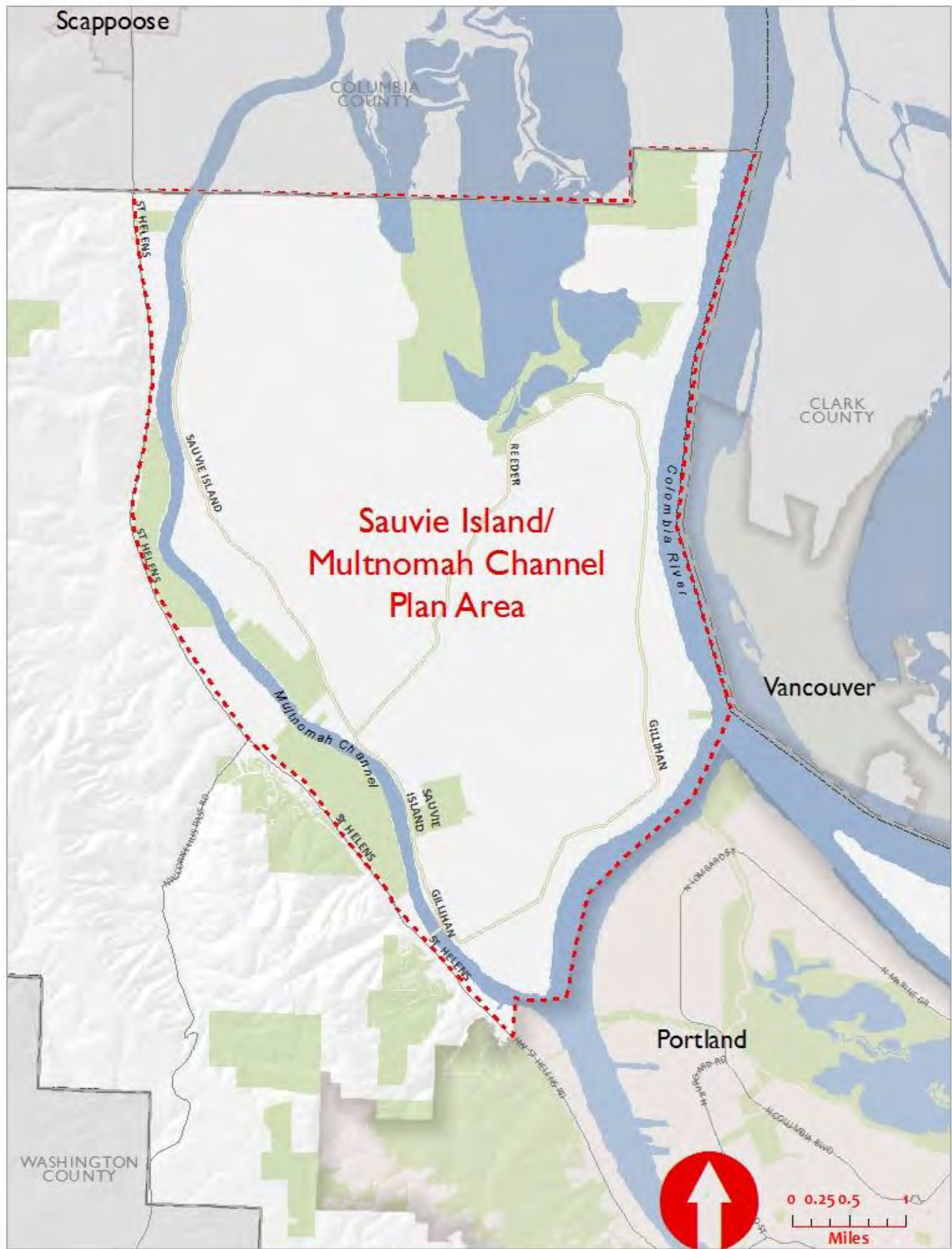
The purpose of this memo is to summarize the existing transportation system within the area.

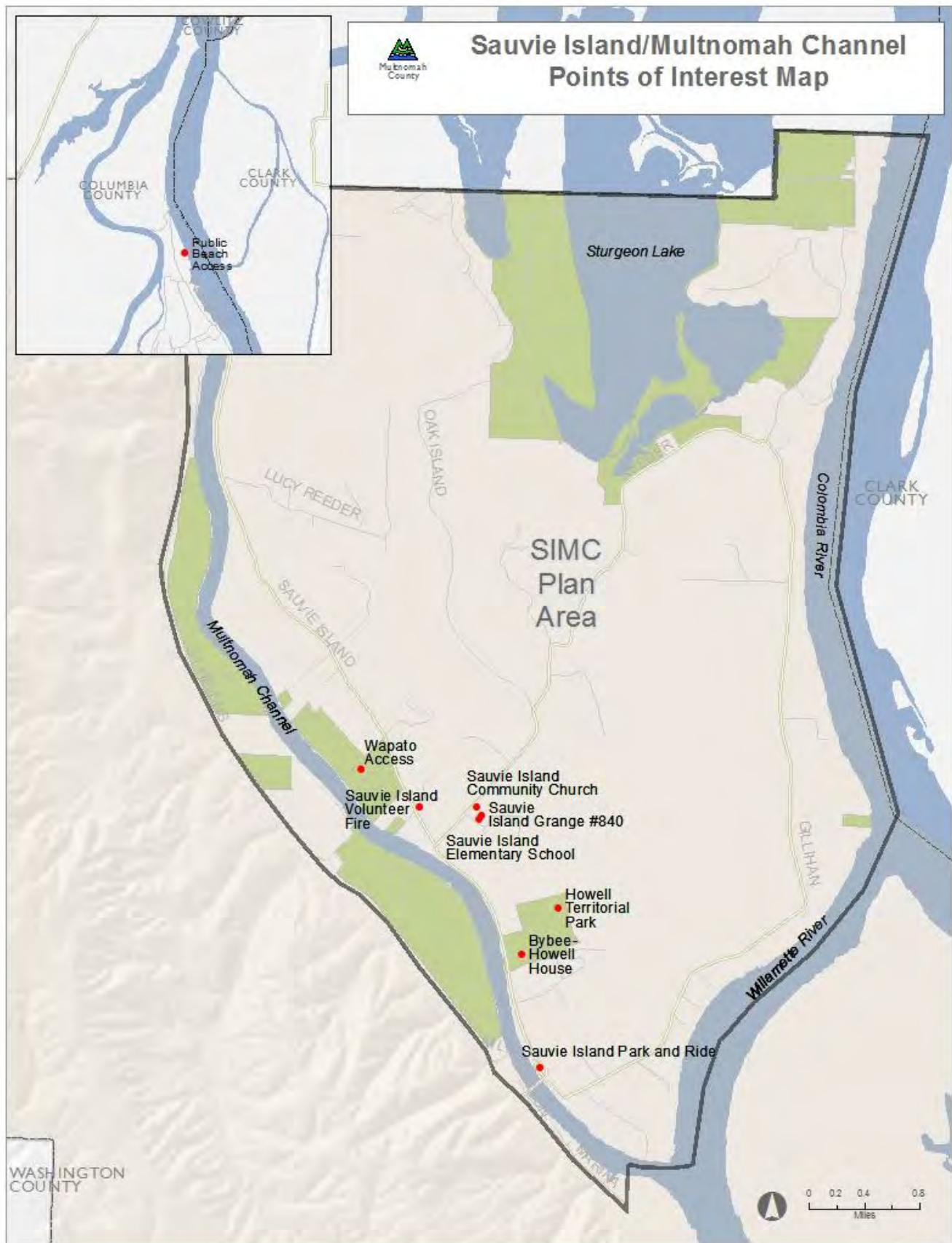
Roadway Facilities are under the jurisdiction of Multnomah County and serve multiple modes including motor vehicles, farm implement and equipment, pedestrians, bicyclists and public transit riders. As the road authority, the County is responsible for determining the road's functional classification, defining the roadway's design, maintenance of the roadways, and approving construction and access permits on the system.

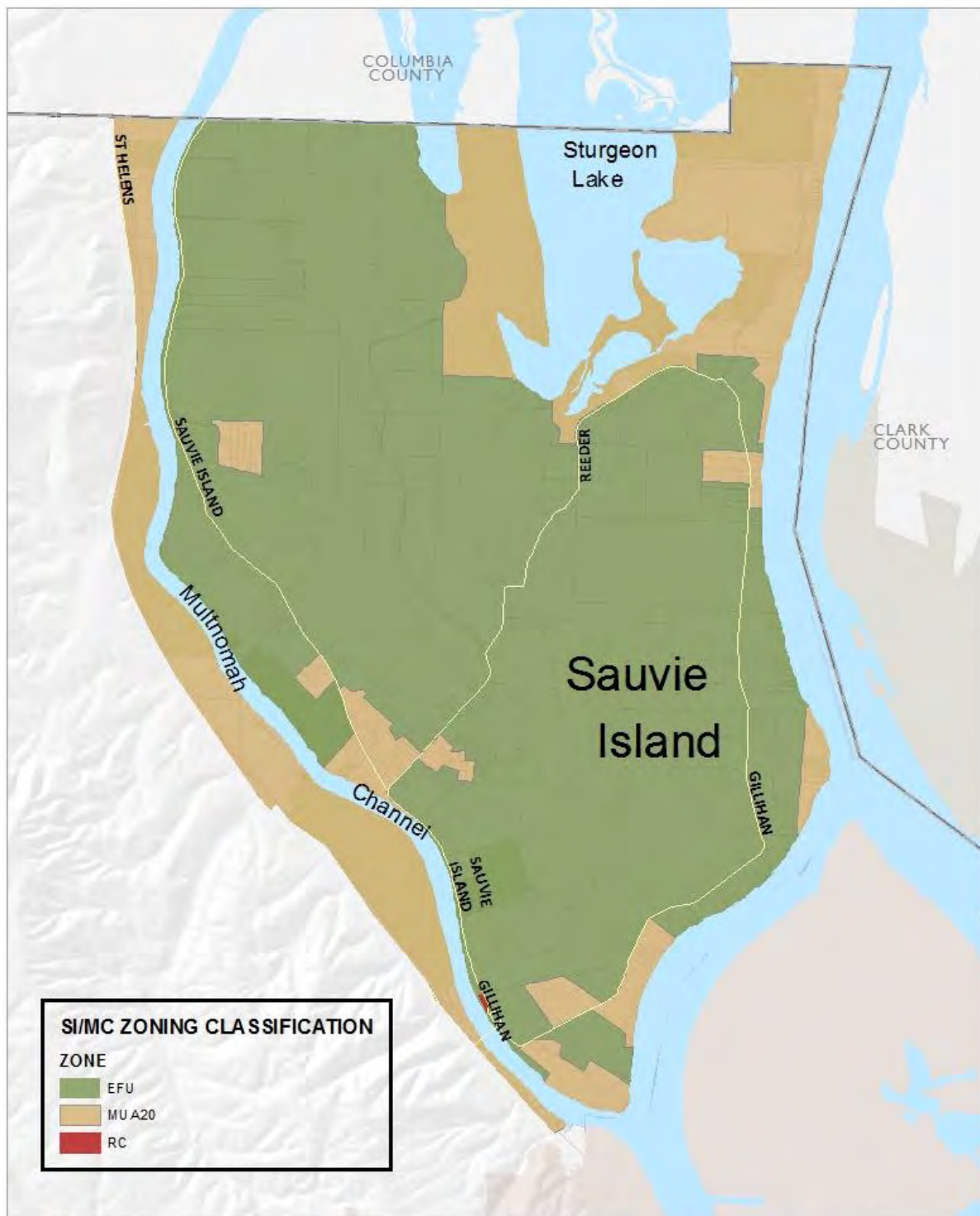
Plan Area

The Project Area is bordered by U.S. Highway 30 on the west, Columbia County on the north, the Columbia River on the east, and the Willamette River and the city of Portland on the south. The area is dominated by agricultural land uses but also includes a wildlife refuge, public beaches, various water-related uses on and along the Multnomah Channel, residential areas, and a few businesses. The Project Area includes about 15,400 acres of land (mostly on the island) and several thousand additional acres of water. Roads in the area consist of rural local access roads and rural collector roads that provide a loop serving the island. Along the Multnomah Channel, Highway 30 is an Oregon Department of Transportation (ODOT) facility with County rural local access roads serving the Channel.

The Project Area is a subset of the area covered in the 1998 TSP and corresponds to the 1997 Sauvie Island/Multnomah Channel Rural Area Plan.







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Miles

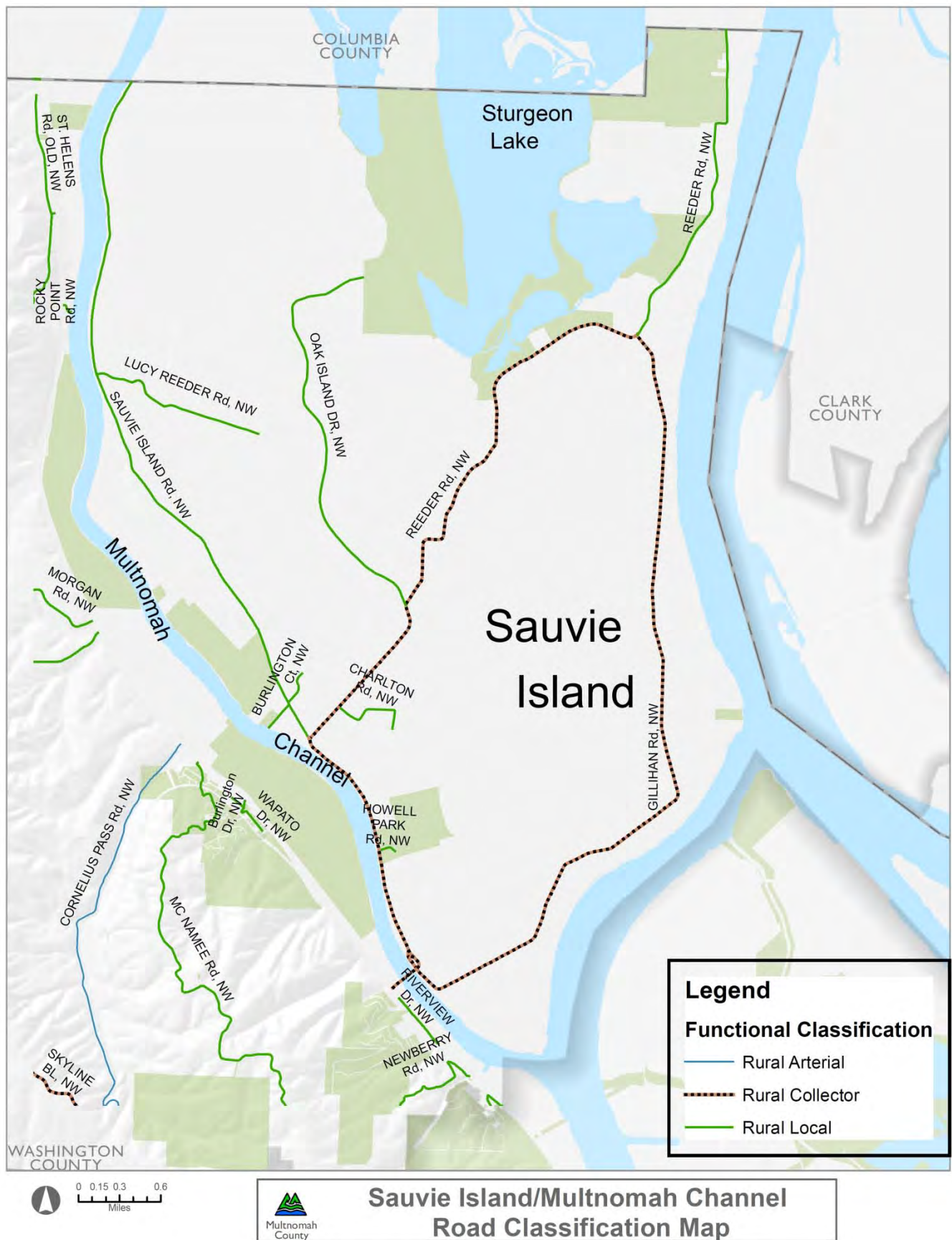


Sauvie Island/Multnomah Channel Zoning Map

Functional Classification

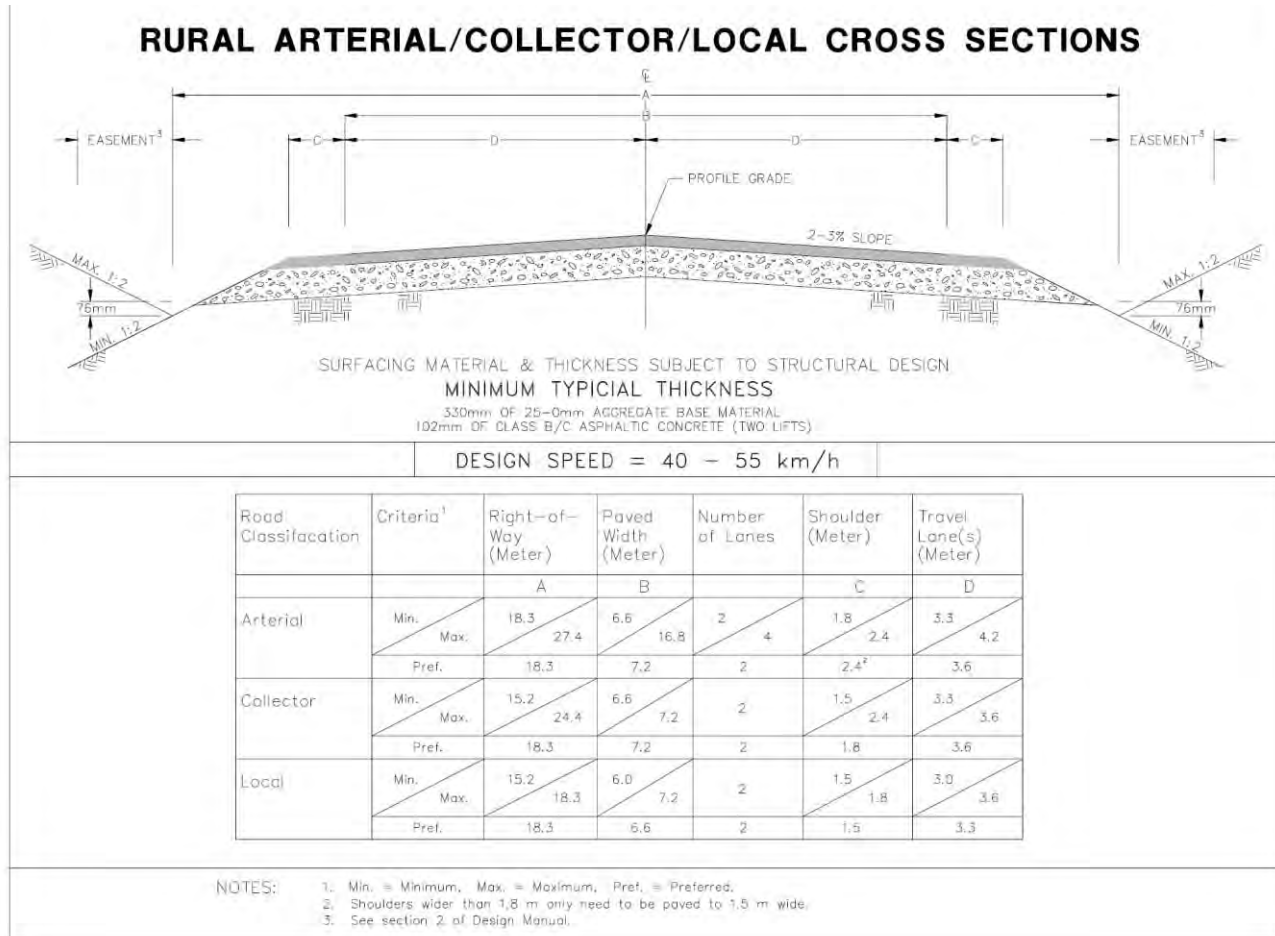
The transportation system in the plan area consists of a series of roads that serve a variety of uses. The area is dominated by agricultural uses and a wildlife refuge, with various water-related uses on and along Multnomah Channel ranging from protected wetlands to marinas. The Sauvie Island Road system is largely served by a main loop made up of a Rural Collector road system which includes Gillihan Rd, Reeder Rd, and Sauvie Island Rd. Rural Collector roads distribute traffic over large areas and generally connect to urban streets or rural arterials. They also provide necessary truck transport (agriculture, timber or minerals) out of rural areas. All other roads in the Sauvie Island/Multnomah Channel Rural Area are Rural Local roads. Local roads provide access to abutting land uses and are generally low traffic volume and low speed facilities. The Sauvie Island Bridge provides all road access to Sauvie Island , and crosses Multnomah Channel near the south end of the island.

County roads provide access to properties along the Channel off US Highway 30 which is an Oregon Department of Transportation (ODOT) facility. These roads are mainly classified as Rural Local or Local Roads and mainly serve the adjacent land uses. These roads include: Wapato Drive, Burlington Drive, Wapato Avenue, and Lower Rocky Point Road.



Street Section

County standards for Rural Collector roadways include two 12-foot travel lanes and two 8-foot paved shoulders. Gillihan Rd, Reeder Rd, and Sauvie Island Rd are not currently constructed to the County standards for Rural Collector roads.

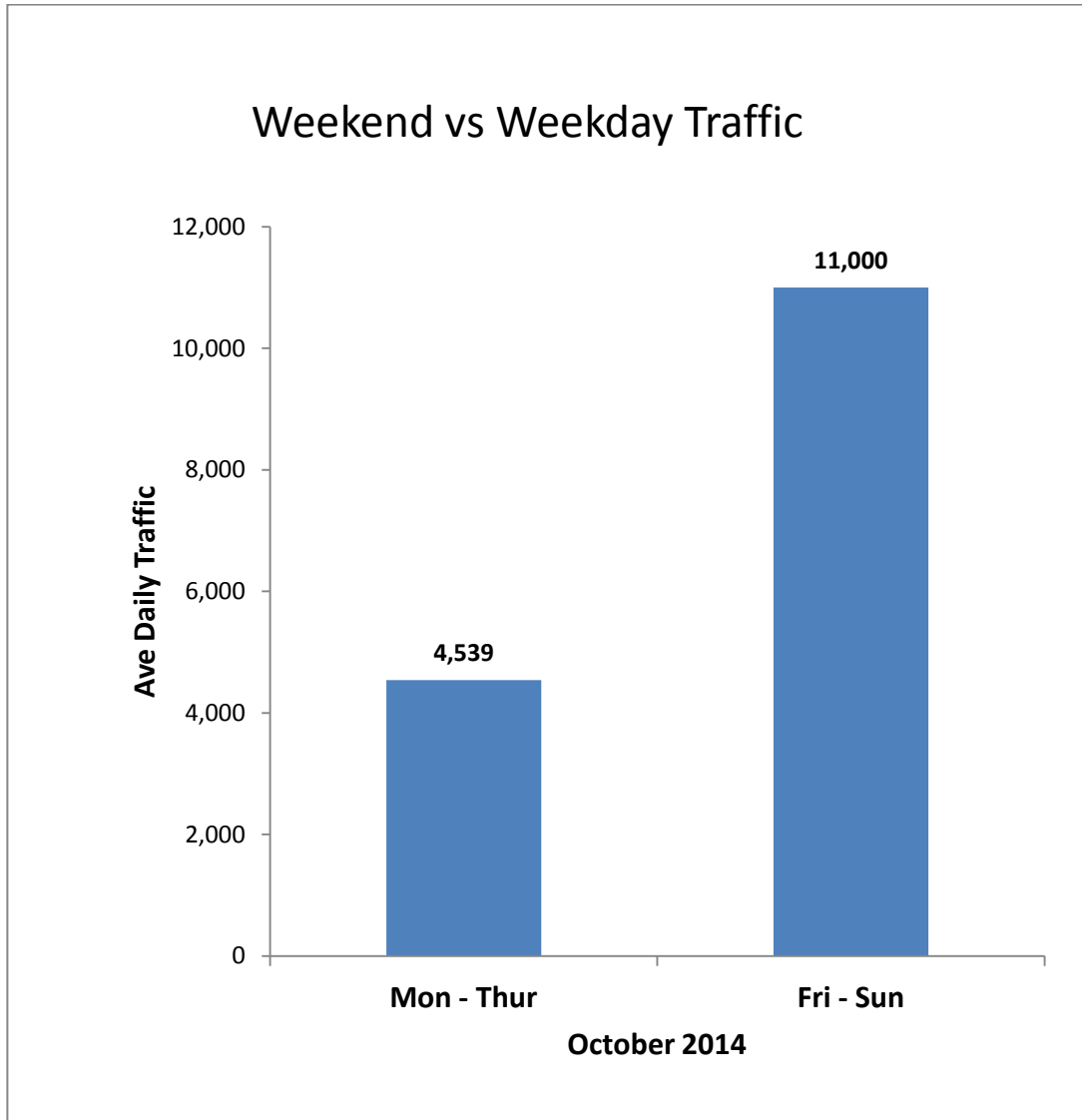


Functional Classification	Right-of-Way Width	Pavement Width	Number of Lanes	Shoulder Width	Travel Lane Width
Rural Arterial	70 feet	24 feet	2	8 feet	12 feet
Rural Collector	60 feet	24 feet	2	6 feet	12 feet
Rural Local	50 feet	22 feet	2	5 feet	11 feet

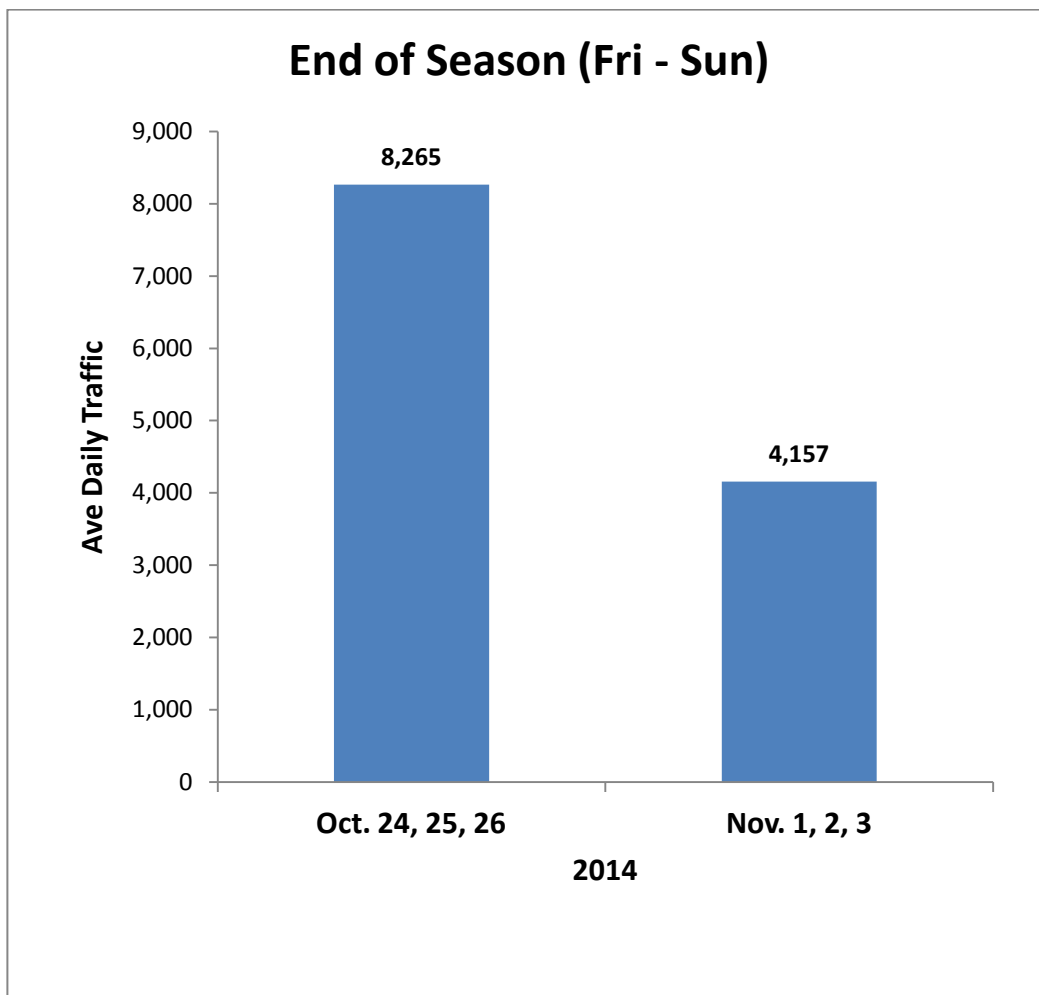
Traffic Data

The following data is based on traffic counts conducted by the County.

Volumes



Data: Counter location- Sauvie Island Road: between Hwy 30 and Gillihan Road



Data: Counter location- Sauvie Island Road: between Hwy 30 and Gillihan Road

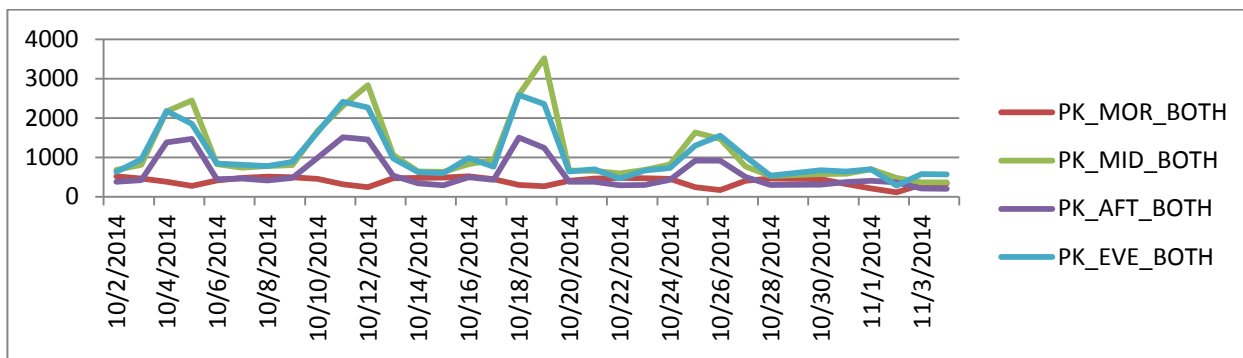
2014 Top 5 days with the most Daily Traffic

Day of the week	Top 5 Days	Daily Traffic
Sat	10/18/2014	17,504
Sun	10/19/2014	15,780
Sat	10/11/2014	15,522
Sat	10/4/2014	13,002
Sun	10/12/2014	12,830

Daily Traffic

Year	Min	Max	Average
2009	309	7373	2179
2012	1547	12606	5889
2014	335	17504	2949

Data: Counter location- Sauvie Island Road: between Hwy 30 and Gillihan Road



Data: Counter location- Sauvie Island Road: between Hwy 30 and Gillihan Road

Morning Peak 2 Hr	7:00 - 9:00 AM
Midday Peak 2 Hr	11:00 AM - 1:00 PM

Afternoon Peak	2:00 - 3:00 PM
Evening Peak 2 Hr	4:00 - 6:00 PM

Speed Data

2014 Data

Road	Values		85Th Percentile
	Average	Max	
Gillihan Rd	40	77	48
Reeder RD	38	77	45
Sauvie Island Rd	37	93	44

Gillihan Road- 45 mph posted speed

Reeder Road- 45 mph posted speed

Sauvie Island Road- 45 mph posted speed

Traffic Safety

Crash Data

ODOT provides detailed crash data for the area. The maps below summarize the data in the plan area between 2007-2013.

Severity of Crashes Reported to DMV
(2007-2013, no pedestrians or bicyclists involved)

- Fatal Crash
- Non-fatal Injury Crash
- Property Damage Only



Crashes Reported to DMV (2007-2013) involving bicyclists and pedestrians

✱ Crash involving pedestrian(s)

✱ Crash involving bicyclist(s)

