

70% Household and Employment Growth Scenario – Findings

Date: February 11, 2013

Project #: 11732

To: TSP Public Advisory Committee

From: TSP Project Management Team

Project: Clackamas County Transportation System Plan Update

Subject: 70% Household and Employment Growth Projection Scenario Findings

INTRODUCTION

Some Public Advisory Committee (PAC) members have expressed skepticism as to the accuracy of the most recent 2035 Metro Household and Employment Forecast based on their variety of views on future economic growth, energy supply and global warming, and concerns about regional forecasting methodologies and assumptions.

The most recent 2035 forecast, called the *2035 Gamma Forecast*, which was adopted by the Metro Council in December 2012, is shown in the following table:

Table 1 2035 Gamma Forecast Findings

2035 Gamma Forecast	2010 Households	2035 Households	2010 – 2035 Change	2010 Employment	2035 Employment	2010 – 2035 Change
Clackamas County	146,324	205,369	+59,045	137,946	210,340	+72,394
Multnomah County	304,649	442,778	+138,129	419,164	597,532	+178,368
Washington County	202,647	294,174	+93,527	232,019	382,310	+150,291
Clark County	158,110	228,392	+70,282	127,267	222,029	+94,762
TOTAL	811,730	1,170,713	+358,983	916,396	1,412,211	+495,815

Under this forecast, Clackamas County is expected to see a County-wide increase of 59,045 households and 72,394 jobs between 2010 and 2035. This is the smallest percentage of growth in the four metropolitan counties.

ALTERNATIVE FORECAST ASSUMPTIONS

The PAC discussed a number of alternative growth scenarios before reaching a consensus to recommend that the staff review a scenario that reflects 70% of the growth projected in the Metro Gamma Forecast.

The PAC agreed not to recommend a no-growth scenario because of the major changes that would be required in regional forecasting assumptions, including the following:

- Natural growth, the amount the regional birth exceeding regional deaths, has historically accounted for 30% to 50% of the region's growth. Zero population growth would assume an equal number of births and deaths, which has never been the case in this County.
- Net migration, the difference between the number of people moving into the region and out of the region, has typically been a positive numbers, i.e., more people have moved into the region than out of the region. While it is possible to have a net regional outmigration under certain circumstance, it is unlikely that this would occur with a large enough difference to offset natural growth over the next 20-plus years.

The question is whether all of the projects that were previously identified as needed based on 100% of the Metro Gamma Forecast will still be needed if that growth comes in at a lower level.

RECOMMENDED PROJECT SCORING

The results of the 70% growth scenario and capacity project assessment will be integrated into the project prioritization process. In addition to the goal scores assigned to each project, scores will be given for several other considerations, including whether projects address a capacity deficiency under the 70% growth scenario.

The following scores related to the 70% growth scenario are recommended:

- Projects that address a deficient facility under the 70% growth analysis will be given a score of **+1**. This includes **29** capacity projects and **12** upgrade projects. These projects are shown on the maps in Figure 1.
- Projects that do not address a deficient facility under the 70% growth analysis will be given a **-1**. This includes **22** capacity projects and **71** upgrade projects. These projects are shown on the maps in Figure 2.
- All other projects will receive a score of 0 (i.e., capacity projects on facilities that were not studied, active transportation projects, safety projects).

The remainder of this memo reports the findings of the 70% growth scenario assessment and discusses related implications for vehicle capacity and upgrade projects on the Transportation System Plan (TSP) Master Project List.

70% GROWTH PROJECTION SCENARIO ANALYSIS

As part of the *Existing and Future Conditions Report* for the TSP, Kittleson (KAI) assessed the existing transportation conditions in Clackamas County and the projected 2035 conditions under two scenarios:

- The 2035 Low Build Scenario provides an understanding of how the future transportation system would operate if projected population and employment growth occurred, but the only transportation projects constructed were those currently funded for construction over the next several years.
- The 2035 Full Build Scenario has the same population and employment projections as the Low Build Scenario, but provides an understanding of how the future transportation system would operate if all of the projects identified in the County’s current TSP were constructed, even those without funding at this time.

The future conditions scenarios were based on the County’s projected population and land use for the year 2035 (the horizon year for the Metro Regional Transportation Plan [RTP] that applies to portions of the county within the Metro Urban Growth Boundary [UGB]). The metro travel demand model was used to develop future traffic volumes for both scenarios.

In order to assess the transportation conditions and needs if less growth than anticipated occurs, the transportation system was reassessed with 70% of the growth forecasted for the 2035 Low Build Scenario. This analysis serves as a sensitivity test of capacity projects to determine which projects may not be warranted if growth occurs more slowly than projected or if the use of vehicular transportation decreases significantly (i.e. due to higher fuel prices or more alternative transportation options). For reference, figures showing the Low Build roadway and intersection performance are provided in **Appendix A**. The findings of the 70% growth analysis are detailed below.

INTERSECTION OPERATIONS

KAI reassessed operations at the study intersections that are not projected to meet operational standards under the 2035 Low Build Scenario, assuming 70% of the forecasted growth. The detailed results by geographic sub area are included in **Appendix B**.

Twelve of the 43 intersections that did not meet operational standards under the 2035 Low Build Scenario do meet standards with 70% of the forecasted growth. These intersections are shown in Table 1. The remaining 31 intersections do not meet operational standards with 70% of the anticipated growth.

Table 2 Intersections Meeting Operational Standards Under 70% Growth Projection

ID	Intersection	Geographic Sub Area	Jurisdiction	Performance Std (LOS or v/c)**	Performance Under:	
					Low Build	70% Growth Scenario
105	SE Johnson Creek Boulevard/82nd Avenue	CRCIA	ODOT	0.99	>1.0	0.98
116	SE King Road/SE Fuller Road	CRCIA	County	0.99	>1.0	0.98
131	SE Sunnyside Road/I-205 NB Ramps	CRCIA	ODOT	0.85*	0.88	0.79
136	SE Sunnybrook Boulevard/SE 82nd Avenue	CRCIA	ODOT	1.1	>1.0	0.67
138	SE Sunnybrook Boulevard/I-205 NB Ramps	CRCIA	ODOT	0.85*	0.89	0.81

ID	Intersection	Geographic Sub Area	Jurisdiction	Performance Std (LOS or v/c)**	Performance Under:	
					Low Build	70% Growth Scenario
144	SE Sunnyside Road/SE 122nd Avenue	CRCIA	County	0.99	>1.0	0.96
146	SE Sunnyside Road/SE 142nd Avenue	CRCIA	County	0.99	>1.0	0.94
161	Highway 212/SE 172nd Avenue	CRCIA	ODOT	0.99	>1.0	0.97
224	SE Jennings Avenue/SE Webster Road	McLoughlin	County	0.99	1.00	0.92
302	SW Borland Road/SW Stafford Road	Northwest	County	D	E	C
303	SW Mountain Road/SW Stafford Road	Northwest	County	D	F	D
304	SW Ellingson Road/SW 65th Avenue	Northwest	County	D	E	D

* ODOT Interchange Ramp Standard

** Performance standards -- level of service (LOS) or volume to capacity ratio (v/c)

ROADWAY OPERATIONS

KAI reassessed congestion on roadway segments in the County assuming 70% of projected growth occurs. Congested roadways are defined as those with volume-to-capacity (v/c) ratios over 1.0. The results showed that the majority of roadway segments that are very congested (v/c ratio over 1.1) under the Low Build scenario are still congested (1.0 < v/c < 1.1) under the 70% growth scenario.

However, approximately 20 roadway segments considered congested under the Low Build scenario are no longer congested (v/c <1.0) with 70% of projected growth, including some roadways with multiple segments that are no longer congested:

- Portions of OR 224 in East County;
- OR 99E in the Southwest geographic study area;
- Webster Road in the Greater McLoughlin Area;
- Aldercrest Road in the Greater McLoughlin Area;
- Portions of SE Sunnyside Road in the Clackamas Regional Center/Industrial Area;
- Portions of I-205 in the Clackamas Regional Center/Industrial Area;
- SE Idleman Rd in the Clackamas Regional Center/Industrial Area;
- SE Clatsop St in the Clackamas Regional Center/Industrial Area;
- Portions of OR 212/OR 224 in the Clackamas Regional Center/Industrial Area;
- SE Tong Rd in the Clackamas Regional Center/Industrial Area;
- SE Evelyn St in the Clackamas Regional Center/Industrial Area; and
- SW Wilsonville Rd in the Northwest geographic study area.

For reference, maps are provided in *Appendix C* that compare the roadway segments that were found to be congested under the 2035 Low Build Scenario with those considered congested with 70% of

projected growth. Maps showing the level of congestion on all roadway segments (including those that are not congested) under the 70% growth scenario are provided in *Appendix C* as well.

VEHICLE CAPACITY PROJECTS

In order to assess the projects on the Master List potentially affected by the 70% growth projection scenario, KAI isolated the projects that are categorized as vehicle capacity projects. As discussed in the *Prioritization Process Memo*, the vehicle capacity projects are defined as:

- **Urban Upgrade: Vehicle Capacity Only** – Projects within the UGB that add vehicle capacity to an existing roadway or intersection (and require the reconstruction of any existing sidewalks and/or bicycle lanes).
- **Rural Upgrade: Vehicle Capacity Only** – Projects outside of the UGB that add vehicle capacity to an existing roadway or intersection. Examples include adding intersection turn lanes or installing a traffic signal (and requiring the reconstruction of existing paved shoulders, sidewalks and/or bicycle lanes).

Vehicle capacity projects therefore include both intersection and roadway projects directly focused on providing additional room for vehicles. The Master List included 70 vehicle capacity projects at the time of this analysis. The necessity of the projects is based on projected capacity deficiencies in the transportation system in 2035.

The Master List projects categorized as “urban upgrade – vehicle capacity” or “rural upgrade – vehicle capacity” were mapped along with the congested roadway segments and failing intersections under the 70% growth scenario. These maps were used to identify which projects address deficiencies under the 70% growth scenario. The maps are provided in *Appendix D* for reference. A table of the projects is also provided in *Appendix D*. The column “Identified Capacity Deficiency Under 70% Growth?” notes if the 70% growth scenario analysis identified a capacity deficiency at the intersection or roadway.

The list is divided in to three groups (indicated by the cell colors) based on this column:

- **Yes (indicated in blue)** – These projects do address a capacity deficiency in the 70% growth scenario, as identified in the *Existing and Future Conditions Report* and additional analysis. There are **29 projects** in this group.
- **No (indicated in purple)** – These projects do not address an identified capacity deficiency in the 70% growth scenario, meaning analysis performed for the TSP suggests that the intersection or roadway is performing at or above standards (for intersections) or below capacity (for roadways). There are **22 projects** in this group.
- **Not Studied (indicated in green)** – These projects address intersections or roadways that were not studied as part of the TSP analysis. There are **19 projects** in this group.

The “Notes” column in the table includes relevant information about the project to consider, such as the project provides a safety benefit or is being further assessed in the Dynamic Traffic Assignment (DTA) analysis currently being performed. The “Comments” column includes feedback received from the Technical Advisory Committee (TAC), Geographic Area Projects (GAPS) groups, Virtual Open House (VOH), Public Advisory Committee (PAC), or Pedestrian and Bicycle Action Committee (PBAC).

UPGRADE PROJECTS

In addition to the projects discussed above that are primarily focused on enhancing vehicle capacity, there are a number of projects in the Master List categorized as “Rural Upgrade” or “Urban Upgrade.” These projects typically include a vehicle capacity element and active transportation facilities (i.e., bike lane or shoulders) or a safety element (i.e., removal of horizontal curvature).

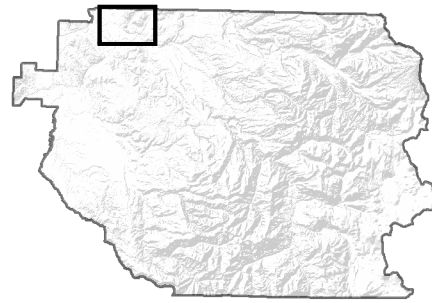
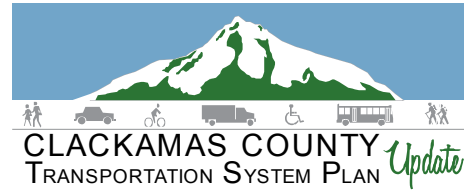
- For some of the projects, the capacity element may be a small portion of the project (i.e., project includes bikeways, pedways, traffic calming, and turn lanes at intersection).
- For other projects, the capacity element may be the focus of the project (i.e., widen to 5 lanes with bikeways and pedways).
- Some of the upgrade projects bring roadways up to standards without adding capacity, and were thus not evaluated as part of this analysis.

There were 83 upgrade projects with capacity elements assessed in this analysis.

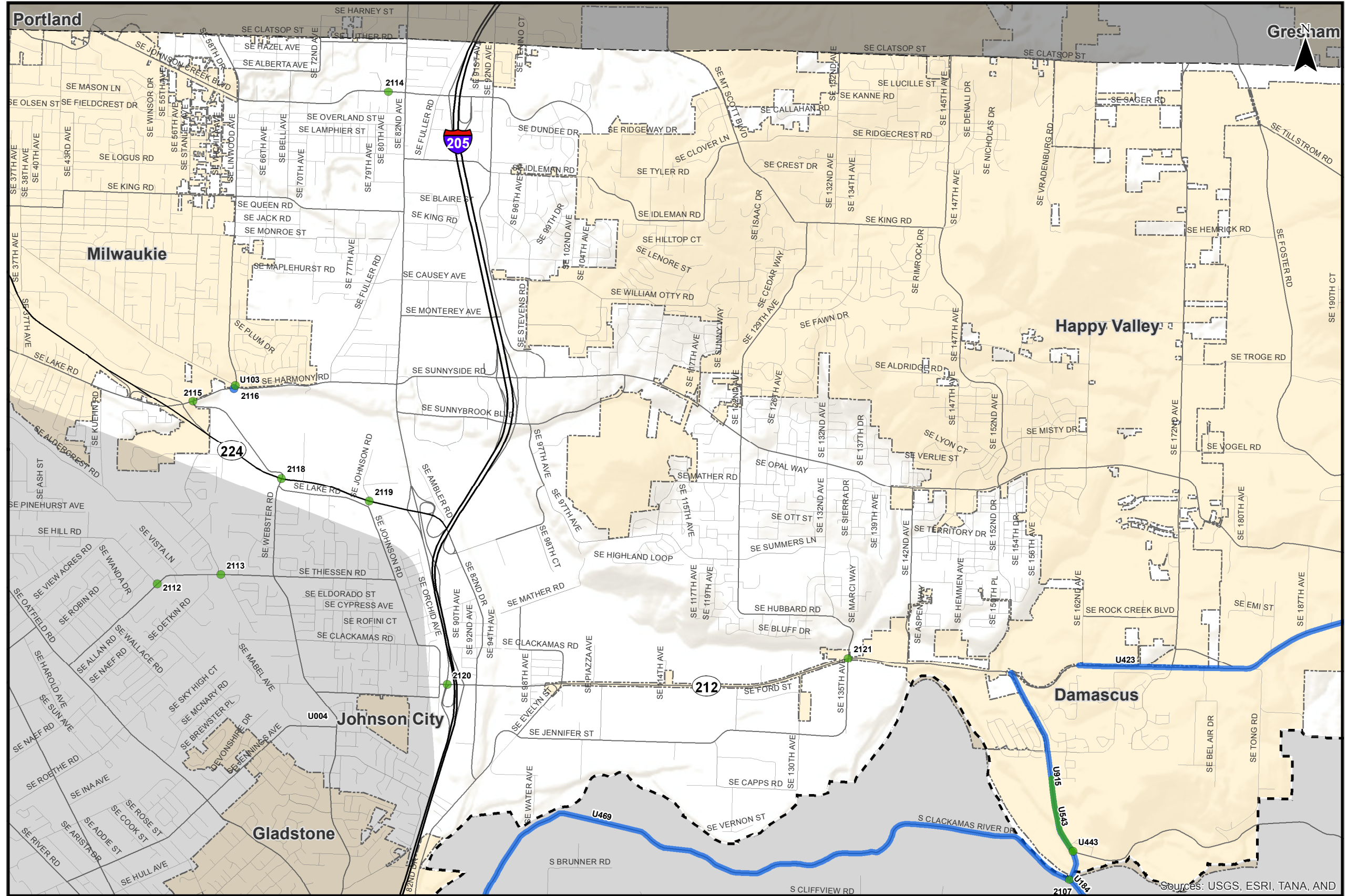
As done for the vehicle capacity projects, these projects were more closely compared to the intersection and roadway deficiencies under the 70% growth scenario. Maps showing the upgrade projects and deficiencies were used to assess whether upgrade projects address a deficiency. These maps, as well as a table of the upgrade projects, are provided in *Appendix E*. In the table, the column “Identified Capacity Deficiency Under 70% Growth?” notes if the 70% growth scenario analysis identified a capacity deficiency at the intersection or roadway. The list is divided in to two groups (indicated by the cell colors) based on this column:

- **Yes (indicated in blue)** – These projects do address a capacity deficiency in the 70% growth scenario, as identified in the *Existing and Future Conditions Report* and additional analysis. There are **12** projects in this group.
- **No (indicated in purple)** – These projects do not address an identified capacity deficiency in the 70% growth scenario, meaning analysis performed for the TSP suggests that the intersection or roadway is performing at or above standards (for intersections) or below capacity (for roadways). There are **71** projects in this group.

Again, the “Notes” column included in the table includes relevant information about the project to consider. As seen in the table, a large number of the projects determined not to be needed under the 70% growth scenario add turn lanes at intersections on a segment of roadway. While these roadways are not projected to be congested, turn lanes will provide operational and safety benefits.



- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



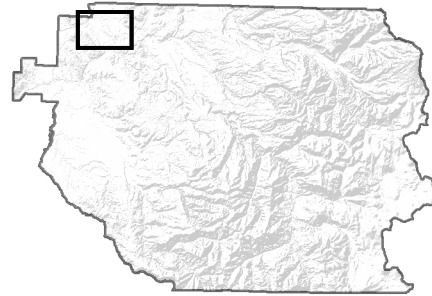
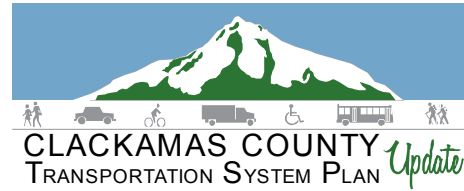
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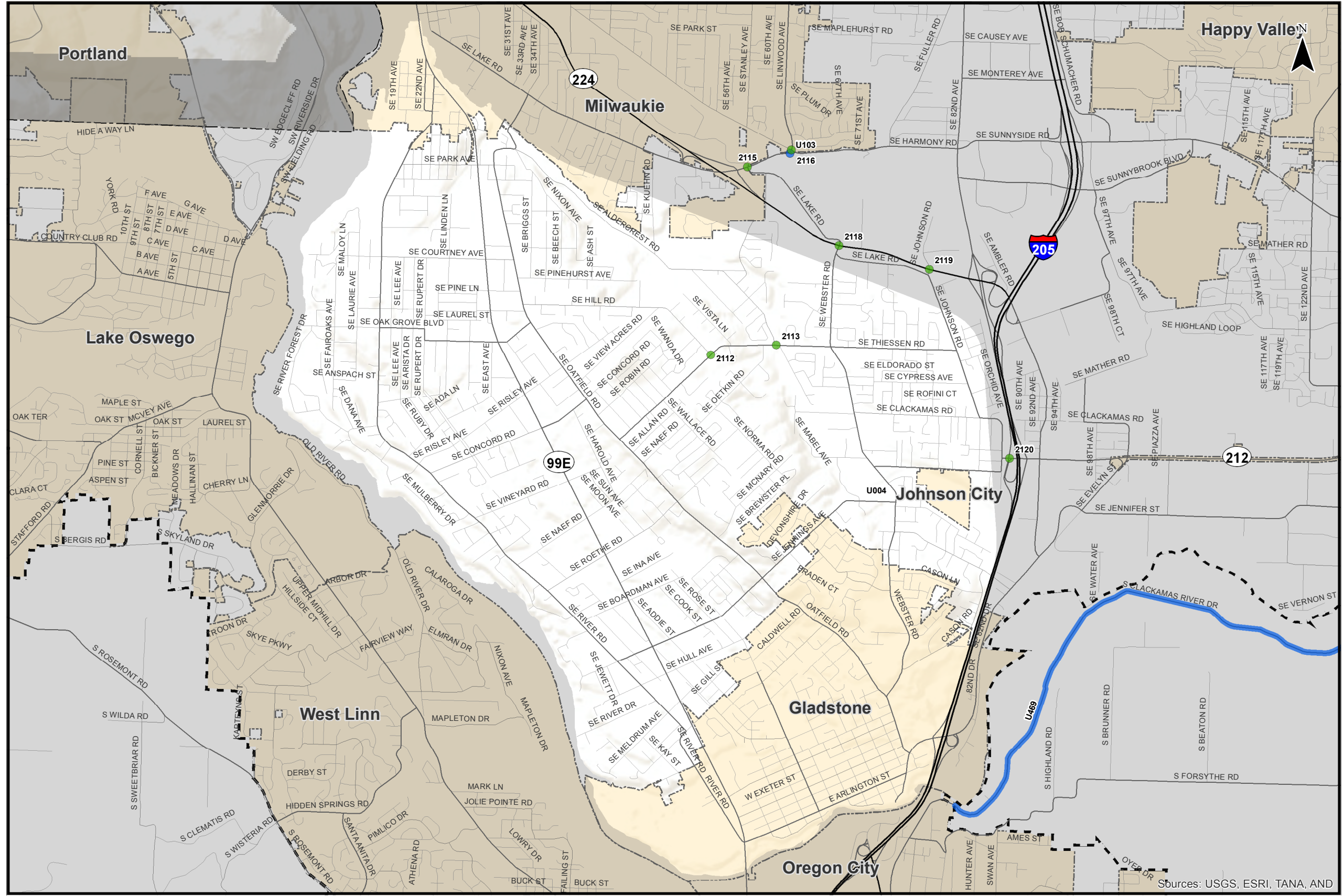
**Capacity and Upgrade Projects that Do Address a Deficiency in the 70% Growth Projection Scenario
 Greater Clackamas Regional Center / Industrial Area**

Figure
C 1

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- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



Sources: USGS, ESRI, TANA, AND

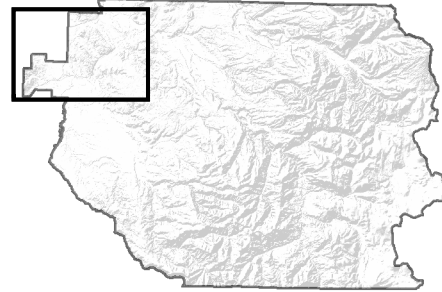
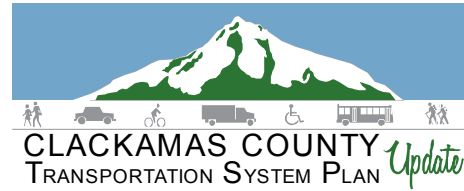
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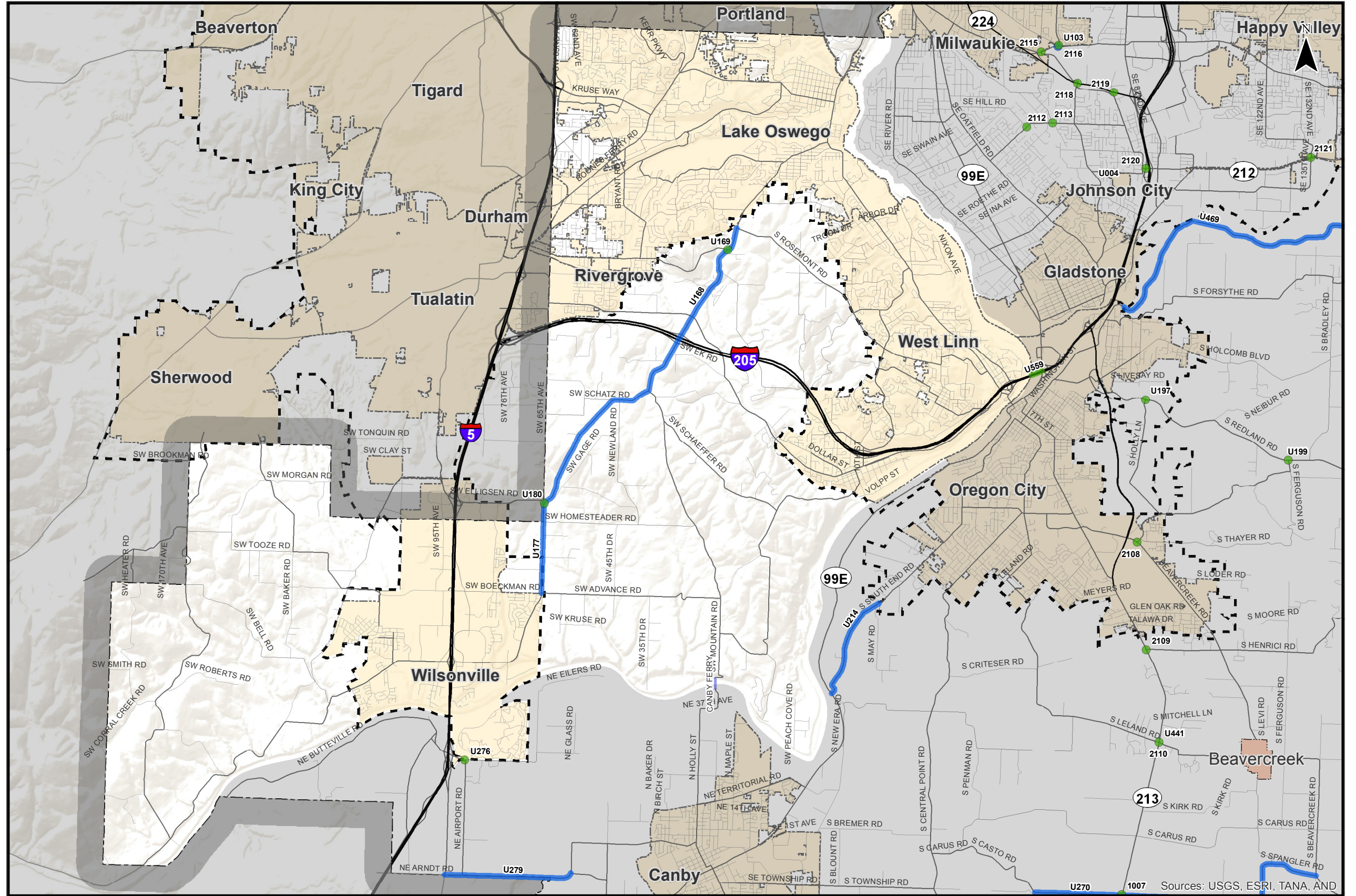
**Capacity and Upgrade Projects that Do Address a Deficiency in the 70% Growth Projection Scenario
Greater McLoughlin Area**

Figure
M 1

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- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB

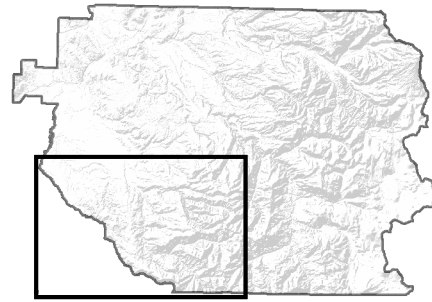
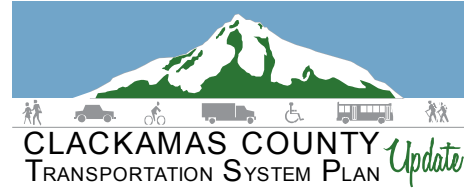


Capacity and Upgrade Projects that Do Address a Deficiency in the 70% Growth Projection Scenario Northwest County

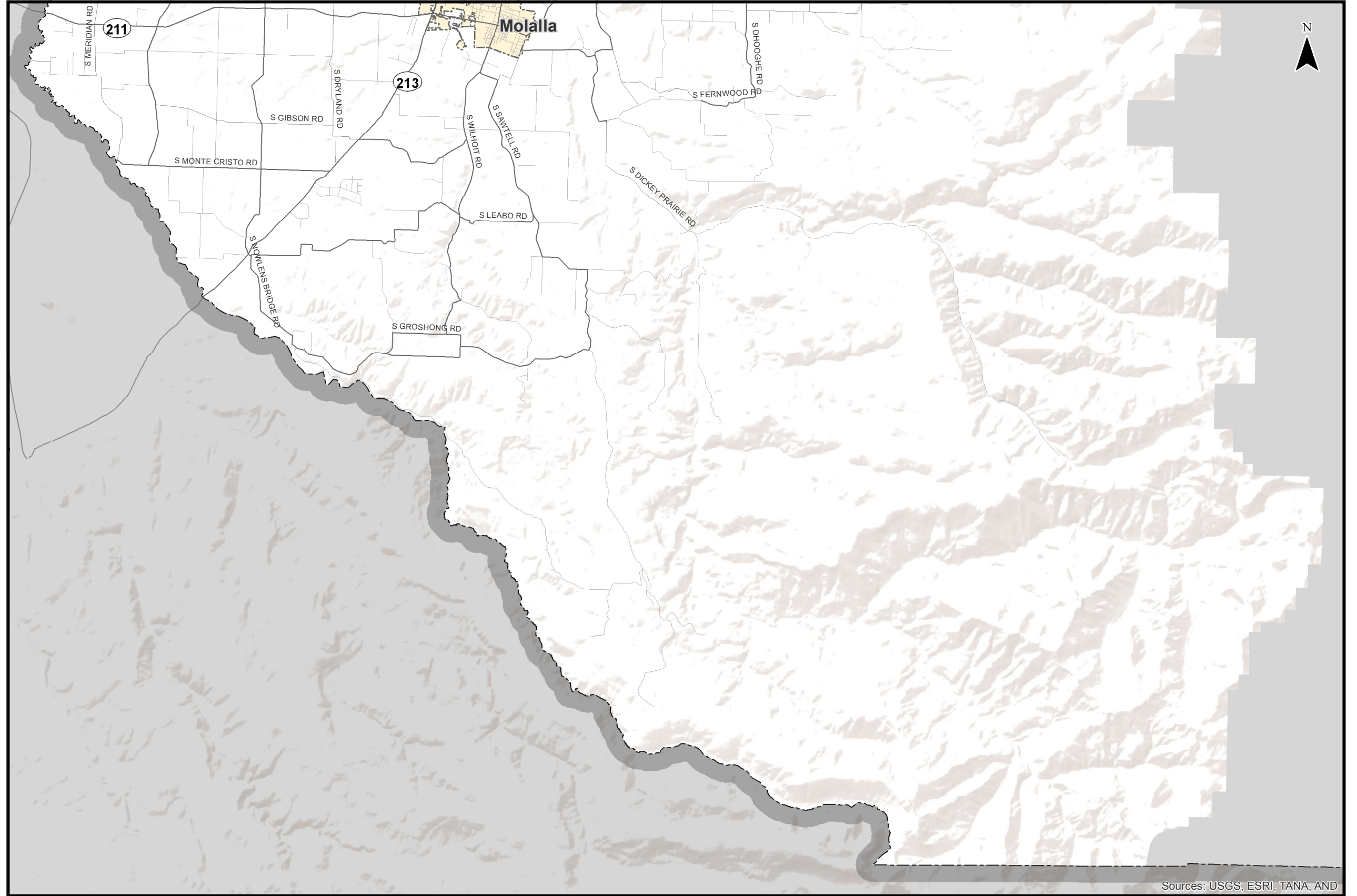
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NW 1

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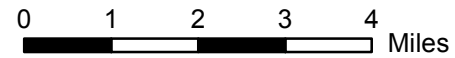
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- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



Sources: USGS, ESRI, TANA, AND

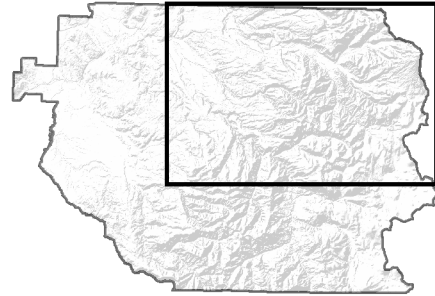
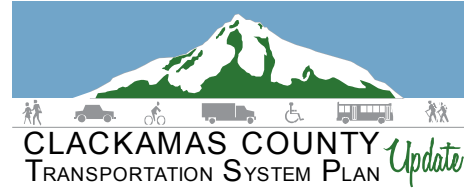


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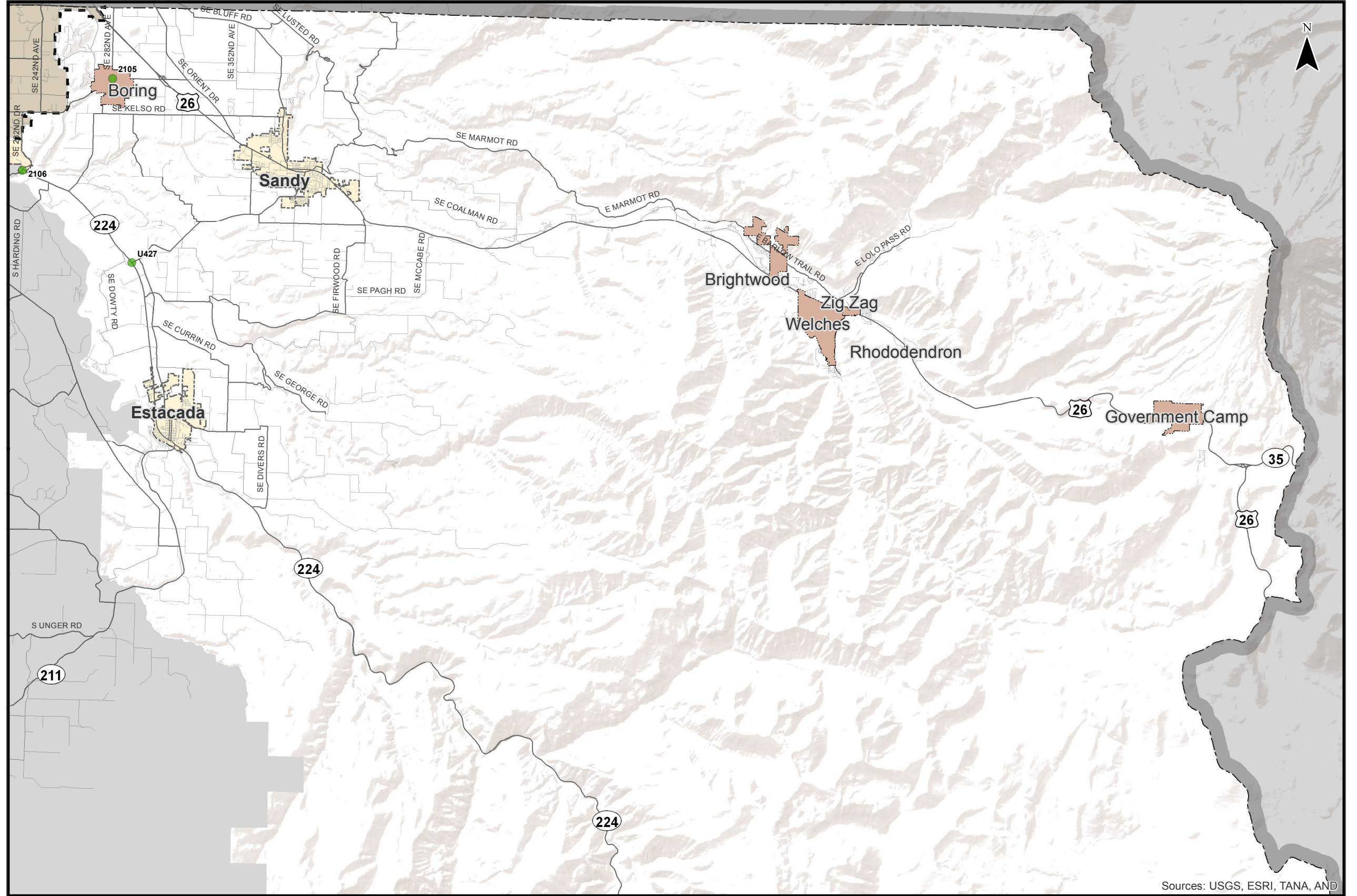
**Capacity and Upgrade Projects that Do Address a Deficiency in the 70% Growth Projection Scenario
Southwest County - Southern Portion**

Figure
SS 1

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- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB

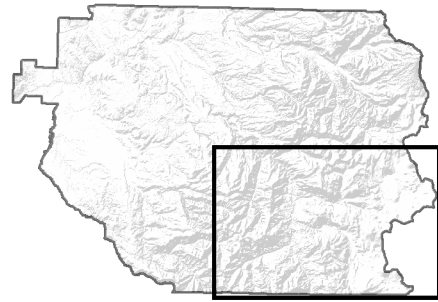
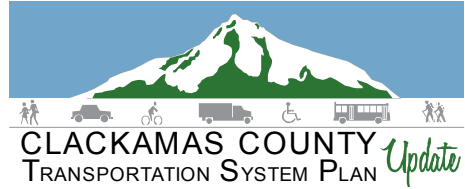


**Capacity and Upgrade Projects that Do Address a Deficiency in the 70% Growth Projection Scenario
East County - Northern Portion**

Figure
EN 1

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- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



Sources: USGS, ESRI, TANA, AND

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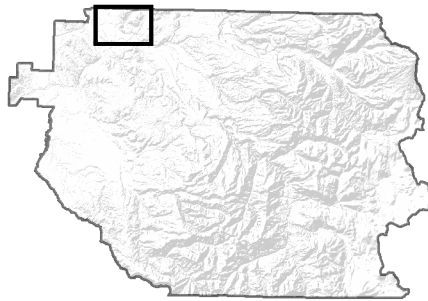
**Capacity and Upgrade Projects that Do Address a Deficiency in the 70% Growth Projection Scenario
East County - Southern Portion**

Figure
ES 1

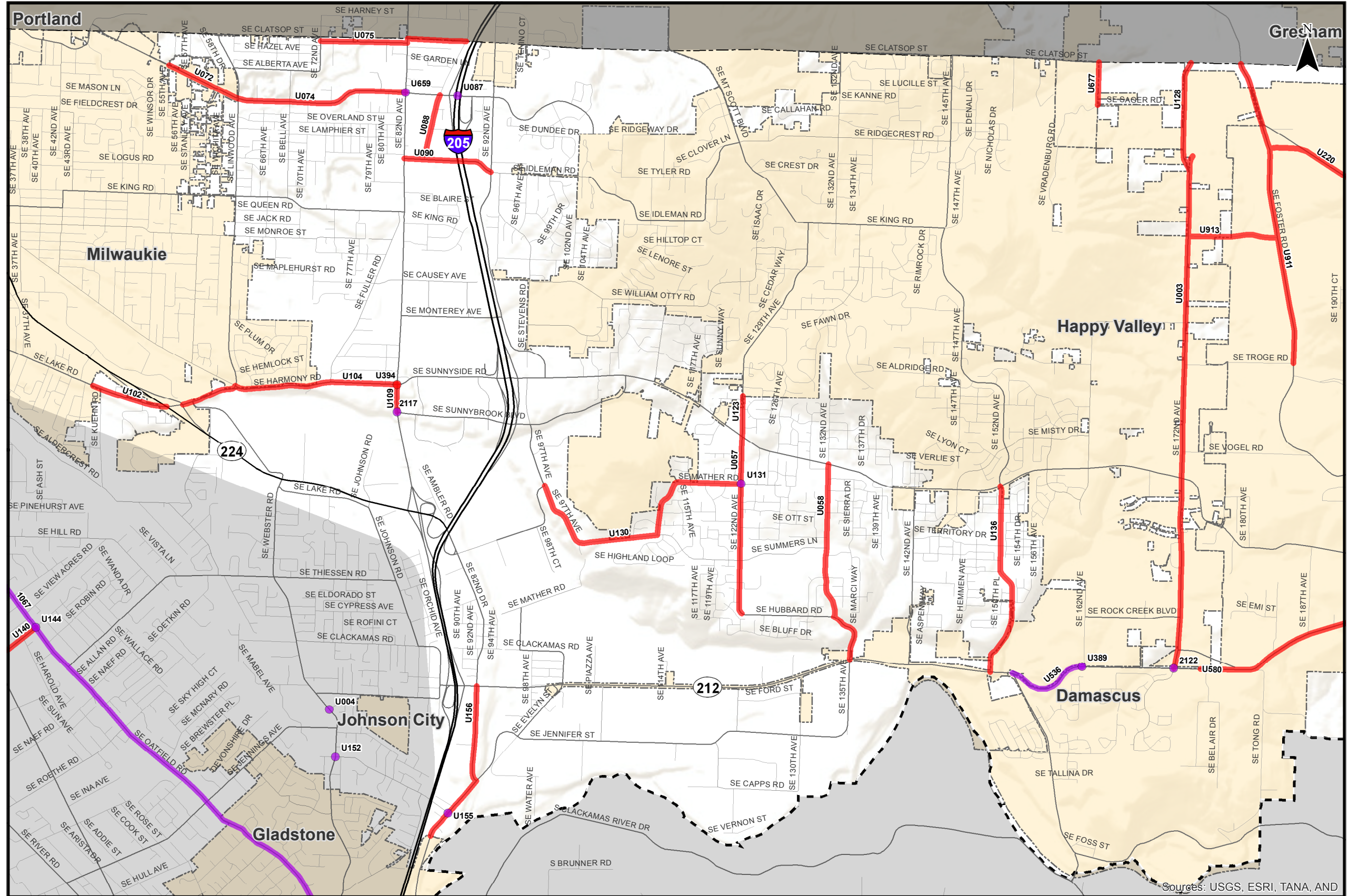
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CLACKAMAS COUNTY TRANSPORTATION SYSTEM PLAN Update



- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



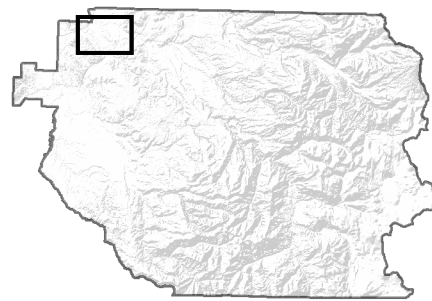
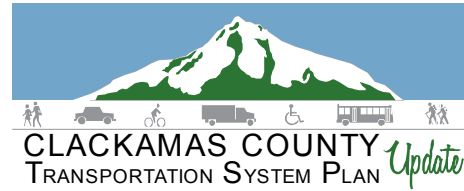
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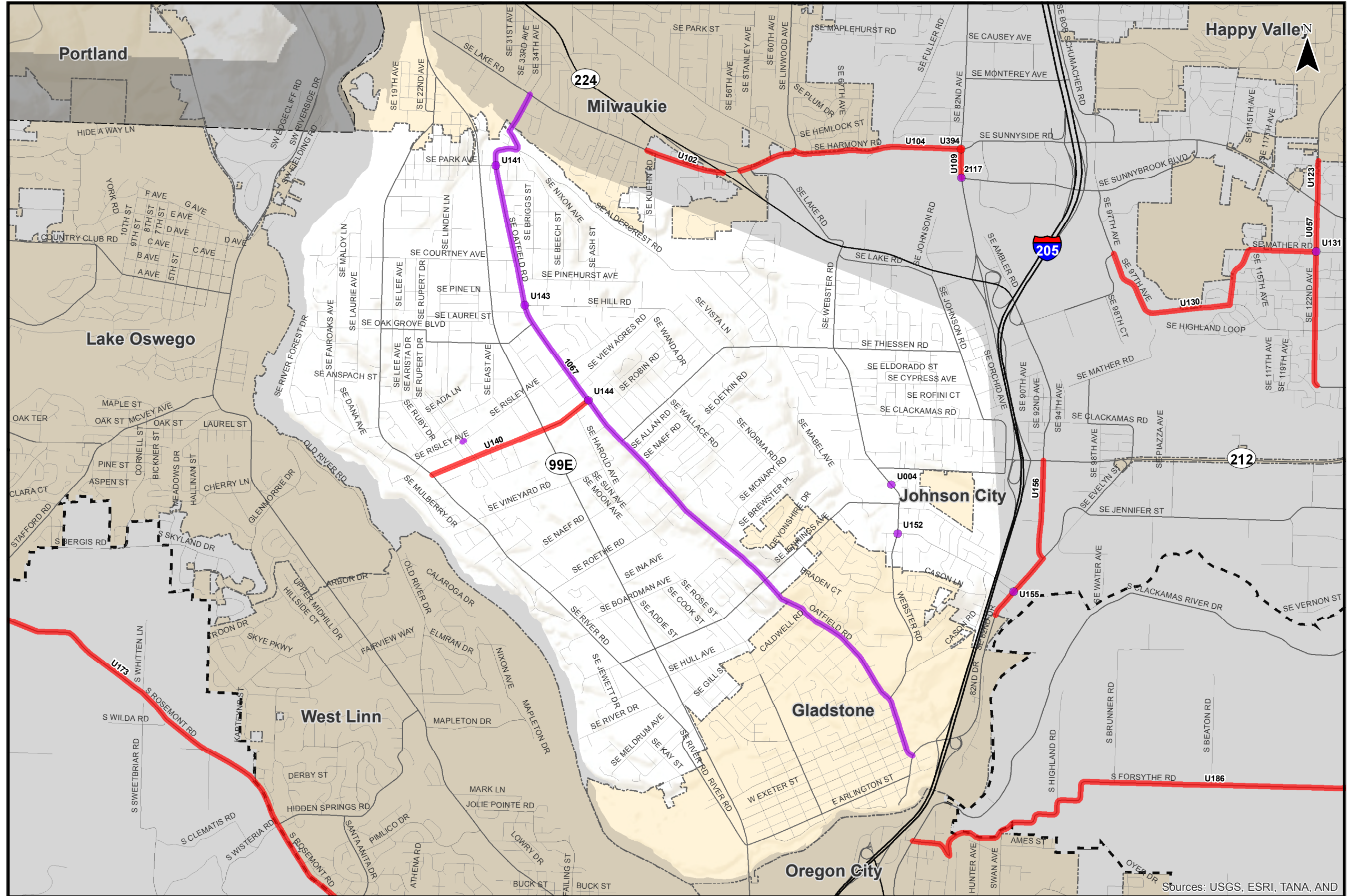
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Capacity and Upgrade Projects that Do Not Address Deficiency in 70% Growth Projection Scenario
Greater Clackamas Regional Center / Industrial Area

Figure C 2



- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



Sources: USGS, ESRI, TANA, AND

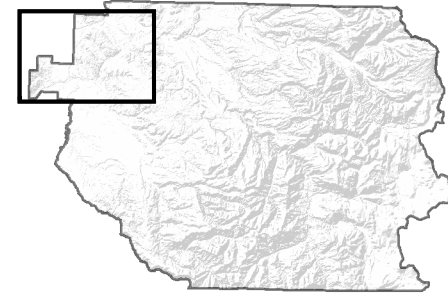
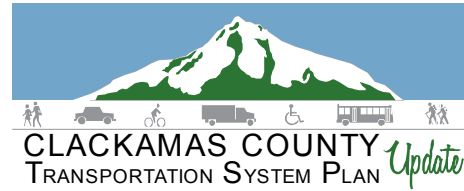
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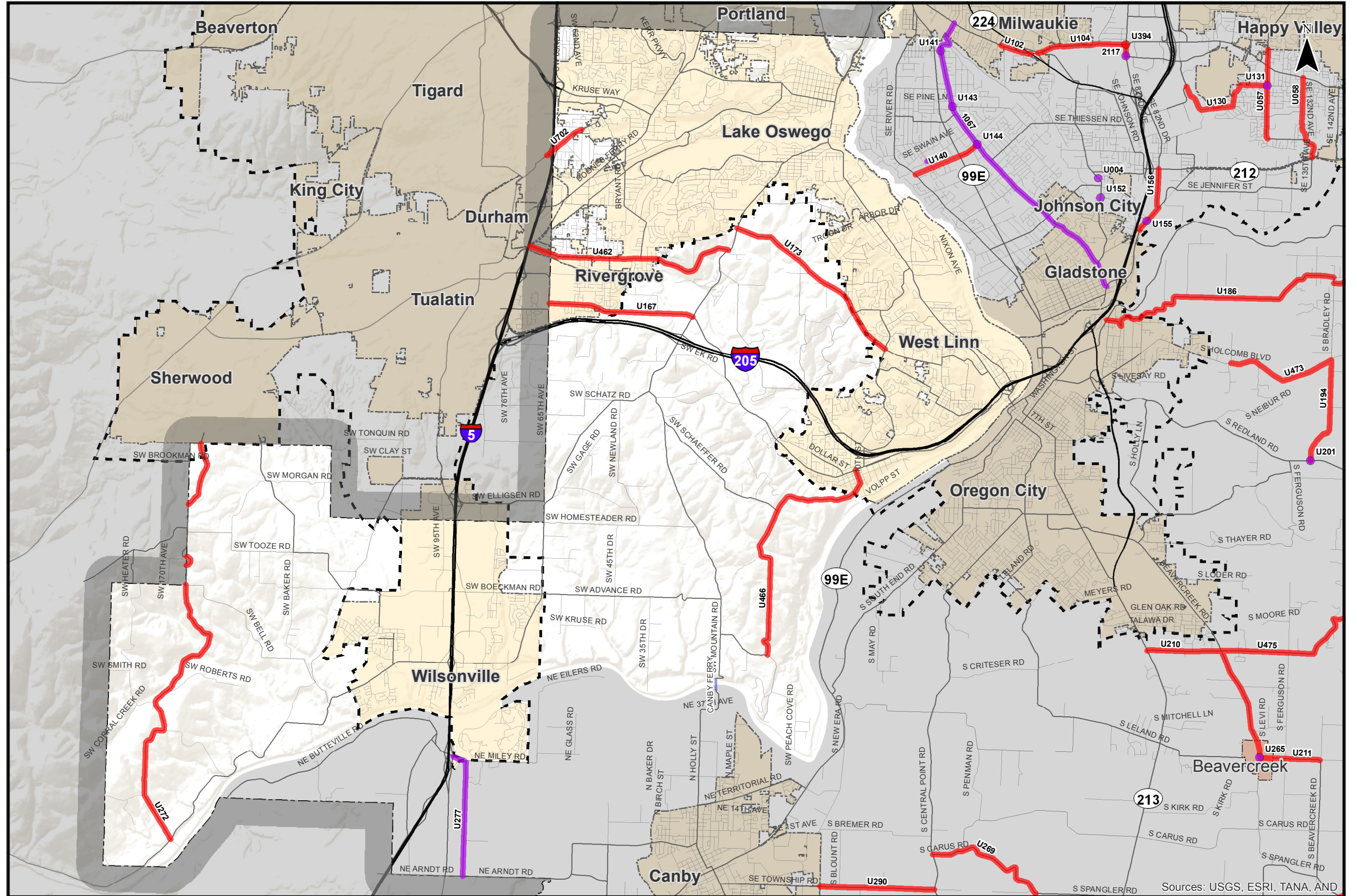
Capacity and Upgrade Projects that Do Not Address Deficiency in 70% Growth Projection Scenario Greater McLoughlin Area

Figure
M 2

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- Capacity Project
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- UGB



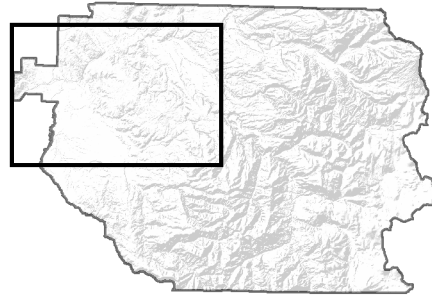
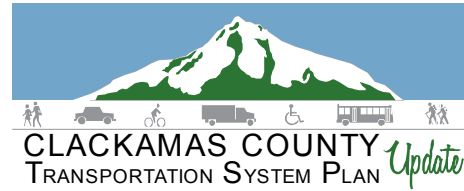
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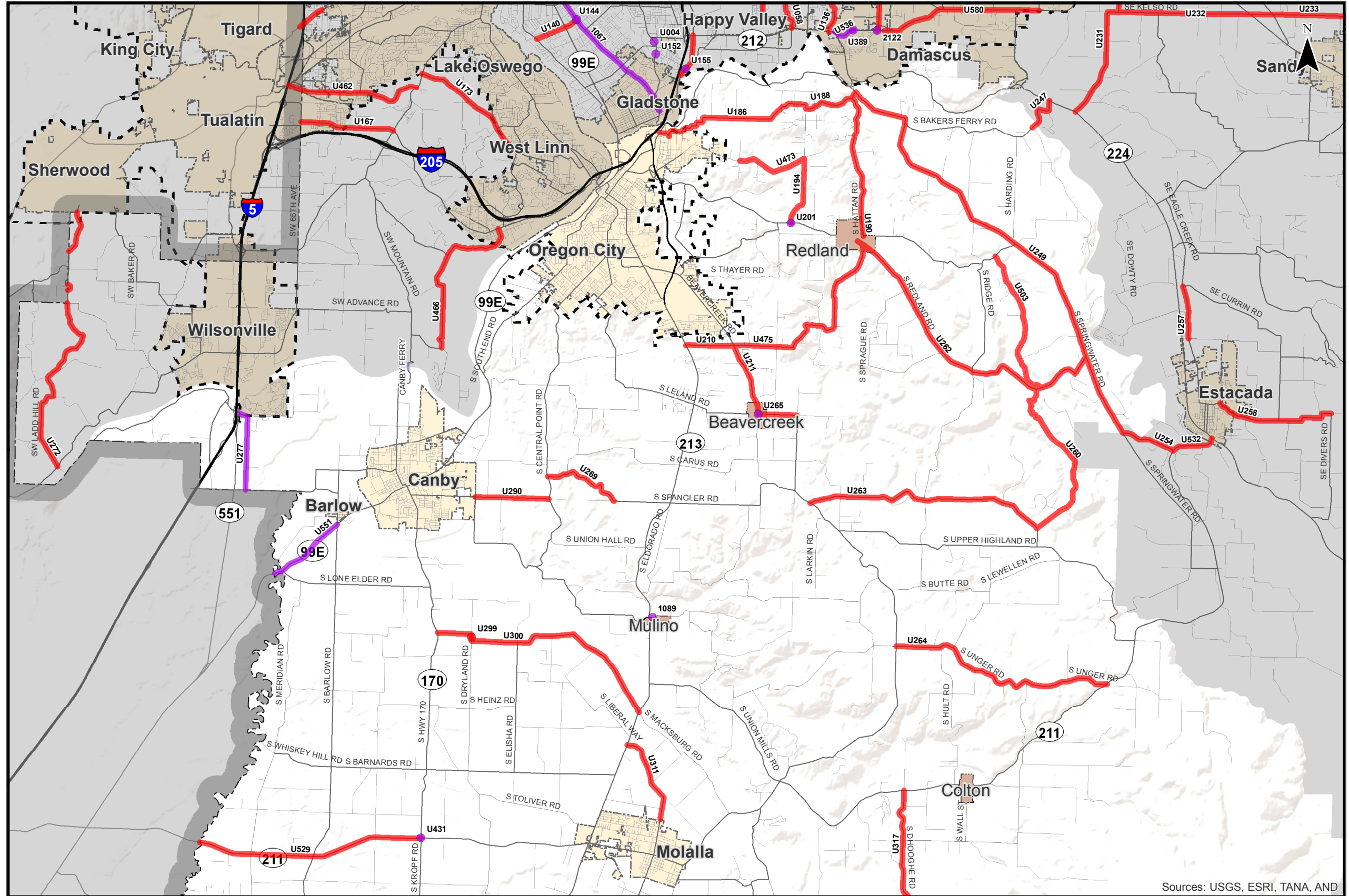
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**Capacity and Upgrade Projects that Do Not Address Deficiency in 70% Growth Projection Scenario
Northwest County**

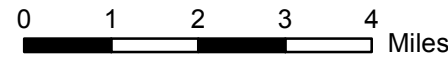
Figure
NW 2



- Capacity Project
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- Upgrade Project
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Sources: USGS, ESRI, TANA, AND

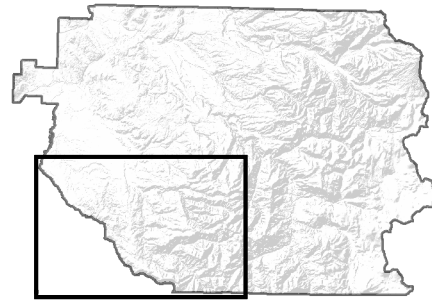
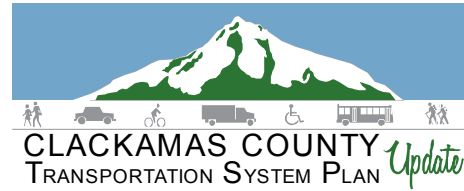


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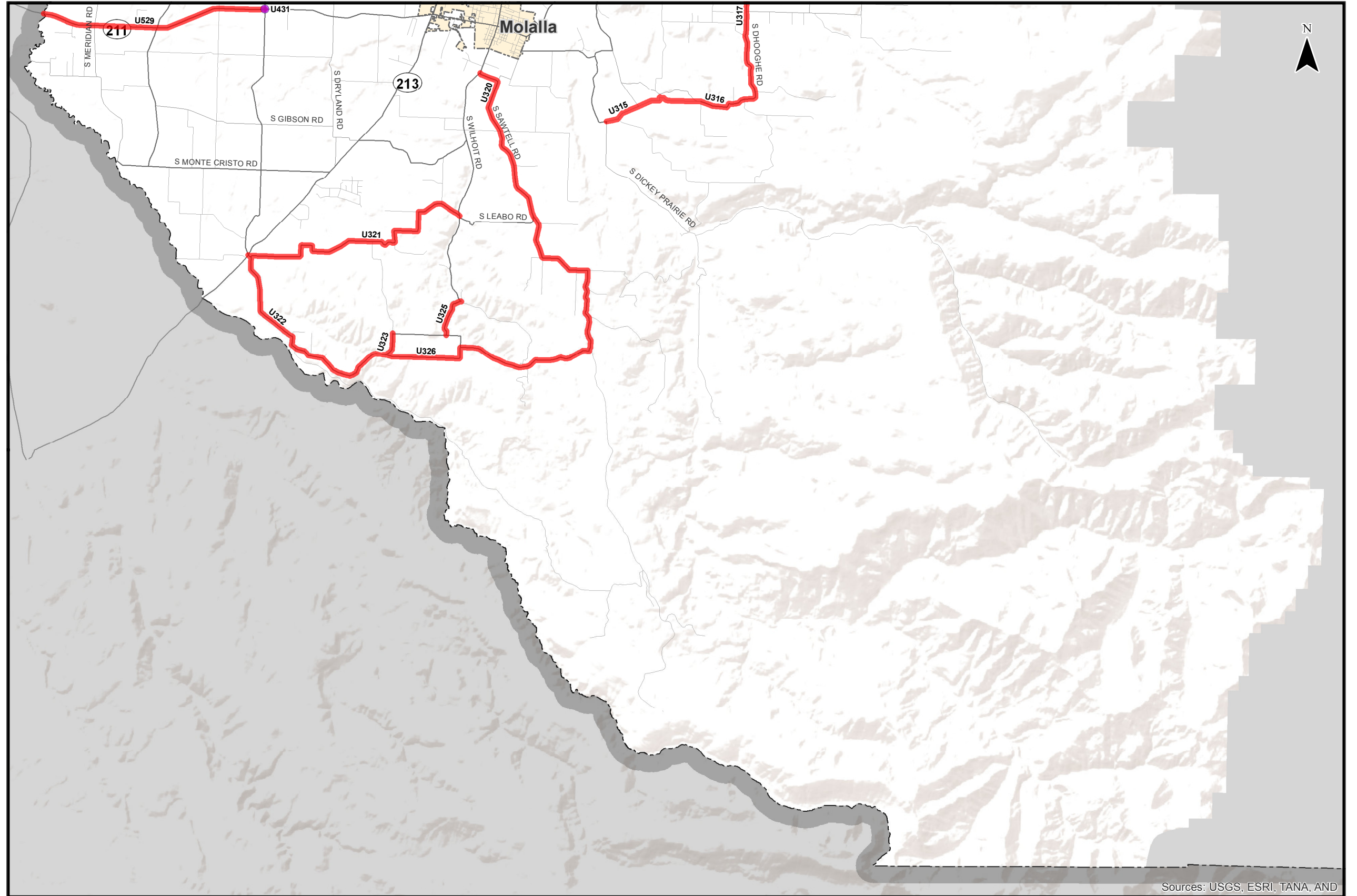
**Capacity and Upgrade Projects that Do Not Address Deficiency in 70% Growth Projection Scenario
Southwest County - Northern Portion**

Figure
SN 2

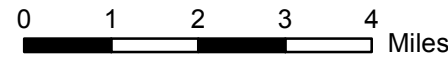
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- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



Sources: USGS, ESRI, TANA, AND

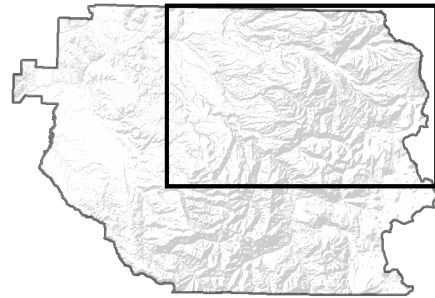
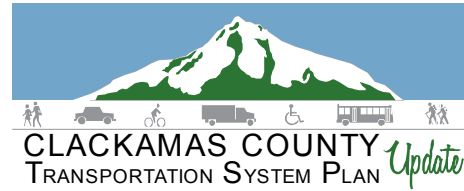


Coordinate System:
NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Int
Data Source:
Clackamas County, Metro Data Resouce Center

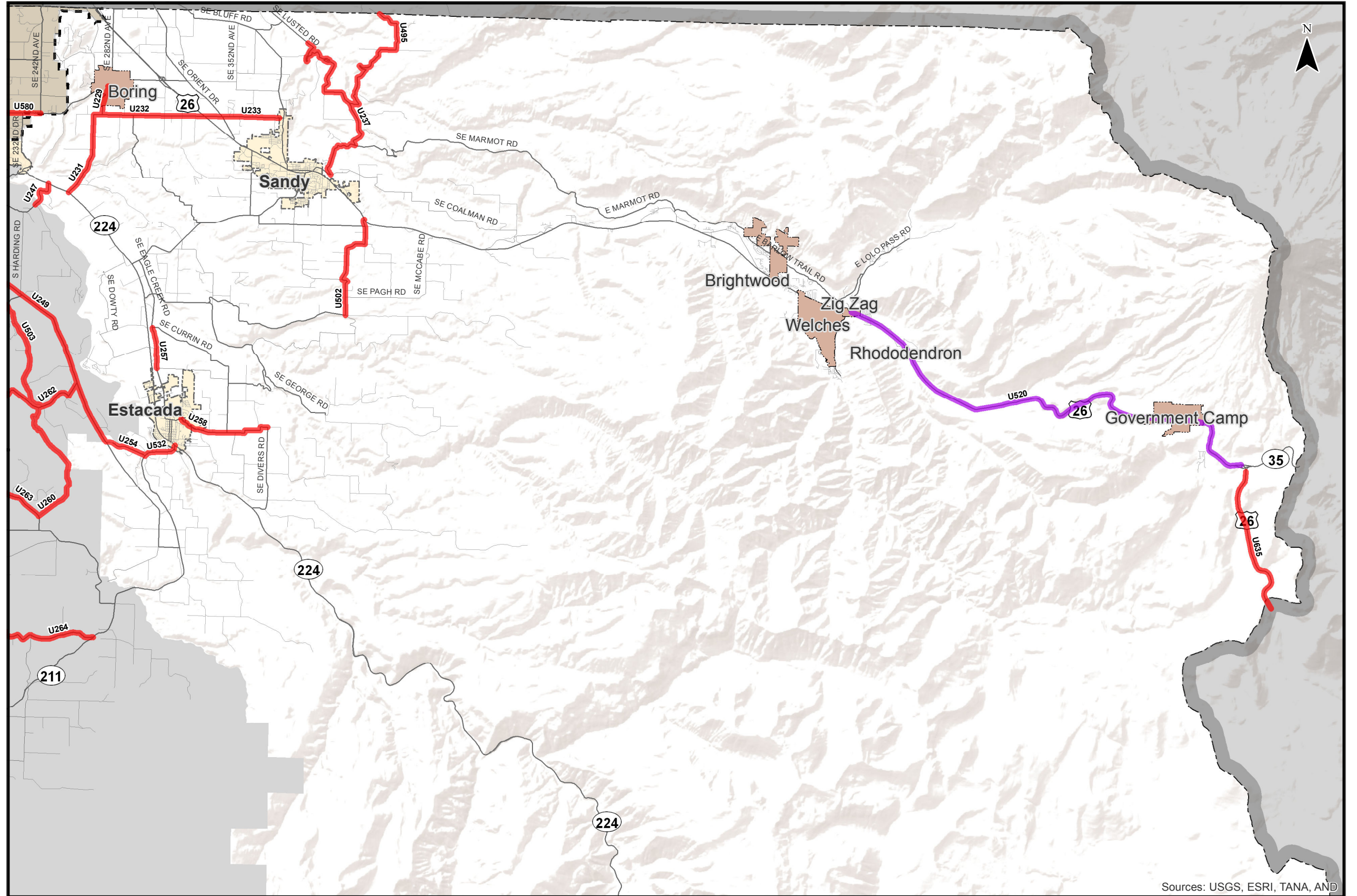
**Capacity and Upgrade Projects that Do Not Address Deficiency in 70% Growth Projection Scenario
Southwest County - Southern Portion**

Figure
SS 2

H:\profile 11732 - Clackamas County TSP\70% Growth Scenario\Congested Roadways and Master Projects_Upgrade&Capacity.mxd



- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



Sources: USGS, ESRI, TANA, AND

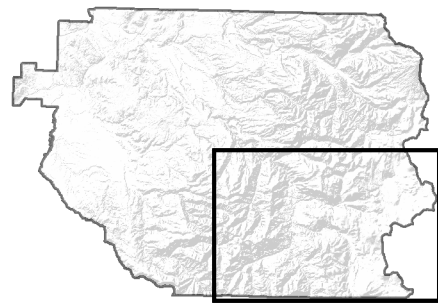
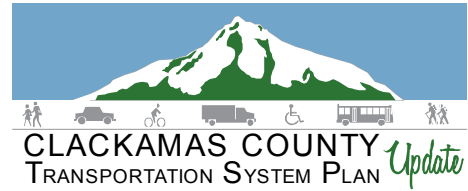
0 1 2 3 4 5 Miles

Coordinate System:
NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Int'l
Data Source:
Clackamas County, Metro Data Resource Center

**Capacity and Upgrade Projects that Do Not Address Deficiency in 70% Growth Projection Scenario
East County - Northern Portion**

Figure
EN 2

H:\profile 11732 - Clackamas County TSP\70% Growth Scenario\Congested Roadways and Master Projects_Upgrade&Capacity.mxd



- Capacity Project
- Capacity Project
- Upgrade Project
- Upgrade Project
- Incorporated Areas
- County Boundary
- UGB



Sources: USGS, ESRI, TANA, AND

0 1 2 3 4 Miles

Coordinate System:
NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Int'l
Data Source:
Clackamas County, Metro Data Resource Center

**Capacity and Upgrade Projects that Do Not Address Deficiency in 70% Growth Projection Scenario
East County - Southern Portion**

Figure
ES 2