

Section 2 Introduction

INTRODUCTION

Clackamas County is updating its Transportation System Plan (TSP) to provide policies that will guide transportation decisions and identify the transportation needs and priorities in unincorporated Clackamas County for the next 20 years. The previous update was completed approximately 10 years ago. Since that time Metro standards and planning regulations have changed, the Oregon Department of Transportation (ODOT) has modified its standards and the state has modified planning requirements for local jurisdictions.

This TSP update will:

- Identify the County’s needs consistent with current regional and statewide plans;
- Be 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 the portions of the county within the Metro Urban Growth Boundary [UGB]);
- Satisfy the state requirement that unincorporated County areas outside of Metro have a plan that looks 20 or more years into the future.

The first step in the TSP update process was to determine the overall vision and goals for the future transportation system and the desired outcomes. The County’s Public Advisory Committee, Technical Advisory Committee and Project Management Team worked together and with the public to develop the following Vision and Goals for the County’s future transportation system. The Vision, Goals and Objectives were approved by the Board of County Commissioners in April 2012.

Table I 1 Vision and Goals

VISION - Building on the foundation of our existing assets, we envision a well-maintained and designed transportation system that provides safety, flexibility, mobility, accessibility and connectivity for people, goods and services; is tailored to our diverse geographies; and supports future needs and land use plans.
Goal 1: Sustainable
Provide a transportation system that optimizes benefits to the environment, the economy and the community.
Goal 2: Local Businesses and Jobs
Plan the transportation system to create a prosperous and adaptable economy and further the economic well-being of businesses and residents of the county.
Goal 3: Livable and Local
Tailor transportation solutions to suit the diversity of local communities.
Goal 4: Safety and Health
Promote a transportation system that maintains or improves our safety, health, and security.
Goal 5: Equity
Provide an equitable transportation system.
Goal 6: Fiscally Responsible
Promote a fiscally responsible approach to protect and improve the existing transportation system and implement a cost-effective system to meet future needs.

Specific objectives and evaluation criteria were developed for each goal. These can be found on the project website (www.clackamascountytsp.com) with materials for the March 6, 2012 PAC meeting.

This report, *Existing and Future Base Conditions Analysis*, includes the following key components:

- Baseline Information about the transportation system (the existing inventory of facilities and how they are operating), population and land use that will be used to apply the evaluation criteria during the alternatives analysis phase of the project as well as to determine if the final TSP achieves the County's goals.
- Gaps and Deficiencies - One of this report's key objectives is to identify and verify existing and future gaps and deficiencies in the transportation system. Gaps, which apply to all modes, are missing facilities or connections in the sidewalk system, the bicycle network and roadway connections, and densely populated areas without transit service. Deficiencies are defined as facilities that exist but do not perform up to defined standards, such as an intersection with too much delay and congestion, a sidewalk or bicycle lane that is too narrow, or a roadway with a poor safety record.

Future Baseline Build Scenarios - This report initiates the alternatives analysis phase of the project by comparing two possible future scenarios: 2035 Low Build and 2035 Full Build.

- 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 comparison of these two 2035 scenarios helps identify the planned projects that directly address existing and future gaps and deficiencies in the transportation system, and identify those that do not directly address an existing or future gap or deficiency and therefore should be considered for removal from the TSP. Potential additional improvements to the transportation system to address the existing and projected gaps and deficiencies will be evaluated during the alternatives analysis phase of the project.

OVERVIEW OF ANALYSIS

The existing and future conditions analysis considers the following three analysis scenarios.

- 1) Existing Conditions Scenario – Evaluates performance of the current roadway, transit, pedestrian and bicycle transportation systems.
- 2) 2035 Low Build Scenario – Estimates the anticipated performance of the roadway system in the year 2035 assuming the only new projects constructed are projects that are currently funded.
- 3) 2035 Full Build Scenario – Estimates the anticipated performance of the roadway system in the year 2035 assuming all currently planned projects in the currently adopted TSP are built (including projects currently unfunded).

Later sections of this report discuss the analysis results for these three scenarios in greater detail, this subsection provides a high-level overview of how the three scenarios compare to one another based on three overarching county-wide measures. These measures are total delay, delay per person, vehicle miles traveled, and average travel time. For details about these measures were calculated, see *Section 3 Assumptions and Methods*. Each scenario will be further analyzed based on criteria and measures corresponding to the County’s vision, goals, and objectives in future stages of the TSP update.

Total Delay and Delay per Person

The total delay is the total hours of delay experienced by road users on the transportation system. Delay is the extra time it takes to travel somewhere due to interferences on the roadway, such as congestion. It is a system-wide measure useful for assessing how effective a group of individual projects are at improving system-wide performance. Table I 2 summarizes the total delay estimated for the Clackamas County transportation system in each of the three scenarios noted above.

Table I 2 Total Delay for the Clackamas County Transportation System

Analysis Scenario	Population of Clackamas County ¹	Hours of Delay ²			Total Annual Hours of Delay ³
		Weekday Morning Peak Period	Weekday Midday Peak Period	Weekday Evening Peak Period	
Existing Conditions	370,885 people	5,200 hours	1,030 hours	6,720 hours	3.9 million hours
2035 Low Build	554,849 people	13,070 hours	2,350 hours	16,130 hours	9.5 million hours
2035 Full Build	554,849 people	11,590 hours	2,270 hours	15,000 hours	8.7 million hours

¹Includes everyone including residents who are too young to drive or are not able to drive.

²Values rounded to the nearest 10 hours.

³Values rounded to the nearest 100,000 hours.

The total increase in delay from the existing conditions scenario to the 2035 Low Build Scenario ranges from 125% to 150% increase depending on the time of day; for the entire year, the increase is approximately 144%. Comparing the existing conditions to the 2035 Full Build Scenario, delay increases approximately 120% to 123% within each peak period and by approximately 140% for the entire year. Compared to the 2035 Low Build Scenario, the 2035 Full Build Scenario provides slightly more congestion relief.

Table I 3 summarizes the peak hour delay per person in Clackamas County for each of the scenarios; it also notes the population per scenario.

Table I 3 Annual Hours of Delay per Person in Clackamas County

Analysis Scenario	Annual Hours of Delay per Person ¹	Population of Clackamas County ²	Forecasted Population Increase
Existing Conditions	10.5 hours	370,885 people	-
2035 Low Build	17.0 hours	554,849 people	49.6% Increase Relative to Existing Conditions
2035 Full Build	15.5 hours	554,849 people	

¹Values rounded to the nearest 10 hours.

²Includes everyone including residents who are too young to drive or are not able to drive.

The annual hours of delay per person increases from the existing condition to the 2035 Low Build Scenario by about 62% compared to an increase of about 48% from existing conditions to the 2035 Full Build Scenario. Consistent with the total hours of delay results, the 2035 Full Build Scenario provides greater congestion relief during the daily peak periods. The 2011 Urban Mobility Report produced by Texas Transportation Institute (TTI) reports a national trend of approximately 34.4 annual hours a day per commuter for the year 2010, which is approximately three times the amount of annual delay per person estimated for Clackamas County¹. The following provides some additional statistics from the 2011 Urban Mobility Report about annual delay experienced in 2010 in urban areas of various sizes. While the information below is oriented towards cities instead of counties, it can still serve as a useful point of reference.

- Very large urban areas (areas with 3 million people or more)
 - Los Angeles-Long Beach, CA area = 64 hours of annual delay per commuter
 - San Francisco-Oakland, CA area = 50 hours of annual delay per commuter
 - Seattle, WA area = 44 hours of annual delay per commuter
- Large urban areas (over 1 million and below 3 million people)
 - Austin, TX area = 38 hours of annual delay per commuter
 - Portland, OR area = 27 hours of annual delay per commuter
- Medium urban areas (between 500,000 and 1 million people)
 - Tucson, AZ area = 23 hours of annual delay per commuter
 - Fresno, CA area = 13 hours of annual delay per commuter
- Small urban areas (with 500,000 people or less)
 - Salem, OR area = 22 hours of annual delay per commuter
 - Spokane, WA area = 16 hours of annual delay per commuter

Clackamas County's current and forecasted populations would make the small urban areas likely the most applicable comparison group. Comparing Clackamas County to the urban areas identified is not a purely equal comparison because the areas above tend to focus on concentrated urban areas, while Clackamas County encompasses urban and rural areas. Furthermore, the table above summarizes annual hours of delay for the County by person as opposed to by commuter; therefore, the annual hours of delay per commuter for the County would be slightly higher than what is shown in the table above. Given these considerations, the existing and forecasted annual hours of delay per person in Clackamas County appears consistent with the amount of delay urban areas with similar populations are experiencing.

¹ Texas Transportation Institute. 2011 Urban Mobility Report. September 2011. Available: <http://tti.tamu.edu/documents/mobility-report-2011.pdf>.

Vehicle Miles Traveled

Vehicle miles traveled is an estimate of how much vehicular travel is taking place on the roadway network; this measure is useful as an indicator for vehicle emissions. A higher amount of vehicle miles traveled tends to result in higher vehicle emissions. Therefore, to minimize vehicle emissions and improve air quality, sets of projects that result in fewer vehicle miles traveled are most effective. Table I 4 presents the daily and annual vehicle miles traveled for the Clackamas County transportation system under each of the three analysis scenarios.

Table I 4 Total Vehicle Miles Traveled in Clackamas County

Analysis Scenario	Total Daily Vehicle Miles Traveled ¹	Daily Vehicle Miles Traveled per Person ²	Total Annual Vehicle Miles Traveled ³	Annual Vehicle Miles Traveled per Person ⁴
Existing Conditions	5,853,550 miles	16 miles/person	1,756,065,400 miles	4,735 miles/person
2035 Low Build	7,843,730 miles	14 miles/person	2,353,118,600 miles	4,240 miles/person
2035 Full Build	8,034,500 miles	14 miles/person	2,410,349,868 miles	4,345 miles/person

¹Values rounded to the nearest 10 miles.

²Values rounded to the nearest mile. Total existing and forecasted population used for calculations.

³Values rounded to the nearest 100 miles.

⁴Values rounded to nearest 5 miles. Total existing and forecasted population used for calculations.

Total vehicle miles traveled are estimated to increase on a daily basis by 34% from the existing conditions to the 2035 Low Build Scenario and by 37% from the existing conditions to the 2035 Full Build Scenario. In contrast, on a per person basis the vehicle miles traveled is estimated to decrease on a daily basis under both future scenarios by about 12.5% compared to existing conditions. The decrease in vehicle miles traveled per person is a general indicator that people are estimated to be making fewer and shorter vehicle trips. This is likely attributable to more people and jobs per acre (i.e., higher densities) in urban areas making it more convenient for people to get their daily needs met without traveling as far. As the proximity of housing, employment, shopping and recreation become closer, it increases the feasibility and convenience of walking, biking and taking transit. Therefore, providing more sidewalks, bike lanes, multiuse trails, and transit service can further reduce vehicle miles traveled by automobiles.

Average Travel Time

Average travel time per trip during the weekday evening peak period was calculated for each of the three analysis scenarios. This measure helps assess how total delay and delay per person influences the trips occurring on the network. Table I 5 summarizes the average travel time per trip during the weekday evening peak period for each scenario.

Table I 5 Average Travel Time per Trip during the Weekday Evening Peak Period

Analysis Scenario	Average Trip Time for Trips within County ¹	Average Trip Time for Trips To, From and Within County ¹
Existing Conditions	14.0 minutes	22.3 minutes
2035 Low Build	15.5 minutes	23.7 minutes
2035 Full Build	15.2 minutes	23.4 minutes

¹Values rounded to the nearest tenth of a minute.

The average trip time for trips beginning and ending in Clackamas County during the weekday evening peak period increases by about 10% from the existing condition to the 2035 scenarios (11% for 2035 Low Build Scenario and 8.5% for 2035 Full Build Scenario). The average trip time for trips to, from, and within Clackamas County increases by about 6% from the existing condition to the 2035 scenarios. The two 2035 scenarios produce relatively similar average trip times for trips within the County as well as trips to and from the County. Considering this result in combination with the shorter trip lengths noted above (see discussion on vehicle miles traveled), these results indicate while the average trip time is increasing by 10%, trip lengths are likely shorter. Therefore, trips of the same length are likely experiencing greater than a 10% increase in time. For example, a trip from the Sunnyside area to Sandy, OR is estimated to increase by 32% from existing conditions to the 2035 Low Build Scenario. That same trip is estimated to increase by 13% from the existing condition to the 2035 Full Build Scenario.

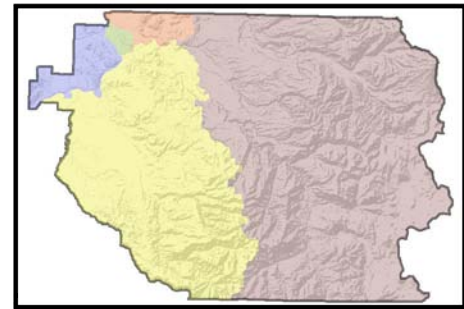
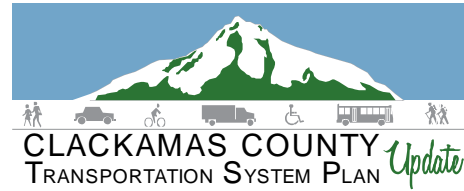
The minimal change in trip time shown in the table above indicates the trip lengths are becoming shorter. However, the shorter trips are taking a similar or slightly more time, while trips of the same length are increasing more dramatically. This trend is likely more pronounced for trips within urban areas and trips originating or ending in urban areas where the number of people and jobs per acre are increasing the most. Average trips time within the rural areas of the County are expected to experience less of change in trip time for trips of the same distance.

REPORT ORGANIZATION

Clackamas County is geographically diverse with urban and rural communities. To provide project stakeholders and community members including the TSP's Public Advisory Committee the opportunity to comment and focus on the area(s) of most interest to them, the project team organized the County into five geographic analysis sub areas. These are:

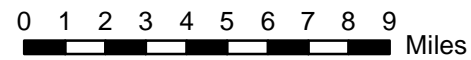
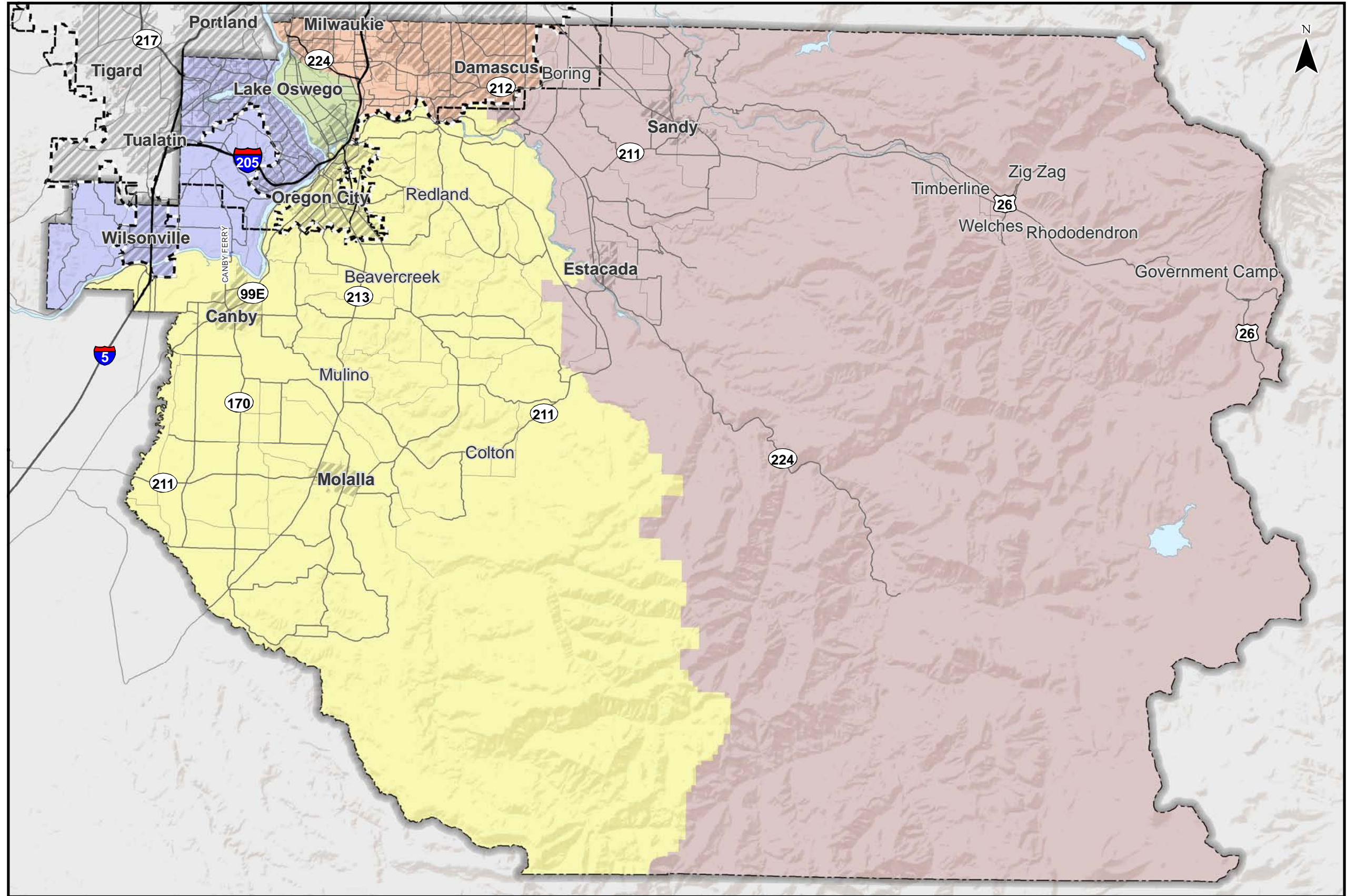
- East County;
- Southwest County;
- Greater McLoughlin Area;
- Greater Clackamas Regional Center/Industrial Area; and
- Northwest County.

Figure I 1 illustrates the boundaries for these sub areas.



Geographic Analysis Sub Areas

- East County
- Southwest County
- Greater McLoughlin Area
- Greater Clackamas Regional Center/ Industrial Area
- Northwest County
- Incorporated Areas
- County Boundary
- UGB
- Metro Area



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

Clackamas County Geographic Analysis Sub Areas

Figure
I 1

This report includes a section on each of the geographic sub-areas as well as a section on county-wide topics. Below is a brief overview of what is contained in each section of this report.

Section 1 – Executive Summary - Provides a brief overview of the key findings across the County. If you have limited time, this should be the highest priority to read.

Section 2 – Introduction (Current Section)

Section 3 – Assumptions and Methods – Provides technical details about how the existing and future conditions analysis was conducted. This section is recommended for the Technical Advisory Committee and others who want to be familiar with the technical details of the existing and future conditions analysis.

Section 4 – East County – Presents and discusses land use, population information, and existing and future conditions operations and safety analysis results for roadways, transit service, pedestrian facilities, and bicycle facilities in the East County area. Also, discusses and presents currently planned projects within East County.

Section 5 – Southwest County - Presents and discusses land use, population information, and existing and future conditions operations and safety analysis results for roadways, transit service, pedestrian facilities, and bicycle facilities in the Southwest County area. Also, discusses and presents currently planned projects within Southwest County.

Section 6 – Greater McLoughlin Area - Presents and discusses land use, population information, and existing and future conditions operations and safety analysis results for roadways, transit service, pedestrian facilities, and bicycle facilities in Greater McLoughlin Area. Also, discusses and presents currently planned projects within Greater McLoughlin Area.

Section 7 – Greater Clackamas Regional Center/Industrial Area - Presents and discusses land use, population information, and existing and future conditions operations and safety analysis results for roadways, transit service, pedestrian facilities, and bicycle facilities in Greater Clackamas Regional Center/Industrial Area. Also, discusses and presents currently planned projects within Greater Clackamas Regional Center/Industrial Area.

Section 8 – Northwest County - Presents and discusses land use, population information, and existing and future conditions operations and safety analysis results for roadways, transit service, pedestrian facilities, and bicycle facilities in the Northwest County area. Also, discusses and presents currently planned projects within Northwest County.

Section 9 – County-wide Transportation System Plan Elements – Presents and discusses truck freight routes, rail system, airports, pipeline system and water transportation within the County as a whole.

Section 10 – References – Presents a list of documents directly referenced within the report.

Section 11 – Glossary – Presents a list of definitions for technical terms used within the report. The terms and definitions in the glossary are arranged in alphabetical order.

Appendices – There are several appendices that contain additional detailed technical information for readers to reference if they desire more information.

WHICH SECTIONS OF THIS REPORT SHOULD YOU READ?

This Existing and 2035 Future Conditions report is over 500 pages (Sections 1 through 11). Therefore, we suggest the following sections based on each reader's interest and time.

For Public Advisory Committee (PAC) members and other community members interested in providing input on the TSP, we recommend reading *Section 1 Executive Summary*, *Section 2 Introduction*, the section on the geographic sub area that is of most interest to you, and *Section 9 County-Wide Transportation System Plan Elements*.

For Technical Advisory Committee (TAC) members and other technically-oriented readers who wish to read more detail about the assumptions and methods used in the existing and future conditions analysis, we recommend reading the same sections as listed above and *Section 3 Assumptions and Methods*.