2024 STATEWIDE CONGESTION OVERVIEW

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Executive Summary

Supporting the daily activity of Oregon businesses and residents is key to the mission of the Oregon Department of Transportation (ODOT). Policymakers must make strategic choices about how, when and where resources are spent. Effective solutions require an understanding of how travel affects people's lives and the economy. When making transportation choices, businesses and people consider cost, time, safety, and reliability. It is important to understand the economic motivations behind travel, mobility and system performance to develop effective policies and strategic investment plans.

Role of the Economy

A well-functioning transportation system is foundational to a robust economy. Oregon has experienced significant economic growth over the last two decades:

- Population increased 25%, from 3.4 million people to 4.29 million.
- Employment increased 13%, from 1.6 million to 1.87 million.
- Vehicle-miles-traveled (VMT) in Oregon increased 9% between 2000 and 2023.

Household activity varies depending on characteristics such as household size, age, income, number of workers, and presence of children. According to the most recent 2009-2011 Oregon statewide household activity survey[1], about 55% of trips are for social/recreational activity, shopping and personal errands. Twenty-two percent are for work or work-related, while 23% are for school, school-related, or escorting others for their activity (e.g., children, elderly).

Commercial activity varies depending on the characteristics of individual businesses and industries within which they operate. However, they all need access to workers, materials and services to support production activity, and markets where their goods and services are sold.

- *Heavy trucks* are used to move 71 % of Oregon freight, other freight modes such as rail, air and marine also depend on trucks for the first and last mile.
- *Medium trucks* are used for commercial activity - trade services such as plumbing, electrical, roofing, painting, other construction, local deliveries for e-commerce, groceries and nursery goods.
- According to national research[2], 33% of total VMT is from commercial business travel (non-personal household travel), which includes light vehicles, medium and heavy trucks.

[1] https://www.oregon.gov/odot/Planning/Documents/OHAS-Daily-Travel-In-Oregon-Report.pdf

[2] https://www.cutr.usf.edu/wp-content/uploads/2013/09/VMT-Trends-and-Observations-Polzin-9-19-13.pdf, page 9, accessed 12/19/2024.

Performance Monitoring

Transportation roadway use can be quantified using metrics such as VMT and VMT per capita. Since the year 2000, total statewide VMT has risen steadily, while per capita VMT has declined. However, the reduction in average VMT per person (per capita) has not been enough to compensate for new travel generated by growth in population and employment, which has led to increases in statewide VMT over time.

Increasing population and employment generate new travel demand, but Oregon lane miles have not increased at the same pace:

- 17% of statewide lane miles are owned by the state, state-owned lane miles increased 4.6% since 2000, 61% of total VMT occurs on state highways – 26% on interstate and 34% on non-interstate.
- 61% of statewide lane miles are owned by counties, county-owned lane miles increased 9.8% since 2000, and 20% of total VMT occurs on county highways and roads.
- 22% of statewide lane miles are owned by cities, city-owned lane miles increased 13.8% since 2000, and 20% of total VMT occurs on city streets.
- State highways carry 78% of total heavy and medium truck VMT, county and city roads combined carry 22%,
- Heavy trucks make up 6.6% of statewide VMT and medium trucks make up 2.6% of statewide VMT.

Oregon's population is concentrated within metropolitan areas. In 2023, 64% of the population was located within the 8 metropolitan regions, 52% of state population is located within the three largest metropolitan regions of Portland, Salem-Keizer and Eugene-Springfield on the I-5 corridor. Urban travel demand concentrated in metro regions increases the occurrence of congestion over time, especially in the Portland region that historically accommodates about half of the state's new population.

Travel costs fall into two main categories of time and money. Delay means higher travel-time costs, but there comes a point where delay begins to impact reliability. Reliability is especially important for trips that require dependable arrival times, such as getting to work on time, personal appointments, freight delivery and customer appointments. There are multiple causes of congestion, making the identification of causes important for system performance monitoring and development of effective management strategies. Reliability is of particular importance to freight movement.

Oregon's growing economy means demands on the transportation system will continue, but long-range investment strategies[3] do not include plans for adding major capacity. Quantifying use and performance of the transportation system provides information needed to develop the right solutions at the right time in the right locations.

[3] Long-range strategies are identified within the Oregon Transportation Plan: https://www.oregon.gov/odot/Planning/Documents/Oregon_Transportation_Plan_with_Appendices.pdf

INTRODUCTION

1.1 Travel Mobility

Supporting the daily lives of Oregon businesses and residents is key to the mission of the Oregon Department of Transportation (ODOT). Policymakers must make strategic choices about how and where resources are spent. Effective solutions require an understanding of how travel affects people's lives and the economy. It is important to understand the economic motivations behind travel, mobility and congestion to develop effective policies and strategic investment plans. As Oregon grows, congestion in urban centers is expected to rise, which impacts mobility.

Answering the question "what is mobility" is not as simple as it initially appears, mobility is not synonymous with transportation. The Mobility Lab[4] describes having mobility as having access to the places needed to fulfill a rich and satisfying life, such as a job, schools, medical services, shopping, parks, and personal amenities such as seeing your kid's game after work. In this sense, mobility means having transportation options enabling people to safely fulfill needs within budgets for time and money. Mobility from the commercial perspective means having access to workers, customers, goods and services needed to conduct business. Businesses are large consumers of goods and services, relying on the transportation system to provide access to markets to buy and sell at competitive prices. Freight movement plays a key role in competitively accessing markets.

Mobility directly impacts the quality of life for all Oregonians every day. Roadways are managed and maintained by multiple agencies - ODOT, counties and cities, covering more than 107,400 thousand lane miles.[5] Oregon has over 4.4 million registered vehicles[6] and 3.2 million licensed drivers[7], which is about 76% of the 2023 state population. The ability for businesses, freight and people to move throughout the state depends on having robust transportation infrastructure.

Mobility means having transportation options that enable businesses and people to safely fulfill needs within budgets for time and money.

When making transportation choices, businesses and people consider cost, time, safety, and reliability. To support Oregon's quality of life, ODOT must understand factors underlying mobility to manage safety, develop effective means to optimize system performance, support a sustainable economy, while serving the needs of a diverse set of individual users.

[4] https://mobilitylab.org/2018/07/26/what-is-mobility/

[5] Data source: FHWA a Highway Performance Monitoring System database, excluding frontage roads and connections.

[6] 2023 Vehicle Registration by County: https://www.oregon.gov/odot/DMV/docs/2023_Vehicle_County_Registration.pdf

[7] 2023 Oregon DMV Driver Statistics: https://www.oregon.gov/odot/DMV/Pages/News/driver_stats.aspx, excluding learner permit, ID cards and temporary permits. 70% of people of driving age have a license, 15% of the population is too young to drive and 15% of the population does not have a driver's license.

1.2 How Do We Evaluate Roadway Mobility?

The "ease" of moving on Oregon's highway system can be examined from several different vantage points:

- **Economy:** Economic activity generates demand for transportation systems. What factors impact travel demand? How is a well-functioning transportation system important to the Oregon economy?
- **Quantity:** How many people use the freeway system? How much freight is transported on our freeways? Are businesses able to access workers within reasonable travel times? Are customers able to access businesses within reasonable travel times?
- **Quality:** How well are people and goods being transported on the system? How safe and reliable is the system? Where is congestion occurring and why?

Looking at mobility from multiple perspectives provides a more holistic view of system performance.

Section 2 of this report highlights the foundational role played by the Oregon economy, revealing different market forces related to day-to-day decisions impacting the overall use of the transportation system. This section also describes the range of system users and the quantity of system use. Section 3 presents performance measures on the quality of system use and performance focused on congestion and reliability.

1.3 Purpose of this Report

Managing the transportation system effectively is challenging and complex. Information on system performance positions ODOT to gain a deeper understanding of statewide mobility issues. Fact-based, data-driven reporting provides information supporting transportation policy development and long-range planning. The purpose of this report is to support data-driven development of transportation policy and investment, with a focus on three areas:

- Economic context - identify factors affecting transportation demand in a manner that informs policy development.
- Quantify system use - measure how much the system is used, provide understanding with respect to system use, capacity and performance.
- Measure quality - identify system functionality, quantify congestion and reliability.

Data sources, technical methods and procedures have been developed and vetted for reporting on state-owned (ODOT) freeways and highways, and major county and city roads to the extent data is available. This approach is designed for high-level statewide monitoring with the intent to inform long range planning efforts, such as the Oregon Transportation Plan[8], Oregon Highway Plan[9] and the Oregon Freight Plan[10]. This type of reporting requires development of performance measures, high-quality observed data and technical methods to produce statistically valid results. This report presents information based on currently available data and reporting methods.

The purpose of this report is to support data-driven development of transportation policy and investment.

2 The Role of the Economy in Mobility

Is freeway mobility changing because Oregonians are making different business, lifestyle and travel choices, or are business, lifestyle and travel choices changing in response to congestion and delays on our freeways? It is likely both are occurring simultaneously. Complex economic relationships between freeway mobility and travel behavior are continually in flux and have long created challenges for transportation analysts. Land use characteristics such as density, accessibility, and travel mode connectivity influence where businesses and households choose to locate. In addition to typical economic business cycles, major shocks such as the COVID pandemic create additional factors influencing travel.

This section looks at several high-level indicators related to the movement of people, goods and services in Oregon. Economists refer to transportation as a "derived demand" because demand for transportation is derived from demand to access goods and services. **Figure 1** illustrates how economic activity of households and businesses generates demand for transportation. Economic conditions play a large role in transportation, but ODOT has limited influence on transportation use and economic behavior.

[8] https://www.oregon.gov/odot/planning/pages/plans.aspx
[9] https://www.oregon.gov/odot/planning/pages/plans.aspx#OHP
[10] https://www.oregon.gov/odot/Planning/Documents/Oregon_Freight_Plan_2023.pdf

FIGURE 1. TRANSPORTATION AS A DERIVED DEMAND

ECONOMIC ACTIVITY			
Household Production/Activity		**Business Production/Activity**	
Workers-Earn Income	Attend School	Hire Workers	Produce Goods
Consume Goods	Consume Services	Provide Services	Capital Investment

DERIVED DEMAND	
Household Demand for Trips:	**Business Demand for Trips**
Household trips by purpose:	Worker trips destined to job site
Work and work related	Service trips to customers
School and school related	Freight trips coming in and going out:
Social/Recreation	Within Oregon, outbound, inbound
Personal business	Freight by different modes
Shopping	Light, Medium & Heavy Vehicles
Escorting others to activities (kids, elderly	Rail, Air, Marine, & Pipeline

2.1 The Economy

Since 2001, the Oregon economy has expanded faster than the national average[11], attracting more people, jobs and freight movement over time. **Table 1** reports vehicle-miles-traveled (VMT) by roadway ownership and vehicle weight group. This information was compiled from the Oregon Highway Cost Allocation study time-series, which defines light vehicles as weighing less than 10,000 pounds and heavy vehicles weighing more than 10,000 pounds. In 2024:

- 61% of total VMT occurred on state-owned highways[12], which account for 17% of lane miles[13].
- City and county roads carried 39% of total VMT, while accounting for 83% of Oregon lane miles.
- The majority of heavy vehicle VMT occurs on the state system (78%), while city and county roads carry the remaining 22%.
- 9% of overall VMT is from heavy vehicles - 12% of state-owned highway VMT is from heavy vehicles, 5% of city and county VMT is from heavy vehicles.

[11] Oregon Center for Public Policy: https://www.ocpp.org/2019/04/18/SWO-strong-economic-growth/ accessed 02/14/2020.

[12] This pattern has been consistent over time. Further detail can be found in Exhibit 4-4 of the 2011 Highway Cost Allocation Study Report available here: https://www.oregon.gov/das/OEA/Documents/2011report.pdf

[13] Lane miles measure road capacity which impacts congestion, while centerline miles measure the length of roads with no information on capacity.

TABLE 1. 2024 VEHICLE-MILES-TRAVELED BY HIGHWAY JURISDICTIONAL OWNERSHIP AND WEIGHT GROUP

	Total VMT, in millions	Percent of Total	Lane Miles (2022)	Light Vehicles		Heavy Vehicles	
State Roads	**21,614**	**61%**	**17%**	19,050	59%	2,564	78%
Interstate	9,412	26%					
Non-Interstate	12,202	34%					
Local Roads	**14,087**	**39%**	**83%**	13,366	41%	720	22%
County Roads	7,095	20%	61%				
City Streets	6,992	20%	22%				
TOTAL All Roads	**35,701**	**100%**		**32,416**	**91%**	**3,284**	**9%**

Source: VMT - Highway Cost Allocation Study: 2023-2025 Biennium Table 4-2, Oregon Department of Administrative Services, Office of Economic Analysis; Lane Miles - Highway Performance Monitoring System, ODOT

Major expansion of the national highway system ended with the completion of the Interstate system in 1992[14]. Since then, Oregon infrastructure investment has focused on relatively small enhancement projects designed to optimize system performance – especially in the areas of safety and reliability but not adding new highway capacity. **Figure 2** provides lane miles by jurisdictional ownership between years 2000 and 2022[15]. Total lane miles increased 9.7% since 2000, most of the change occurred on the local system to accommodate new residential housing and businesses.[16] 106 lanes miles have been added to interstate freeways and other state freeways since 2000, which is a 1% increase.[17]

[14] https://en.wikipedia.org/wiki/Interstate_Highway_System accessed 02/14/2020.
[15] Data source: FHWA a Highway Performance Monitoring System database, excluding frontage roads and connections.
[16] State-owned lane miles have changed a small amount over time, through a combination of jurisdictional transfers, changes in highway configuration and limited construction of new lane miles.
[17] ODOT State of the System dashboard: https://www.oregon.gov/odot/state-of-the-system/Pages/mobility.aspx .

FIGURE 2. OREGON LANE MILES BY OWNERSHIP 2000-2022

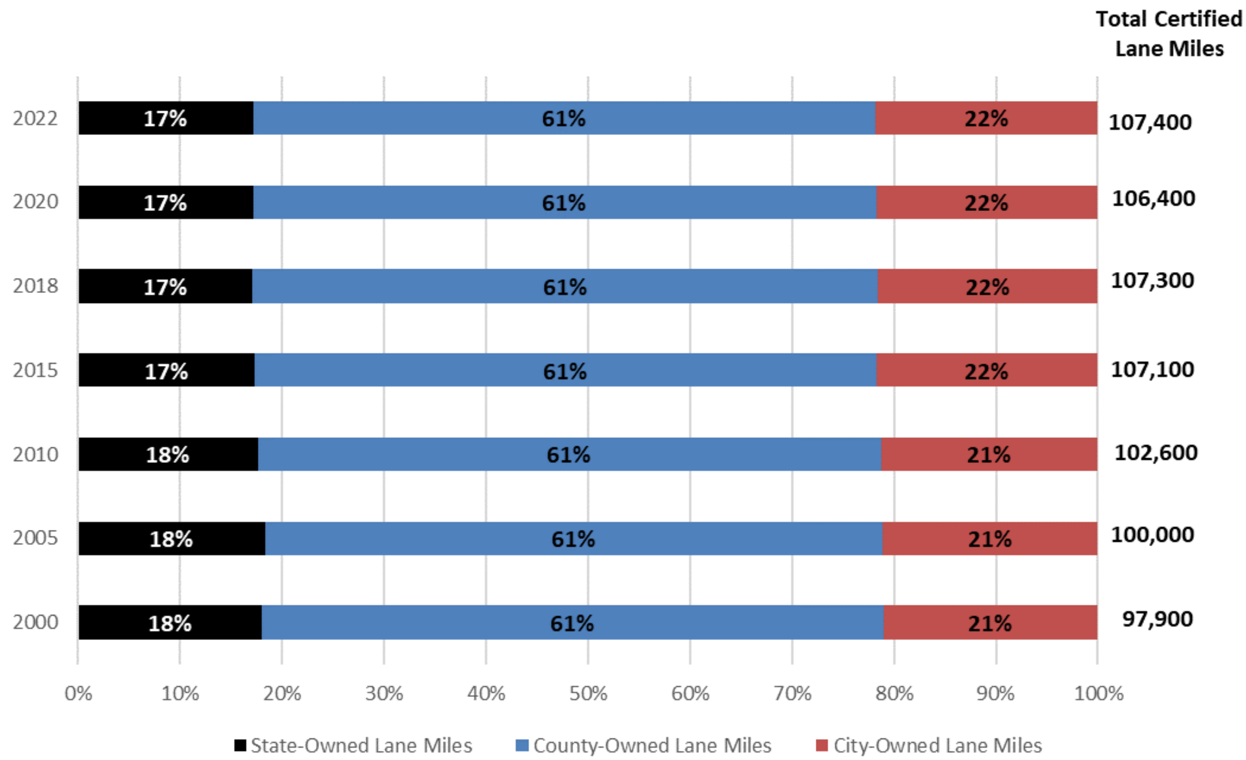
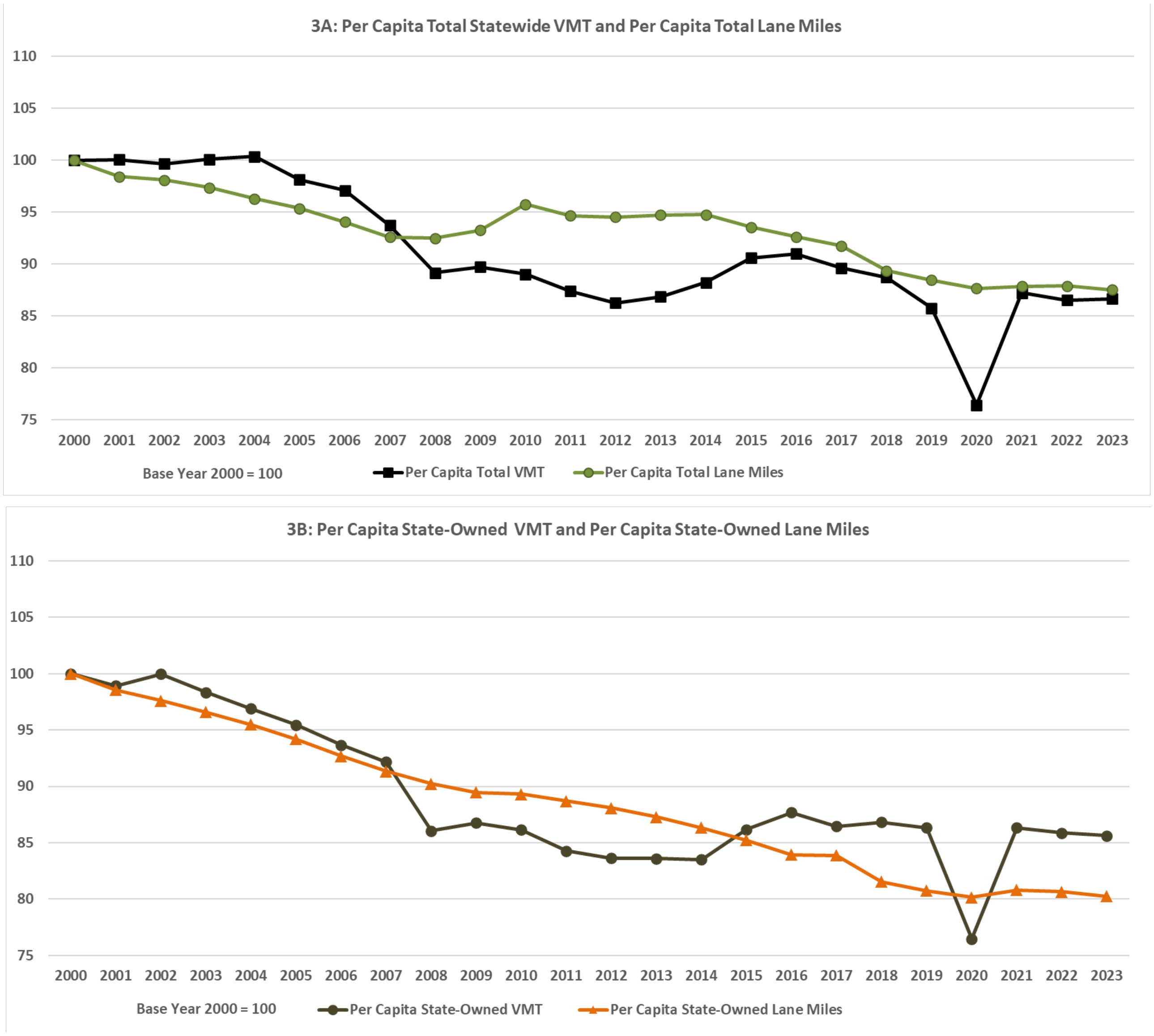


Figure 3A illustrates *total statewide* VMT and *total statewide* lane miles on all roads and highways over time relative to changes in population, reported as per capita VMT. The values are indexed to year 2000 to illustrate relative change over time. From 2000 to 2004 per capita statewide VMT was steady followed by a decreasing trend until 2012. From 2013 to 2016, per capita VMT increased but remained below 2000 levels. Between 2016 and 2019, per capita VMT declined 5 percentage points followed by a large drop during the pandemic, and recovered to levels seen prior to the pandemic. The patterns observed after 2008 reveal lingering impacts of the Great Recession – total VMT declined while total population continued to rise, but more slowly than the past until 2012. By 2012 population growth rates began to rise, while VMT increased more slowly, resulting in an overall decline in per capita statewide VMT. While the pandemic resulted in a large drop in per capita VMT, 2023 levels were 2 percentage points higher than 2019.

Figure 3B illustrates per capita *state-owned* highway lane miles and per capita *state-owned* VMT. State-owned highway lane mile capacity accommodates 60% of statewide VMT, which has been a consistent pattern over time. State-owned per capita VMT and per capita lane miles have been on a declining trajectory since 2002. The Great Recession of 2007-2009 resulted in a decline in per capita VMT on state-owned highways lasting until 2014. After the Oregon economy recovered from the recession, per capita VMT rose 4 percentage points between 2014 and 2016, followed by a steady pattern through 2023, except for the 2020 pandemic.

FIGURE 3. CHANGE IN PER CAPITA VMT AND PER CAPITA LANE MILES: 2000-2023 (INDEXED TO YEAR 2000)



2.2 Population and Employment

As the Oregon economy grows, greater demands are placed on state highways and streets to accommodate rising freight and people movement, while lane miles increase at a much lower rate. For this reason, the need to understand and optimize use of the road system is key to supporting the Oregon economy and making effective investment decisions.

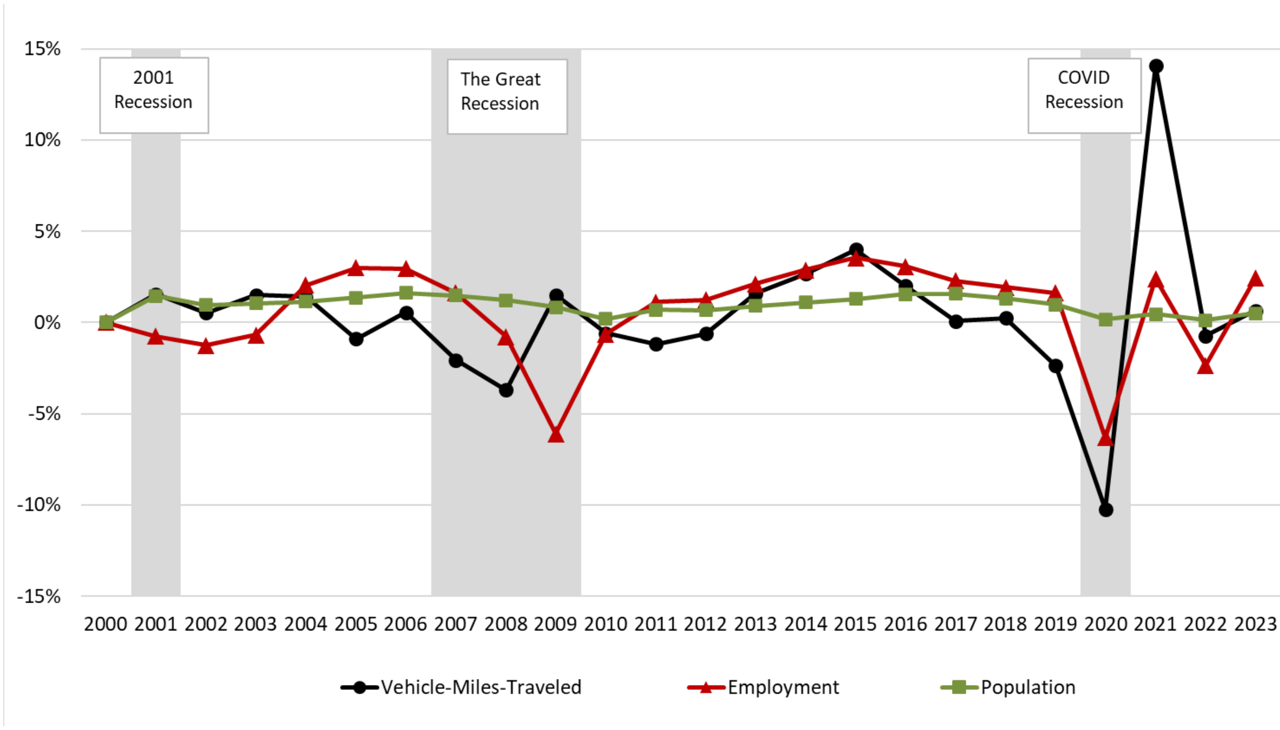
Historically, Oregon population has grown faster than the national average. **Figure 4** illustrates change in population, employment and vehicle-miles-traveled for years 2000 through 2023. During this time, state population increased 25%[18], from 3.4 million to 4.29 million. The number of jobs in Oregon rose

[18] PSU Population Research Center Current Population Estimates data series

16%[19], from 1.62 million to 1.87 million. Oregon's economy relies on the transportation system to get goods and services to markets, workers to jobs and consumers to marketplaces. This economic activity resulted in total statewide VMT increasing by about 9% between 2000 and 2023[20].

Over the last two decades there were three recessions: one in 2001 (8 months), the Great Recession of 2007-2009 (18 months) and the COVID-19 induced recession starting March of 2020. During a recession, employment declines and population growth typically slows. Since 2000, total VMT increased until 2004, declined by less than 1% in 2005 and rose about half a percent in 2006. From 2007 to 2012 VMT declined during the Great Recession and the economic recovery period. As an export dependent economy, Oregon tends to recover later than the nation overall.

FIGURE 4. PERCENT CHANGE IN OREGON POPULATION, EMPLOYMENT AND TOTAL VMT OVER TIME: 2000-2023 (INDEXED TO YEAR 2000)



By 2012 the Oregon economy was in full recovery from the recession: population began to grow at a higher rate and employment began rising faster than population. VMT rose until 2016 and plateaued until 2018, followed by a drop in 2019 and the 2020 decline due to the COVID-19 pandemic[21]. 2023 VMT has increased to the same level seen in 2018. Recessions and other shocks to the system, such as the COVID-19 pandemic, can reduce travel demand. Thus, understanding economic conditions is important to understanding system demand.

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[19] Oregon Employment Department, Current Employment Statistics data series.
[20] FHWA Highway Statistics, Table VM-2.
[21] See COVID-19 Traffic Monitoring Reports here: https://www.oregon.gov/odot/Data/Pages/Traffic-Counting.aspx#covid19trafficreports

A growing economy generates more travel. Between 2010 and 2020 over 437,000 additional people resided in Oregon. These new residents use the transportation system to access jobs, goods and services. **Table 2** provides an example illustrating how increased population results in additional travel. In this example, additional VMT in 2020 is estimated for new residents since 2010. The challenge to public agencies is to support a growing economy by effectively managing the transportation system within current funding streams, while assessing trade-offs associated with competing goals related to safety, equity, climate change, reliability, and efficiency. Because most of the population growth occurs within Metropolitan Planning Organizations (MPOs), congestion in the urban areas will continue to be an area of focus.

TABLE 2

EXAMPLE: Between 2010 and 2020:	
437,000	Oregon Population Increase (2)
2.6	Ave HH size (2)
168,100	Number of households
2020 Travel Generated by New Population since 2010	
8.9	Ave Daily household trips (1)
61	Average Daily miles traveled (1)
1,496,100	Total daily trips generated (1)
546,076,500	Total annual trips generated
10,254,100	Estimated daily trip miles generated
3,742,746,500	Estimated annual trip miles generated
82%	Proportion of trips via Auto (1)
32,298,000,000	2020 Statewide VMT (3)
10%	2020 Share of Statewide VMT
Source: (1) Oregon Household Travel Survey 2009-2011, (2) Census, (3) ODOT	

While population growth has occurred in both rural and urban areas of Oregon, most of the population increase occurred in metropolitan areas. **Table 3** reports Oregon population for years 2000, 2010 and 2023. Population is broken out by MPO and non-MPO to reveal the range in growth patterns across the state. It is important to understand regional population growth patterns to plan for future demand on the transportation system.

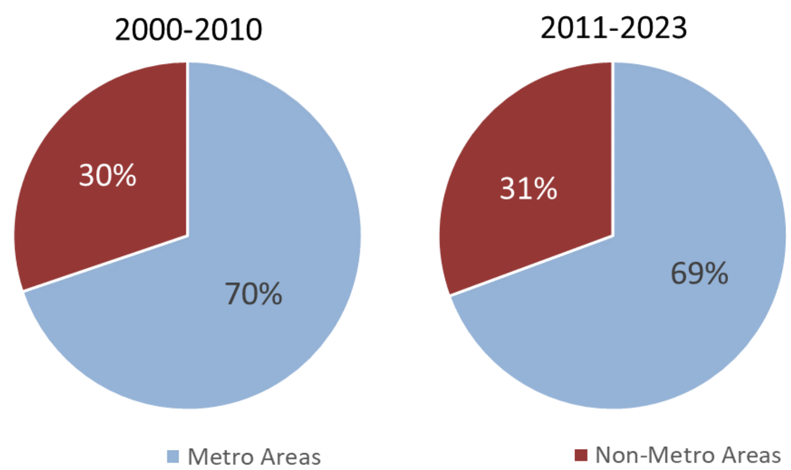
Table 3. Oregon Population for Years 2000, 2010 and 2023

MPO	Census 2000 Population	Census 2010 Population	Change Since 2000	Percent Change Since 2000	July 1, 2023 Estimate	Change Since 2010	Percent Change Since 2010	2023 % of State Population
Albany MPO	50,985	57,714	6,729	13%	68,655	10,941	19%	2%
Bend MPO	62,248	85,107	22,859	37%	116,611	31,504	37%	3%
Corvallis MPO	59,644	65,311	5,667	10%	74,473	9,162	14%	2%
Eugene-Springfield MPO	229,377	249,800	20,423	9%	275,080	25,280	10%	6%
Middle Rogue MPO	51,782	56,560	4,778	9%	61,851	5,291	9%	1%
Rogue Valley MPO	149,770	167,895	18,125	12%	185,728	17,833	11%	4%
Portland Metro	1,322,621	1,502,867	180,246	14%	1,686,731	183,864	12%	39%
Salem-Keizer MPO	216,377	243,500	27,123	13%	279,049	35,549	15%	7%
Total All Metropolitan Areas	2,142,803	2,428,754	285,951	13%	2,748,178	319,424	13%	64%
Total Other Cities and Rural Areas	1,278,596	1,402,320	123,724	10%	1,543,347	141,027	10%	36%
Oregon Statewide	3,421,399	3,831,074	409,675	12%	4,291,525	460,451	12%	100%
Source: Census 2000 – US Census Bureau; 2010 - 2023 Population Estimates – Population Research Center, Portland State University								

- Between 2010 and 2023, 69% of new residents located in Oregon's 8 MPOs. In 2023, 64% of total statewide population is in MPOs, while 36% is in other cities and rural areas.
- Portland Metro grew 14% between 2000 and 2010 and another 12% since 2010. In 2023 Portland Metro contained 39% of statewide population and absorbed 40% of statewide population growth since 2010.
- Other MPOs located in the Willamette Valley including Salem-Keizer, Eugene-Springfield, Corvallis and Albany, contained 16% of statewide population in 2023 and absorbed 18% of statewide population growth since 2010.
- Rogue Valley MPO grew 12% between 2000 and 2010 and another 11% since 2010. In 2023 Rogue Valley MPO accounted for 4% of state population.
- The Bend MPO has been growing the fastest in terms of percentage change, increasing 37% in population between 2000 and 2010 and 37% since 2010. In 2023 Bend accounted for 3% of state population.
- Middle Rogue MPO grew 9% between 2000 and 2010 and another 9% since 2010. In 2023 Middle Rogue MPO accounted for 1% of state population.

Figure 5 summarizes the information from Table 3 into the proportion of new population locating in MPOs and non-MPO areas consisting of small cities and rural regions. Between 2000 and 2010, 70% of new population located in MPO areas, which decreased to 69% since 2011. Between 2000 and 2010 smaller cities and rural areas attracted 30% of Oregon's new population, which increased to 31% between 2011 and 2023.

FIGURE 5. PROPORTION OF OREGON POPULATION GROWTH: MPO AND NON-MPO, 2000-2010 AND 2011-2023



2.3 Travel Flexibility Varies by Trip Purpose

A growing population places additional demands on the highway system as people partake in household activity, such as commuting to work, shopping, household errands, escorting children to school and activities, and recreational travel. A growing economy also places additional demands on the system as businesses hire more workers, demand for services rise, and more freight is moved between businesses and to final markets. Most of Oregon's MPOs are located near interstate highways, except for Bend. For this reason, it is no surprise to see congestion rising on the urban sections of the interstate freeway system. This is especially true for the Willamette Valley, which contains about 70% of the state population on 12% of Oregon's land area[22].

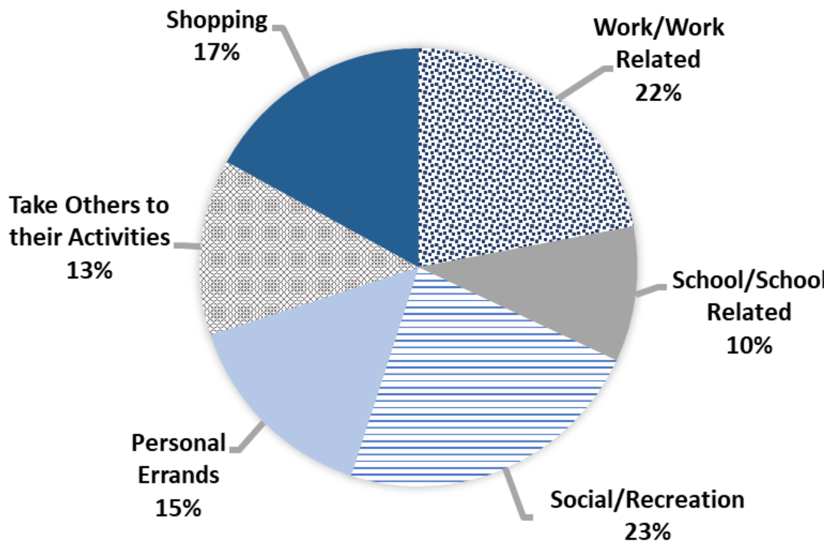
On an average weekday, households make about 9 trips per day[23]. The number of trips varies by household characteristics, such as age of household members, household size, household income,

[22] https://en.wikipedia.org/wiki/Willamette_River: Willamette River drainage basin is 11,478 square miles in size and the state of Oregon is 97,466 square miles.

[23] Stacey Bricka (2019), *Personal Travel in Oregon: A Snapshot of Daily Household Travel Patterns*. Accessible on Oregon Department of Transportation website: https://www.oregon.gov/ODOT/Planning/Documents/OHAS-Daily-Travel-In-Oregon-Report.pdf. New survey data is expected to be available early 2026 and will be used to update this section of the report in the future.

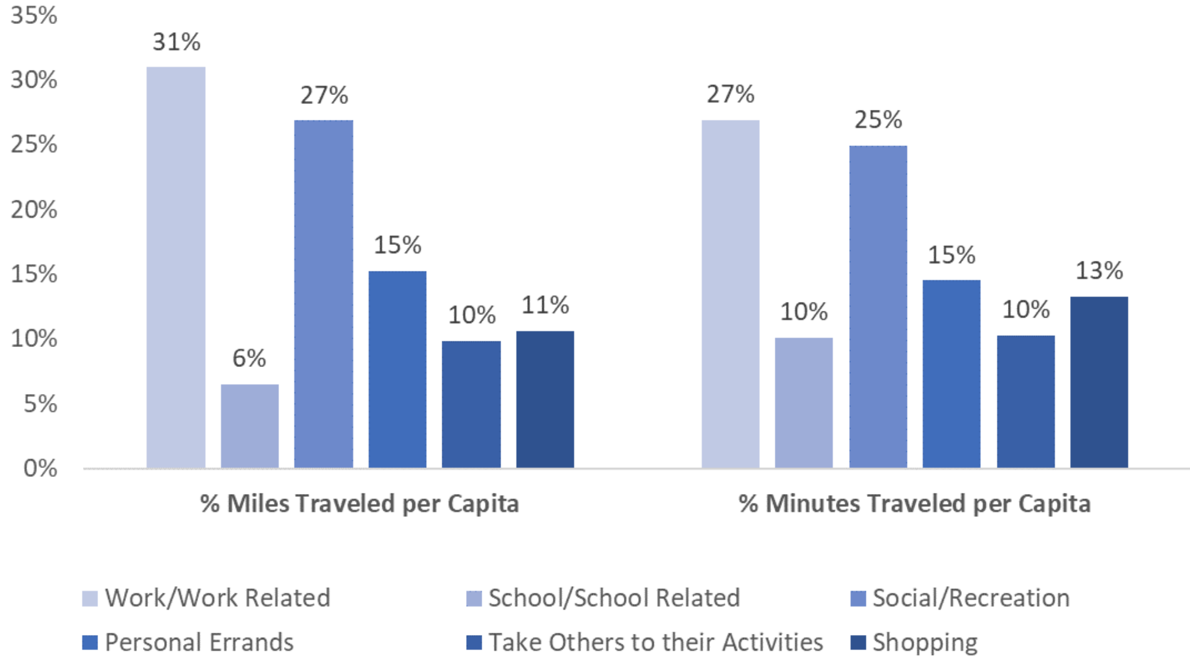
number of workers, presence of children, and availability of vehicles. The specific purpose of travel varies as well, where some trips are mandatory and others more flexible in terms of time-of-day or day-of-week. **Figure 6** illustrates the average proportion of household trips by purpose statewide.

FIGURE 6. HOUSEHOLD TRAVEL BY TRIP PURPOSE – STATEWIDE AVERAGE WEEKDAYS



These trips vary in terms of travel time and distance. **Figure 7** illustrates the variation in trips by distance and travel time for average weekday travel. Work-related travel is longer in terms of time and distance and social/recreational trips follow a similar pattern. School-related trips are generally the shortest in terms of distance, since households are typically located fairly close to schools. Both of these types of trips are considered mandatory since people must go to work and school. Trips involving personal errands, shopping and taking others to activities as a group make up nearly 40% of travel in terms of both time and distance, but each trip has different needs related to reliability and the ability to avoid congested periods. This reveals the complexity associated with managing the highway system and developing public policy to meet the diverse needs of personal travel. Every person faces the same 24-hour time budget, which plays a key role in travel and activity choices.

FIGURE 7. TRAVEL TIME AND DISTANCE BY TRIP PURPOSE



COVID-19 quarantines and related restrictions prompted an increase in work from home. However, in 2024 many businesses are requiring staff to return to the office in person. How this impacts Oregon telework is unknown, but the Oregon Travel Study[24] is collecting that data and more information on telework is expected to be available early 2026.

The National Household Travel Survey[25] recently collected information on work from home which provides some insight. **Table 4** reports results from the 2022 national survey on work from home. Participants in the survey were asked about working from home in the 2017 survey, which reveals changes in telework patterns on average across the entire US.

TABLE 4. WORKING FROM HOME: 2017 AND 2022 COMPARISON FROM NATIONAL HOUSEHOLD TRAVEL SURVEY

Frequency of Working from Home	Survey Year	
	2017	**2022**
Never	78%	62%
1 or 2 days a week	9%	12%
3 or 4 days a week	9%	7%
5 or more days a week	12%	19%
Total	100%	100%

[24] https://oregontravelstudy.com/ data collection ended in 2024 and final data reports are expected early 2026.
[25] https://nhts.ornl.gov/assets/2022/pub/2022_NHTS_Summary_Travel_Trends.pdf , Table 1-1, accessed 12/4/2024

The report states: "The rate of working from home has increased since the onset of the pandemic, with 62% of workers reporting they never worked from home in 2022, a decrease from 78% in 2017. The number of workers who worked from home for 5 or more days a week increased over 50%, from 12% in 2017 to 19% in 2022."

2.3.1 Freight and Commercial Travel

Commercial travel is the other distinct category of highway users. Most of this travel is to move freight and provide business services. As an export-dependent economy, freight movement plays a major role in Oregon. Firms follow logistic management techniques designed to operate supply chains effectively and efficiently. Companies strive to get their goods to market in the most cost-effective manner by minimizing overhead, inventory and cost-per-order processing. These firms follow logistic strategies with the goal of meeting the desires of customers at the lowest feasible cost. Logistic strategies vary by industry, commodity and individual firms. Information regarding freight logistics is difficult to obtain, firms operate in competitive markets and keep operational details private. Thus, analytical capabilities are less for commercial activity relative to household travel.

The U.S. Department of Transportation describes the impact of congestion on freight movement, saying:

> "*Congestion affects economic productivity in several ways. American businesses require more operators and equipment to deliver goods when shipping takes longer, more inventory when deliveries are unreliable, and more distribution centers to reach markets quickly when traffic is slow. Likewise, both businesses and households are affected by sluggish traffic on the ground and in the air, reducing the number of workers and job sites within easy reach of any location*."[26]

In 2023, 325.7 million tons of freight valued at $409 billion moved within, to and from Oregon via truck, rail, air, marine, pipeline, and combinations of these modes.[27] **Figure 8** illustrates the proportion of freight commodity flows by direction, including domestic, import and export flows.

By value:

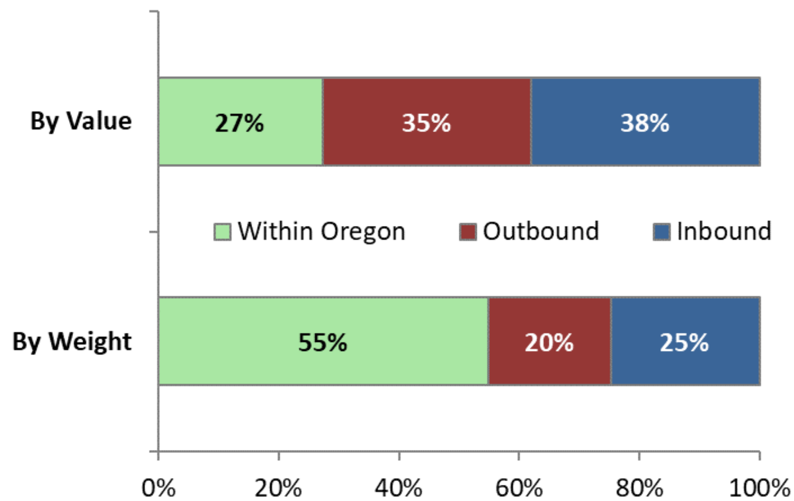
- 27% of total commodity flows start and end within Oregon,
- 35% leaves the state for other domestic and foreign destinations,
- 38% enters the state originating from external locations.

By weight:

- 55% of total commodity flows start and end within the state,
- 20% leaves the state heading to domestic and foreign destinations,
- 25% enters the state originating from external locations.

[26] FHWA: https://ops.fhwa.dot.gov/freight/freight_analysis/freight_story/index.htm, accessed December 2022.
[27] Commodity flow data obtained from the Freight Analysis Framework 5.4.1 Summary Statistics for Oregon: https://faf.ornl.gov/faf5/SummaryTable.aspx . Source data is in 2017 dollars and inflation adjusted to 2021 using Western U.S. CPI published in the Oregon DAS-OEA Revenue Forecast.

FIGURE 8. OREGON COMMODITY FLOWS BY DIRECTION, 2023



Many different commodities move from, to and within Oregon. **Table 5** reports the top 10 freight commodities for Oregon in 2023 in terms of value by direction.[28] Sixty-one percent of commodities originating and destined within Oregon are represented by the top ten categories, dominated by the top 5 categories of mixed freight, wood products, electronics, with machinery, other ag products and motorized vehicles tied for 5th place. Seventy-two percent of commodities from Oregon to locations outside of the state fall under 10 categories, with the top 5 categories representing about half of total outbound flows. Sixty-eight percent of commodities coming into the state, both domestic and foreign, fall under the top 10 categories, with the top 6 making up over half of the total flow.

TABLE 5. OREGON'S TOP TEN COMMODITY FLOWS BY VALUE, 2023

Within Oregon	Share of Total	Outbound	Share of Total	Inbound	Share of Total
Mixed freight	13%	Motorized vehicles	14%	Electronics	14%
Wood prods.	9%	Electronics	11%	Machinery	9%
Electronics	9%	Wood prods.	8%	Pharmaceuticals	8%
Machinery	5%	Mixed freight	8%	Motorized vehicles	8%
Other ag prods.	5%	Machinery	8%	Mixed freight	7%
Motorized vehicles	5%	Other foodstuffs	6%	Misc. mfg. prods.	6%
Plastics/rubber	4%	Other ag prods.	5%	Textiles/leather	4%
Other foodstuffs	4%	Precision instruments	4%	Natural gas and other fossil products	4%
Alcoholic beverages	4%	Misc. mfg. prods.	3%	Other foodstuffs	4%
Gasoline	4%	Textiles/leather	3%	Precision instruments	3%
Top 10 total share	**61%**	**Top 10 total share**	**72%**	**Top 10 total share**	**68%**
Source Freight Analysis Framework 5.6.1					

[28] Commodity flow data obtained from the Freight Analysis Framework Summary Statistics for Oregon: https://faf.ornl.gov/faf5/SummaryTable.aspx . Commodities are classified into 41 different categories.

Efficient freight movement relies on an integrated transportation system designed to utilize efficiencies provided by different modes. Freight mode choice for each commodity depends on cost, reliability, time sensitivity, fragility, and other factors. **Table 6** reports the share of freight movement by transportation mode for 2023. Whether looking at freight in terms of weight or value, trucks currently move 71% of Oregon freight. Pipeline and Rail tend to move heavy commodities of lower value, while commodities shipped by multiple modes are lighter in weight and higher in value. Constraints on movement for one mode or facility can create additional pressures on other parts of the system. The Oregon Freight Plan[29] explores issues affecting all modes of freight transportation and identifies strategies to optimize system performance.

TABLE 6. OREGON SHARE OF FREIGHT FLOWS BY TRANSPORT MODE BY WEIGHT AND VALUE, 2023

Transport Mode	By Weight	By Value
Truck	71%	71%
Pipeline	16%	4%
Multiple Modes & Mail	6%	17%
Rail	5%	3%
Marine	2%	1%
Air (includes truck-air)	< 1%	4%
Other/Unknown	< 1%	< 1%
Total	100%	100%
Source: FHWA Freight Analysis Framework 5.6.1		

Oregon is a trade-dependent state. **Table 7** presents Oregon's top five trade partners. Forty-four percent of commodities by value move internally between Oregon businesses and manufacturers. Washington is one of Oregon's largest trade partners, buying 19% of commodities by value and 9% by weight. California is also a large trade partner, buying 11% of Oregon commodities by value and weight. Altogether, the top five trade partners, including Oregon businesses, represent 81% of traded commodities measured by value and 95% by weight.

TABLE 7. OREGON'S TOP 5 TRADING PARTNERS – BY VALUE AND WEIGHT, 2023

Commodities From Oregon To:	By Value	Commodities From Oregon To:	By Weight
Oregon (internal trade)	44%	**Oregon (internal trade)**	73%
Washington	18%	**California**	11%
California	11%	**Washington**	9%
Idaho	5%	**Idaho**	2%
Texas	2%	**Arizona**	1%
Top 5 Share of Total	81%	**Top 5 Share of Total**	95%
Source: FHWA Freight Analysis Framework 5.6.1			

[29] Oregon Freight Plan, adopted 2011, amended 2017; https://www.oregon.gov/odot/Planning/Documents/Oregon_Freight_Plan_2023.pdf

Medium-sized commercial vehicles are another distinct sector of highway users. These vehicles weigh between 10,000 and 26,000 pounds.[30] Some commercial travel occurs using light vehicles (less than 10,000 pounds), but there is no data revealing light-vehicle commercial travel separate from household travel. Examples of businesses using medium trucks include services for plumbing, electrical, roofing, other trade services; local deliveries for daily business production (e.g., fresh produce for grocery stores and restaurants), other construction-related travel, mail and small package delivery.

Figure 9 presents medium truck registrations since 2001, including the percentage change from the previous year[31]. Registration levels for commercial trucks are strongly correlated with economic conditions. In the early 2000's Oregon was recovering from a recession and medium truck registrations increased until 2006, but the rate of increase slowed after 2004. The Great Recession began the end of year 2007 and the number of medium truck registrations began to decline and hit a low point in 2010. As Oregon came out of the recession the number of medium truck registrations began to rise until 2018. 2020 registrations increased 10% in one year to 2006 levels, by 2022 registrations hit a new peak of 40,750 higher than 2006 and 2020.

FIGURE 9. MEDIUM TRUCK REGISTRATION COUNT AND ANNUAL CHANGE, 2001-2023

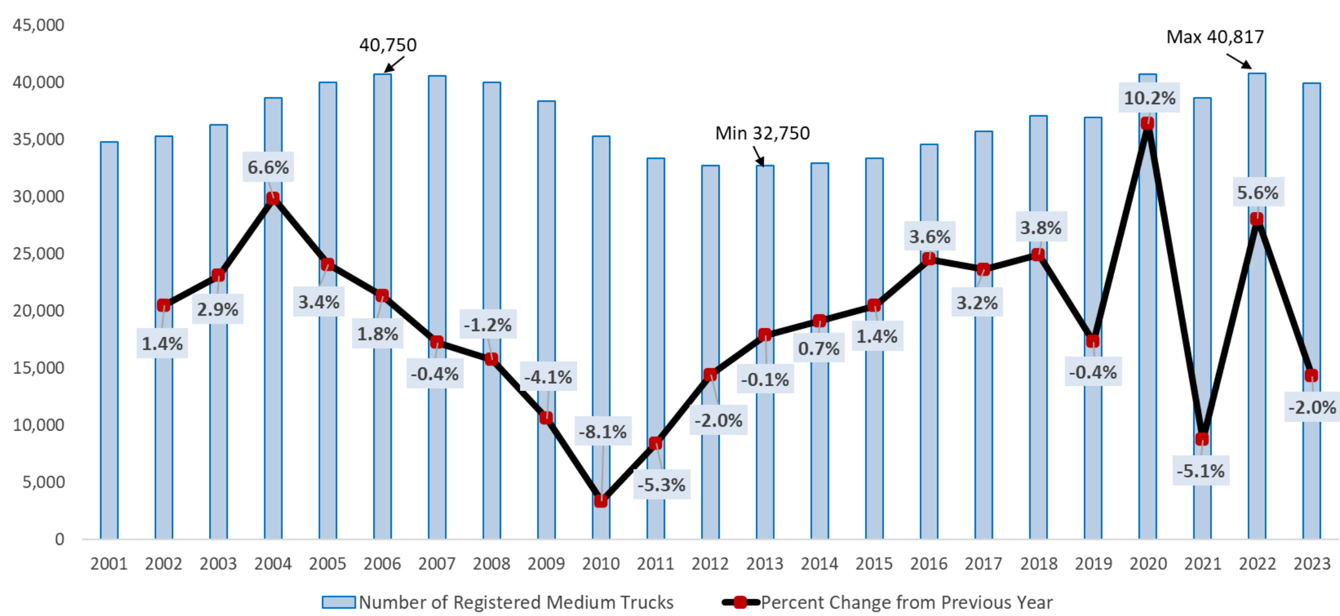


Table 8 presents a summary of annual truck VMT on all Oregon highways for years 2007 to 2024. The most notable change over time is the share of medium truck VMT. Total VMT for this group changed

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[30] DMV defines this category of medium sized trucks as used for carrying loads other than passengers. Full detailed description is available online: https://www.oregon.gov/ODOT/DMV/docs/Oregon_Vehicle_Reg_Stat_Reports.pdf

[31] Source: https://www.oregon.gov/ODOT/DMV/docs/ "**YEAR**"_Vehicle_County_Registration.pdf"

from 646 million miles in 2007 to 927 million miles in 2024, which is an increase of 43%. Medium truck share of total VMT increased from 1.8% to 2.6%. Heavy truck total VMT increased from 2,145 million miles in 2007 to 2,367 million miles in 2024, an increase of 10%. Heavy truck share of total VMT increased from 5.7% to 6.6%. Between 2007 and 2024 truck VMT increased by 503 million miles and over half of this increase was from medium trucks.

Table 8. Annual Truck Vehicle Miles Traveled 2007-2024, miles in millions

	2007	2009	2011	2013	2015	2017	2019	2021	2024
Medium Trucks	646	559	625	780	805	940	958	947	927
Share of Total VMT	1.8%	1.6%	1.7%	2.3%	2.2%	2.5%	2.6%	2.6%	2.6%
Heavy Trucks	2,145	1,740	1,843	1,955	2,044	2,182	2,213	2,490	2,367
Share of Total VMT	5.7%	4.8%	5.1%	5.8%	5.7%	5.9%	6.1%	6.8%	6.6%
Total	2,791	2,299	2,468	2,735	2,849	3,122	3,171	3,437	3,294
Share of Total VMT	7.5%	6.4%	6.8%	8.1%	7.9%	8.5%	8.7%	9.4%	9.2%
Source: Oregon Highway Cost Allocation Studies, Exhibit 4-1, year 2024 is an estimate									

Rising congestion and more trucks on the road means the demand for truck parking is rising. Drivers are required to adhere to strict hours of operation rules established by the Federal Motor Carrier Safety Administration. Truck parking is primarily a safety issue for drivers, but it also impacts congestion when drivers must drive out of direction to find a safe parking area instead of using that time to travel closer to their destination. ODOT published the 2020 Oregon Commercial Truck Parking Study[32] to understand the issue and develop potential solutions.

The transportation system is the Oregon economy in motion. People travel to access jobs, services and goods. Businesses travel to access customers, employees, goods and services they need to conduct their business. Each person, business, commodity, and industry have different needs and expectations from the transportation system. Accommodating a variety of needs while maintaining safety within constrained agency budgets requires strategic decision making and acknowledgement of required trade-offs. All system users must balance trade-offs, whether they are done by households, businesses or public agencies. Understanding the underlying economic motivations and decision criteria supports informed investment decisions.

The transportation system is the Oregon economy in motion.

[32] https://www.oregon.gov/odot/Planning/Documents/OCTPS_final_report_with_Appendices_and_exec_summary-Full_Report.pdf

3 Performance Measures

3.1 Quantity: How much is Moving?

Measures of "**quantity**" report the overall use of the highway system. These measures include:

- Annual Vehicle Miles Travelled (VMT) – the annual number of miles travelled by all vehicles.
- VMT Per Capita –the annual number of miles travelled by all vehicles divided by the population. This broad measure reveals the amount of travel occurring relative to population, providing information on whether people are individually traveling more or less or whether changes in total population is the main cause.
- Annual Truck VMT– annual number of miles travelled by trucks.
- Truck VMT Per Capita – the annual number of heavy truck miles travelled divided by the population. This broad measure reveals the amount of commercial freight travel occurring relative to population, providing a sense of what is influencing the amount of freight movement.

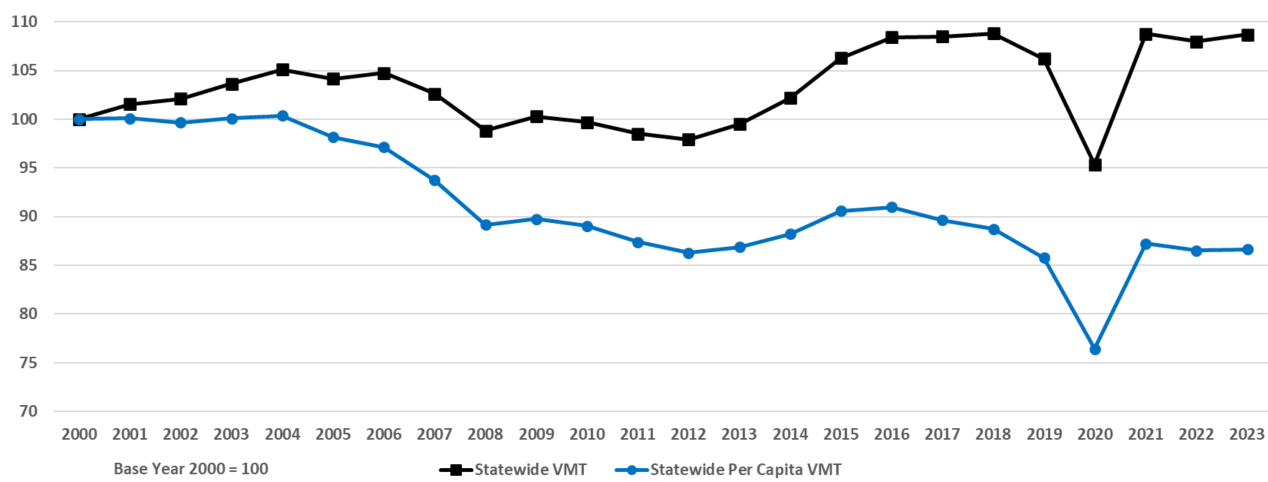
3.1.1 Annual Vehicle Miles Travelled

Figure 10 presents statewide annual VMT and VMT per capita to illustrate the two measures side-by-side. The Great Recession of 2007-09 was followed by annual population growth rates below 1% through 2013. Oregon's economy is trade dependent, which means when the national economy is strong, Oregon typically grows faster than the national average. When recessions occur, Oregon typically takes longer to recover, which was the case for the Great Recession. Less economic activity means fewer miles traveled in general. VMT for 2008 to 2012 was equal to or less than 2000 levels. Lower population growth and declining VMT resulted in declining per capita VMT between 2008 and 2012.

By 2014 both VMT and population growth increased. However, per capita VMT increased more slowly and peaked in 2016. This pattern indicates there have been reductions in the number of trips and/or distances traveled by system users. There are a variety of factors potentially contributing to this emerging pattern, such as rising traffic congestion, concentration of growth in denser urban areas, an aging population traveling less, more efficient freight logistics, and online access to goods and business services. After the 2020 pandemic, total VMT increased to levels seen in 2018, while per capita VMT was at 2012 levels. This may be due to historically high inflation since 2020[33] reducing the purchasing power of household and business budgets. Time will reveal whether this trend will continue over time.

[33] https://www.bls.gov/data/inflation_calculator.htm , calculated for July 2020 and July 2024, nationally costs increased 21% between those years.

FIGURE 10. STATEWIDE VMT AND PER CAPITA VMT OVER TIME: 2000-2023 (INDEXED TO YEAR 2000)



3.1.2 Truck VMT

As the economy expands with increasing population and employment, more freight movement occurs. The Oregon Highway Cost Allocation Study (HCAS)[34] is conducted every two years and reports VMT by vehicle weight categories. **Figure 11** illustrates truck VMT since 2007 for heavy and medium trucks using HCAS data[35]. The values are indexed to 2007 to compare current levels to pre-recession levels. Total truck VMT declined 19% by 2009 due to the Great Recession, illustrating the link between trucks and economic conditions.

Medium truck VMT reached prerecession levels around 2012, while heavy truck VMT reached this point by 2017. Since 2017 total truck VMT has increased about 5.5%, heavy truck VMT increased about 8% while medium truck VMT decreased about 1%.

[34] https://www.oregon.gov/das/OEA/Pages/hcas.aspx, accessed December 2022, Table 4-1

[35] This data was also provided earlier in Table 7.

Figure 11. Change in Truck VMT 2007-2024 (Indexed to year 2007)

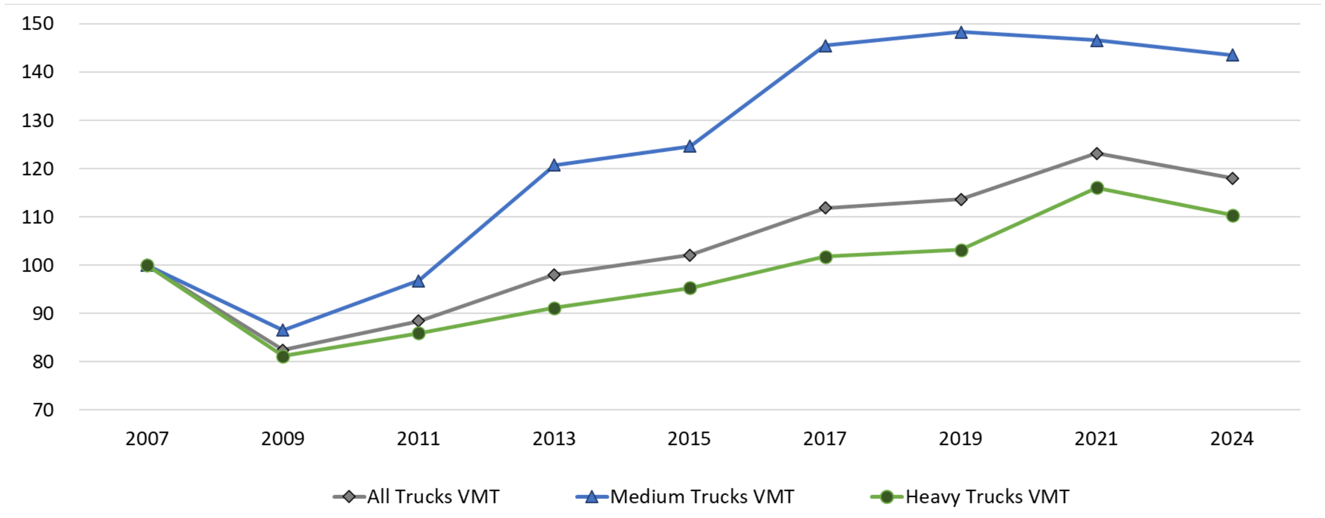
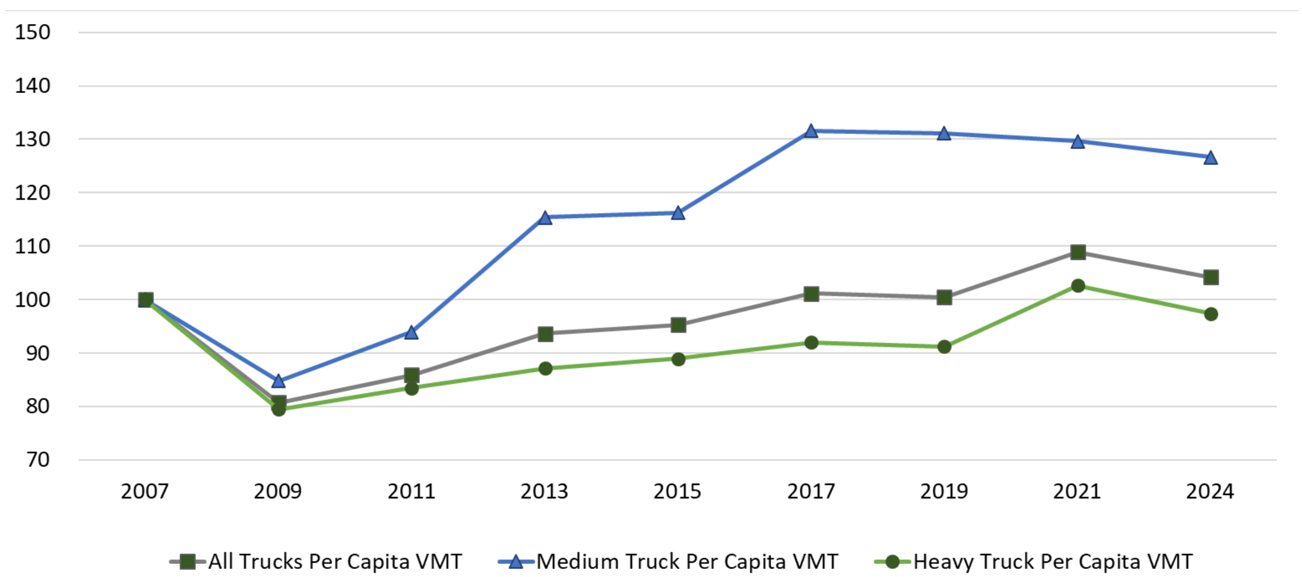


Figure 12 presents *per capita* truck VMT to account for the increase in population and assess changes in average per person truck VMT. Overall truck per capita VMT is 4% above 2007 levels. Heavy truck per capita VMT is 3% lower than 2007 levels, while medium truck per capita VMT is 27% above the 2007 level and has been gradually decreasing since 2017.

Figure 12. Change in Per Capita Truck VMT 2007-2024 (Indexed to 2007)



In addition to these observed trends are emerging patterns with very little data available for analysis. For example, car sharing and ride-share services, such as Uber and Lyft, are expected to impact household vehicle ownership and commercial use of private vehicles. It will be important to monitor this over time. The Oregon Travel Study asked participants about the use of their personal vehicles for business activity, which should shed some light on this topic next year.

If there is continued growth in e-commerce it is expected to impact the number of trucks on the road. Obtaining observed data for medium trucks is key to determining the net impacts of e-commerce on statewide VMT. There is currently debate as to whether e-commerce reduces VMT by eliminating household shopping trips or increases VMT by generating more delivery trips that are not replacing household trips. It is also important to note the impacts may vary by region.

3.2 Quality: What conditions are experienced by road users?

Measures of “quality” relate to the travel experience, primarily focused on traffic congestion and system reliability. Various factors influence congestion, which can be broadly classified into two types. The first type of congestion is general everyday congestion typically occurring due to capacity constraints in the morning and afternoon peak periods. This is referred to as *recurring congestion*. Sections of highway where vehicles must merge onto or diverge off the roadway, locations where the demand is greater than the capacity, or in weaving sections where traffic is both trying to enter or exit from the highway are examples of recurring congestion. Locations with these patterns may be referred to as bottlenecks.

The second type is *non-recurring congestion*. This type of congestion is due to temporary, unexpected events, such as crashes, vehicle breakdowns, inclement weather, work zones, and special events causing delay and stop-n-go traffic conditions. This type of congestion impacts system reliability, which is a key component of system quality. Predictable delay can be adapted to by users, while unpredictable delay impacts activity requiring timeliness, such as on-time delivery, on-time services and arriving at work or appointments on time.

This section presents measures of congestion and reliability across the state and metropolitan areas in the form of maps to highlight where congestion and reliability hot spots are located. The first set of maps visualize congested locations statewide and metropolitan planning areas (MPOs). The second set of maps visualize unreliable locations statewide and in MPOs. This section ends with identifying the causes of congestion and poor reliability statewide and in MPOs. The Appendix provides similar maps representing each county in Oregon.

3.2.1 Congestion: Travel Time Index

Availability of vehicle probe-based travel time data supports use of travel time indices to measure congestion levels. A common index used nationally by state and federal agencies to measure congestion is the Travel Time Index (TTI) which quantifies congestion for an average day. This measure compares the most congested time-of-day to free-flow conditions. The higher the TTI value, the longer the average travel times and the greater the congestion. This measure accounts for *recurring delay* – delay that is predictable and caused by high demand, such as peak periods of the day.

For this report, analysis was prepared using the RITIS platform and INRIX speed data[36]. TTI values are calculated for Interstates, U.S. routes, Oregon routes, interchanges, city and county arterials with sufficient data for reporting. The data shown on the maps are compiled for all Tuesdays, Wednesdays, and Thursdays in 2023, averaged independently for each hour of the day between 5AM and 10PM. The map displays results for the hour of the day with the highest TTI value, which is determined independently for each road segment. Each segment is calculated by direction, then categorized to a level of congestion following the range of values listed in **Table 9**.

TABLE 9. TRAVEL TIME INDEX CONGESTION CLASSIFICATION CATEGORIES

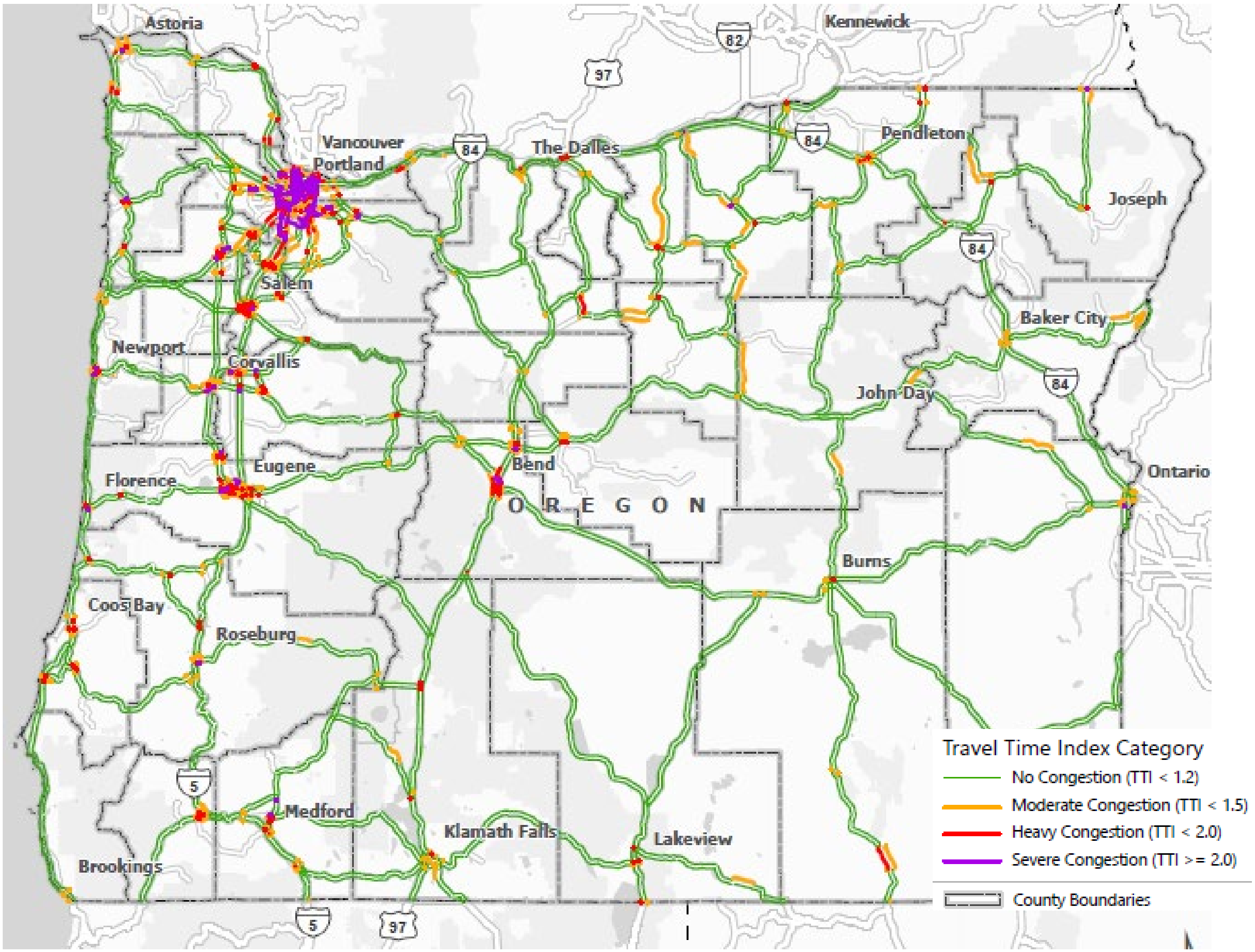
Congestion Level	Travel Time Index Value	Interpretation
No Congestion	Less than 1.2	Average travel time is no more than 20% above free flow time
Moderate Congestion	1.2 ≤ TTI < 1.5	Average travel time is between 20% to 50% more than free flow time
Heavy Congestion	1.5≤ TTI <2.0	Average travel time is between 50% and 99% more than free flow time
Severe Congestion	Greater than or equal to 2.0	Average travel time is more than double free flow time

Figure 13 broadly illustrates recurring congestion statewide by direction using the TTI. The TTI map reveals moderate to heavy congestion across the state. Severe congestion is predominantly located in urban areas along the I-5 corridor and in the Bend region. **Figures 14- 21** provide TTI maps for each MPO to provide greater detail for congested locations. The Appendix provides similar maps for each Oregon county to zoom in on problem locations, which occur in every county of the state.

There are ways in which recurring congestion may be reduced, such as higher vehicle occupancy rates (carpools, public transit, parking fees), reducing vehicle trips and miles traveled (tele-work, affordable housing near work sites, services and shopping), efficient roadway operations (ramp meters, variable speeds, road pricing), increased pedestrian and bike use and adding road capacity (new through-lanes).

[36] Data for all Tuesdays, Wednesdays and Thursdays were averaged at one-hour increments and compared to free-flow conditions and mapped using the values provided in Table 9.

Figure 13. Statewide Congestion: Travel Time Index 2023



AAMPO

The Albany region has moderate congestion along I-5 north bound, US 20 and OR 99E through the city. There is also moderate congestion within the town of Jefferson northeast of Albany.

Heavy congestion occurs along OR 99E between the I-5 interchange and the intersection with US 20. The I-5 interchange at US 20 has heavy congestion east bound between OR 99E and I-5.

Heavy and severe congestion occurs at the I-5 and OR 34 interchange. Severe congestion south bound on US 20 also occurs crossing the Willamette River into downtown Albany.

Figure 14. Albany Area MPO Congestion: Travel Time Index 2023

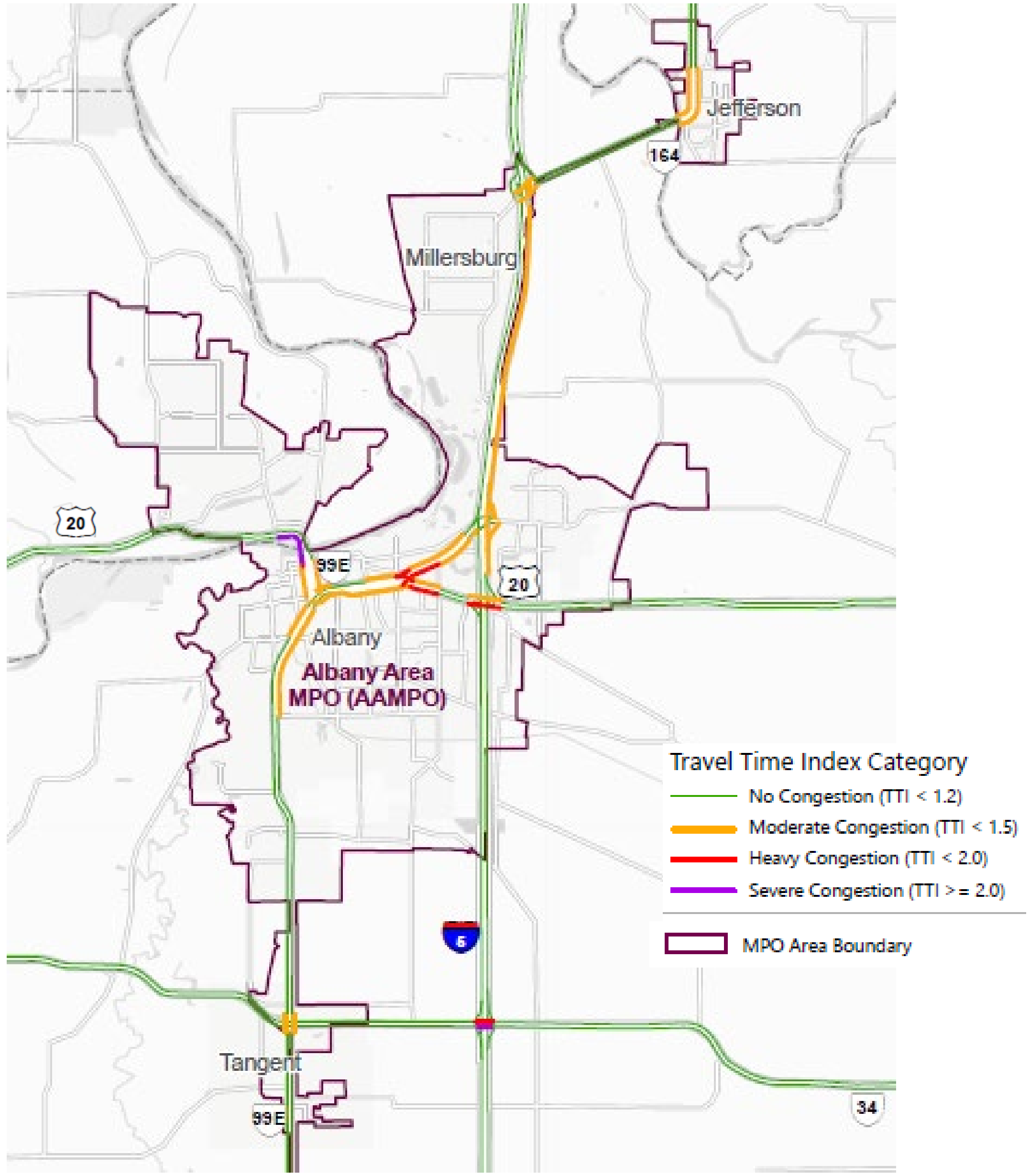


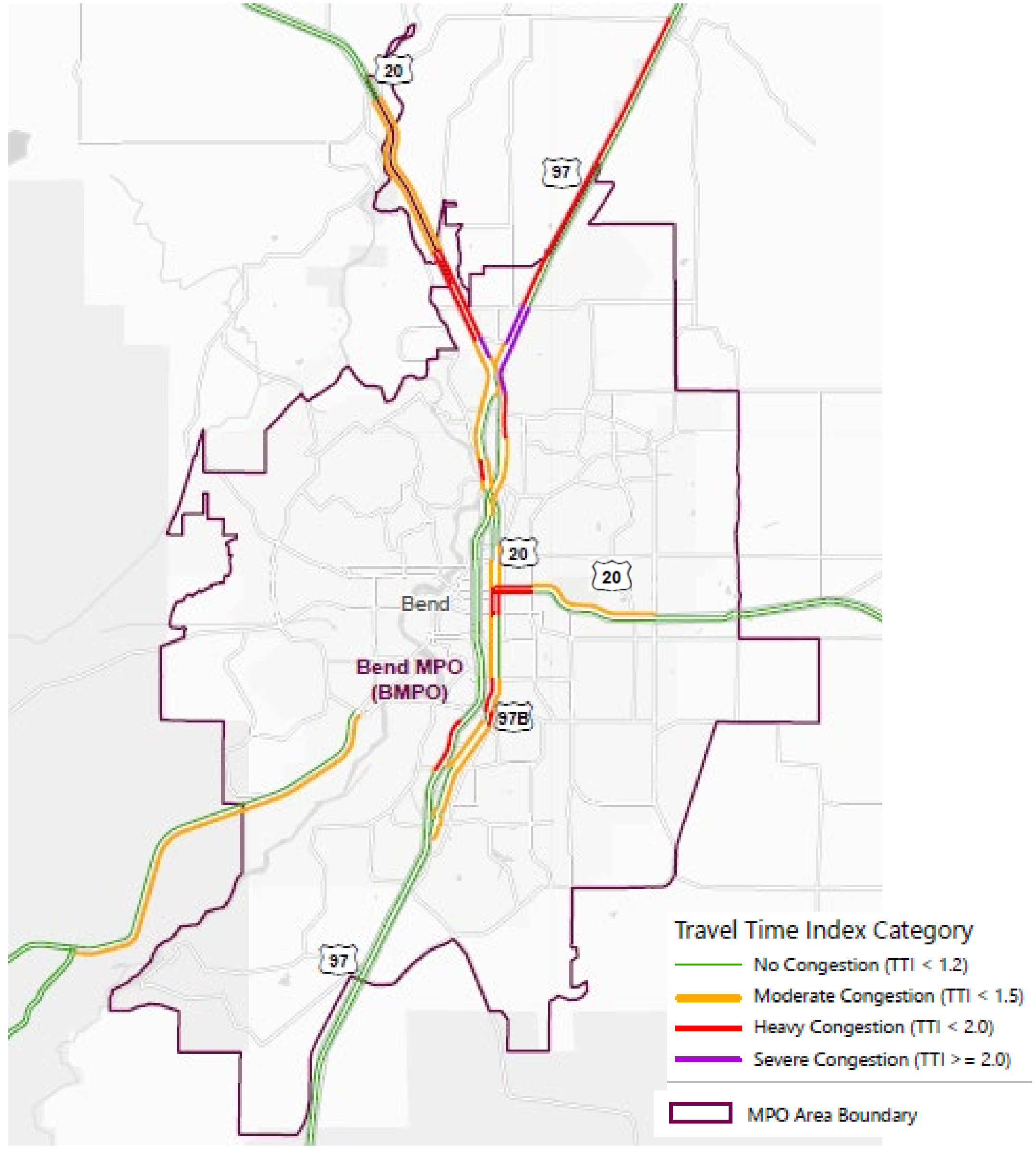
Figure 15. Bend MPO Congestion: Travel Time Index 2023

BMPO

The Bend region has moderate congestion along large portions of the major routes, including US 20 and US 97.

Heavy congestion occurs along US 97 entering the city from the north and the north end of US 20 entering Bend in both directions. There is also heavy congestion on US 20 where it joins US 97 from the east.

Severe congestion occurs on US 97 and US 20 to the north where the two routes intersect.



CAMPO

The Corvallis region has moderate congestion along portions of the major routes of US 20 and OR 34. OR 99W congestion is predominantly within the city center. OR 34 congestion occurs for west bound traffic coming in from the east side of the MPO and west bound traffic leaving the town of Philomath.

Heavy and severe congestion occurs where US 20 and OR 99W intersect in the downtown area. East bound US 20 between 53rd Street and OR 99W has heavy and severe congestion levels.

Figure 16. Corvallis Area MPO Congestion: Travel Time Index 2023

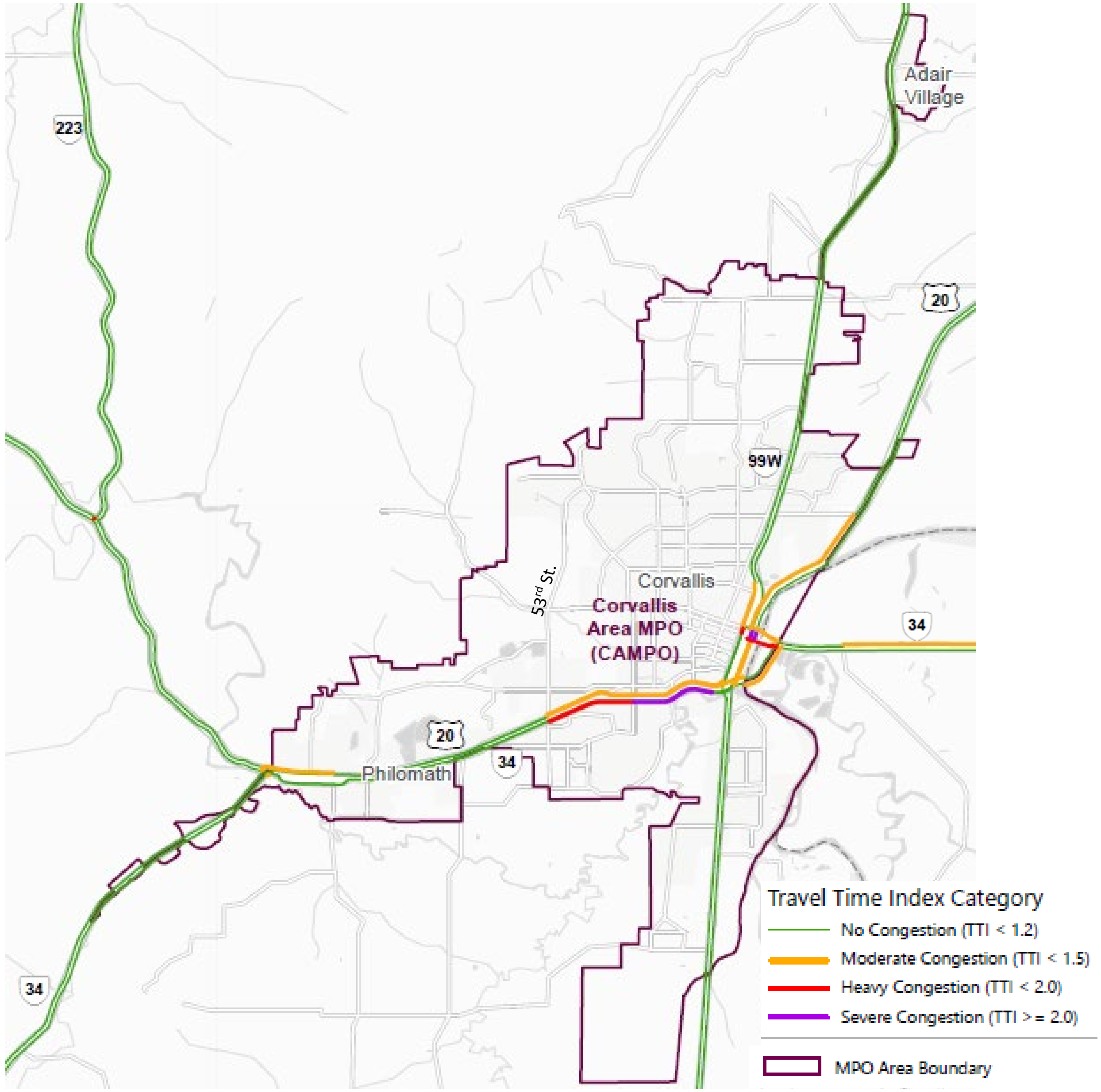


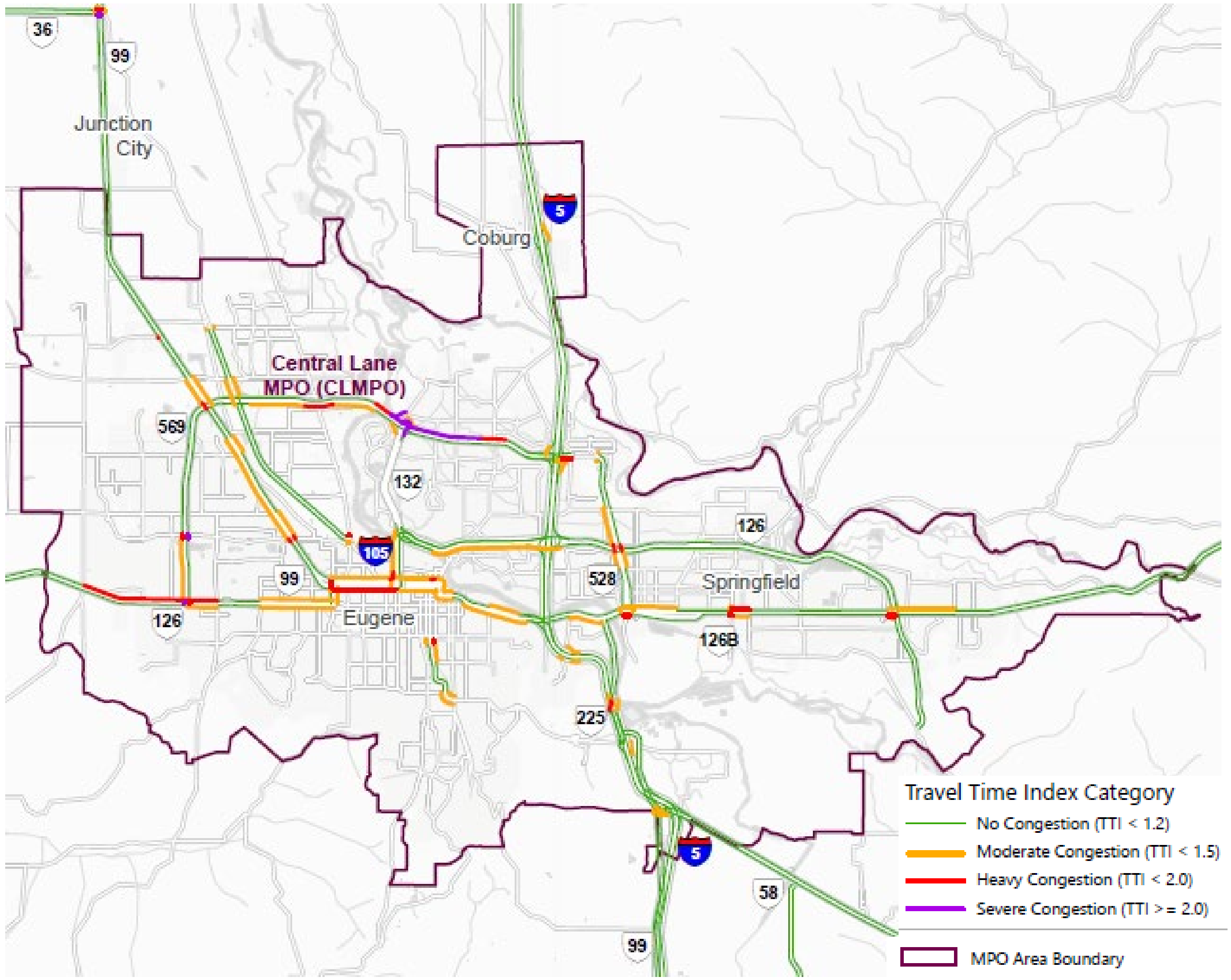
Figure 17. Central Lane MPO Congestion: Travel Time Index 2023

CLMPO

The Central Lane region has moderate congestion along large portions of the major routes, including OR 99, OR 126B, I-105, OR 569 (Beltline) and several I-5 interchanges.

Heavy congestion occurs at several locations on OR 99, OR 569 and OR 126B.

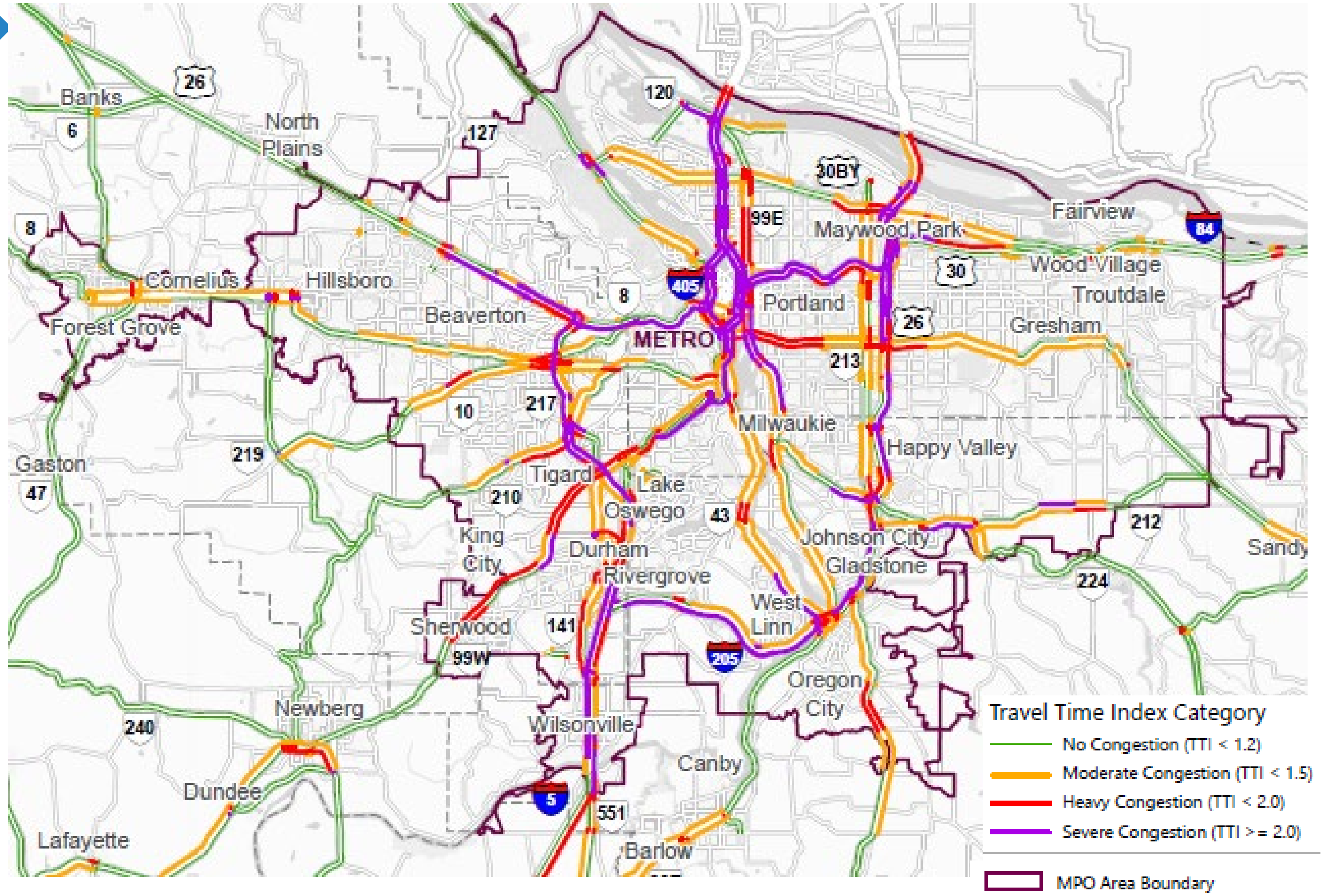
Severe congestion occurs on OR 569 Beltline Highway west bound between I-5 and the Willamette River.



Metro

The greater Portland metropolitan region is home to 39% of statewide population and attracted 40% of new population since 2010. The Metro region is experiencing growth in population, jobs and travel causing congestion on state and local highways. ODOT monitors the health of the regional highway system to develop effective solutions to address congestion, safety, bottlenecks and reliability. Individual corridors are evaluated for performance and reported in the "*Portland Region Traffic Performance Report*". The last version was produced late 2021.*

Figure 18. Portland Metro Congestion: Travel Time Index 2023



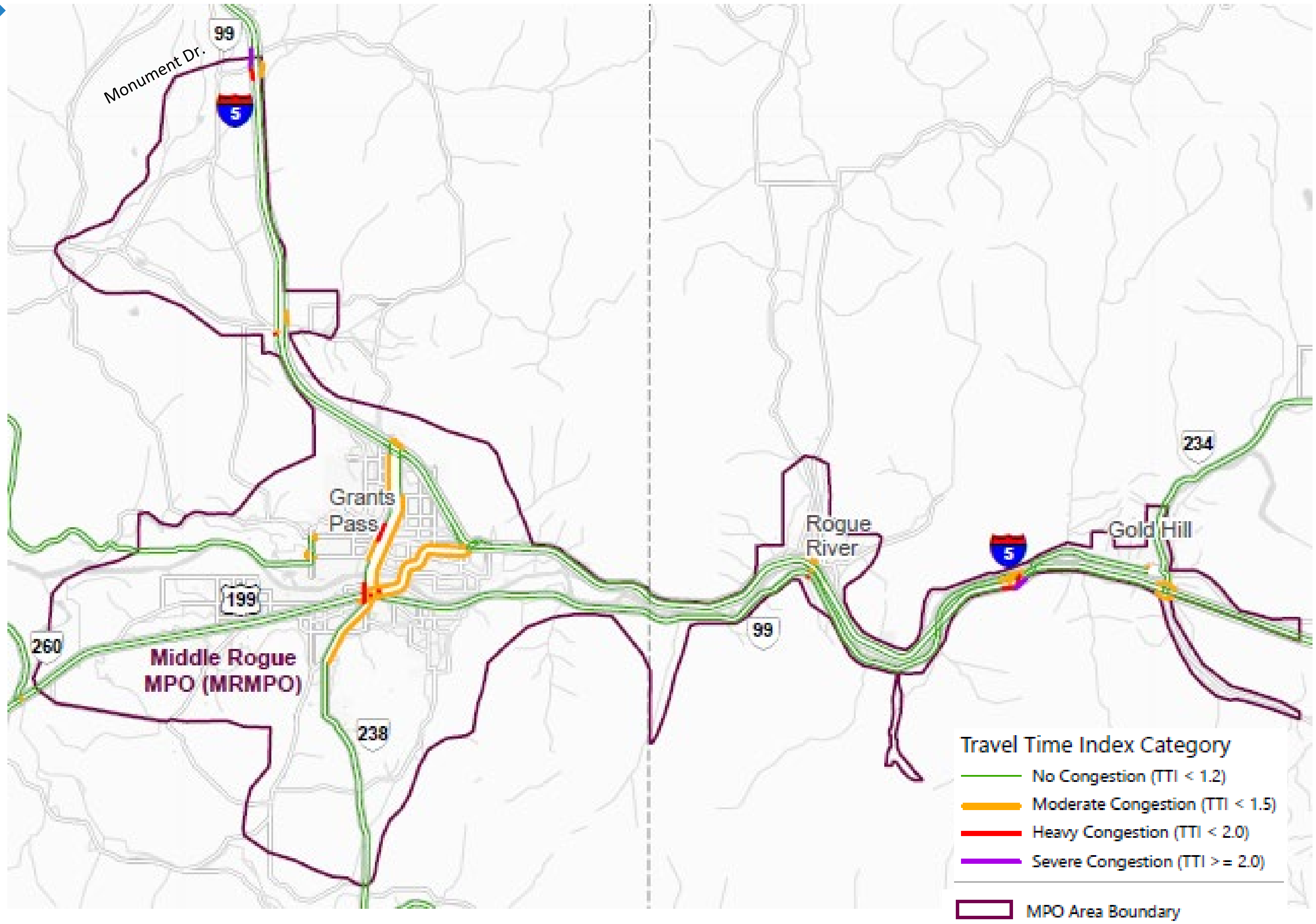
* https://www.oregon.gov/odot/projects/pages/project-details.aspx?project=ATMS

MRMPO

The Middle Rouge Valley MPO has moderate congestion on OR 99 between the 1-5 interchange and the US 199, OR 238 interchange, and on OR 238 approaching from the south. There is also moderate congestion at several other I-5 interchanges.

There is heavy congestion and severe congestion at the I-5 and Monument Drive interchange at the north end of the MPO. This is also the case for the I-5 and OR 99 interchange just west of Gold Hill.

Figure 19. Middle Rogue MPO Congestion: Travel Time Index 2023

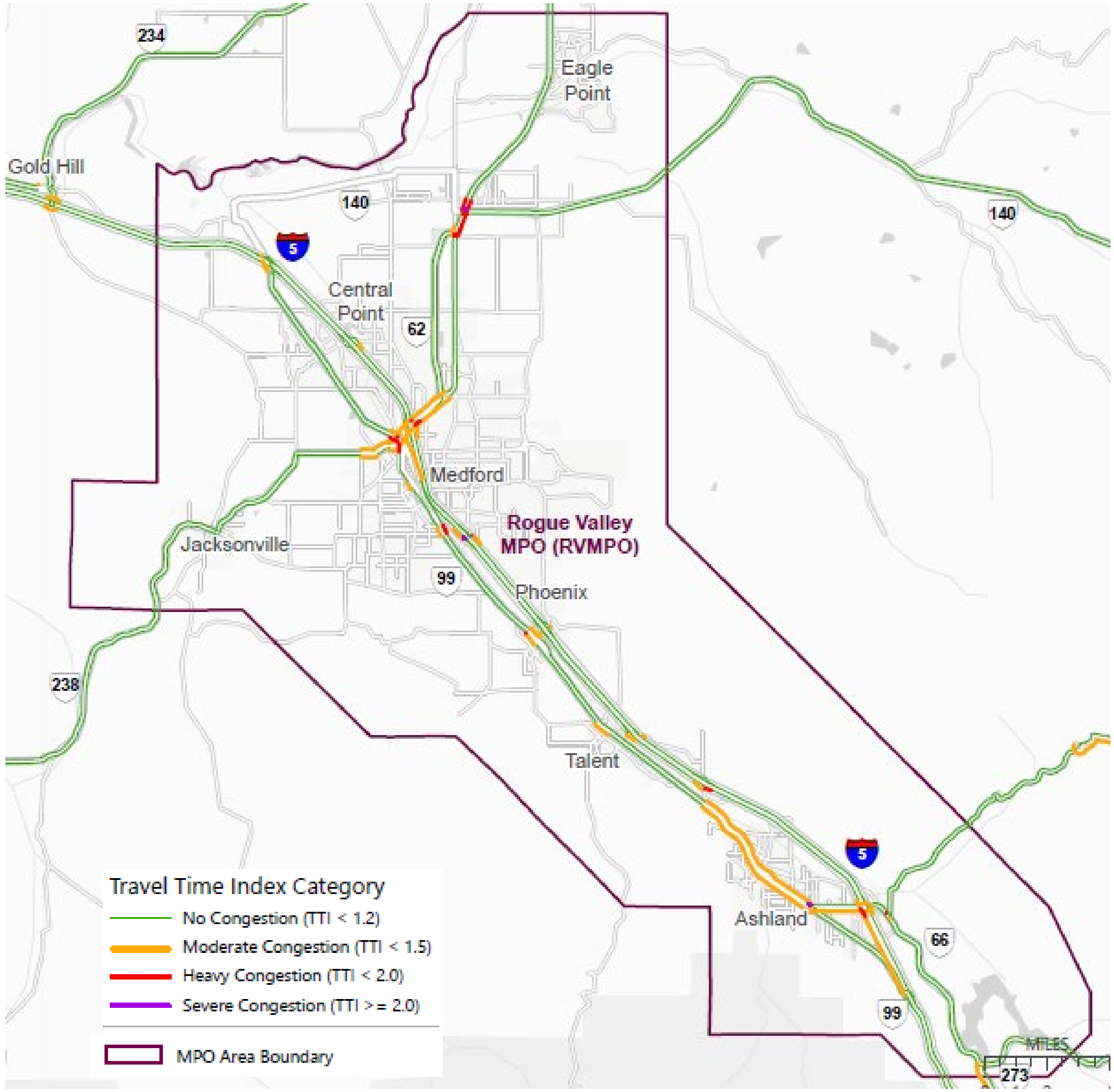


RVMPO

The Rogue Valley MPO has moderate congestion at several I-5 interchanges. The area between Central Point and Medford where I-5, OR 62, OR 238 and OR 99 intersect has moderate and heavy congestion levels. Moderate congestion also occurs on OR 99 through the city of Ashland, in addition to other segments.

There are smaller segments with severe congestion located at or near highway interchanges/intersections on I-5, OR 62, and OR 99.

Figure 20. Rogue Valley MPO Congestion: Travel Time Index 2023

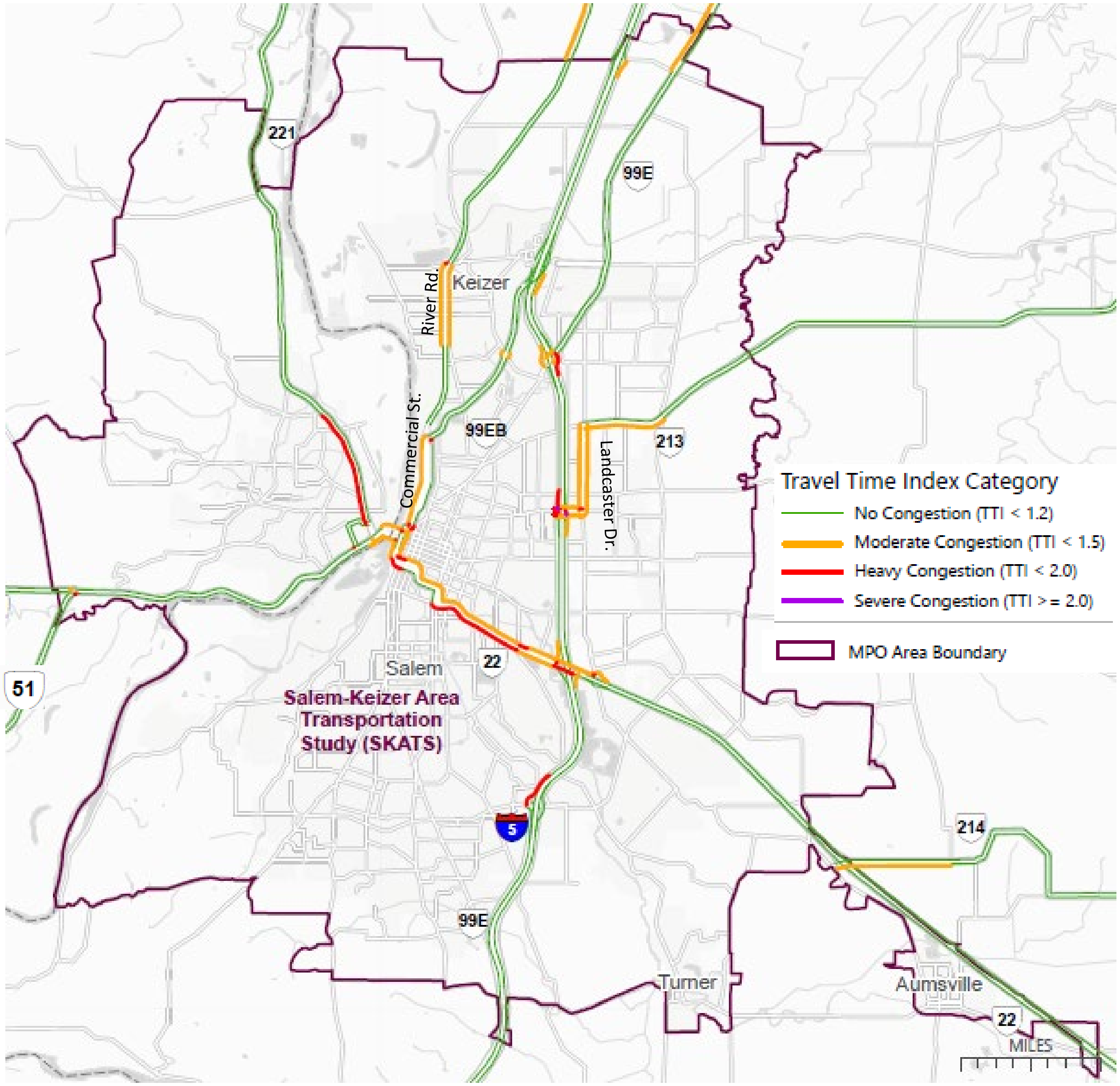


SKATS

The Salem-Keizer region has moderate and heavy congestion levels at interchanges on I-5 at OR 99E, Market St., OR 22 and Kuebler Blvd. There is moderate congestion between I-5 at Market Street to Lancaster Drive and east bound on OR 213 (Silverton Road). Moderate congestion also occurs on Commercial Street between US 22 and 99 EB, and on River Rd in Keizer.

Heavy congestion occurs on US 22 and 99 EB through the City of Salem east bound coupled with moderate congestion west bound. OR 221 in West Salem has heavy congestion in the southeast direction of travel.

Figure 21. Salem-Keizer Area Transportation Study Congestion: Travel Time Index 2023



3.2.2 Reliability: Planning Time Index

The Planning Time Index (PTI) measures *variation* in travel time caused by unexpected events, such as crashes, vehicle breakdowns, work zones, and inclement weather causing delay and stop-and-go conditions. This reliability measure represents the total travel time users need to plan for in order to arrive on time 95% of the time compared to free flow travel time. The lower the PTI, the more reliable travel time will be. Variability in travel times day-to-day is random and unpredictable, which is referred to as non-recurring congestion.

When people travel, they may need to plan based on the worst days instead of an average day to ensure on-time arrival. Travelers usually include extra travel time for regularly planned trips, such as commuting to work. However, some trips require guaranteed punctuality, such as catching a plane flight, making a freight delivery, providing customer service on-site, or attending personal appointments. The PTI is designed to measure system reliability by estimating the extra time needed to ensure punctuality. As with the TTI, the PTI is calculated using INRIX speed data.

PTI values are calculated for Interstates, U.S. routes, Oregon routes, interchanges, city and county arterials with sufficient data for reporting. The data shown on the maps are compiled for all Tuesdays, Wednesdays, and Thursdays in 2023, averaged independently for each hour of the day between 5AM and 10PM. The map displays results for the hour of the day with the highest PTI value, which is determined independently for each road segment. Each segment is calculated by direction, then categorized to a level of reliability following the range of values listed in **Table 10**.

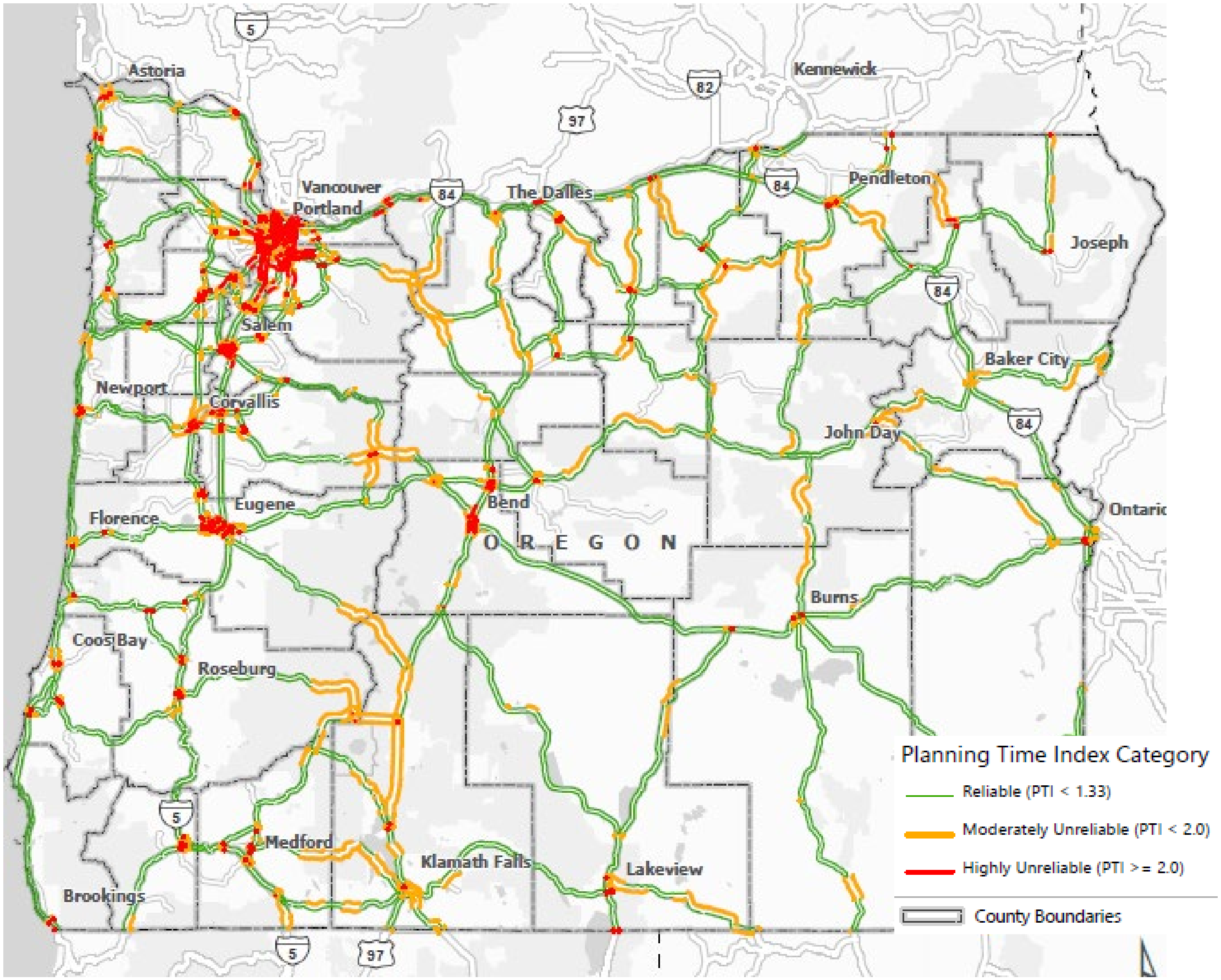
TABLE 10. PLANNING TIME INDEX RELIABILITY CLASSIFICATION CATEGORIES

Reliability Level	Planning Time Index Value	Interpretation
Reliable	Less than 1.33	Average planning time on the worst day of the month is no more than 33% longer than free flow time.
Moderately Unreliable	1.33 ≤ PTI < 2.0	Average planning time on the worst day of the month is more than 33% longer and less than double that of free flow time.
Highly Unreliable	Greater than or equal to 2.0	Average planning time on the worst day of the month is twice as long or more than free flow time.

Figure 22 broadly illustrates non-recurring congestion to represent reliability statewide by direction using the PTI. The PTI map reveals moderate to highly unreliable travel times across the state. Unreliable conditions are largely located in urban areas along the I-5 corridor and in the Bend region. **Figures 23-30** provide PTI maps for each MPO to provide greater detail for congested locations. The Appendix provides similar maps for each Oregon county to zoom in on problem locations, which occur in every county of the state.

There are ways non-recurring congestion may be reduced to improve travel time reliability, such as safety-enhancement projects (reduces crashes and the delay they cause), incident response programs (reduces incident clearing times) and roadway operations aimed at enhancing safety or maintaining smooth traffic flow.

Figure 22. Statewide Travel Time Reliability: Planning Time Index 2023



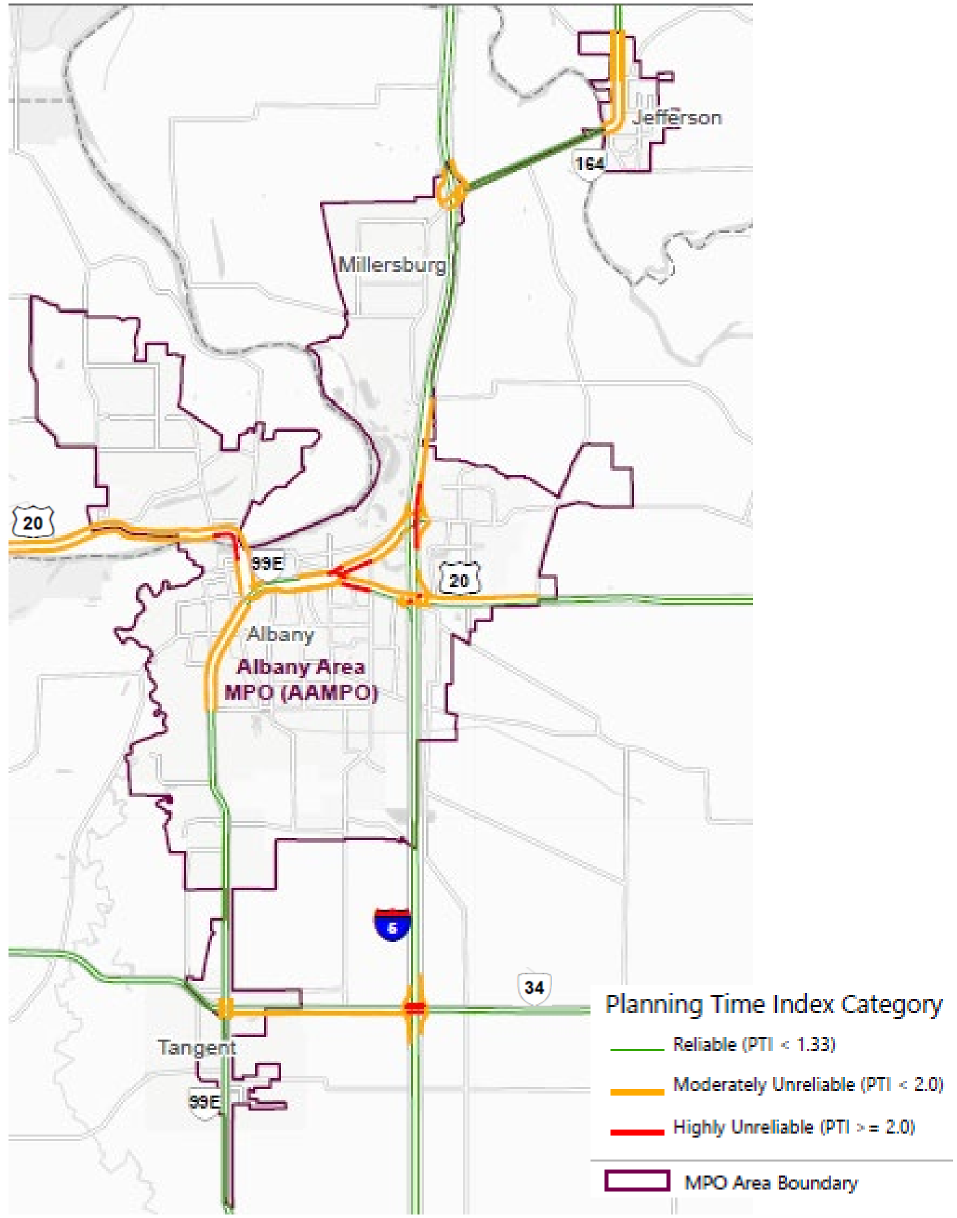
AAMPO

The Albany region has several moderately unreliable locations, including sections of I-5 near interchanges with OR 99E and US 20 within the city, US 20 east of I-5 west bound, and both directions of US 20 west of the Willamette River crossing to downtown. OR 34 has a moderately unreliable segment between I-5 and OR 99E.

Conditions are moderately unreliable at I-5 interchanges coupled with high unreliability in places.

Highly unreliable locations occur at I-5 north bound near the OR 99E interchange, segments near the intersection of US 20 and OR 99E in the City of Albany, and the US 20 southeast bound direction on and adjacent to bridge over the Willamette River.

Figure 23. Albany Area MPO Travel Time Reliability: Planning Time Index 2023



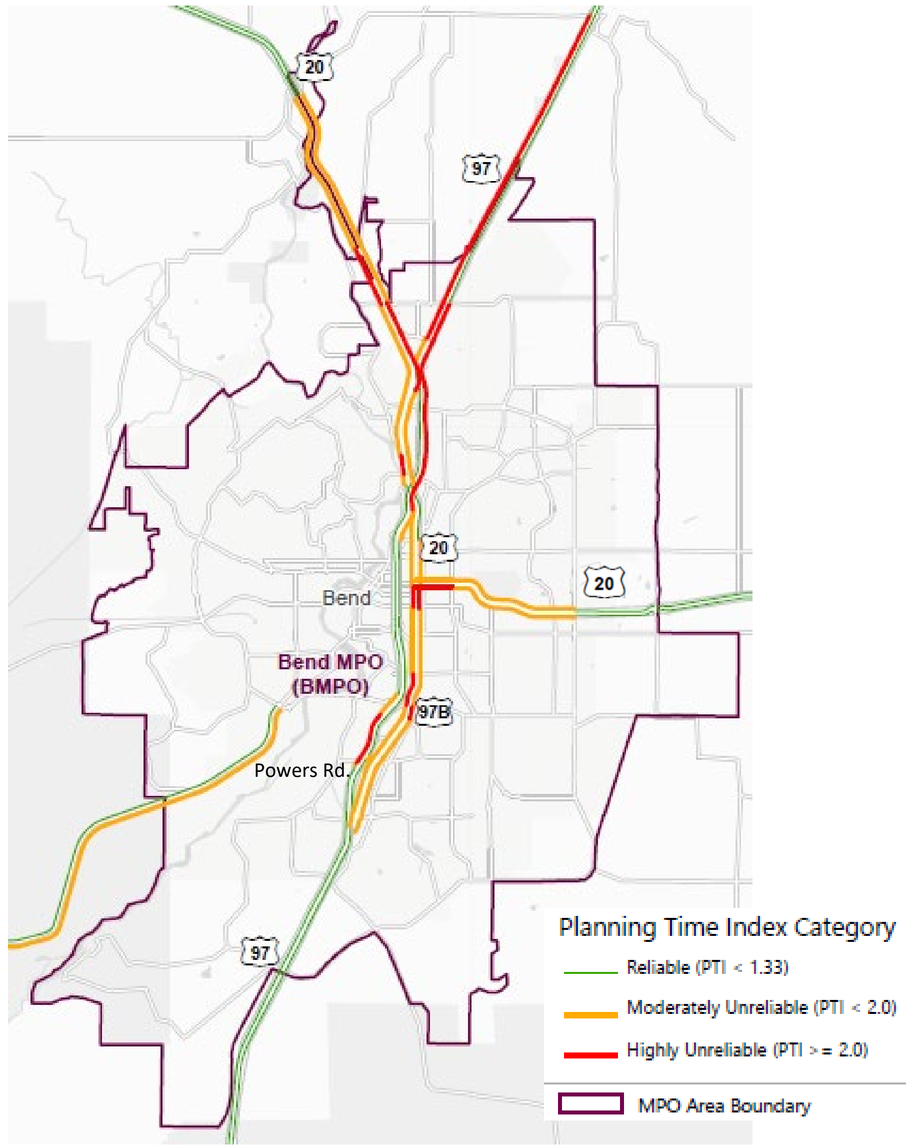
BMPO

The Bend region has moderate unreliability along large portions of the major routes, including US 20 and US 97.

High unreliability occurs along US 97 in both directions, with the largest segment in the south bound direction at the north end of the MPO. The southern end of US 97 also has a highly unreliable segment between Reed Market Road and Powers Road. The north end of US 20 has high or extremely high unreliability in both directions.

Extremely unreliable conditions also occur on US 97 Business (3rd St.) south bound and US 20 near the intersection of US 20 east bound.

Figure 24. Bend MPO Travel Time Reliability: Planning Time Index 2023

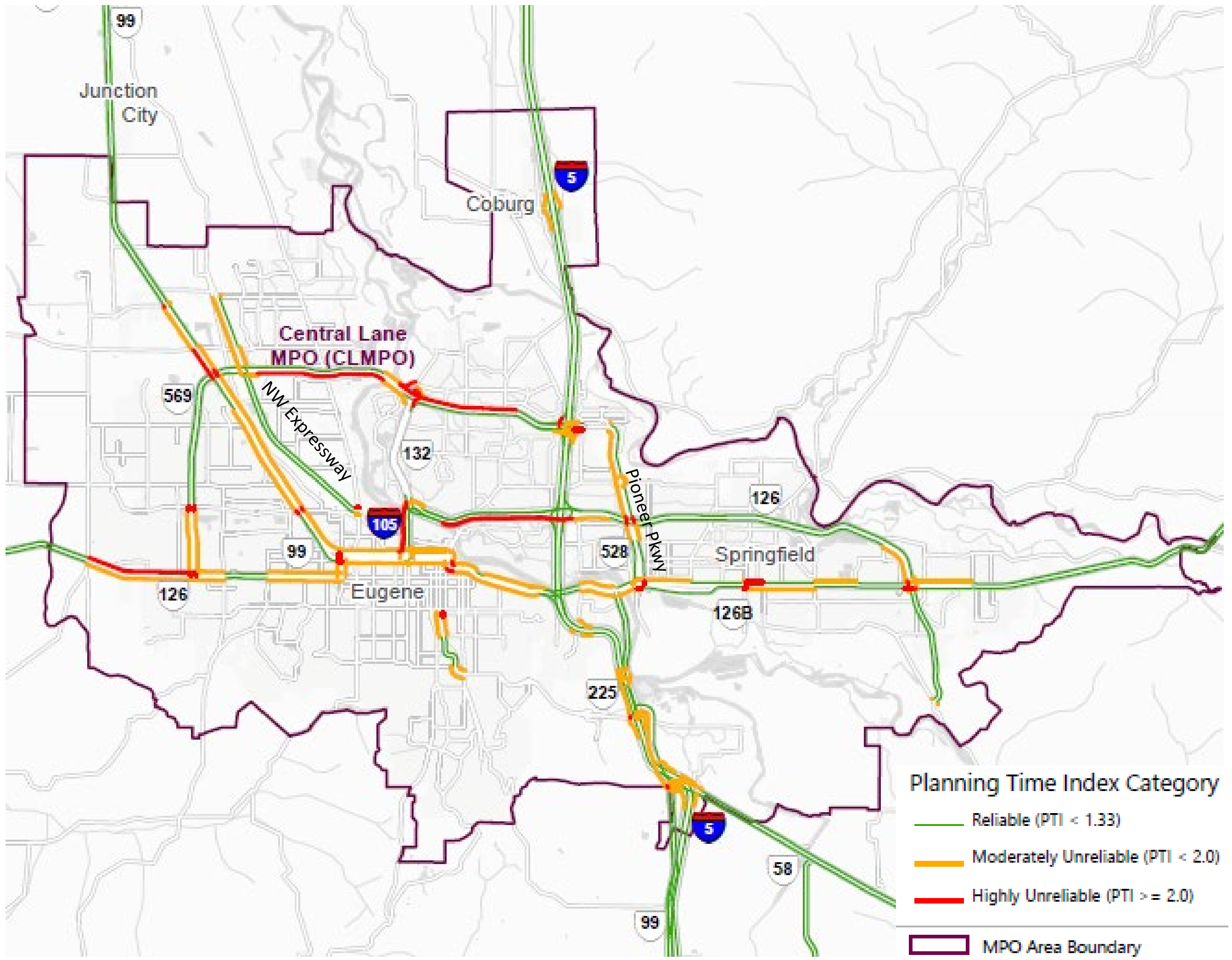


CLMPO

The Central Lane MPO has moderately unreliable conditions along large portions of the major routes, including OR 99, OR 126, I-105, OR 569 (Beltline Highway), OR 528 (Pioneer Parkway), several I-5 interchanges, OR 126B in Springfield and the Northwest Expressway segment north of OR 569.

Highly or extremely unreliable conditions occur at several locations on OR 569, I-105 east bound, OR 99, OR 126 east of I-5 and OR 126B in Springfield.

Figure 25. Central Lane MPO Travel Time Reliability: Planning Time Index 2023



CAMPO

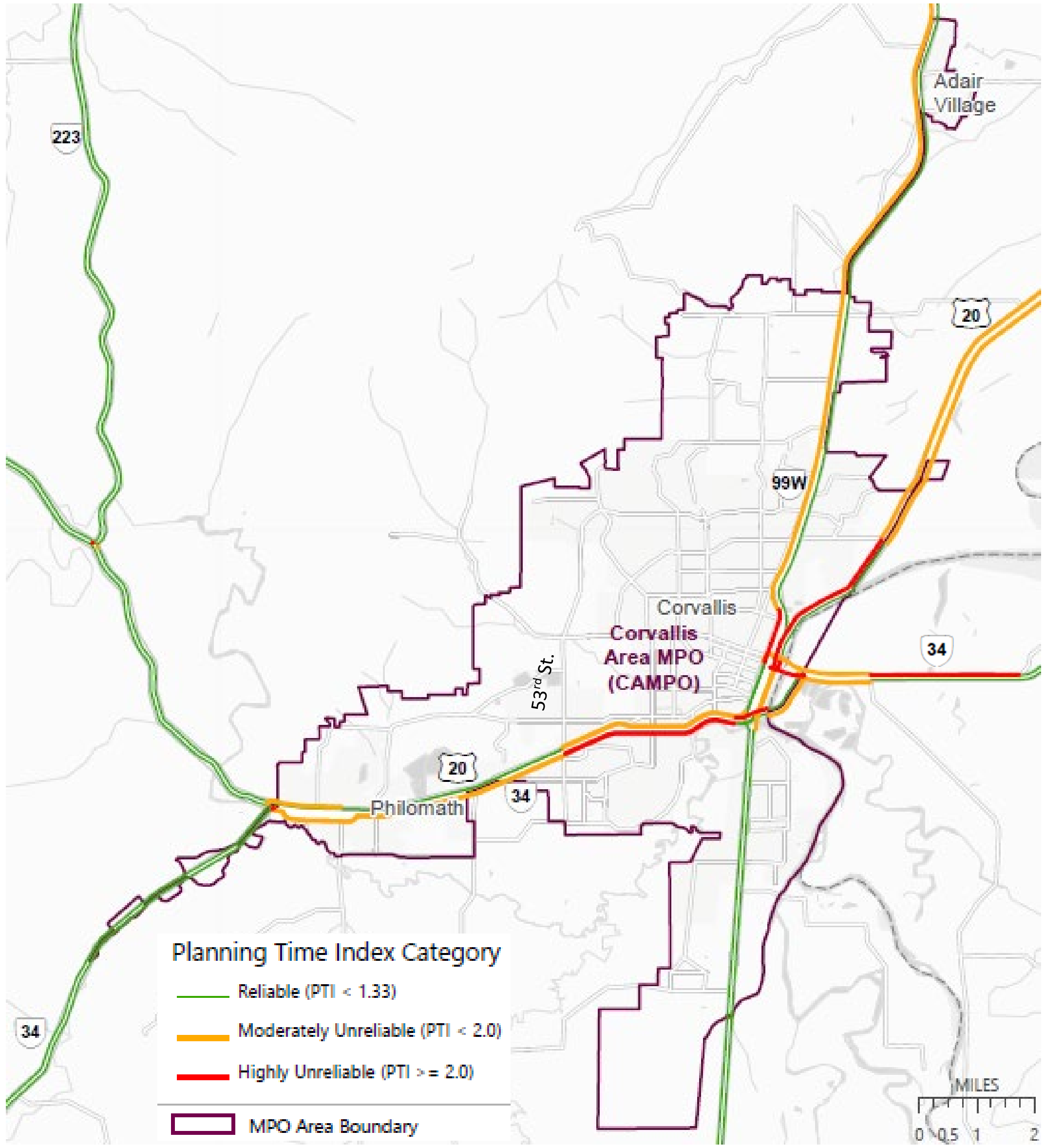
The Corvallis region has moderately unreliable conditions along portions of US 20, OR 99W south bound, and OR 34.

The segment of OR 99W going through the downtown area is highly unreliable.

US 20 has two highly unreliable sections approaching the city from the north and the east bound segment between 53rd Street and downtown.

OR 34 approaching the city from the east is highly unreliable before reaching the Peoria Road intersection. The OR 34 bypass has a highly unreliable segment at the OR 99W interchange.

Figure 26. Corvallis Area MPO Travel Time Reliability: Planning Time Index 2023



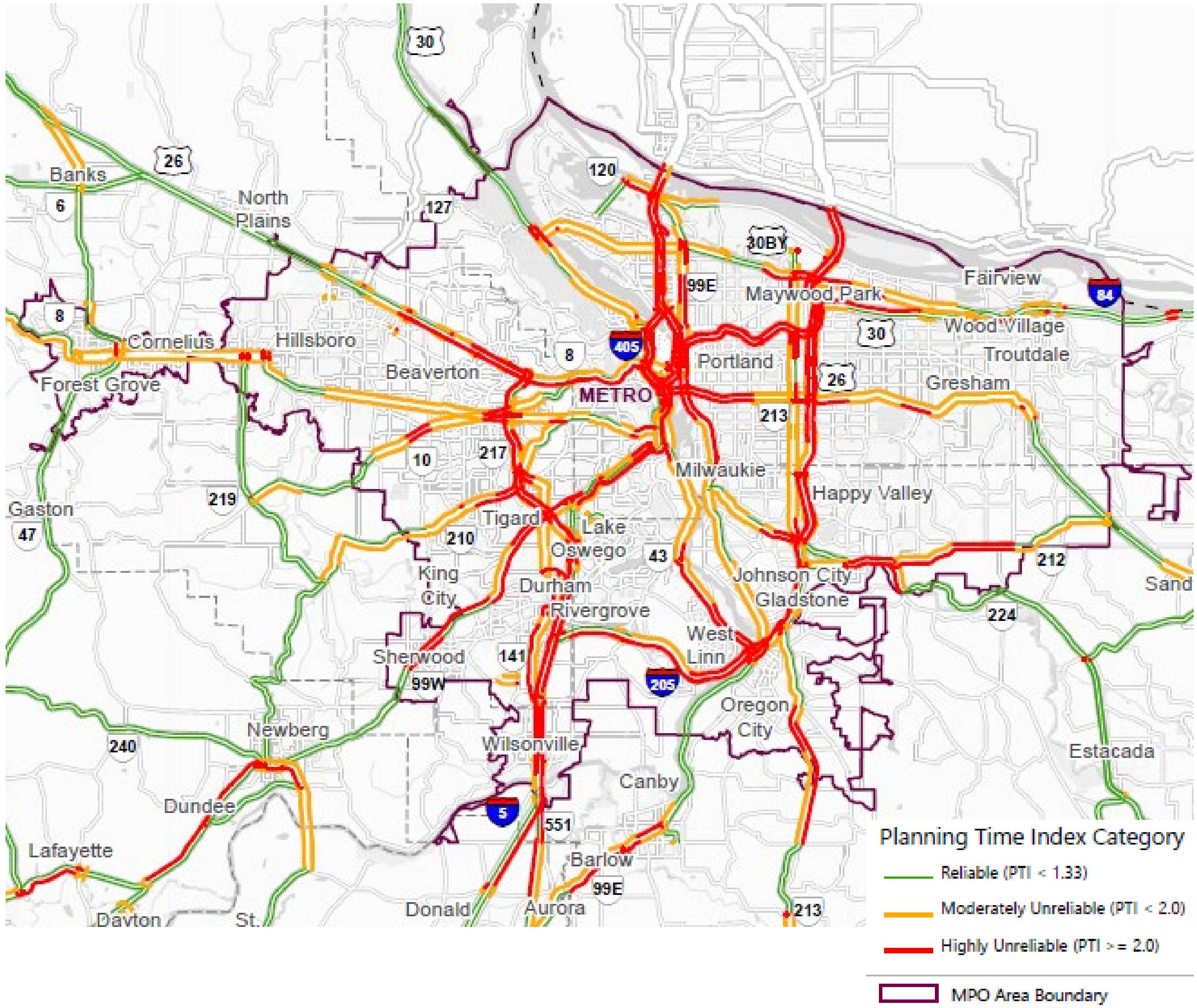
METRO

Metro is home to 39% of state population and has 11% of state-owned highway lane miles. This means there are 1.2 state-owned highway lane miles for every 1000 people living in the Metro region. With continued population and employment growth, this ratio will continue to shrink compared to the statewide average of 4.3 state-owned lane miles for every 1000 people.

When highway lane miles do not increase at the same rate as population, congestion will occur. As congestion rises, there is a tipping point where reliability erodes.

In the Metro region, congestion is widespread and most of the state highway lane miles are highly unreliable.

Figure 27. Portland Metro MPO Travel Time Reliability: Planning Time Index 2023

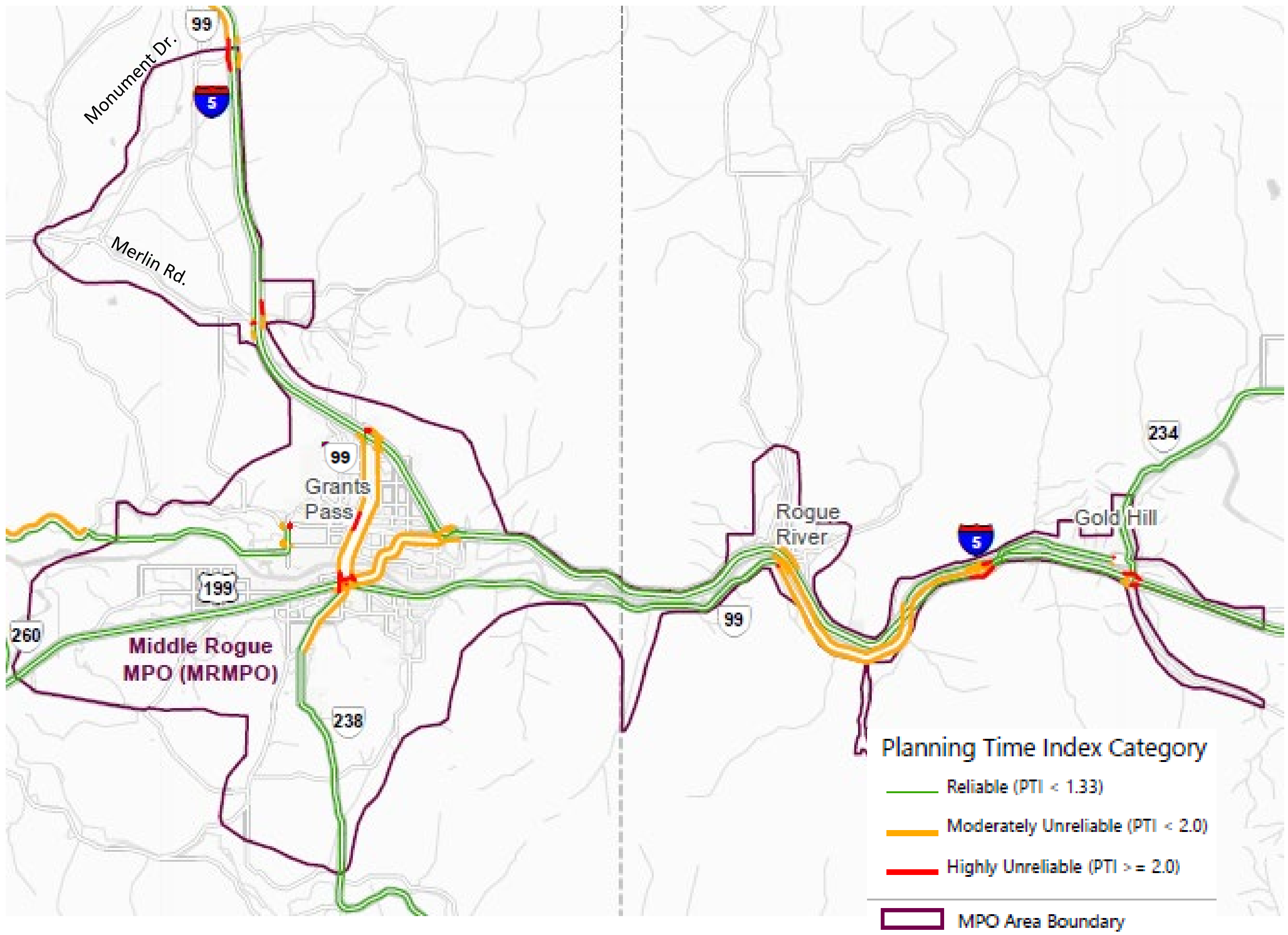


MRMPO

The Middle Rouge MPO has moderately unreliable conditions on OR 99 between 1-5 and the intersection with US 199, on OR 99 between the city of Rogue River and the west end of Gold Hill. There are moderately unreliable conditions on US 199 between I-5 and the intersection with OR 99 and OR 238. North bound OR 238 approaching the intersection with US 199 and OR 99 is moderately unreliable, as well as several interchanges along I-5.

Highly unreliable conditions occur at several interchanges, including OR 99 and US 199, I-5 interchanges at Merlin Road and Monument Drive, US 199 in Grants Pass and west of Gold Hill, and at Gold Hill.

Figure 28. Middle Rogue MPO Travel Time Reliability: Planning Time Index 2023

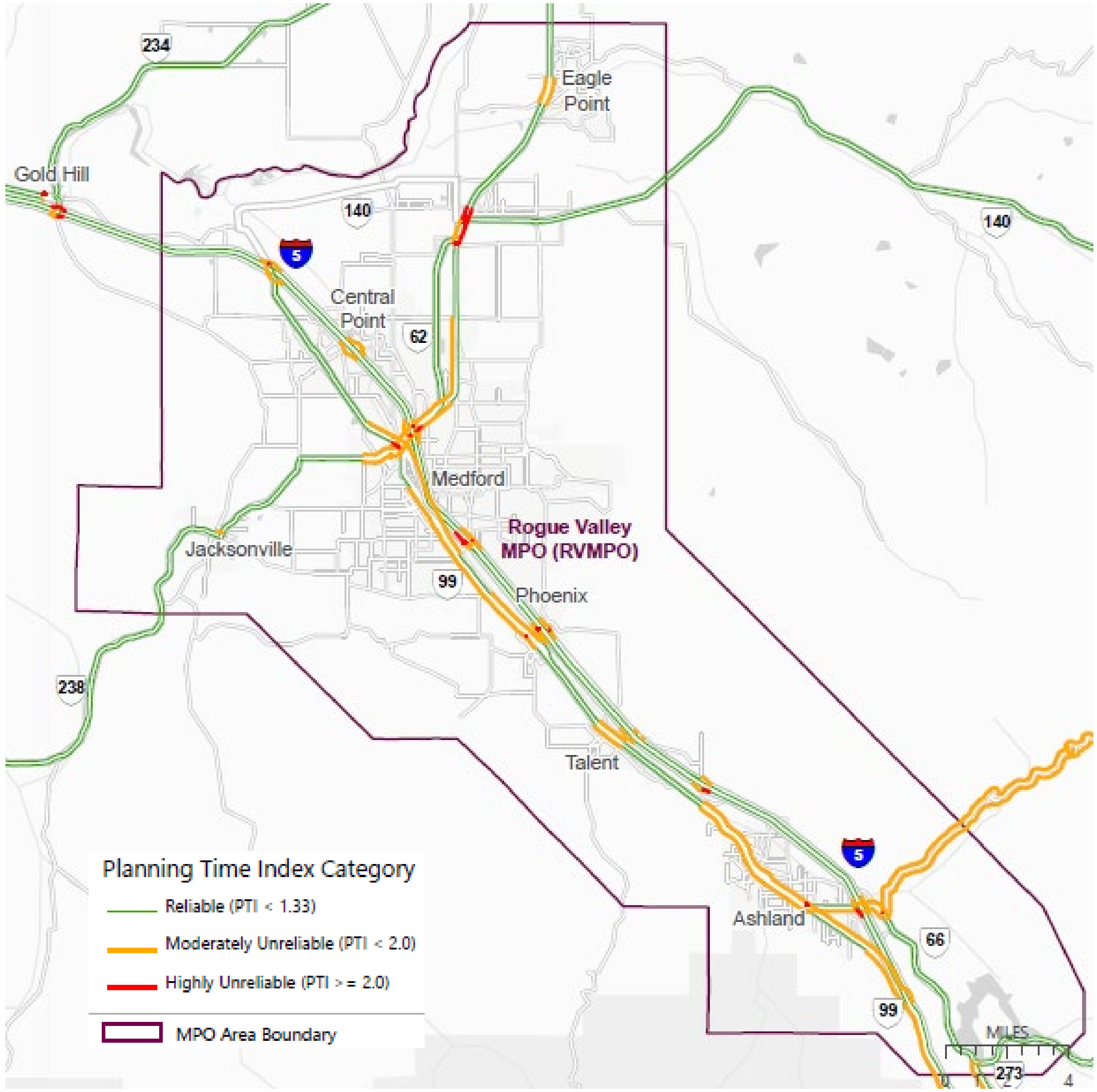


RVMPO

The Rouge Valley MPO has moderately unreliable conditions on OR 99, OR 62, OR 238, and OR 66 east of Ashland.

Locations with high levels of unreliability are located on several I-5 interchanges, the intersection of OR 62 with OR 140, and the intersection of OR 62 and OR 238.

Figure 29. Rogue Valley MPO Travel Time Reliability: Planning Time Index 2023



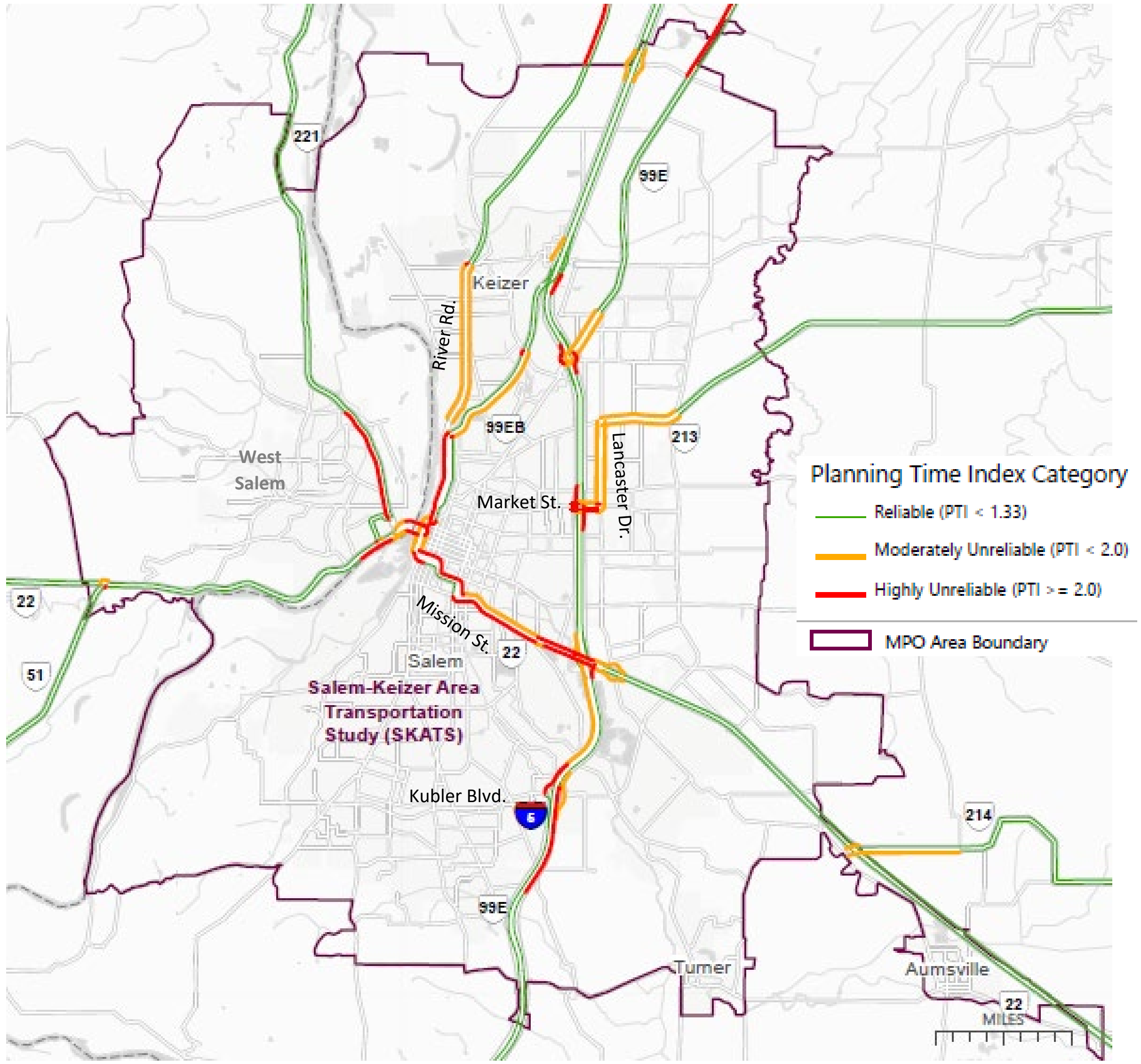
SKATS

The Salem-Keizer area has several locations with moderate unreliability, including OR 99EB/OR 22 (Mission St.), 99EB, Lancaster Drive between Market Street and OR 213, OR 213, I-5, OR 99E and OR 214 east bound.

There are several locations with highly unreliable travel times, including the I-5 interchanges at OR 99E, Market Street, and OR 22. The I-5 interchange at Kuebler Boulevard and approaching highway segments are highly unreliable.

OR 99EB/OR 22 through the City of Salem is highly unreliable between I-5 and West Salem approaching the Willamette River. OR 221 is highly unreliable south bound in West Salem and on OR 22 east bound. OR 99 approaching the city center from the north is also highly unreliable.

Figure 30. Salem-Keizer Area Transportation Study Travel Time Reliability: Planning Time Index 2023



3.2.3 Causes of Congestion

Congestion has several causes, and sometimes multiple causes occur at the same time, for example bad weather and incidents. Conditions vary seasonally and large events like wildfires and flooding can create extensive delays quickly. The information presented in this section was prepared using the RITIS platform and INRIX speed data. Data used includes Interstates, U.S. routes, Oregon routes, interchanges, and city and county arterials with sufficient data for reporting. The category of “other” in RITIS was excluded because the classification system maintained by the RITIS vendors does not always match federal functional classifications precisely.

The RITIS platform uses a data fusion algorithm to identify, quantify, and categorize congestion instances. Congestion is included here when speeds drop below 60% of free-flow for 5 minutes or more, and delay is calculated compared to free-flow travel times. The purpose is to identify causes of congestion statewide and in MPOs to illustrate how patterns vary across the state. The data reports conditions for the counties in which the MPOs are located. Oregon’s 8 MPO counties represent 78% of statewide population and account for about 85% of the congestion delay. **Table 11** presents descriptions of the causes of congestion. **Figures 31-39** illustrate the causes of congestion delay statewide and for each MPO.

TABLE 11. DEFINITIONS OF CONGESTION CAUSES

Causes of Congestion	Description
Recurring	*Recurring delay* is delay that is predictable and caused by high demand, such as peak periods of the day.
Signal Ops	Delay created by traffic signal operations; signals play a major role operating a safe and efficient transportation system to accommodate a variety of users. This is a special case of recurring delay.
Weather	Delay caused by weather events, such as flooding, wildfires, and storms.
Incidents	Delay caused by crashes and other events that cause traffic to slow.
Work Zone	Work zones often include lane closures or other temporary capacity reductions and may have reduced speed limits to promote safety for workers and travelers.
Holiday	Holidays impact traffic levels, when there is high demand congestion may occur.
Unclassified	This is delay that has not been attributed to specific causes, but is quantified to monitor congestion.

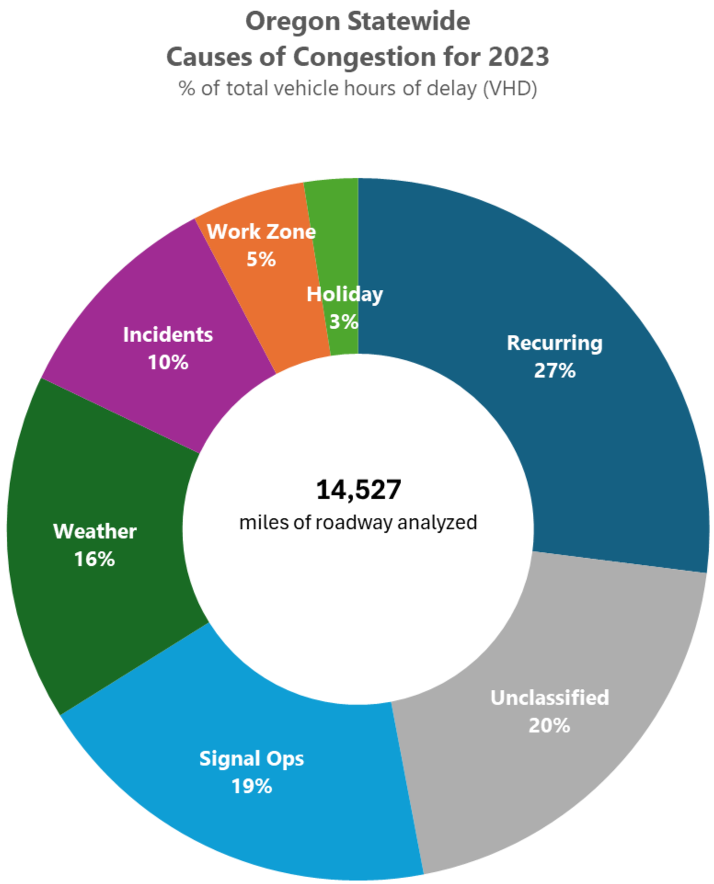
Table 12 summarizes the information provided in **Figures 31-39** to reveal the variation in causes of congestion for the state and MPOs. **Bold font** in the table indicates the largest category associated with delay other than signal operations and unclassified congestion causes. Out of the 8 MPOs, the largest cause of delay category is weather for the 6 MPOs of Albany, Bend, Central Lane, Corvallis, Middle Rogue and Rogue Valley. The largest source of delay for Metro is recurring congestion delay. The largest source of delay for Salem-Keizer is traffic incidents.

TABLE 12. SUMMARY OF CAUSES OF CONGESTION STATEWIDE AND OREGON'S 8 MPOS, 2023

Location	Recurring	Weather	Incidents	Work Zone	Holiday	Signal Ops*	Unclassified**
Statewide (All Counties)	**27%**	16%	10%	5%	2%	19%	20%
Albany MPO (Linn County)	1%	**21%**	13%	2%	2%	39%	22%
Bend MPO (Deschutes County	6%	**8%**	7%	7%	2%	54%	16%
Central Lane MPO (Lane County)	3%	**14%**	7%	3%	3%	33%	38%
Corvallis MPO (Benton County)	3%	**20%**	1%	1%	0%	72%	4%
Metro (Clackamas, Multnomah, & Washington Counties)	**36%**	15%	10%	6%	2%	14%	16%
Middle Rogue MPO (Josephine County)	4%	**24%**	9%	2%	2%	42%	18%
Rogue Valley MPO (Jackson County)	6%	**23%**	7%	5%	2%	30%	27%
Salem-Keizer MPO (Marion County)	3%	13%	**23%**	2%	4%	19%	37%

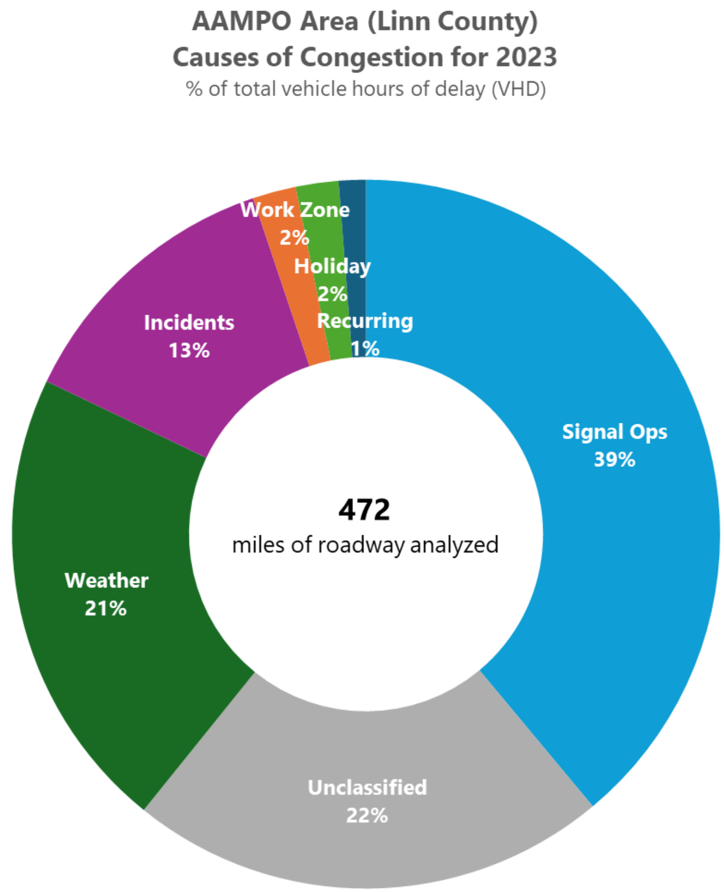
* Signal Operations play a major role in managing a safe and efficient transportation system to accommodate a variety of users. This is a special case of recurring delay that is part of managing the road system.
** Unclassified is defined as instances when a cause could not be determined.

Figure 31



If multiple causes identified, delay was allocated to the most explanatory cause in this order: **Incidents**, **Work Zone**, **Weather**, **Signal Operations**, **Holiday**, **Reoccurring**, **and** **Unclassified**.

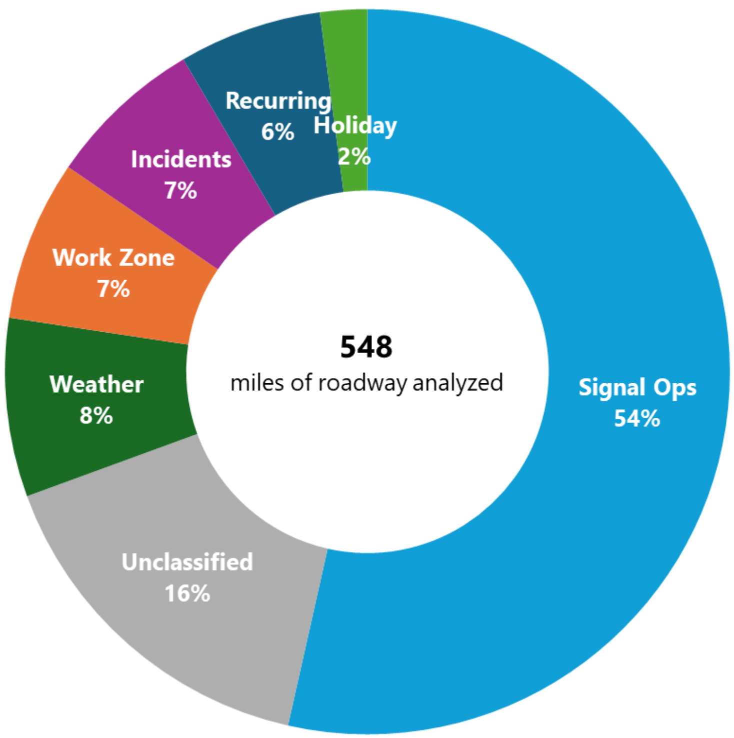
Figure 32



If multiple causes identified, delay was allocated to the most explanatory cause in this order: **Incidents**, **Work Zone**, **Weather**, **Signal Operations**, **Holiday**, **Reoccurring**, **and** **Unclassified**.

FIGURE 33

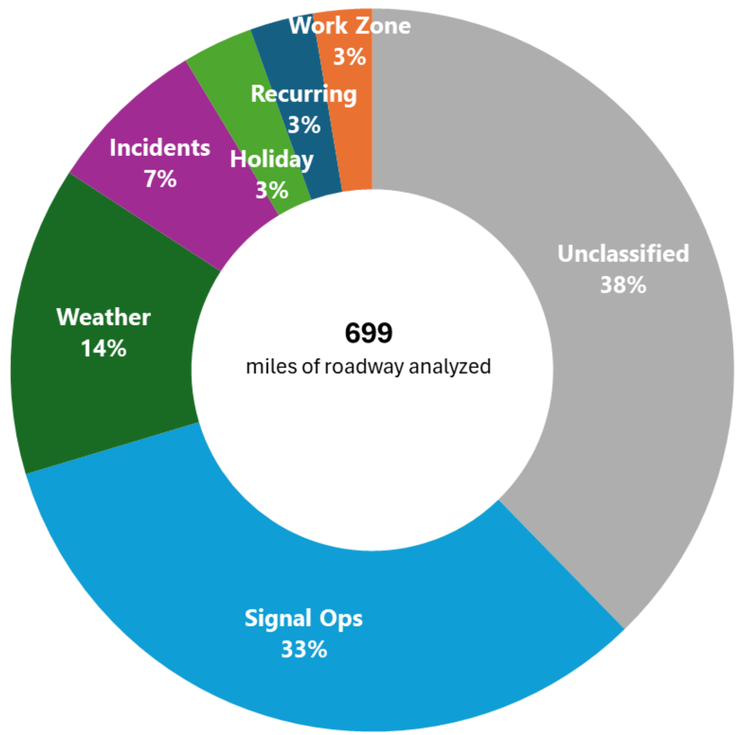
BMPO Area (Deschutes County)
Causes of Congestion for 2023
% of total vehicle hours of delay (VHD)



If multiple causes identified, delay was allocated to the most explanatory cause in this order:
Incidents, **Work Zone**, **Weather**, **Signal Operations**, **Holiday**, **Reoccurring**, **and** **Unclassified**.

FIGURE 34

CLMPO Area (Lane County)
Causes of Congestion for 2023
% of total vehicle hours of delay (VHD)



If multiple causes identified, delay was allocated to the most explanatory cause in this order:
Incidents, **Work Zone**, **Weather**, **Signal Operations**, **Holiday**, **Reoccurring**, **and** **Unclassified**.

FIGURE 35

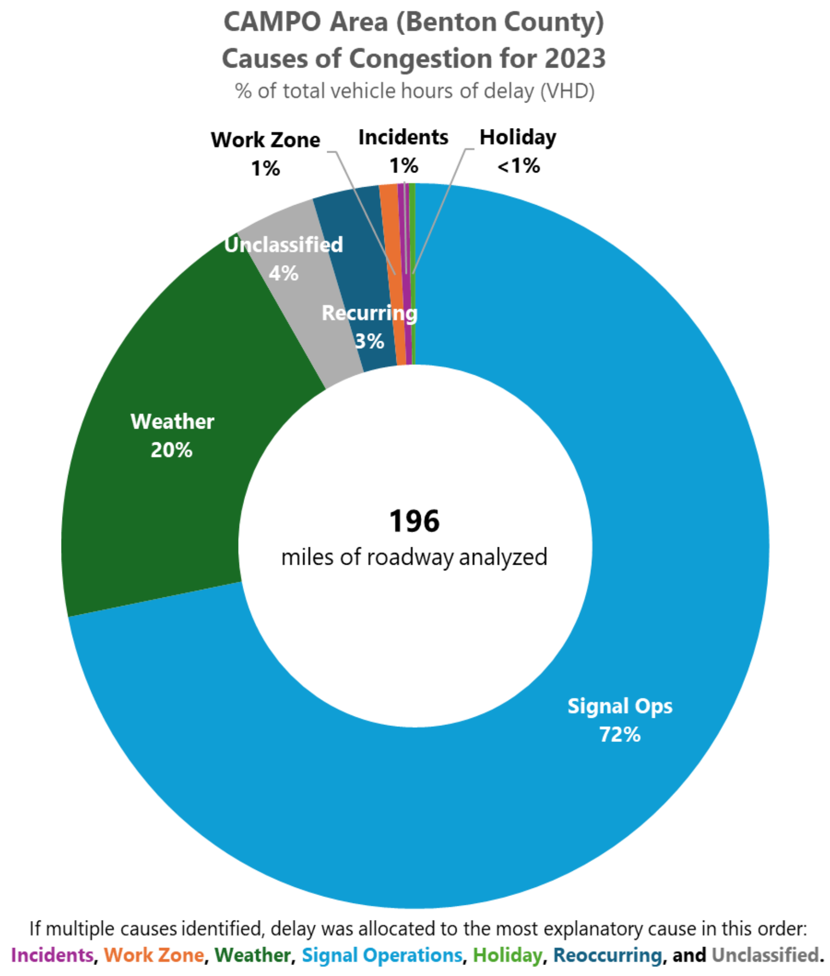


FIGURE 36

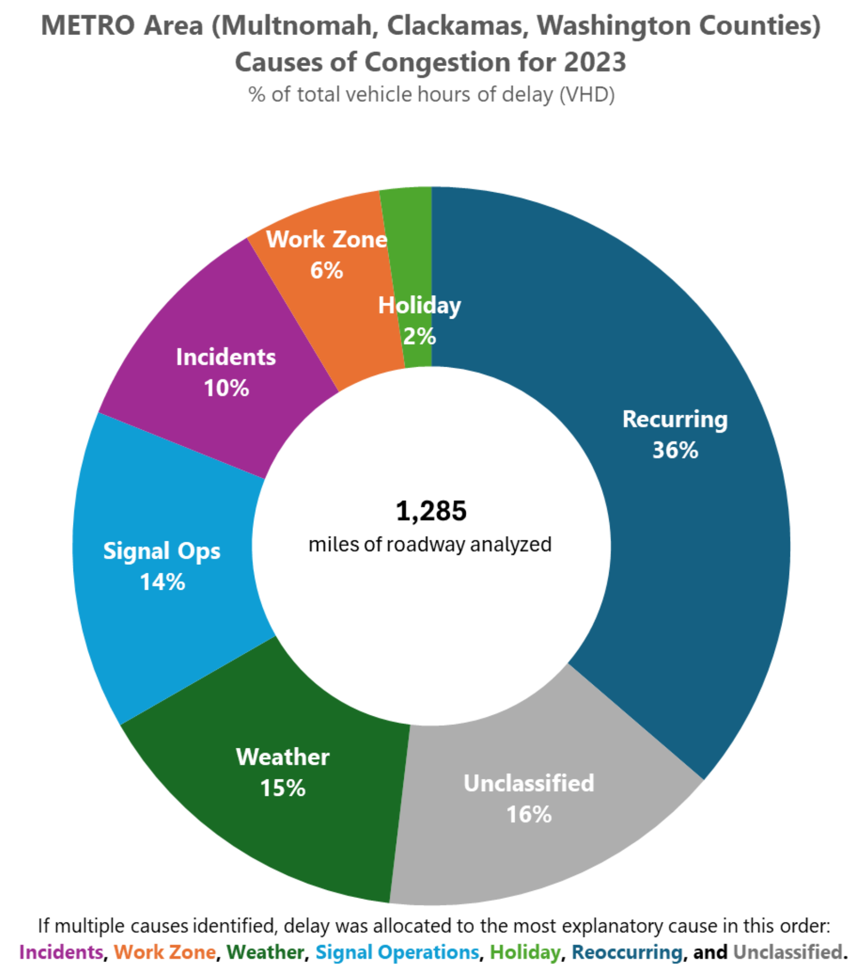
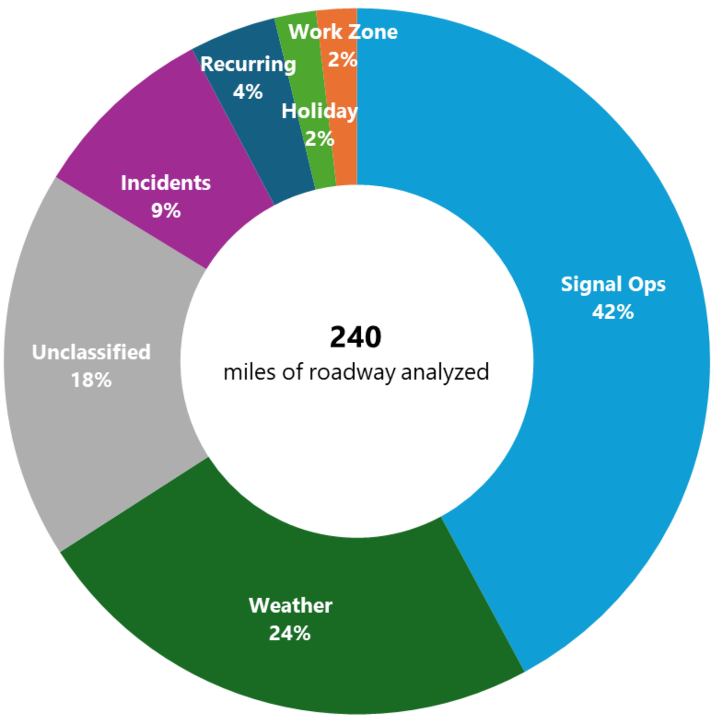


FIGURE 37

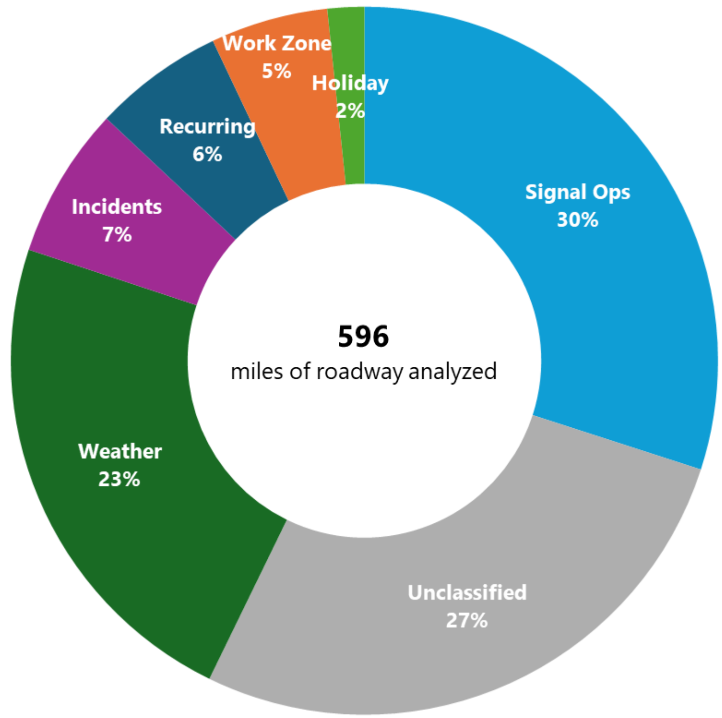
MRMPO Area (Josephine County)
Causes of Congestion for 2023
% of total vehicle hours of delay (VHD)



If multiple causes identified, delay was allocated to the most explanatory cause in this order: **Incidents**, **Work Zone**, **Weather**, **Signal Operations**, **Holiday**, **Reoccurring**, **and Unclassified.**

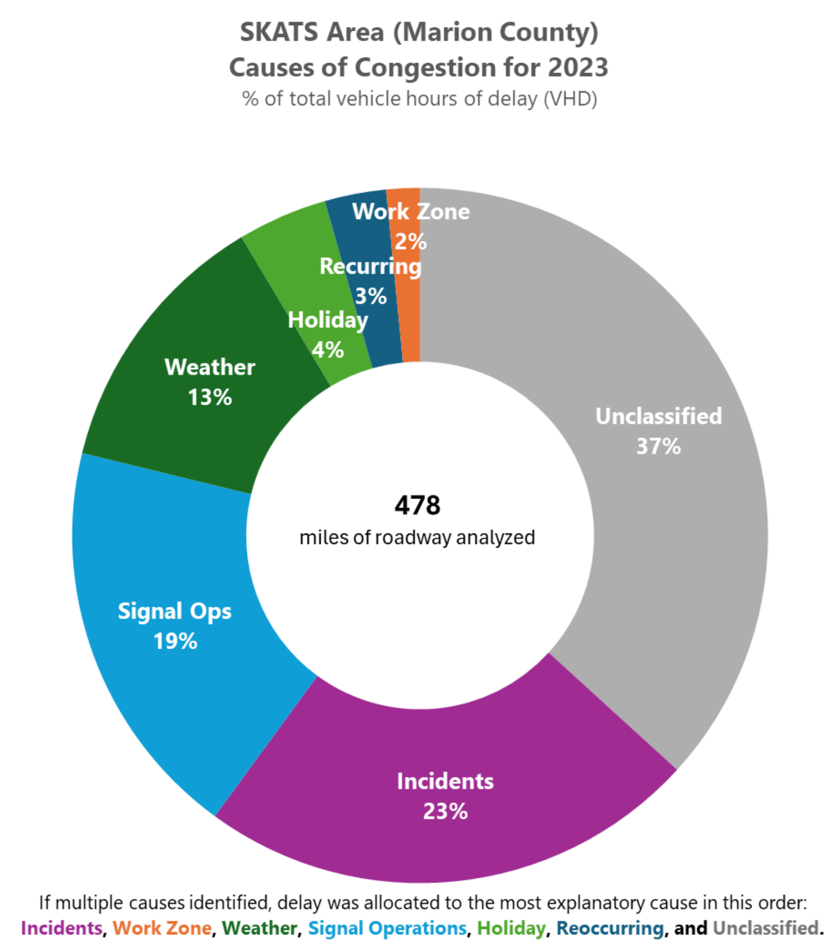
FIGURE 38

RVMPO Area (Jackson County)
Causes of Congestion for 2023
% of total vehicle hours of delay (VHD)



If multiple causes identified, delay was allocated to the most explanatory cause in this order: **Incidents**, **Work Zone**, **Weather**, **Signal Operations**, **Holiday**, **Reoccurring**, **and Unclassified.**

FIGURE 39


SKATS Area (Marion County)
Causes of Congestion for 2023
% of total vehicle hours of delay (VHD)
Work Zone
2%
Recurring
3%
Holiday
4%
Weather
13%
Unclassified
37%
478
miles of roadway analyzed
Signal Ops
19%
Incidents
23%
If multiple causes identified, delay was allocated to the most explanatory cause in this order:
Incidents, Work Zone, Weather, Signal Operations, Holiday, Reoccurring, and Unclassified.

3.2.4 Truck Reliability

Freight movement within Oregon relies heavily on the highway system, 70% of freight moves by truck and 78% of heavy truck VMT occurs on the state highway system. Developing performance measures specifically designed to identify freight mobility is challenging at best – observed truck data is hard to obtain, the few existing sources have limited detail due to the confidential nature of a competitive industry. Transporting freight requires reliable travel times, predictable congestion can be planned for in delivery schedules. Unpredictable congestion results in late deliveries, firms incur penalty fees and risk losing customers. Unreliable travel times require firms to adapt by putting more trucks on the road to deliver the same quantity of goods on time, cargo typically stored in trucks on the road are stored in warehouses as the number of daily stops a truck can make declines. This increases the cost of freight transportation, which is passed on to businesses and consumers. Rising costs erode Oregon's competitive advantage, creating risk to our export-dependent economy.

It is important to understand that commercial travel has different patterns of travel by time-of-day and day-of-week. Public policy aimed at household travel must consider potential impacts to commercial users.

Daniel Murray, current senior vice president and past director of research for the American Transportation Research Institute (ATRI) explains:

> *"From a freight perspective, the quintessential requirement for succeeding in a global, just-in-time economy is the ability to plan trips, deliveries, and transactions down to hours and minutes—rather than days and weeks. This makes reliability one of the single most important performance measures from a private sector perspective."*[37]

Trucks moving freight and commercial services operate on the same highway system used by cars and buses moving people. Congestion and unreliable performance affect all highway users alike. Measures such as the Travel Time Index and Planning Time Index reveal the worst locations. Resolving these problem locations will help all highway users. There are specific freight bottleneck locations that have been identified within Oregon in the "Oregon Freight Highway Bottleneck Project Final Report"[38]. There have been national bottleneck studies as well, including the American Transportation Research Institute's (ATRI) "2024 Top 100 Truck Bottlenecks"[39] where Portland is listed as having the 28th (I-5 at I-84) and 30th (I-5 Columbia River crossing) worst locations in the nation.

When it comes to measuring the impacts of congestion and unreliable conditions on medium trucks and other commercial travel, very little is known due to a lack of data reporting on these specific users. However, commercial travel makes up a large proportion of overall VMT. According to national

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[37] Public Roads, Volume 68, Issue 3, page 56.
[38] https://www.oregon.gov/ODOT/Planning/Documents/FHBL_Final-Report.pdf
[39] https://truckingresearch.org/2024/02/top-100-truck-bottlenecks-2024/

research[40], an estimated 35% of total VMT is from commercial travel and 65% is household travel. Ten percent of national VMT is heavy trucks and 25% is light/medium truck commercial travel. It is important to understand that commercial travel has different patterns of travel by time-of-day and day-of-week. Public policy aimed at managing congestion must consider impacts to commercial travel, freight movement and household travel.

4 CONCLUSION

The transportation system is the Oregon economy in motion. The objective is to enable people to safely access jobs, services and goods for the current and future growing population, an important thing to note since Oregon's population is growing faster than the national average. Businesses depend on the transportation system to access employees, customers and the goods and services needed to conduct their business activity. Every person, business, commodity, and industry have different needs from the transportation system. Accommodating a variety of needs while maintaining safety and reliability within a constrained budget requires strategic decision making and the acknowledgement of necessary trade-offs. All economic "agents" must balance trade-offs, whether it is done by households, businesses or public agencies. Establishing a good understanding of the underlying economic motivations and decision criteria utilized by transportation system users supports the development of effective solutions and informed investment decisions.

[40] https://www.nap.edu/resource/25334/interstate/assets/meeting6/1%20Travel%20Forecast/PolzinSteven.pdf

Appendix A. RITIS Methodology

This appendix summarizes methodology details for the speed-based analysis performed using the Regional Integrated Transportation Information System (RITIS) Probe Data Analytics (PDA) Suite.

The INRIX Real-Time Traffic data product used is a licensed commercial model based on a wide variety of high-frequency probe vehicle inputs including in-vehicle connected telematics, GPS devices, Location-Based Services on mobile phones, commercial vehicle logging hardware, and others. The acquired raw data is then aggregated and anonymized. The data provider monitors the movement of the probes as they travel across a stretch of roadway called a segment, or TMC (Traffic Message Channel). The amount of time it takes for the probes to travel across a segment can be used to derive near real-time traffic speeds and travel times that can be archived for look-back analysis and performance reporting. Probe data can cover a much broader roadway network area than traditional Intelligent Transportation System (ITS) point-sensors data collection.

More info on RITIS can be found at https://www.oregon.gov/odot/Data/Pages/RITIS.aspx .

Congestion and Reliability Maps

The analysis in this report uses the RITIS platform tool "Trend Maps" and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1-hour timescale for each hour of the day between 5AM and 10PM. *The map displays results for the hour of the day with the most congested conditions, which is determined independently for each road segment*. Each segment is calculated by direction, then assigned levels of congestion and reliability following the range presented in **Table 1** and **Table 2** below. These category values were developed based on industry practice and professional judgement.

Maps show the INRIX TMC network, which includes both State and a subset of non-State roadways. Interstate routes, U.S. routes, Oregon routes, interchanges, city and county arterials with sufficient data for reporting were reported. Within RITIS, this represents all TMC road classes except "Other." The MPO and County maps show all TMCs retrieved, the Statewide map shows only segments with an INRIX Functional Road Class (FRC) value of 1, 2, or 3. This allows the display to focus on higher classification roadways for legibility. In addition, staff at ODOT Regions and MPOs were given the opportunity to review maps and identify locations with nonsensical results to be explored further.

The Travel Time Index (TTI) is used as a recurring congestion delay performance measure. The TTI quantifies congestion for a typical weekday. It compares travel during the most congested hour of the day to travel in free-flow conditions.

Table 1.

Congestion Level	Travel Time Index Value	Interpretation
No Congestion	Less than 1.2	Average travel time is no more than 20% above free flow time
Moderate Congestion	1.2 ≤ TTI < 1.5	Average travel time is between 20% to 50% more than free flow time
Heavy Congestion	1.5≤ TTI <2.0	Average travel time is between 50% and 99% more than free flow time
Severe Congestion	Greater than or equal to 2.0	Average travel time is more than double free flow time

Planning Time Index (PTI) is used as a reliability performance measure. The Planning Time Index (PTI) captures the worst days of traffic. It compares travel 95th percentile conditions (approximately the most congested day of a month) to travel during free-flow conditions.

Table 2.

Reliability Level	Planning Time Index Value	Interpretation
Reliable	Less than 1.33	Average planning time on the worst day of the month is no more than 33% longer than free flow time.
Moderately Unreliable	1.33 ≤ PTI < 2.0	Average planning time on the worst day of the month is more than 33% longer and less than double that of free flow time.
Highly Unreliable	Greater than or equal to 2.0	Average planning time on the worst day of the month is twice as long or more than free flow time.

Causes of Congestion Charts

The information presented in these charts was prepared using the RITIS tool "Causes of Congestion Graphs." The analysis included all hours of all days in 2023. The TMC segments used includes Interstate routes, U.S. routes, Oregon routes, interchanges, and city and county arterials with sufficient data for reporting. Within RITIS, this includes all TMC road classes except "Other." TMC segments were queried in RITIS using County boundaries as a proxy for MPO boundaries, as noted on each figure.

The Causes of Congestion Graph algorithm is described in more detail in the RITIS on-platform methodology help documentation. In short, the tool fuses INRIX speed data with signal locations from Open Street Map, incident and work zone data from ODOT and Waze, vehicle volume data from ODOT, and weather data from NOAA. Instances of delay are identified and categorized with this algorithm if speeds go below 60% of historical free flow for 5 minutes or longer. Once an instance of delay is identified, the vehicle hours of delay are compared against an expected speed of the historical free-flow. One or more causes are assigned to the delay instance based on spatial matching to traffic signals, incidents, work zones, and/or weather events. In addition, the delay is compared to historical patterns to identify if it is recurring or non-recurring.

If multiple causes were identified, the delay was allocated to the most likely explanatory cause in this order: Incidents, Work Zone, Weather, Signal Operations, Holiday, Recurring, and Unclassified. This order was determined based on analytical experience and professional judgement.

Appendix B. County Travel Time Index

This appendix provides the Travel Time Index maps illustrating congestion delay for Oregon's 36 counties. The figure numbers below are hyperlinks that will take you directly to a county map.

FIGURE B1. BAKER COUNTY TRAVEL TIME INDEX, 2023

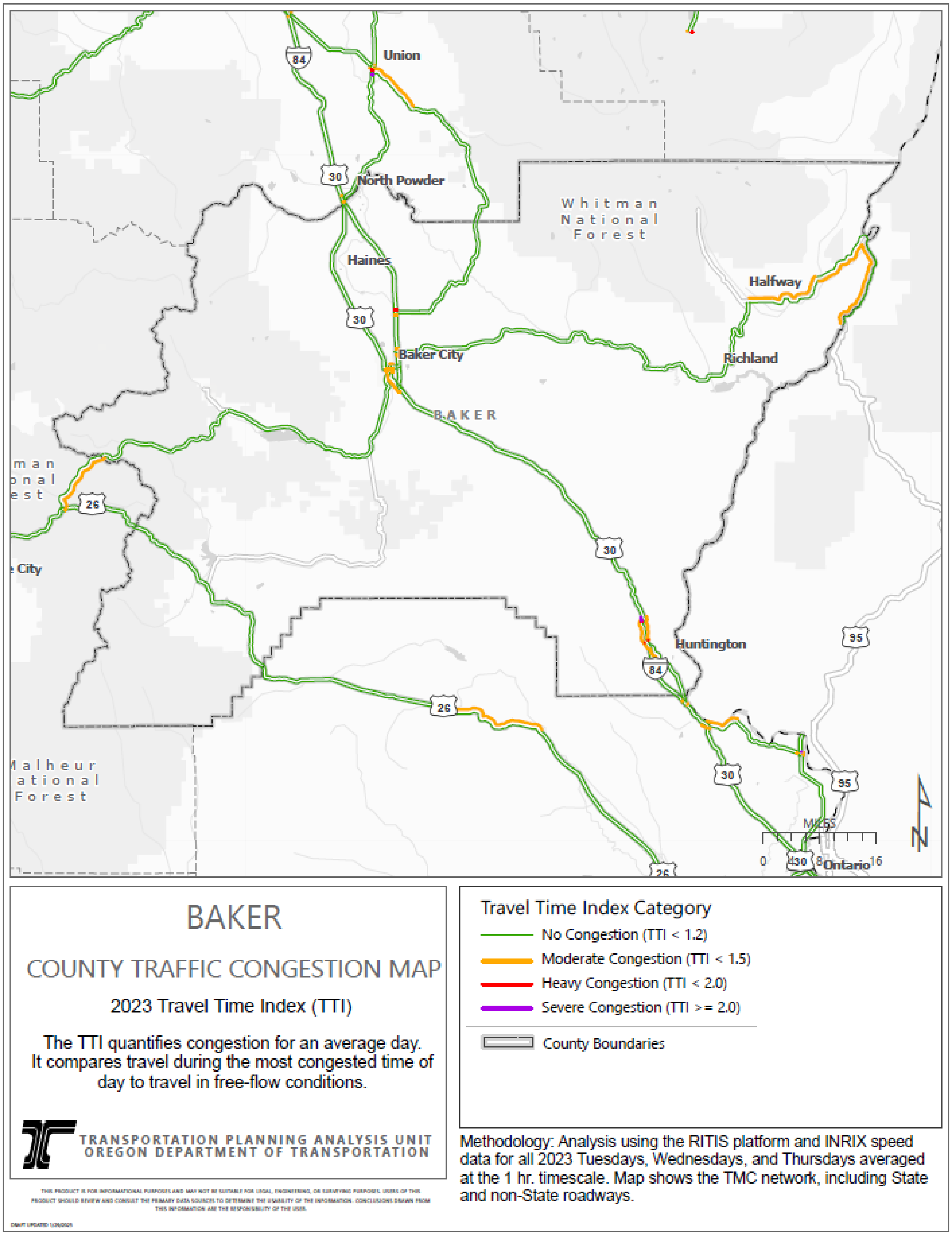


FIGURE B2. BENTON COUNTY TRAVEL TIME INDEX, 2023

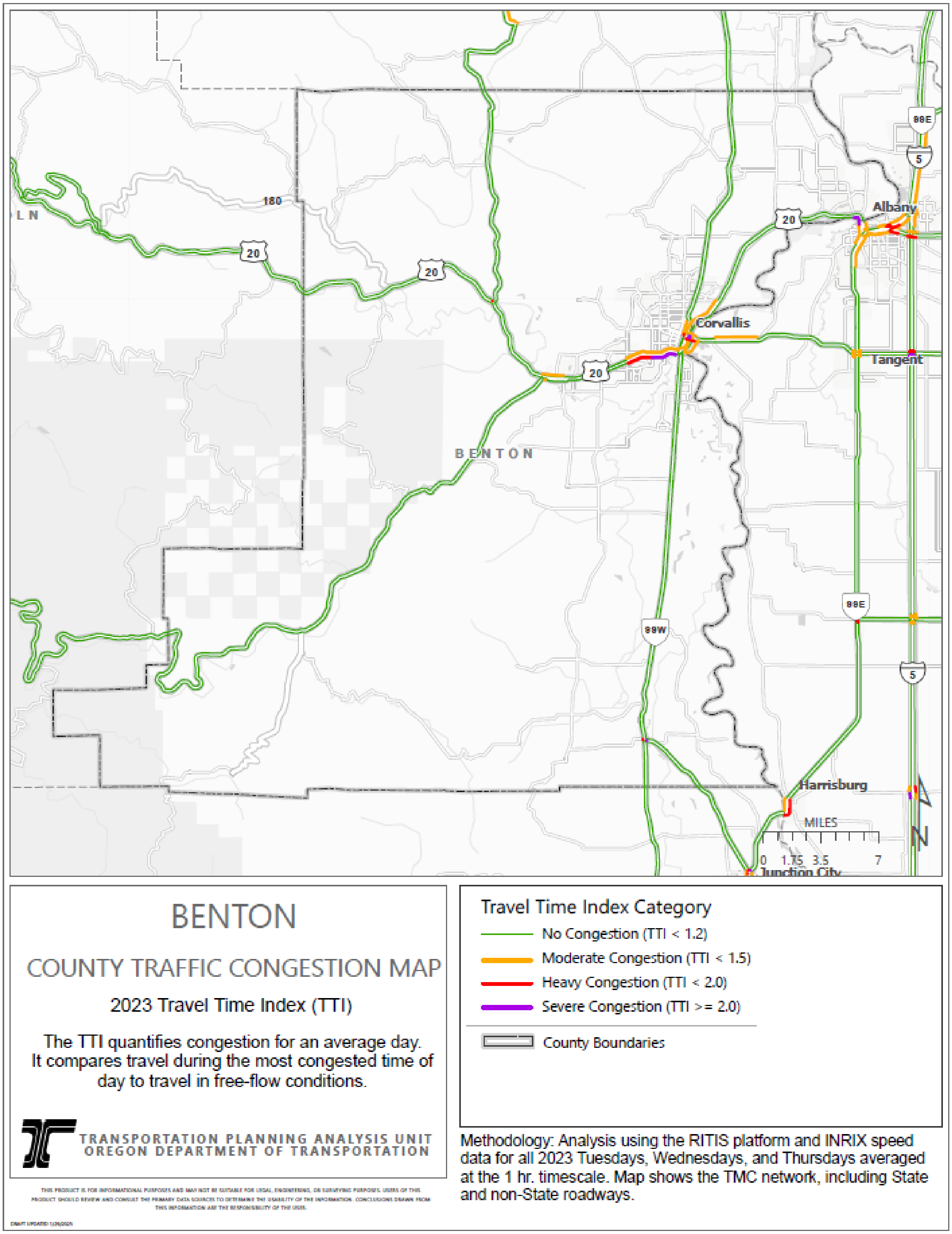


FIGURE B3. CLACKAMAS COUNTY TRAVEL TIME INDEX, 2023

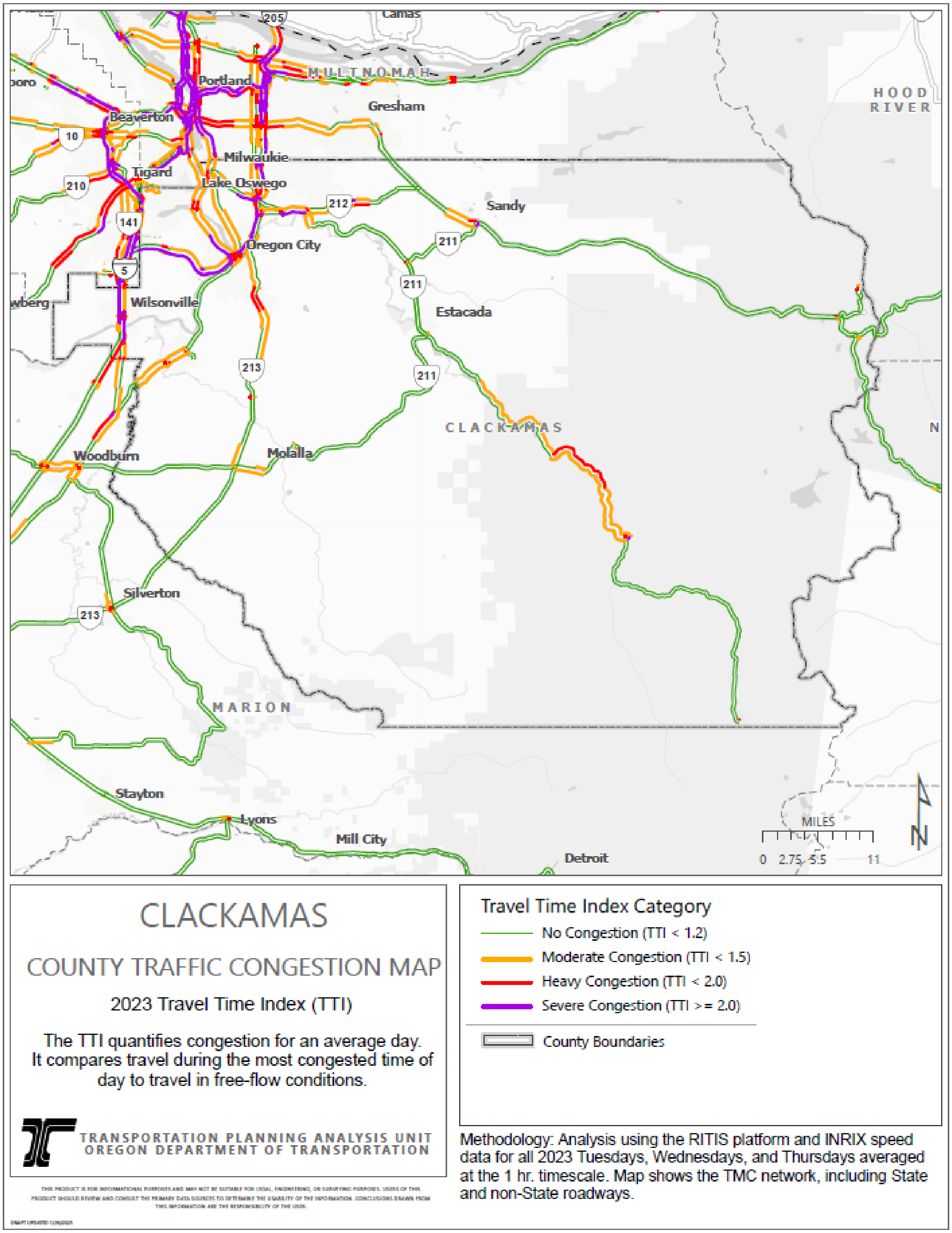


FIGURE B4. CLATSOP COUNTY TRAVEL TIME INDEX, 2023

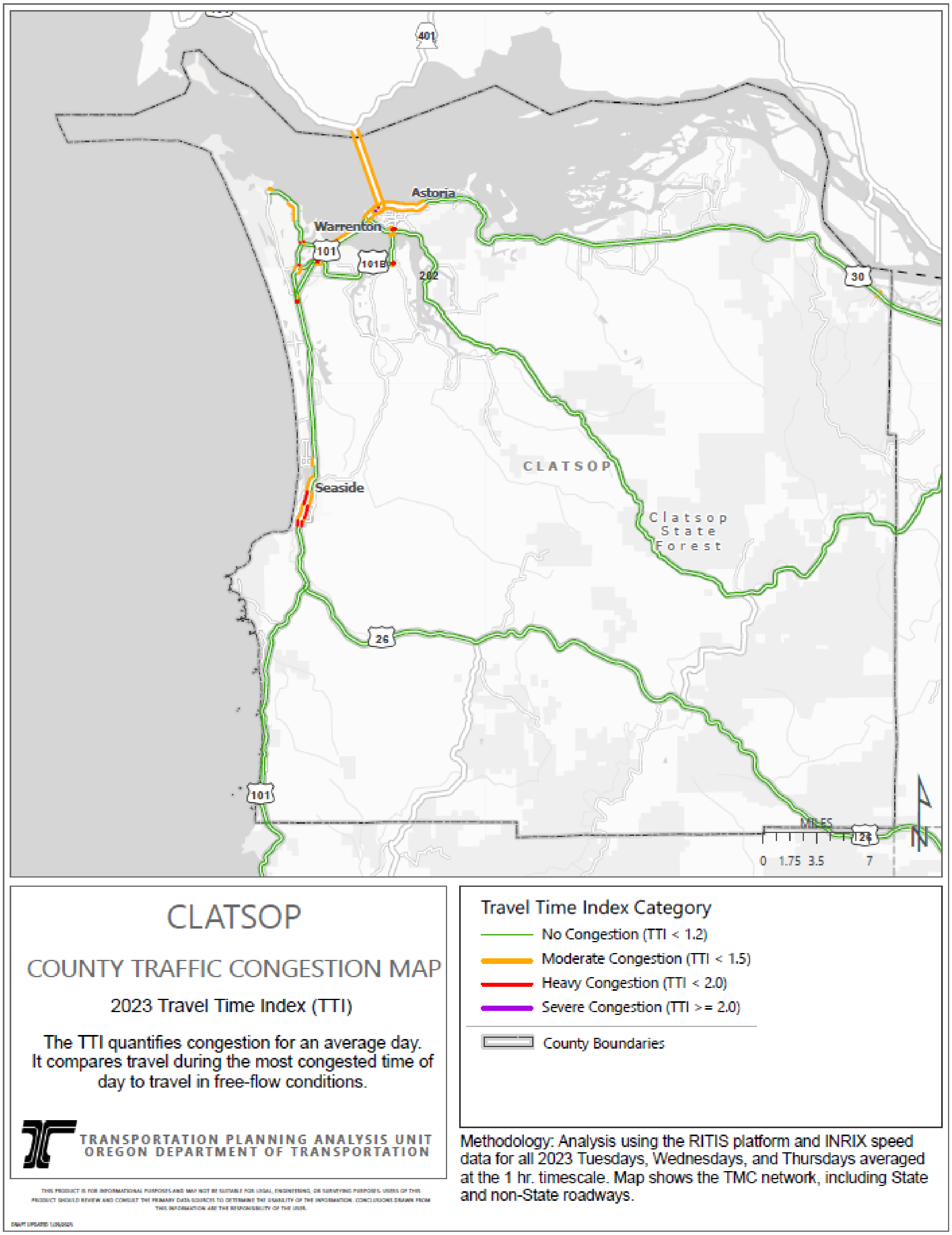
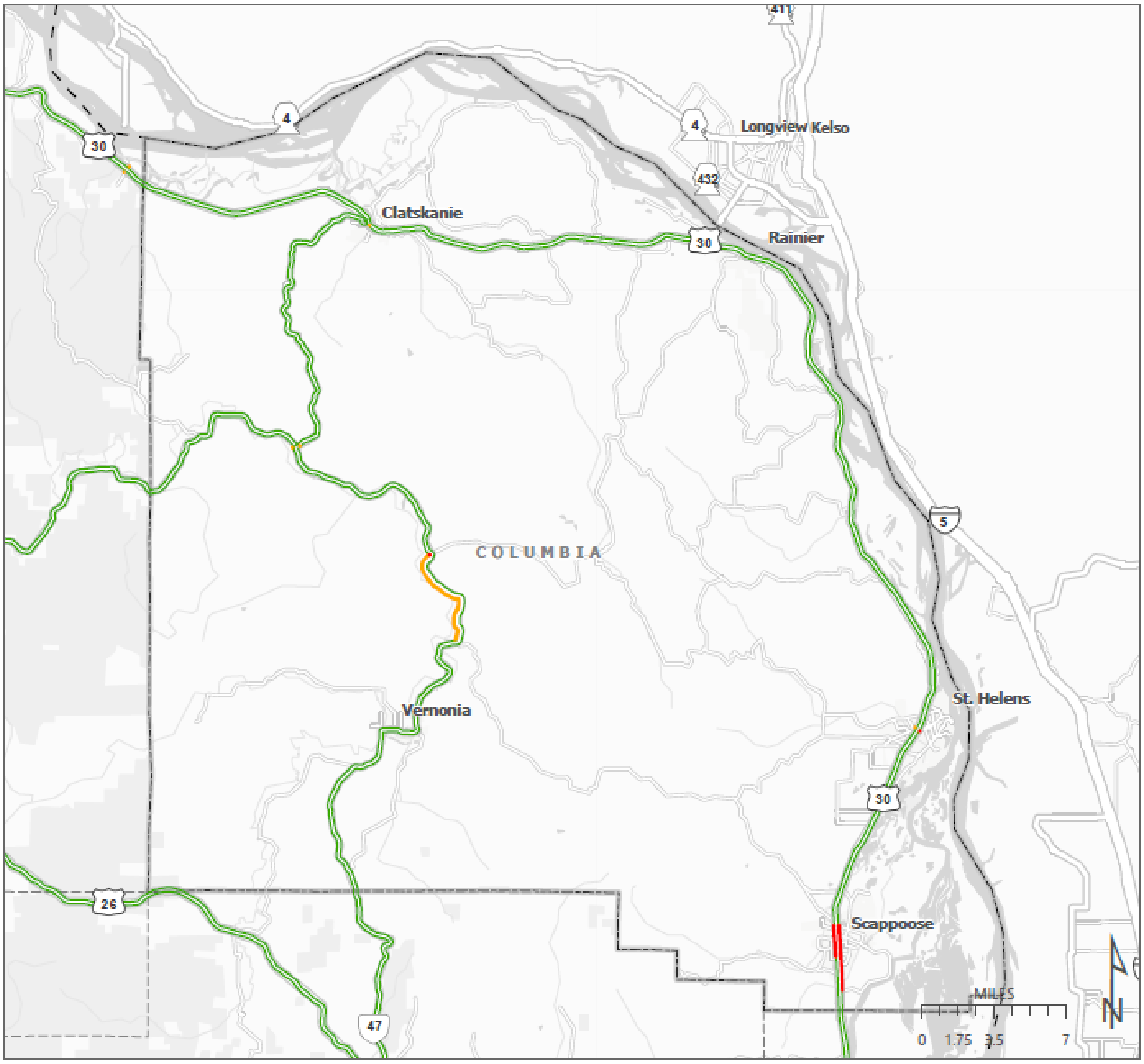


FIGURE B5. COLUMBIA COUNTY TRAVEL TIME INDEX, 2023



COLUMBIA

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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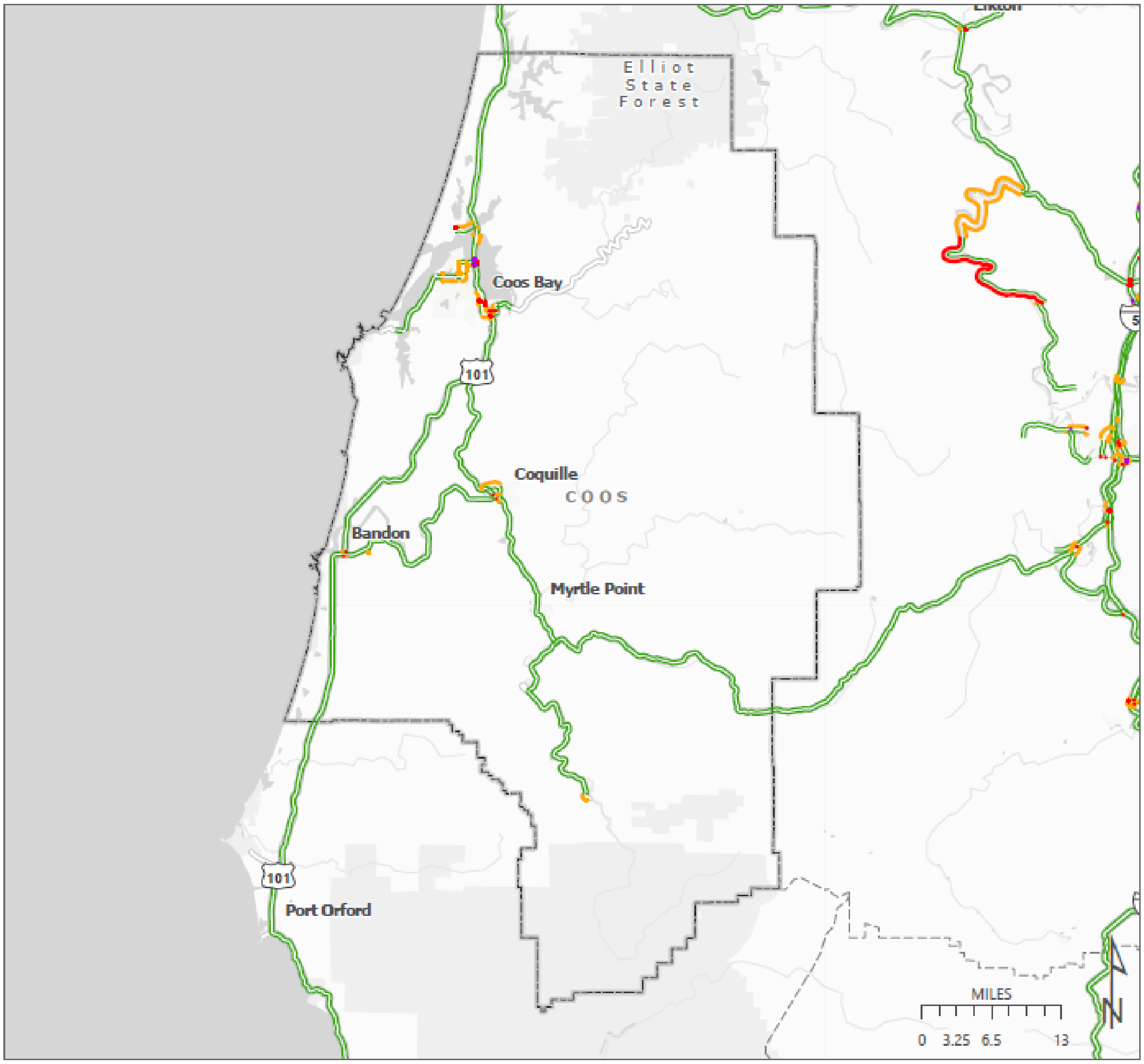
DRAFT UPDATED 1/28/2025

Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

Figure B6. Coos County Travel Time Index, 2023



COOS

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

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FIGURE B7. CROOK COUNTY TRAVEL TIME INDEX, 2023

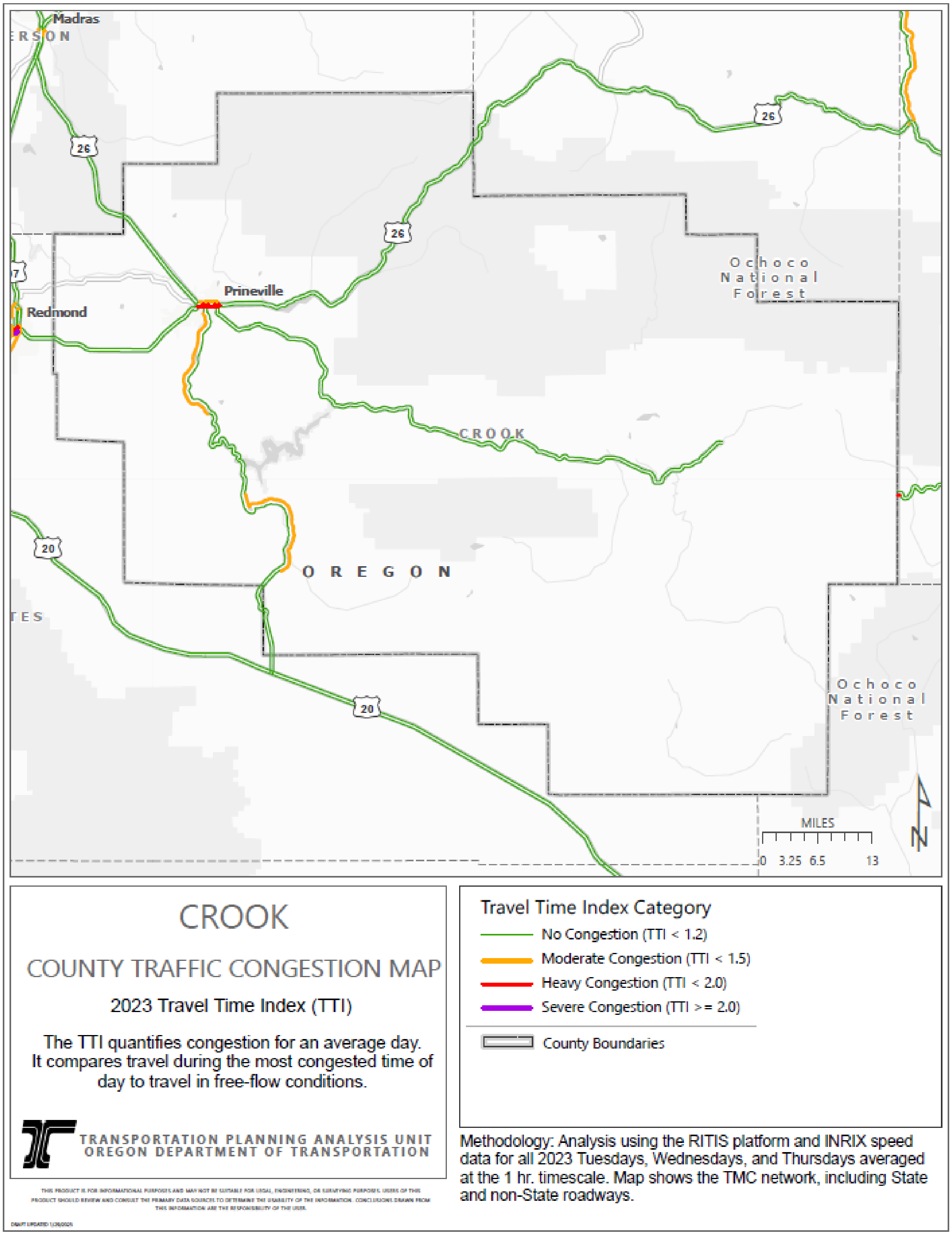


Figure B8. Curry County Travel Time Index, 2023

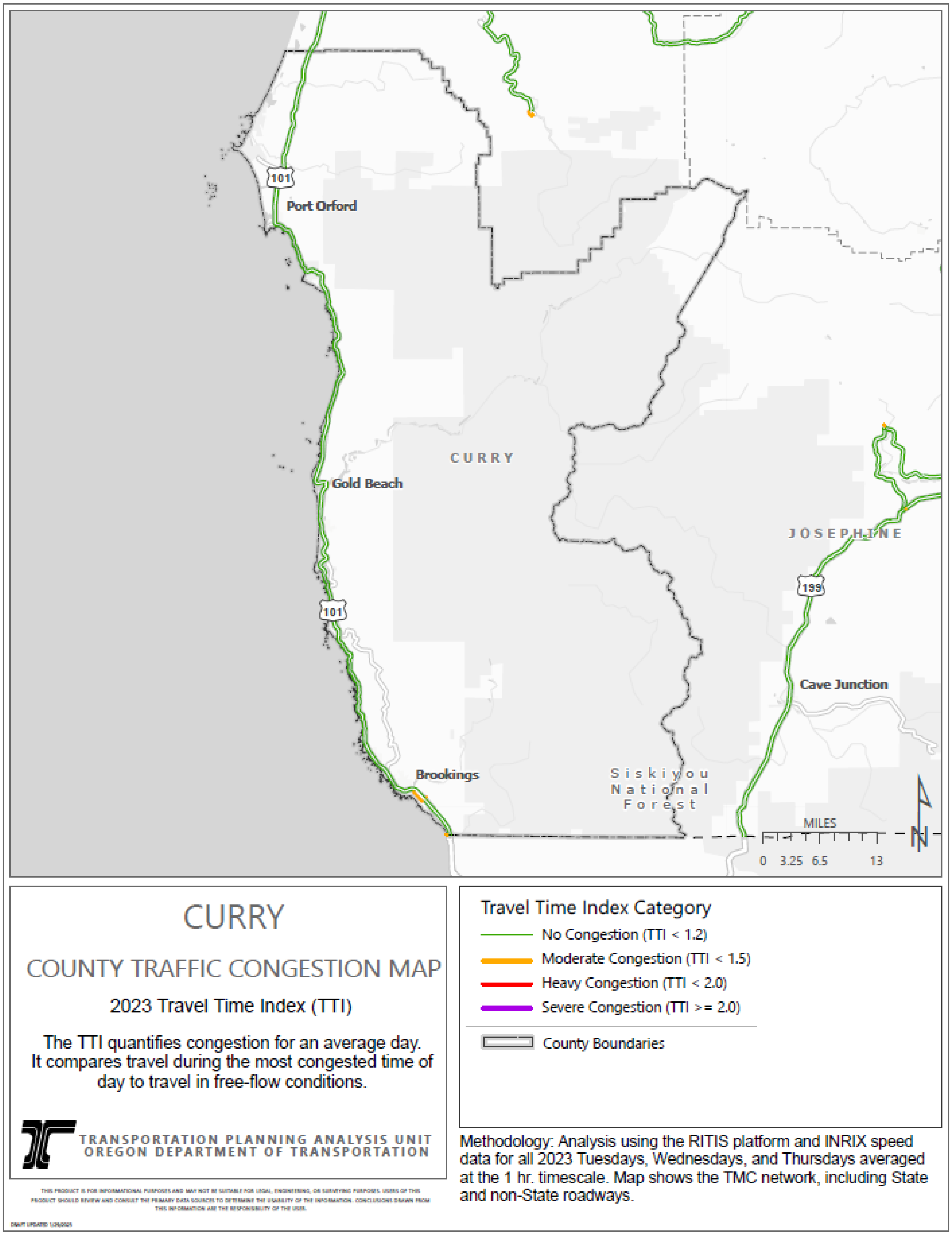


Figure B9. Deschutes County Travel Time Index, 2023

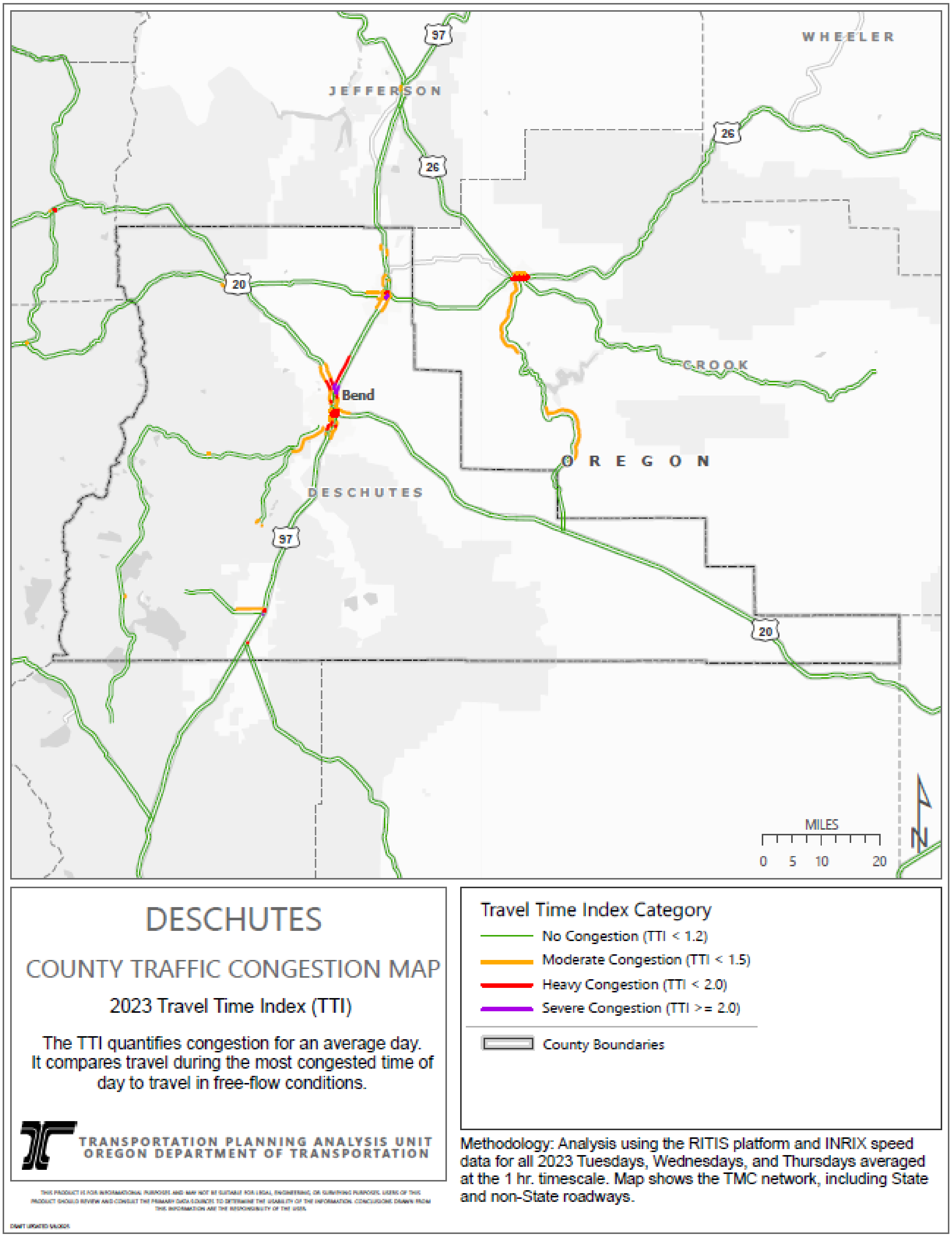
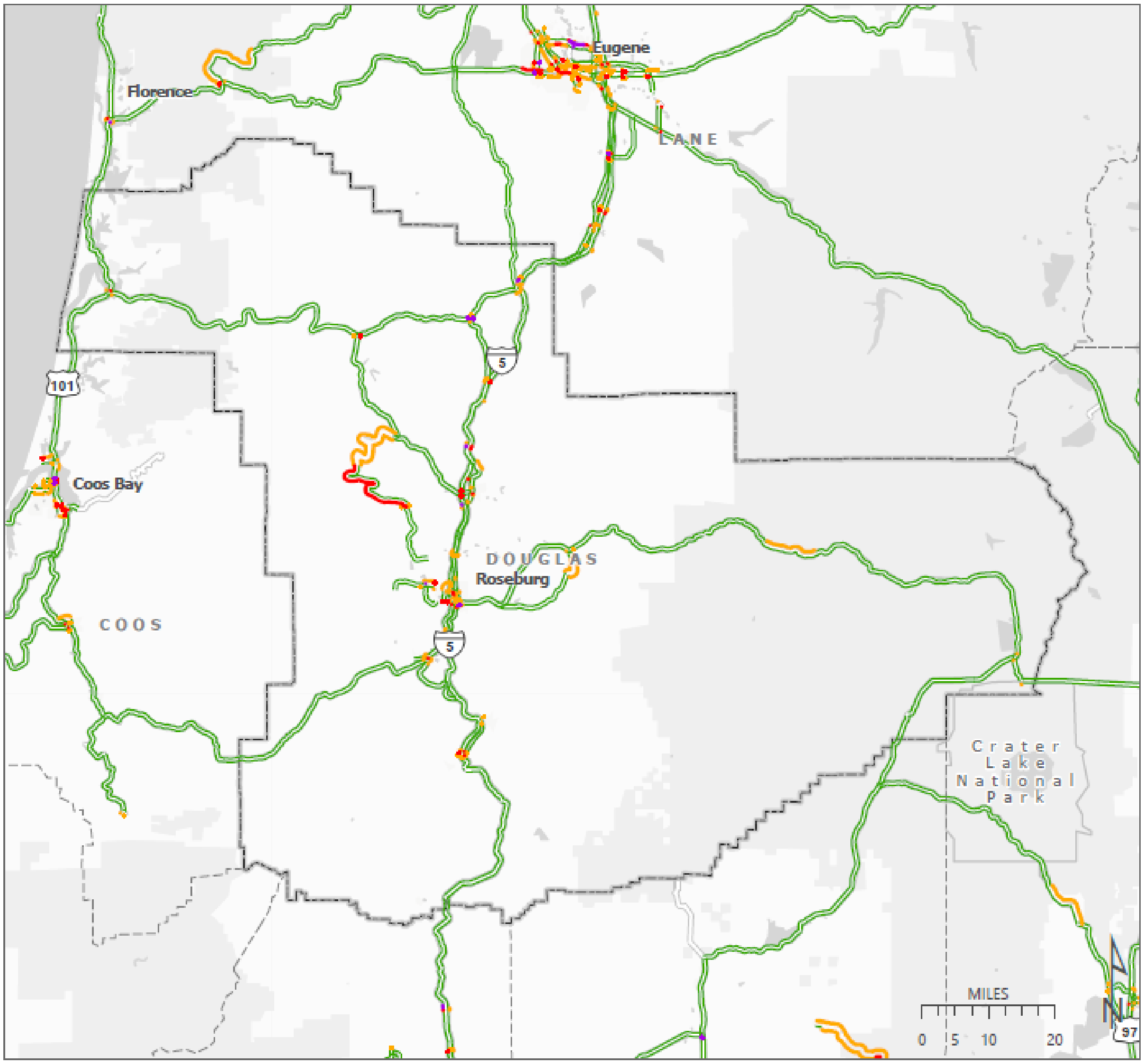


FIGURE B10. DOUGLAS COUNTY TRAVEL TIME INDEX, 2023



DOUGLAS

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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DRAFT UPDATED [illegible]

Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

FIGURE B11. GILLIAM COUNTY TRAVEL TIME INDEX, 2023

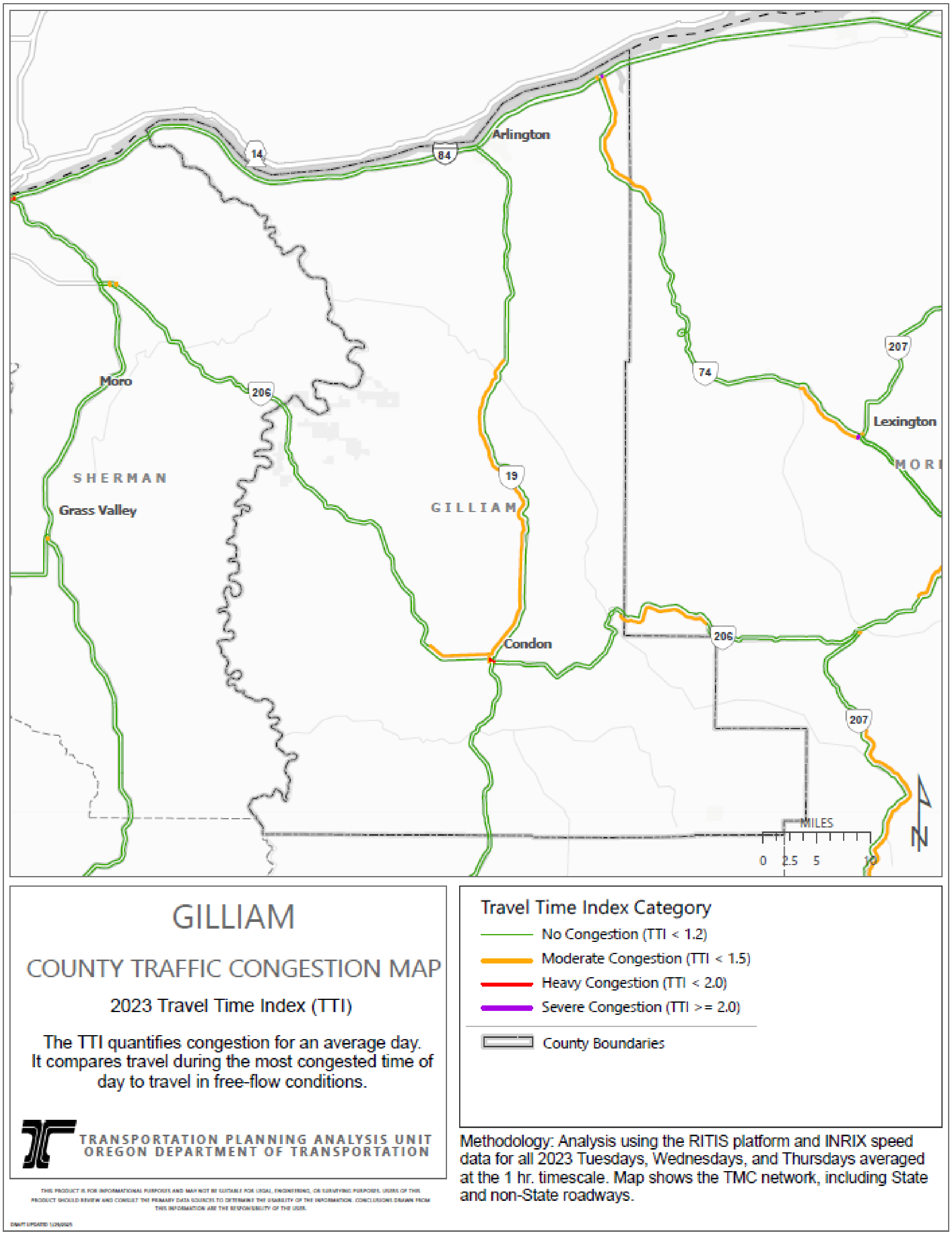


FIGURE B12. GRANT COUNTY TRAVEL TIME INDEX, 2023

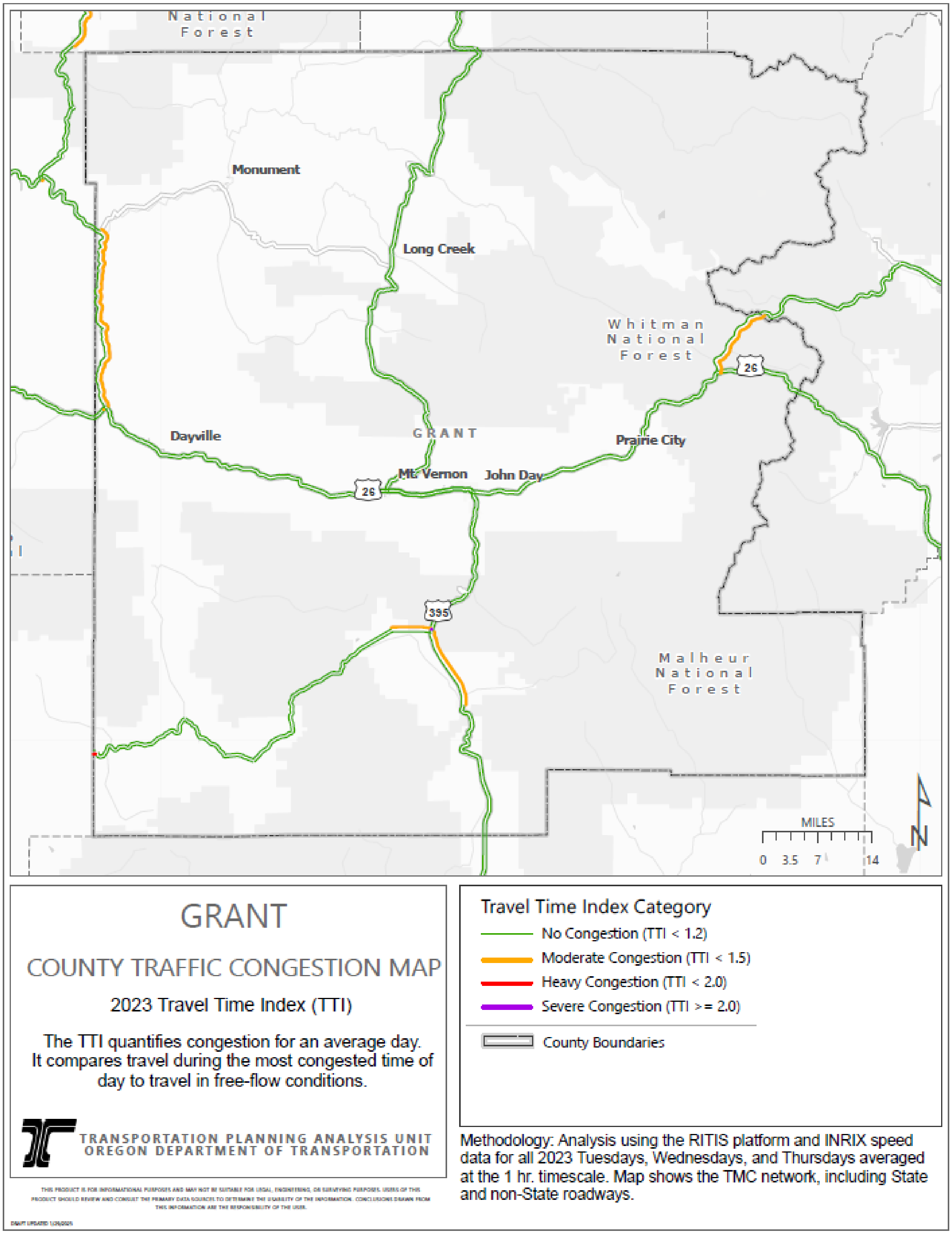


FIGURE B13. HARNEY COUNTY TRAVEL TIME INDEX, 2023

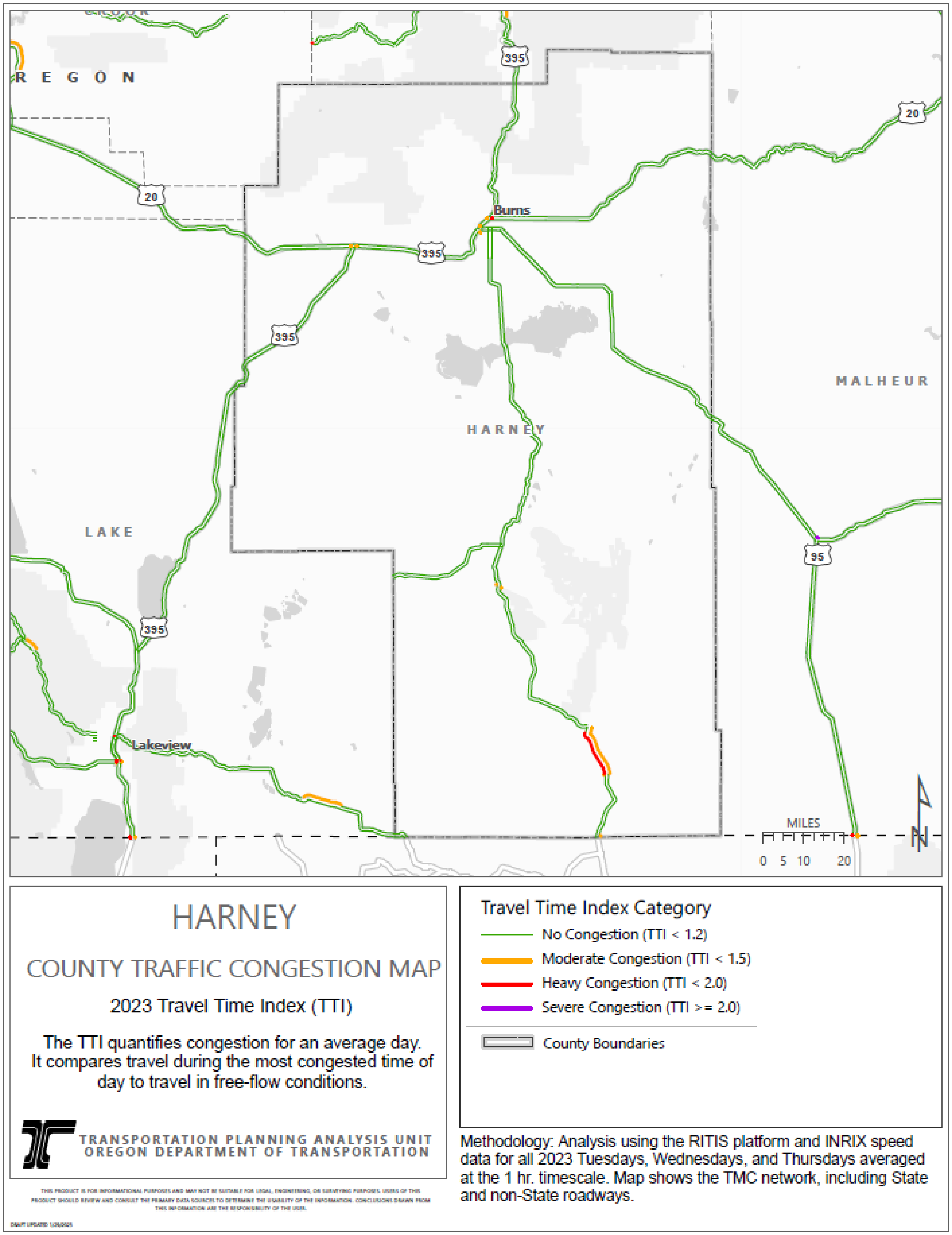


Figure B14. Hood River County Travel Time Index, 2023

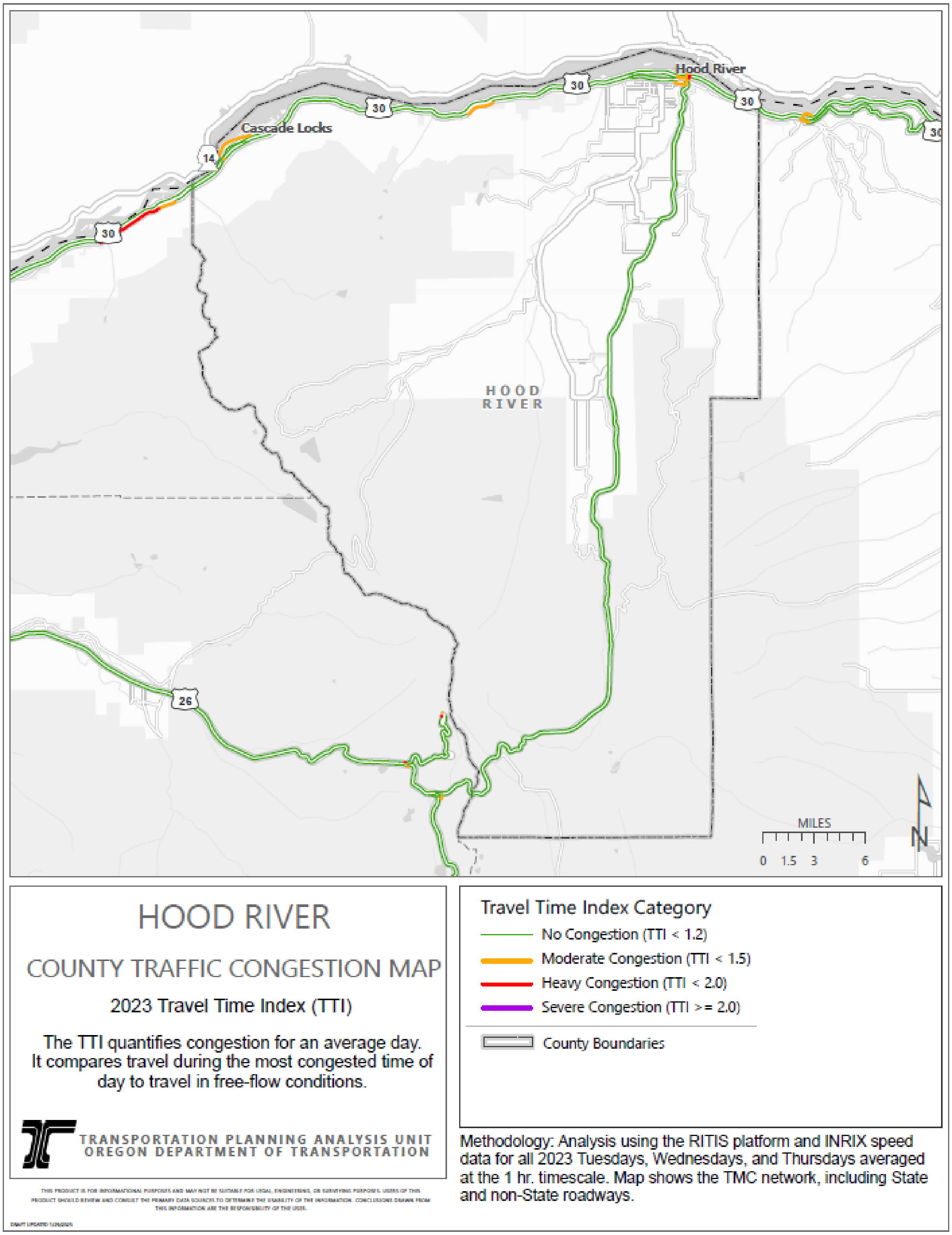


FIGURE B15. JACKSON COUNTY TRAVEL TIME INDEX, 2023

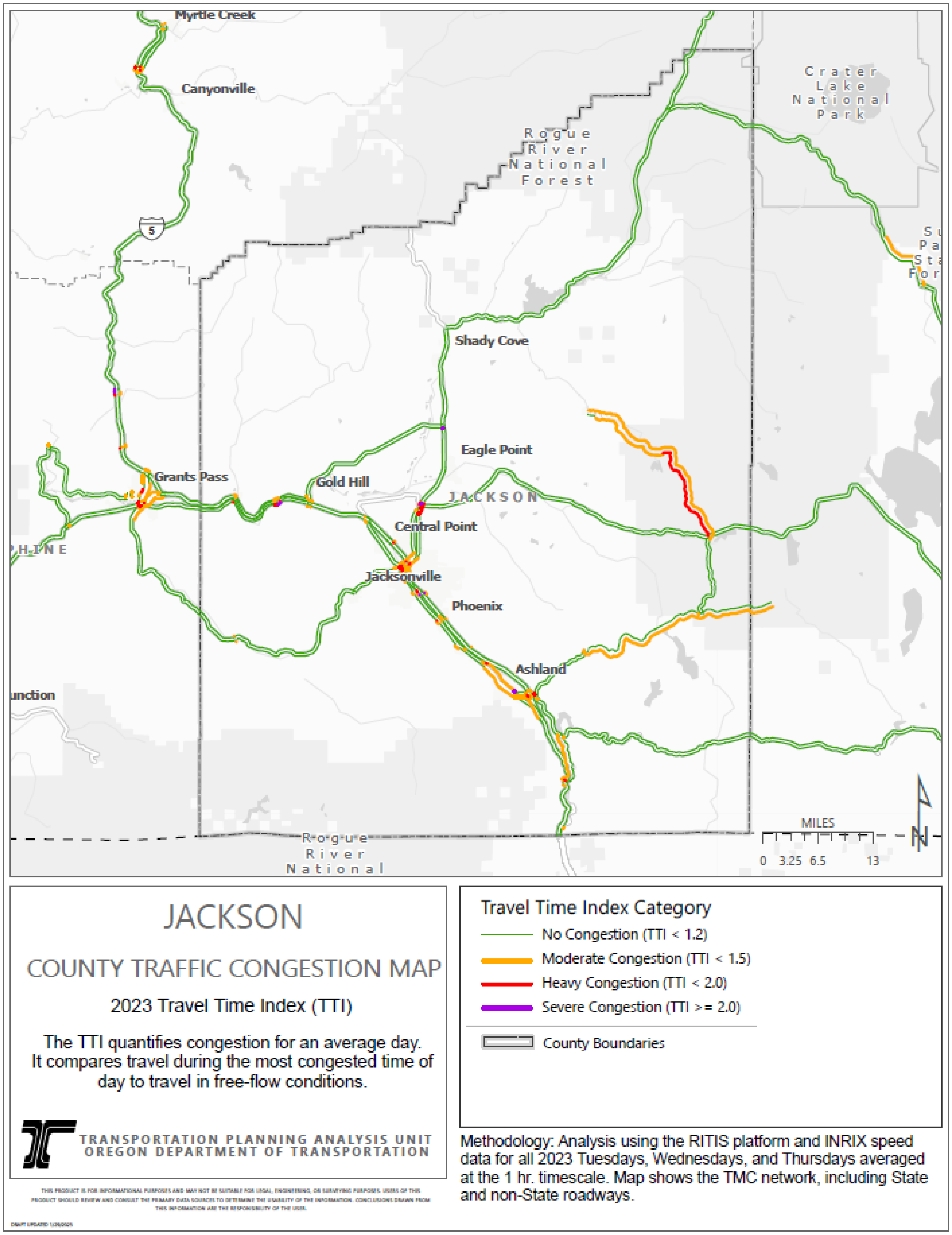
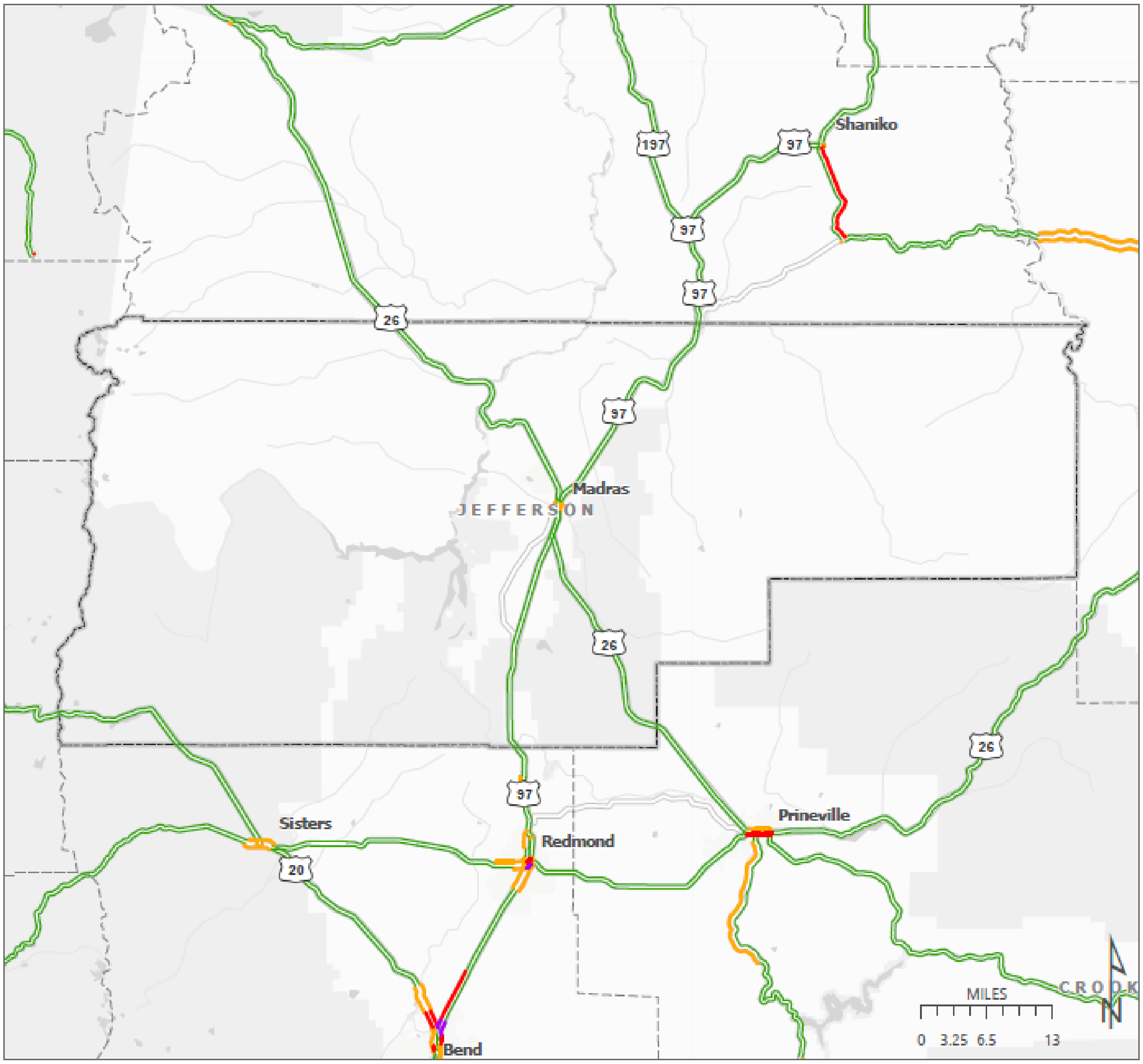


FIGURE B16. JEFFERSON COUNTY TRAVEL TIME INDEX, 2023



JEFFERSON

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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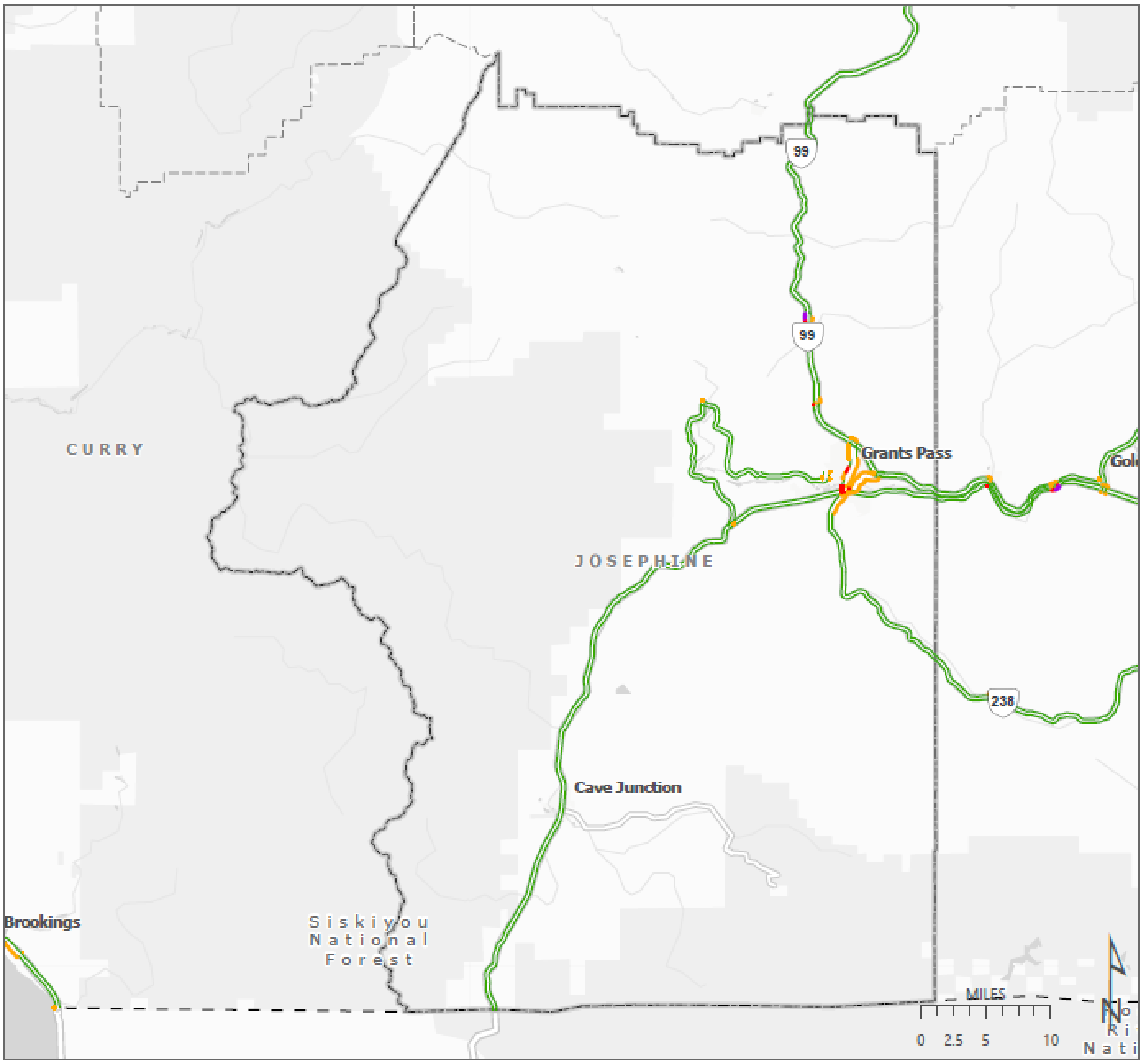
Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

FIGURE B17. JOSEPHINE COUNTY TRAVEL TIME INDEX, 2023



JOSEPHINE

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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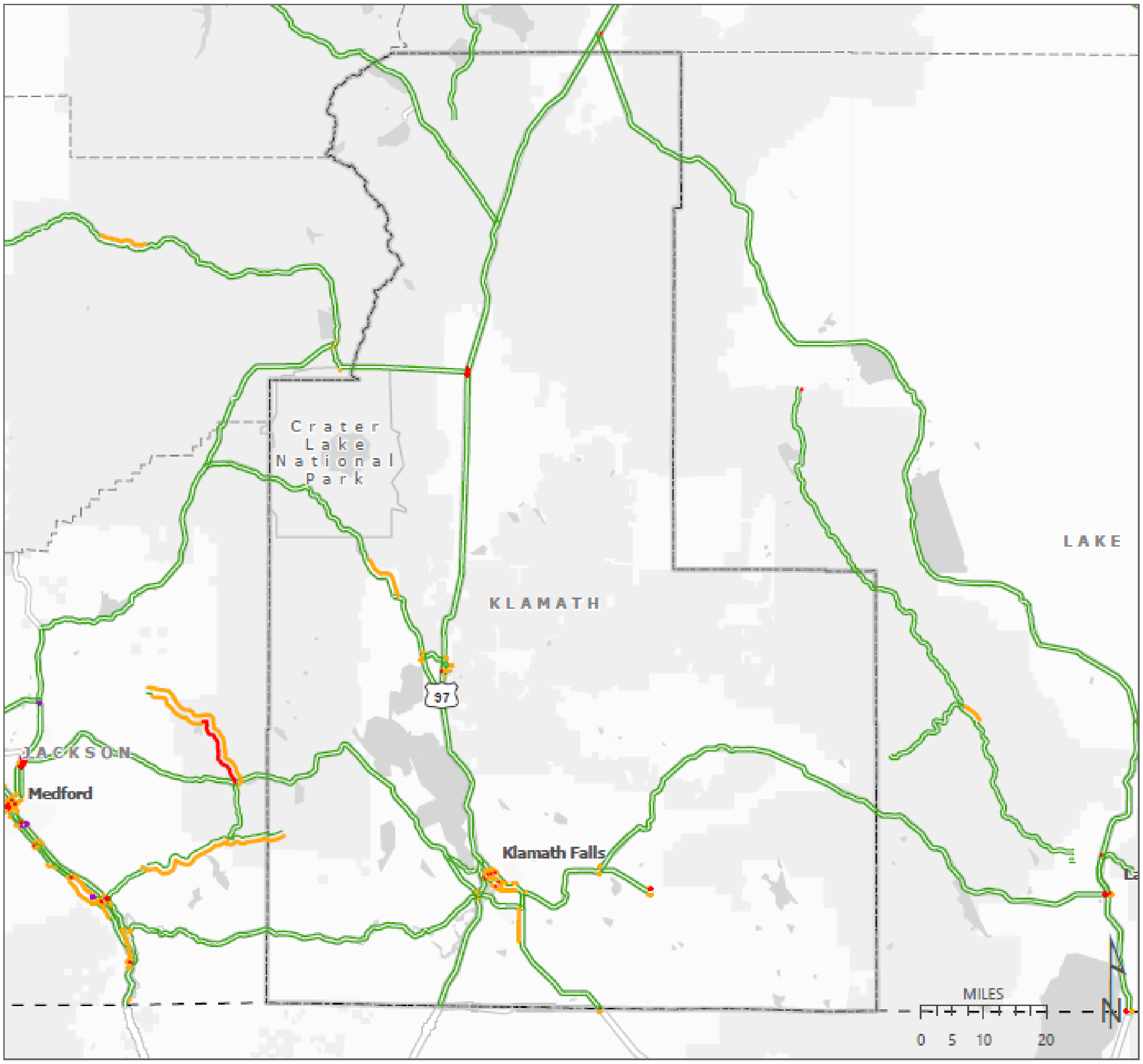
Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

FIGURE B18. KLAMATH COUNTY TRAVEL TIME INDEX, 2023



KLAMATH

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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DRAFT UPDATED

Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)

County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

Figure B19. Lake County Travel Time Index, 2023

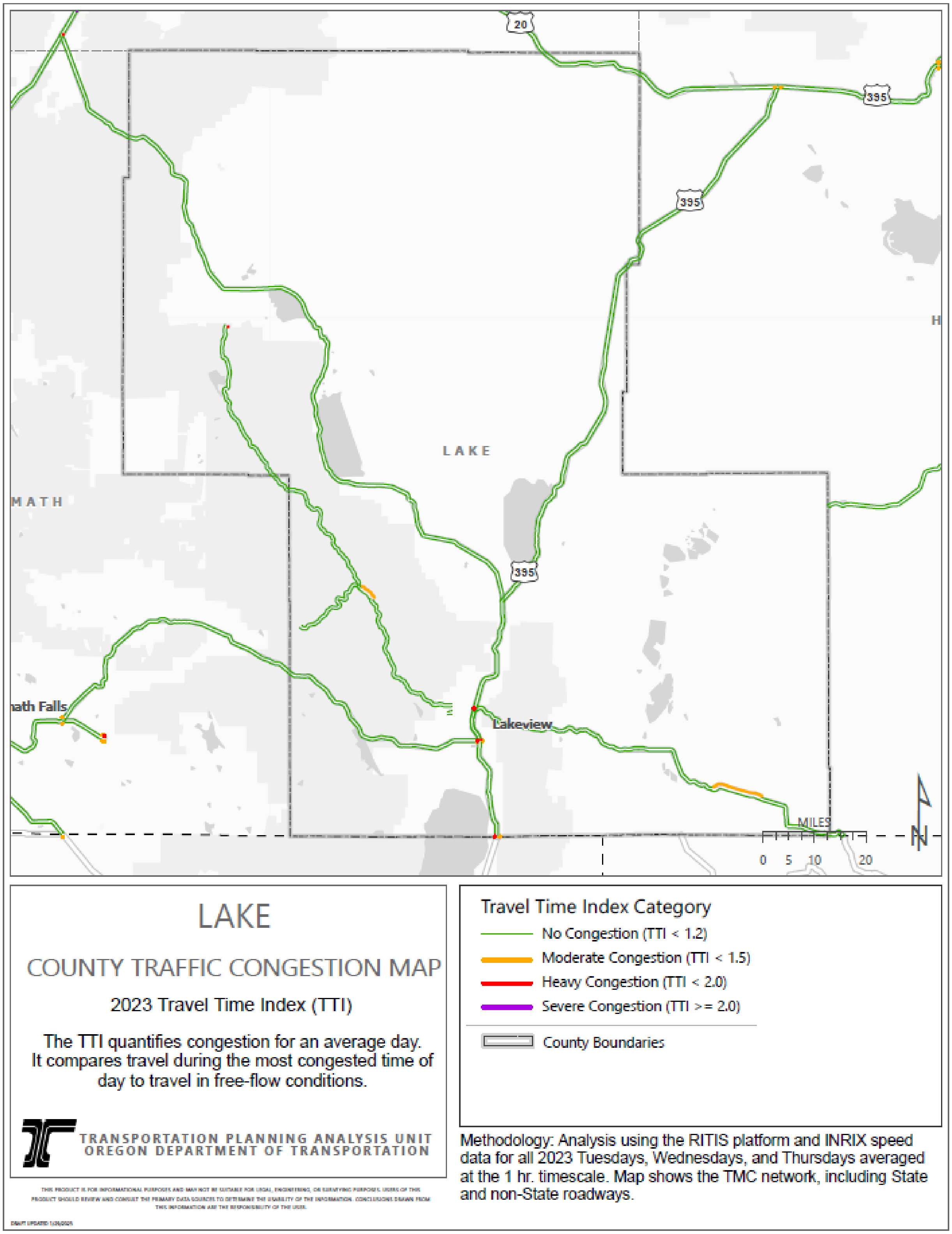


FIGURE B20. LANE COUNTY TRAVEL TIME INDEX, 2023

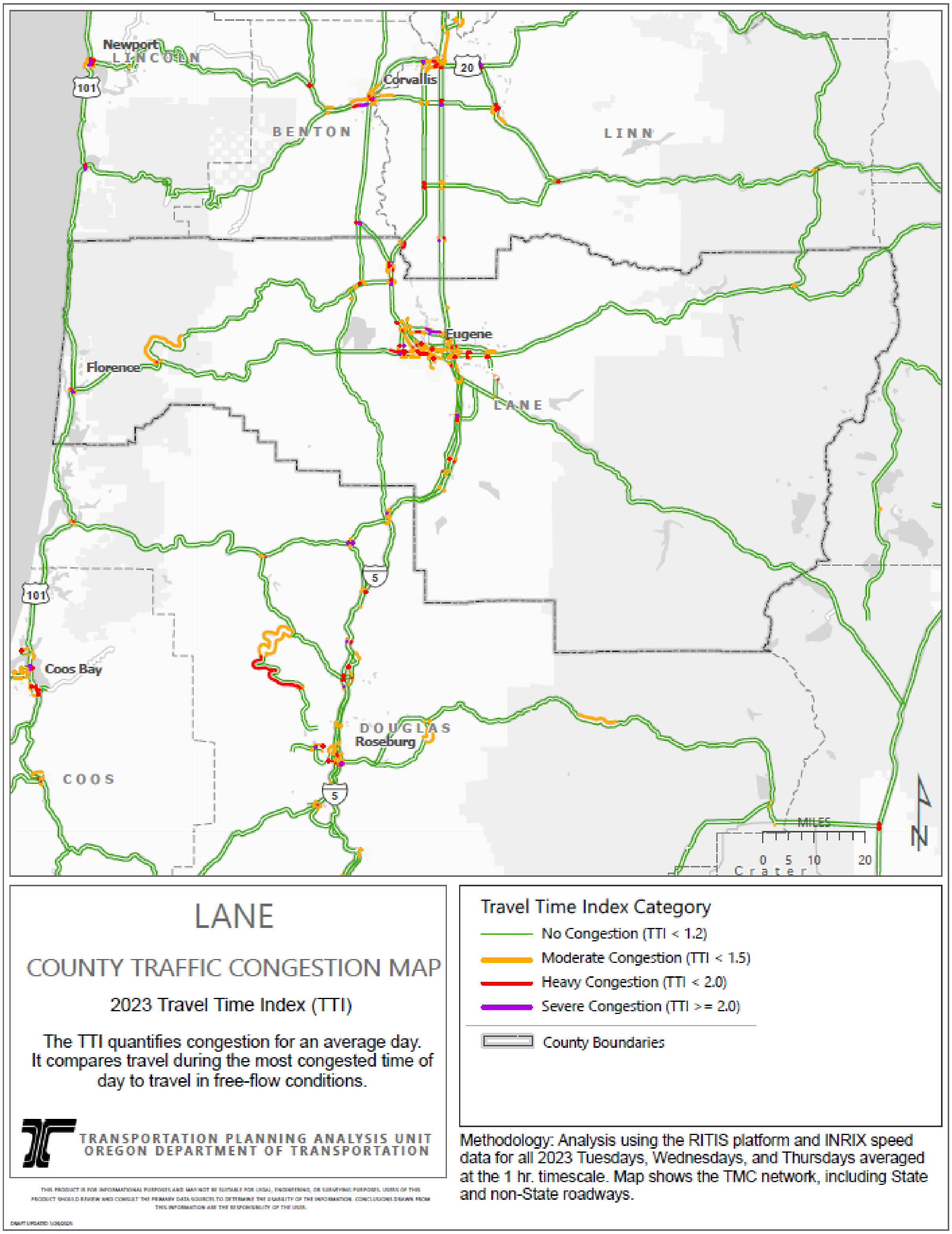


FIGURE B21. LINCOLN COUNTY TRAVEL TIME INDEX, 2023

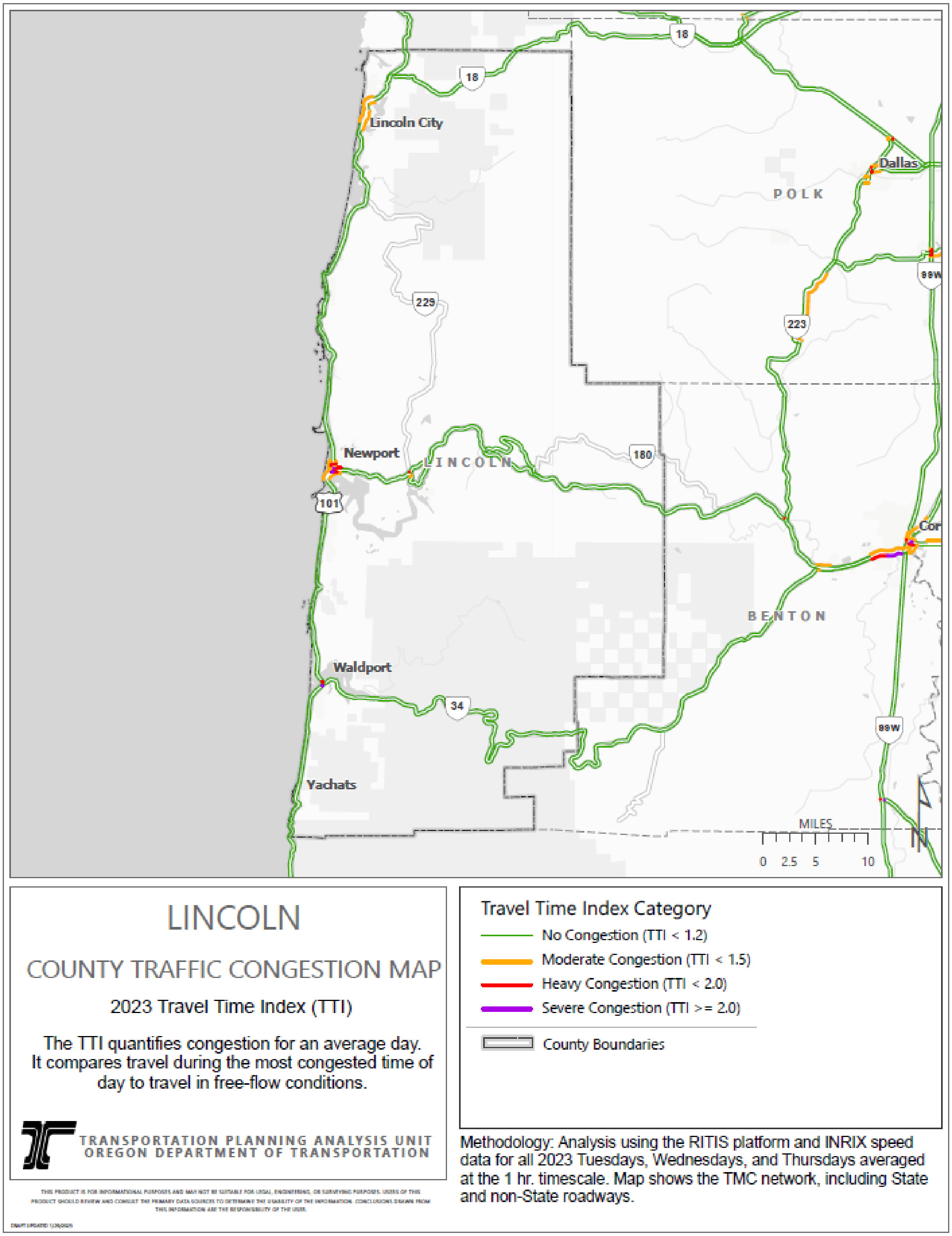


FIGURE B22. LINN COUNTY TRAVEL TIME INDEX, 2023

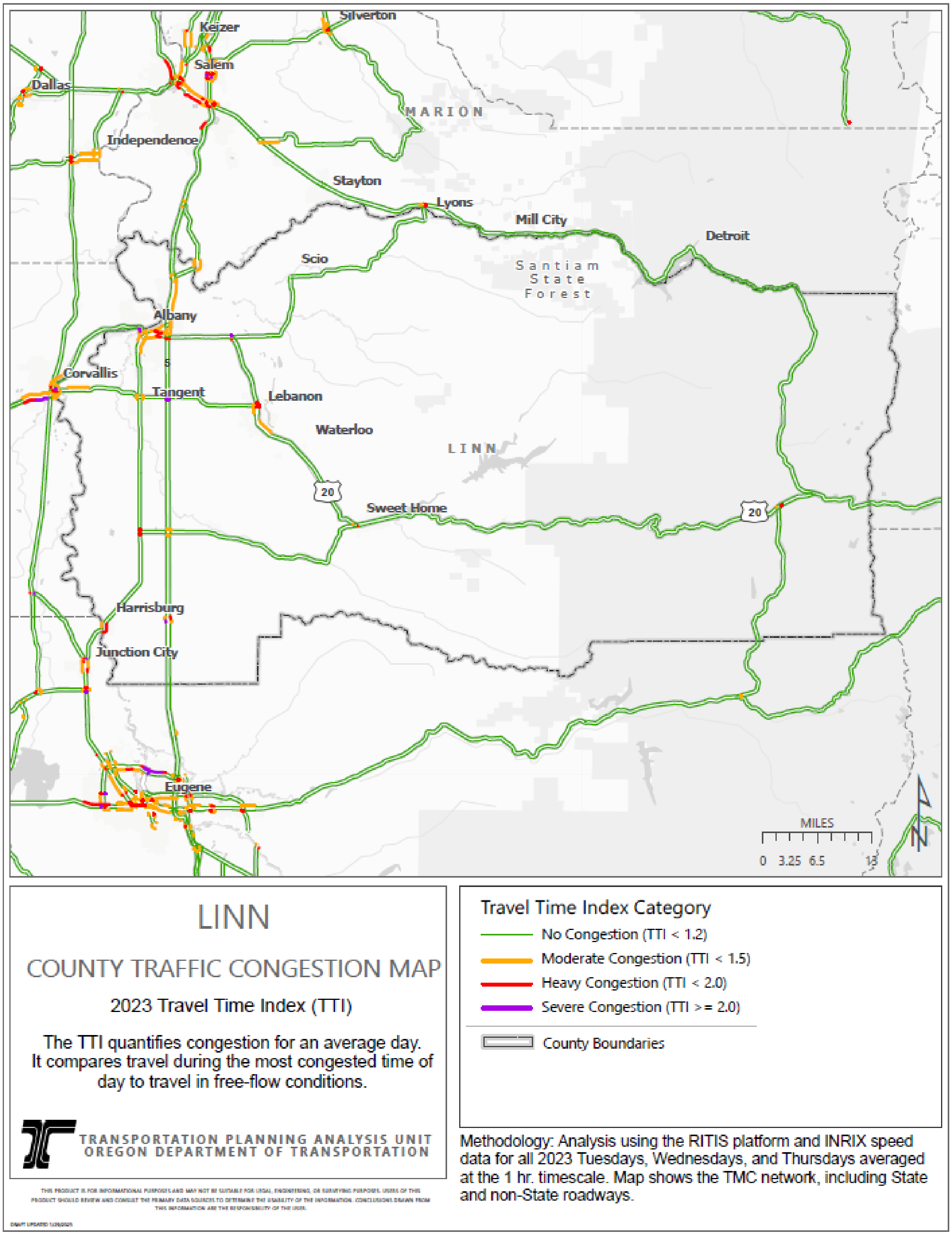


FIGURE B23. MALHEUR COUNTY TRAVEL TIME INDEX, 2023

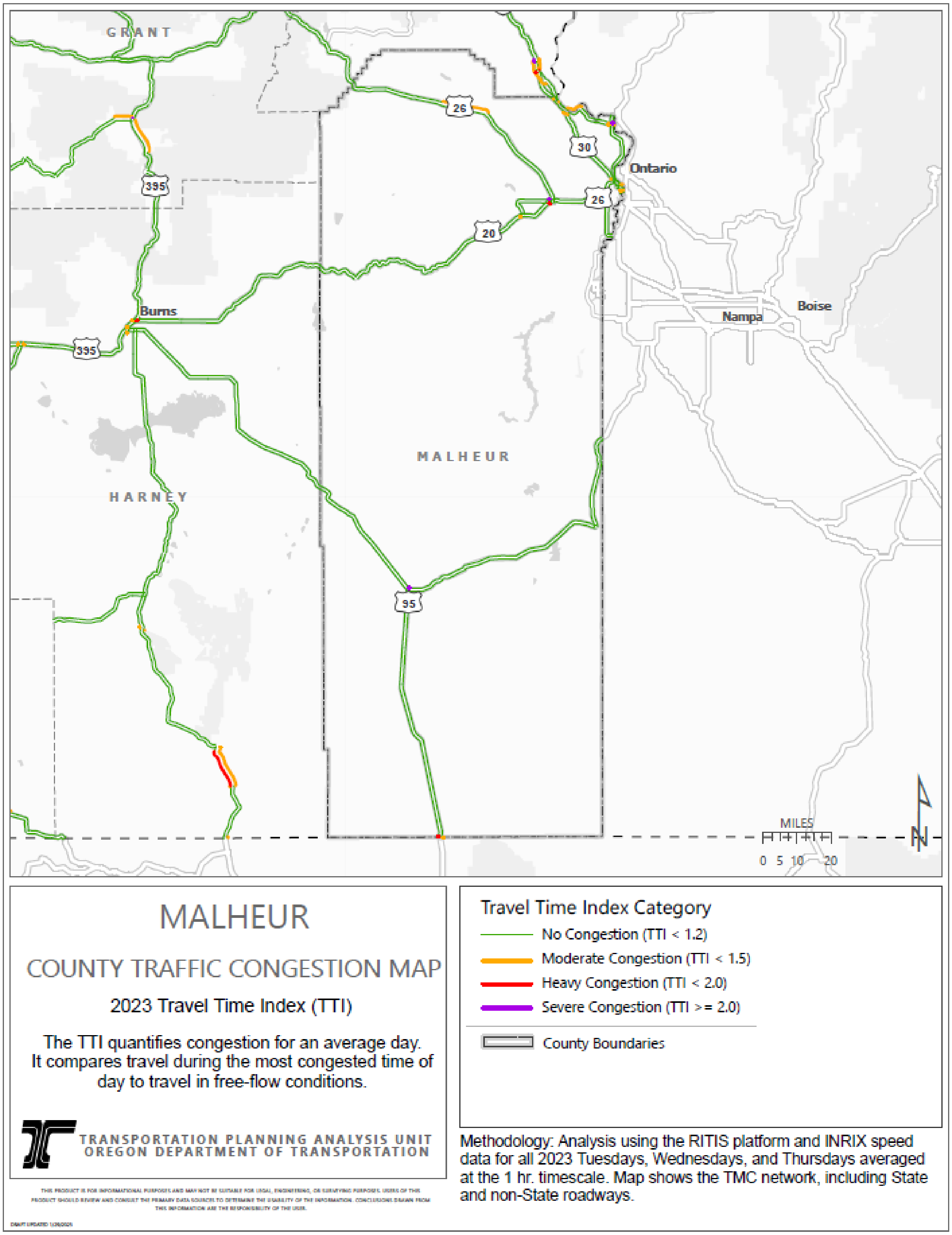


Figure B24. Marion County Travel Time Index, 2023

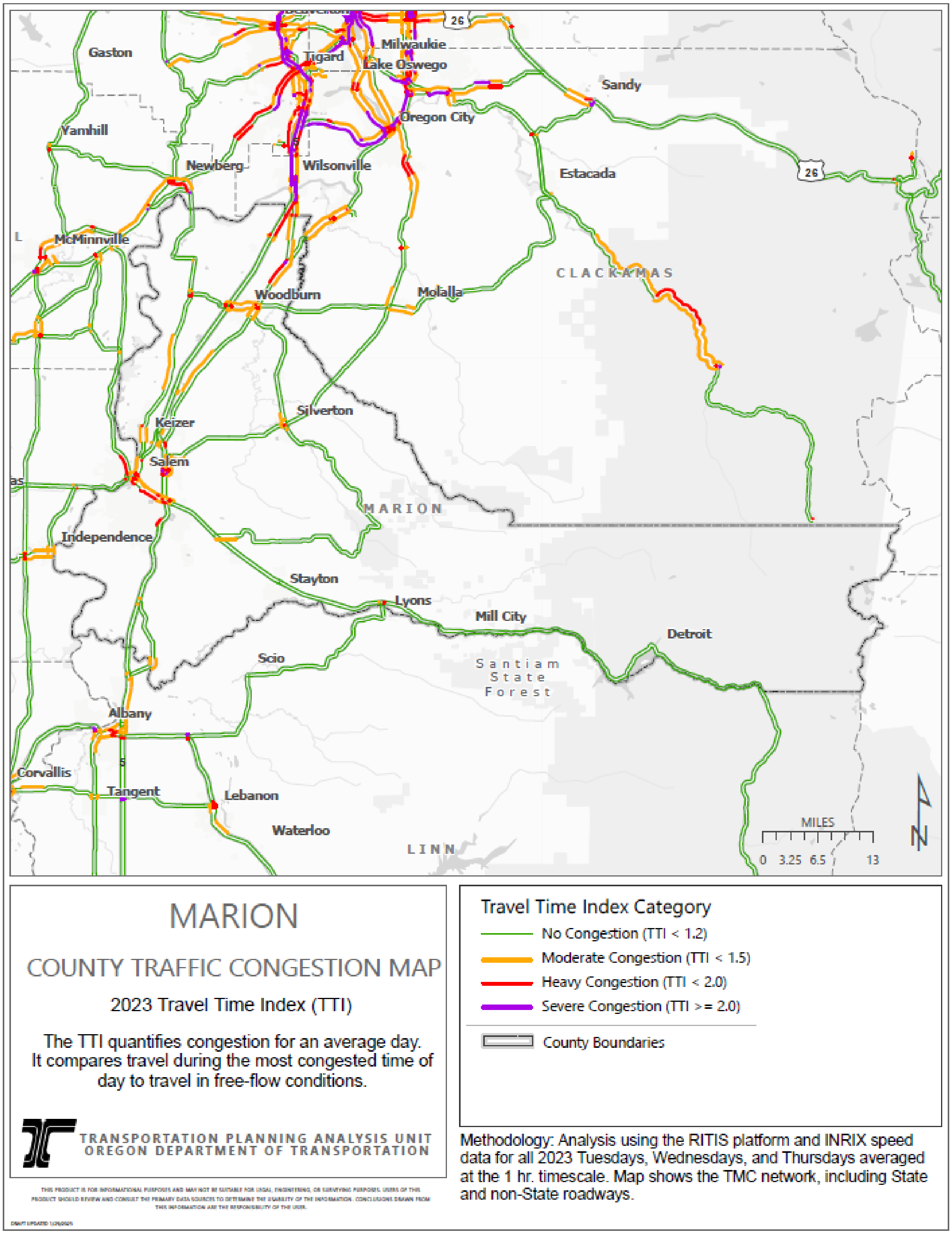
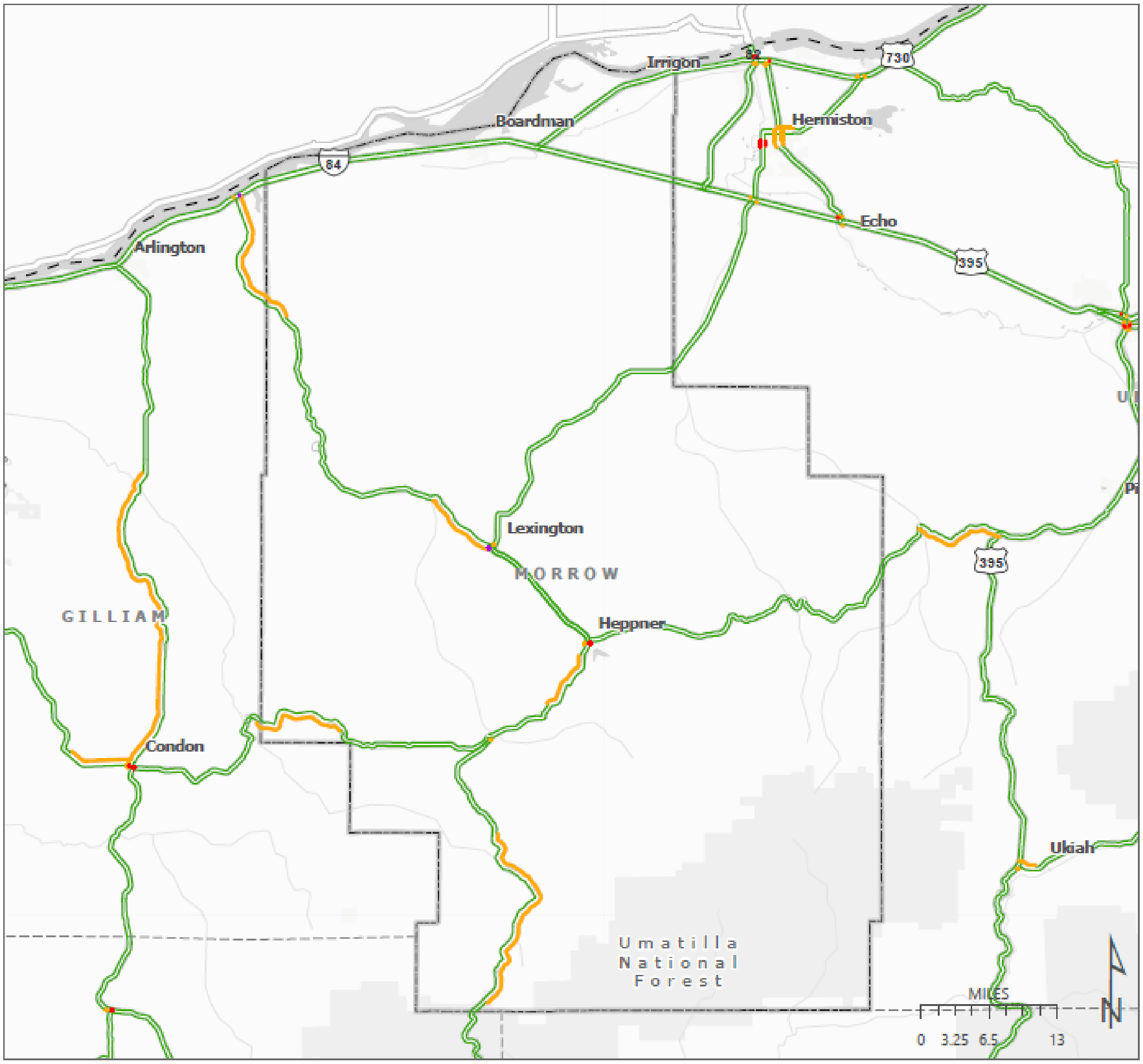


Figure B25. Morrow County Travel Time Index, 2023



MORROW

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

FIGURE B26. MULTNOMAH COUNTY TRAVEL TIME INDEX, 2023

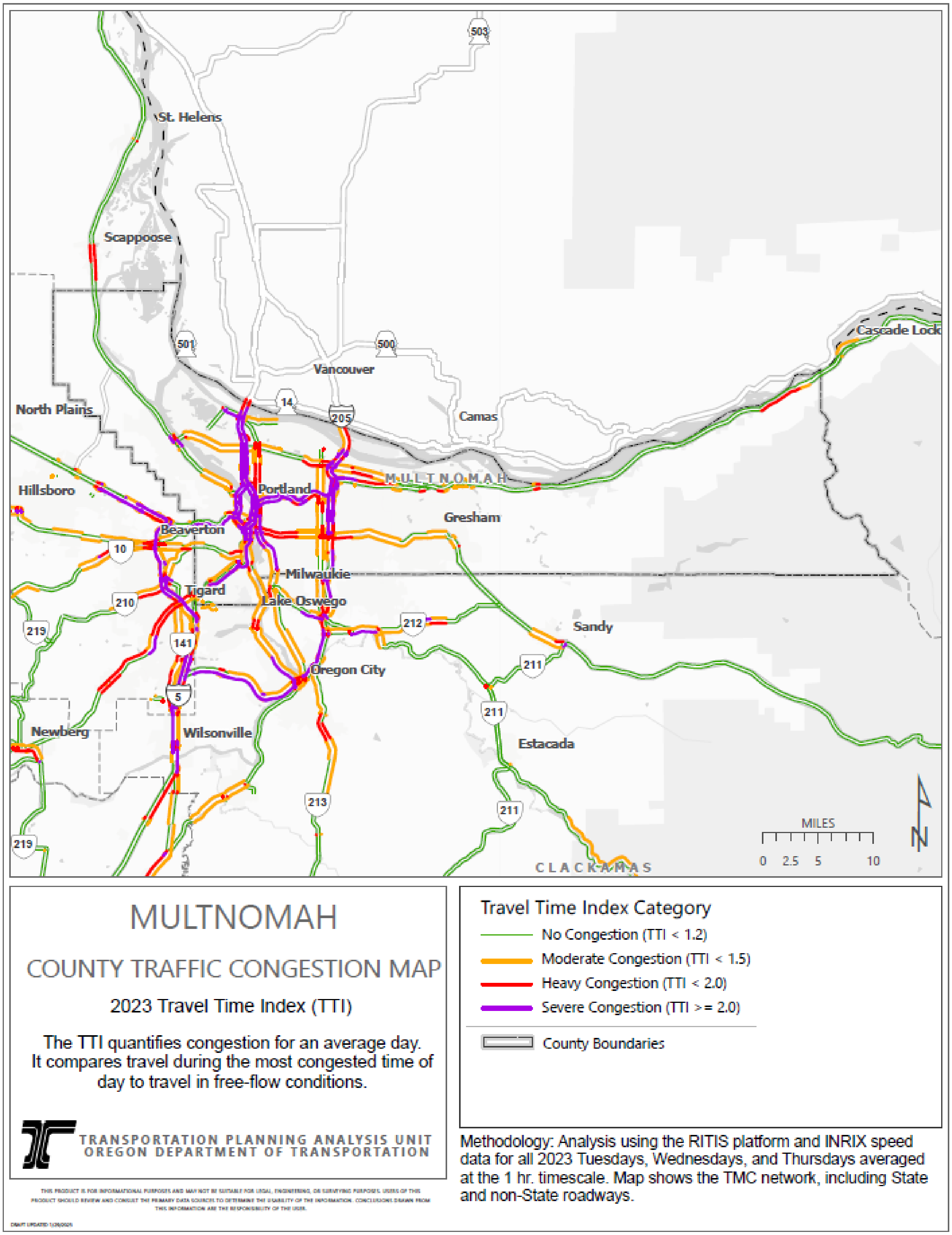


FIGURE B27. POLK COUNTY TRAVEL TIME INDEX, 2023

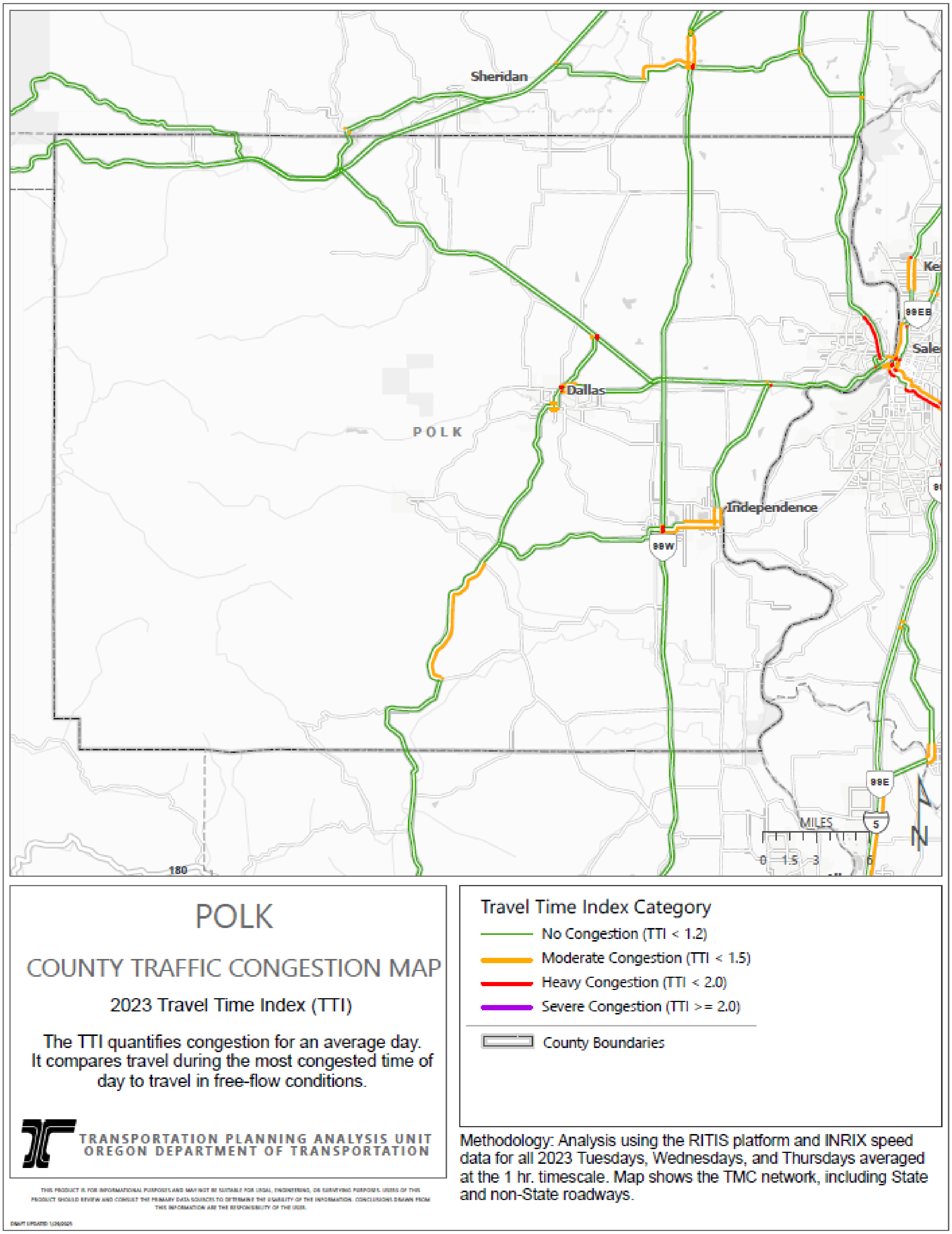
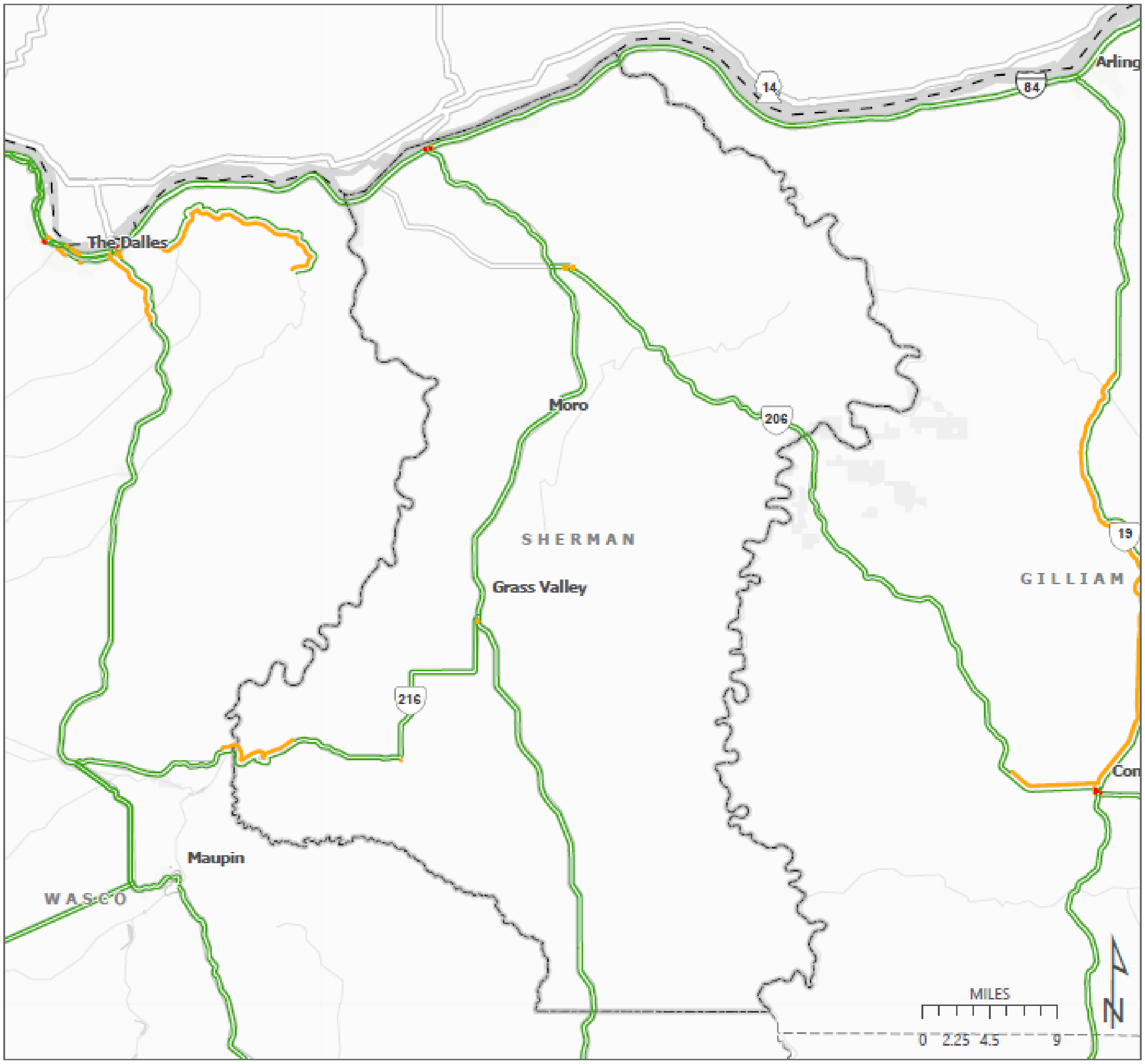


Figure B28. Sherman County Travel Time Index, 2023



SHERMAN

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

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Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

FIGURE B29. TILLAMOOK COUNTY TRAVEL TIME INDEX, 2023

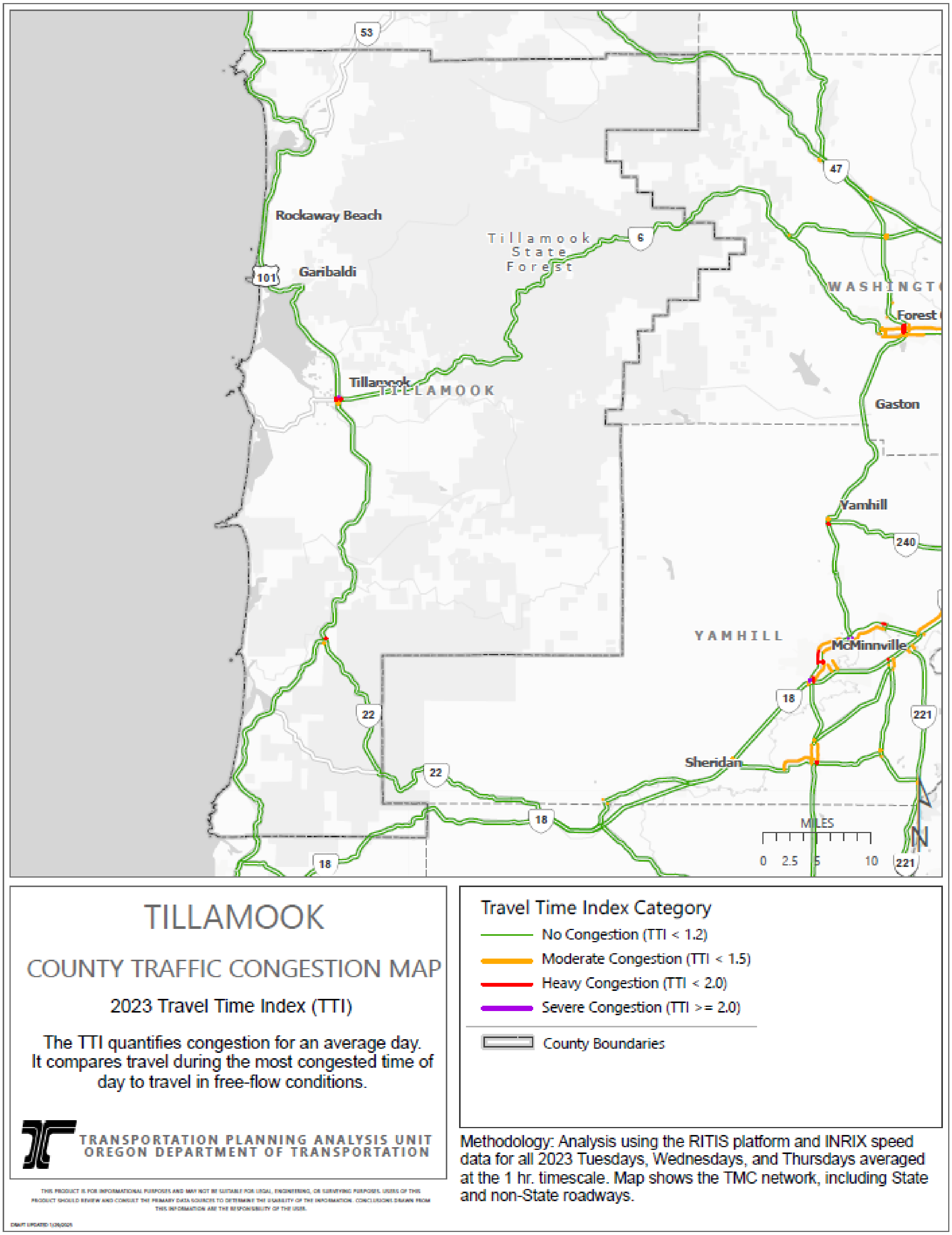


Figure B30. Umatilla County Travel Time Index, 2023

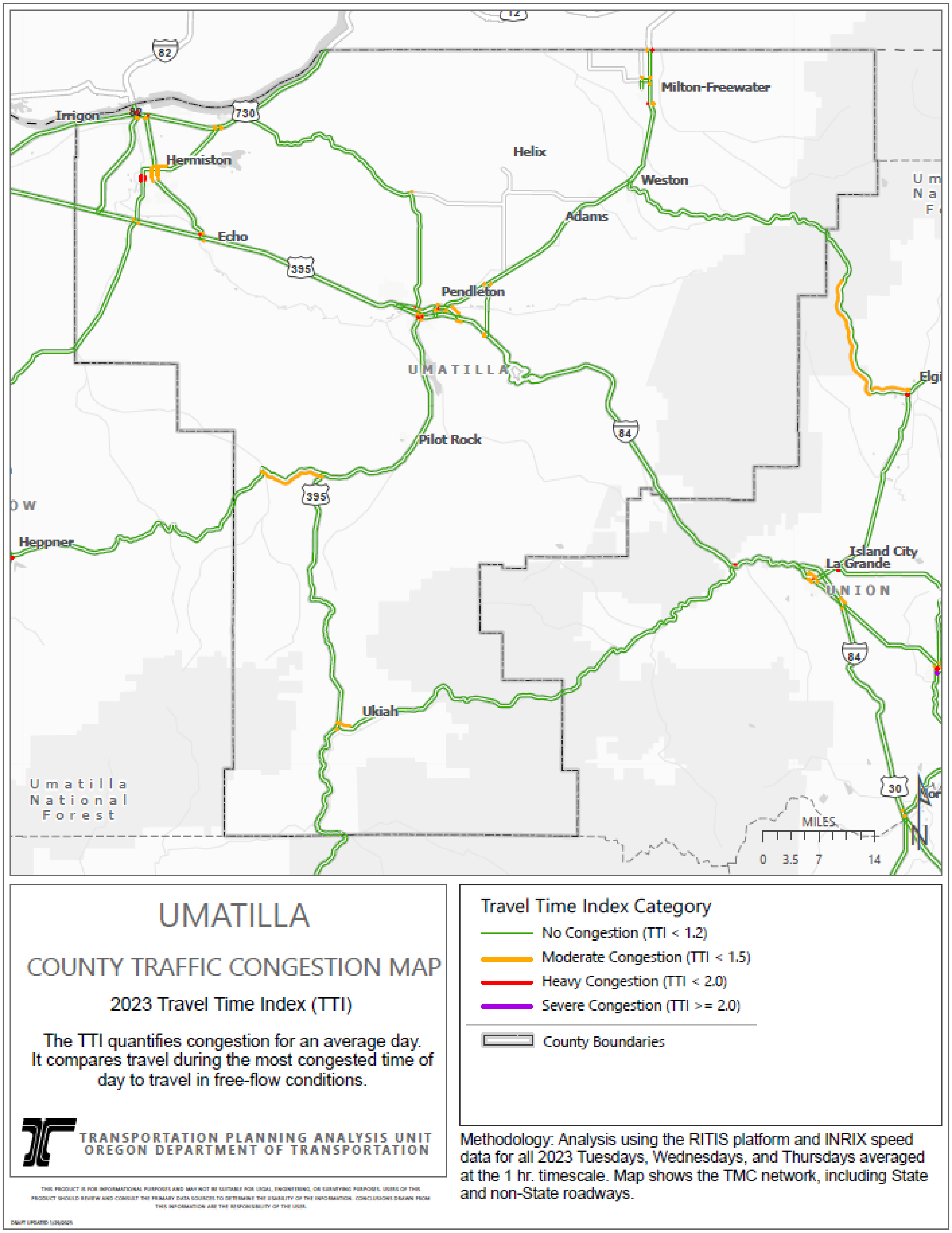


FIGURE B31. UNION COUNTY TRAVEL TIME INDEX, 2023

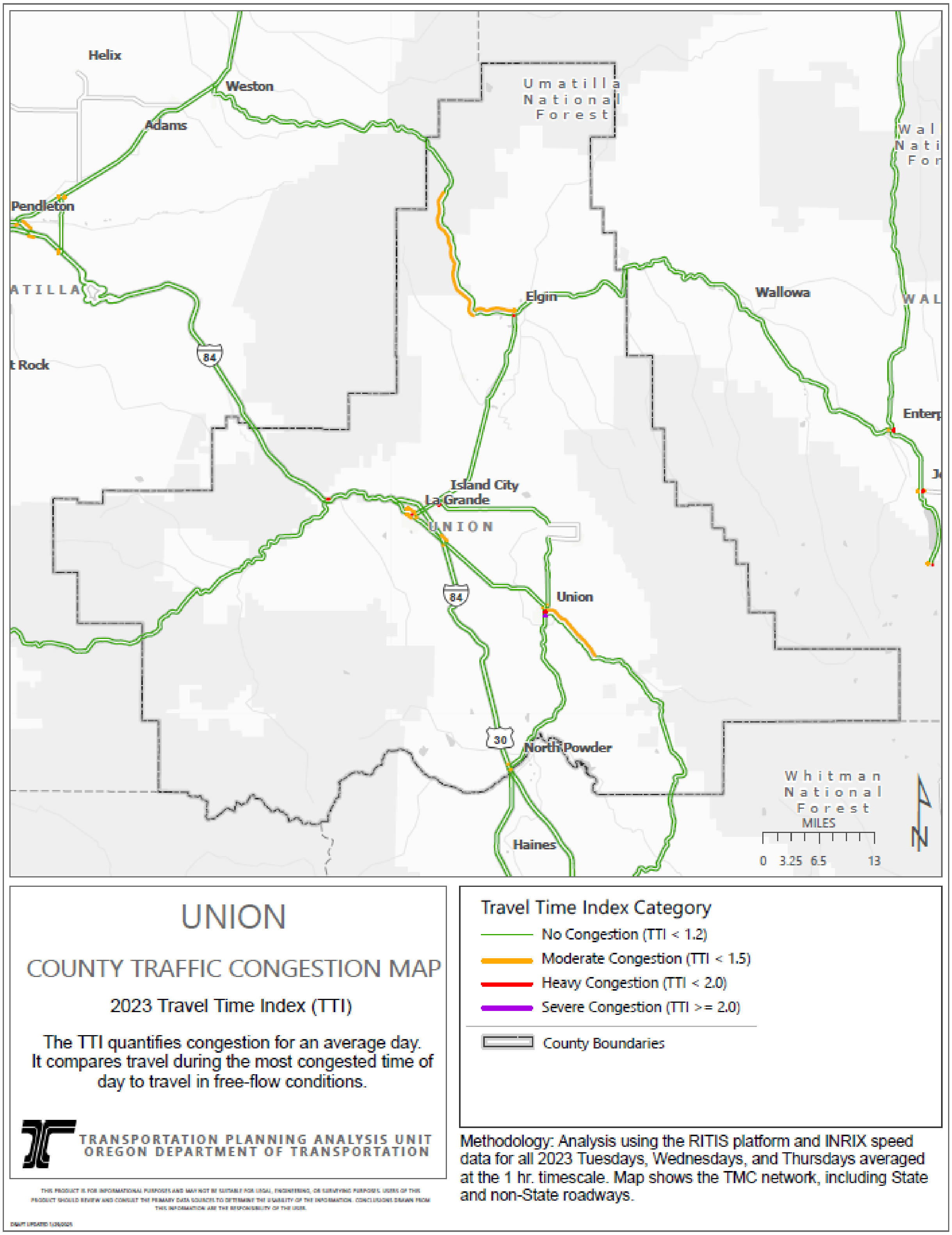


FIGURE B32. WALLOWA COUNTY TRAVEL TIME INDEX, 2023

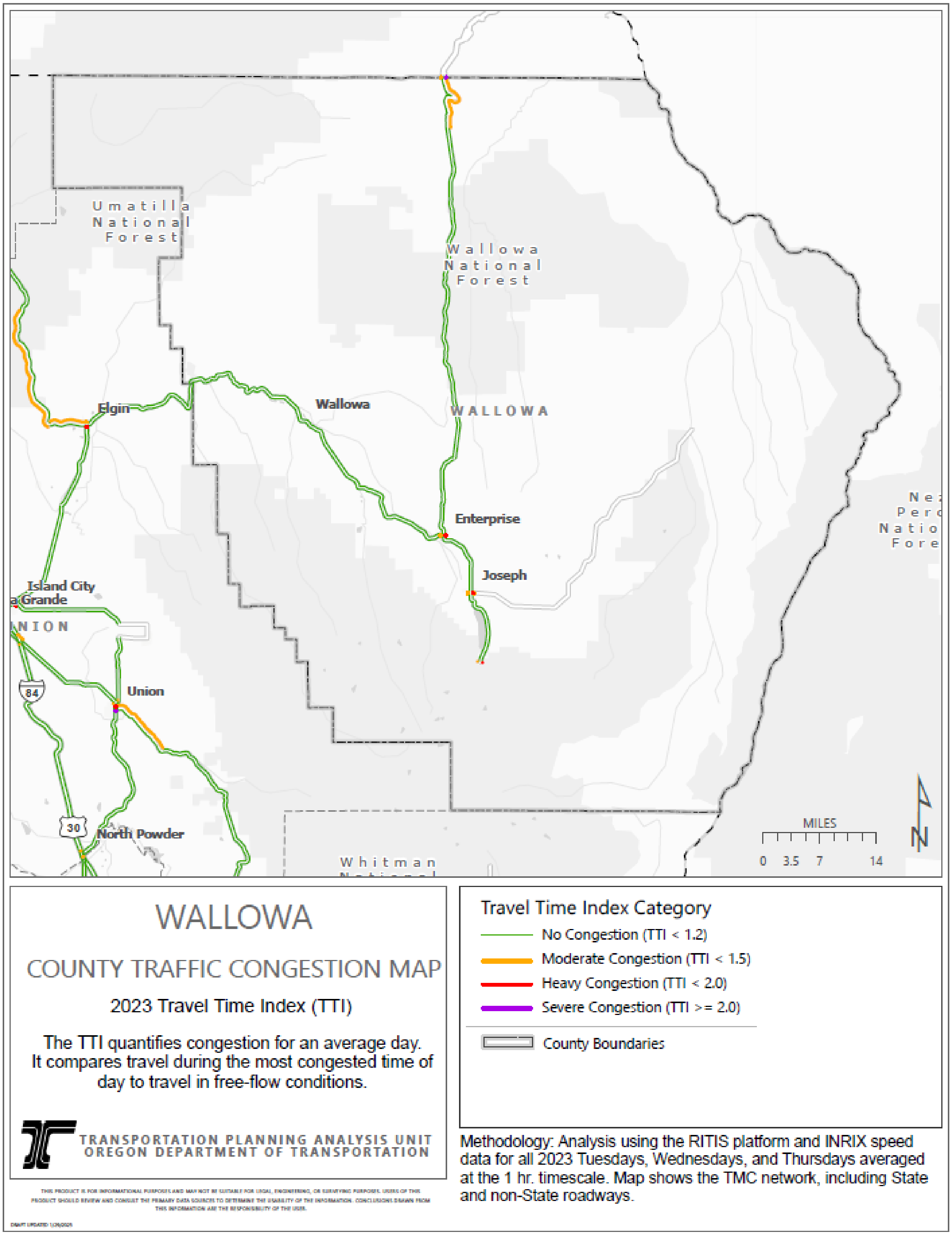
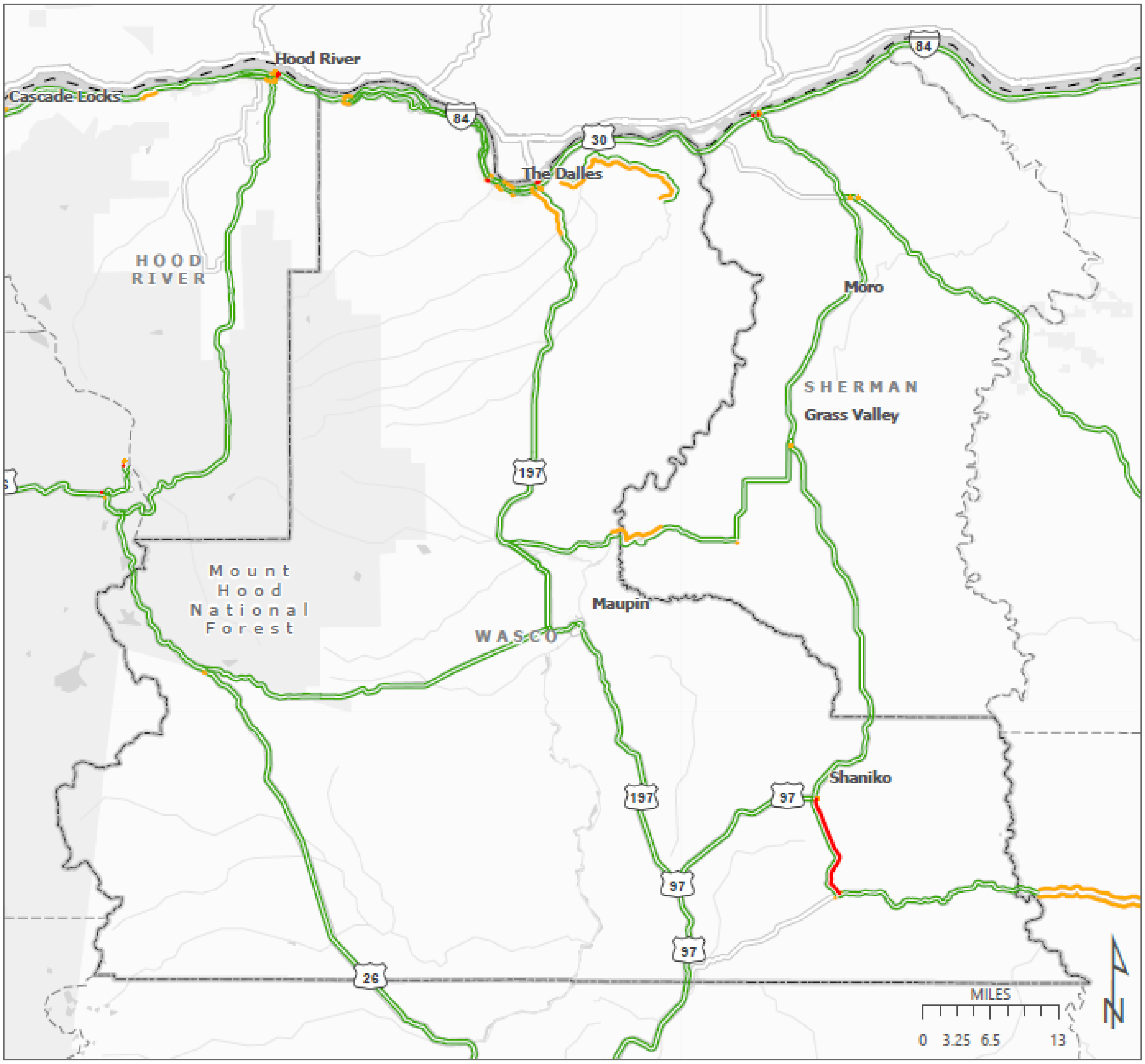


FIGURE B33. WASCO COUNTY TRAVEL TIME INDEX, 2023



WASCO

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

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FIGURE B34. WASHINGTON COUNTY TRAVEL TIME INDEX, 2023

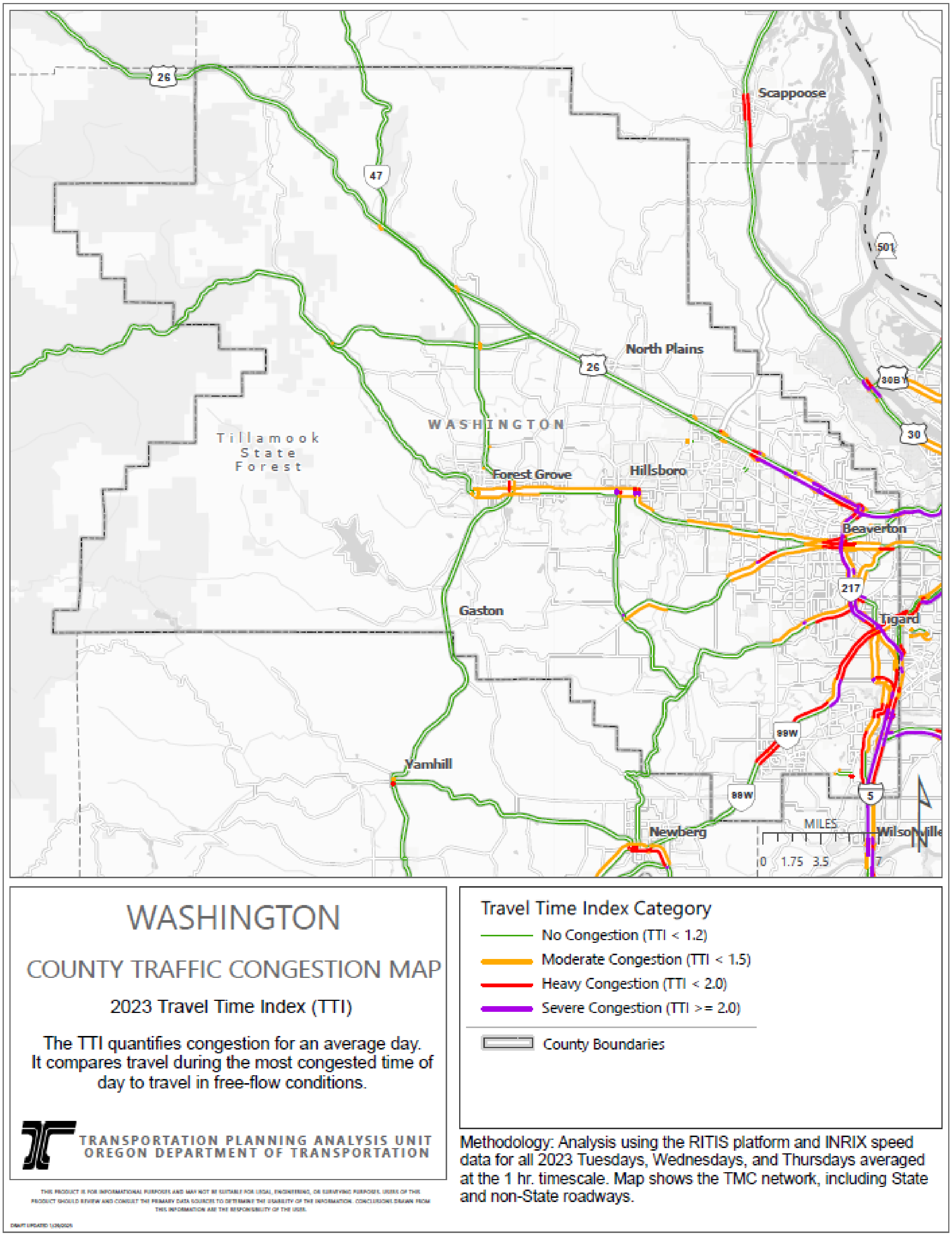


FIGURE B35. WHEELER COUNTY TRAVEL TIME INDEX, 2023

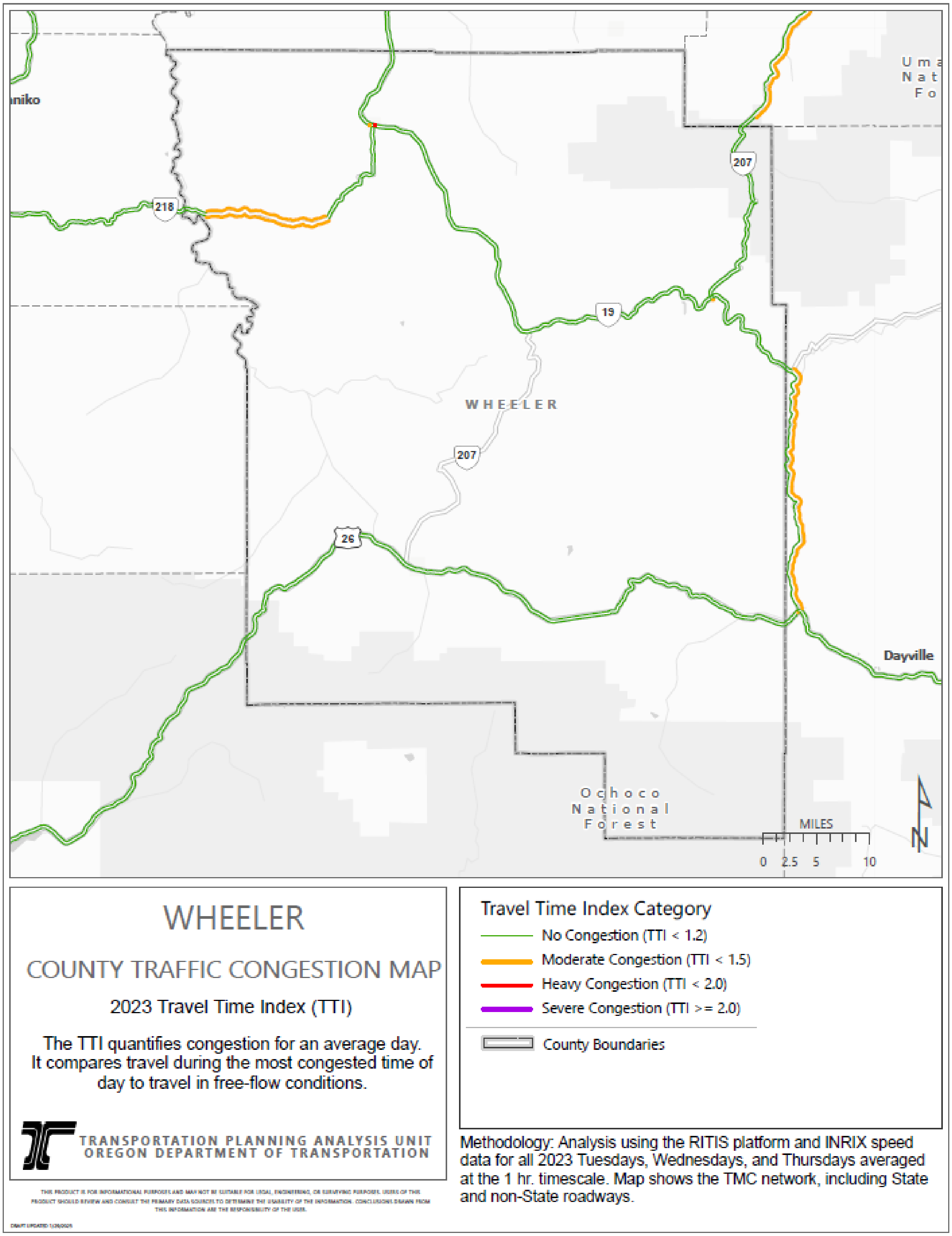
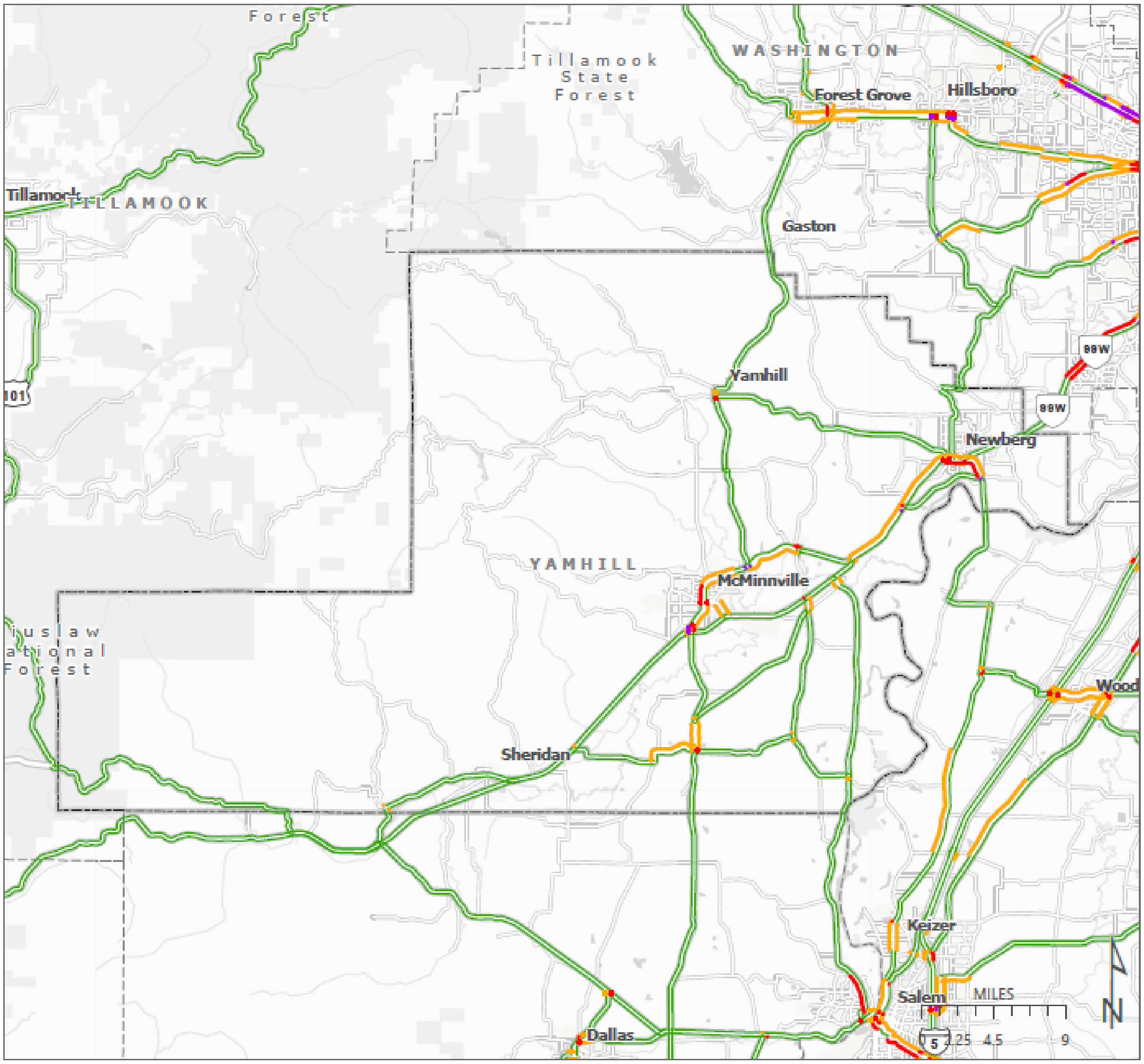


FIGURE B36. YAMHILL COUNTY TRAVEL TIME INDEX, 2023



YAMHILL

COUNTY TRAFFIC CONGESTION MAP

2023 Travel Time Index (TTI)

The TTI quantifies congestion for an average day. It compares travel during the most congested time of day to travel in free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

Travel Time Index Category

- No Congestion (TTI < 1.2)
- Moderate Congestion (TTI < 1.5)
- Heavy Congestion (TTI < 2.0)
- Severe Congestion (TTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale. Map shows the TMC network, including State and non-State roadways.

Appendix C: County Planning Time Index

This appendix provides the Planning Time Index maps illustrating reliability for counties in Oregon. The figure numbers below are hyperlinks that will take you directly to a county map.

Figure C1. Baker County Planning Time Index, 2023

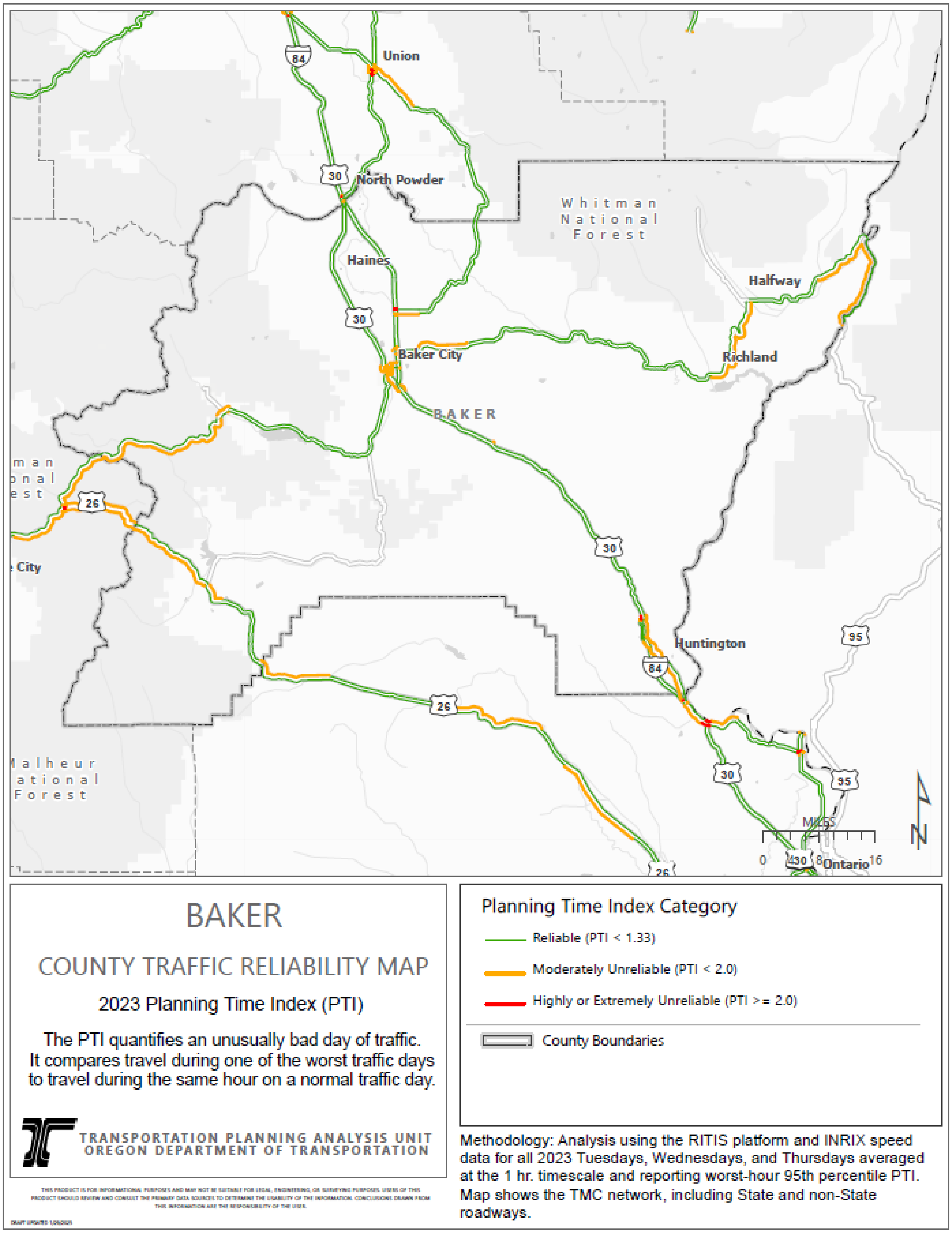
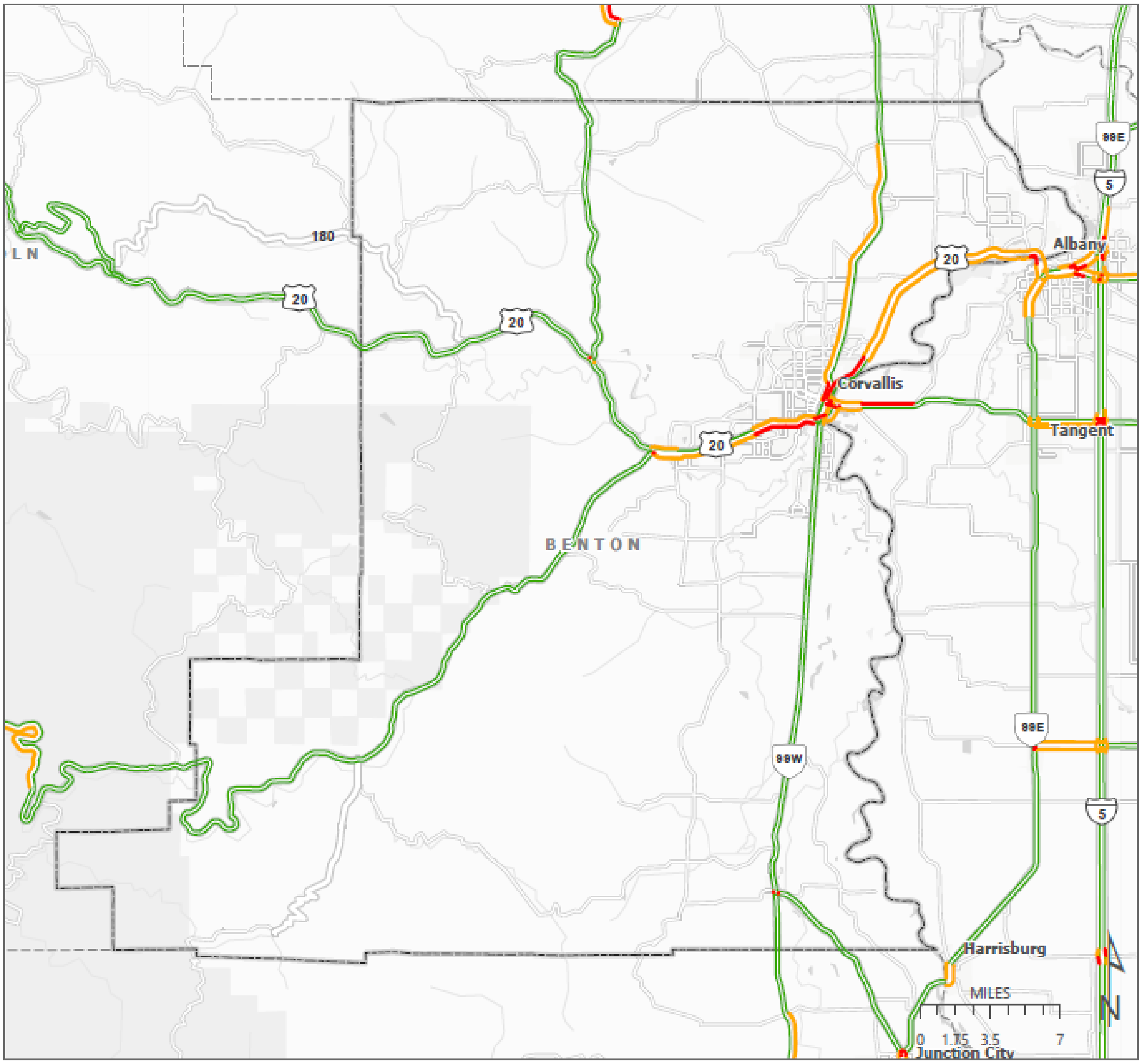


FIGURE C2. BENTON COUNTY PLANNING TIME INDEX, 2023



BENTON

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic.
It compares travel during one of the worst traffic days to travel during the same hour on a normal traffic day.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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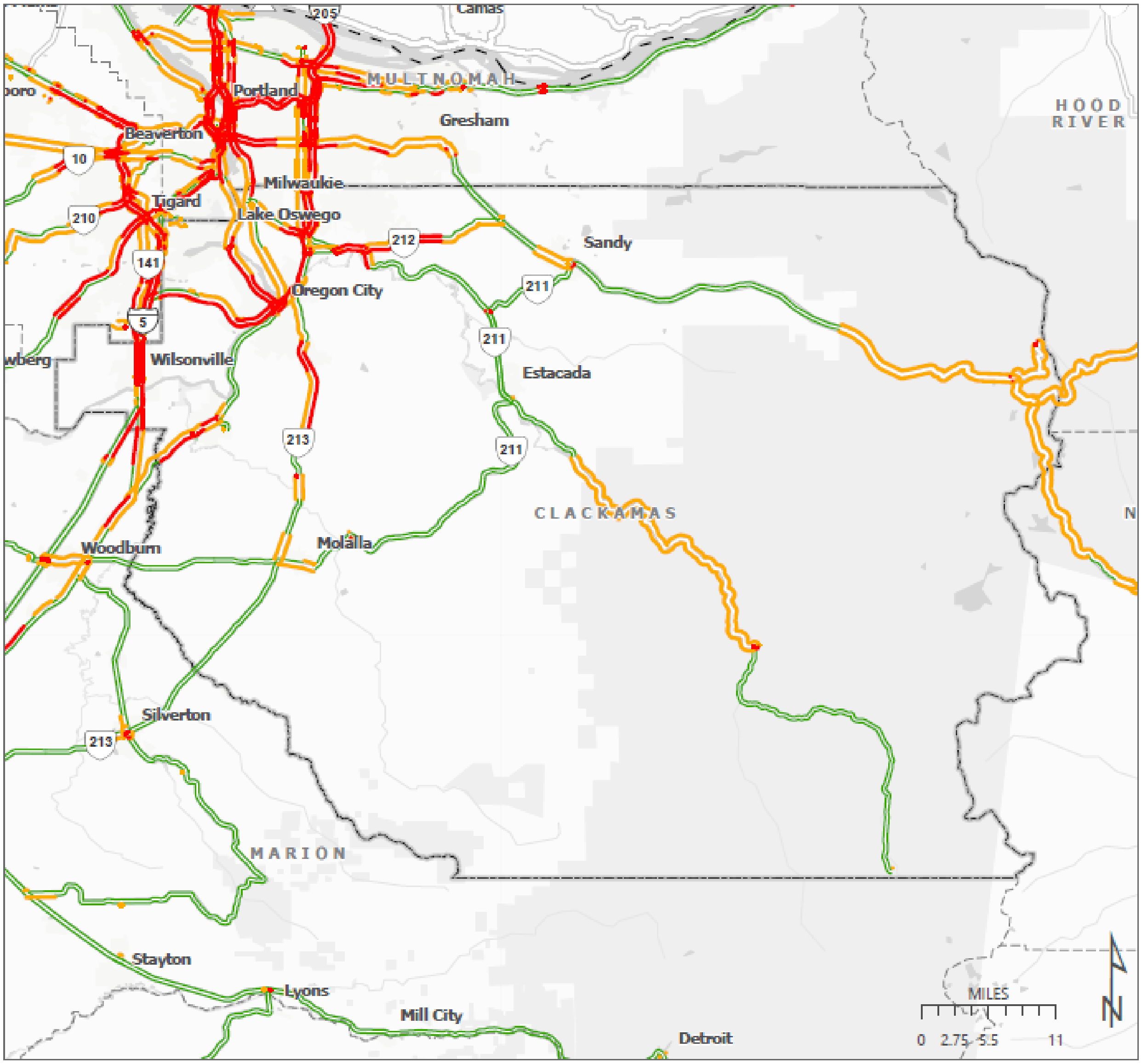
Planning Time Index Category

- Reliable (PTI < 1.33)
- Moderately Unreliable (PTI < 2.0)
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C3. CLACKAMAS COUNTY PLANNING TIME INDEX, 2023



CLACKAMAS

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during one of the worst traffic days to travel during the same hour on a normal traffic day.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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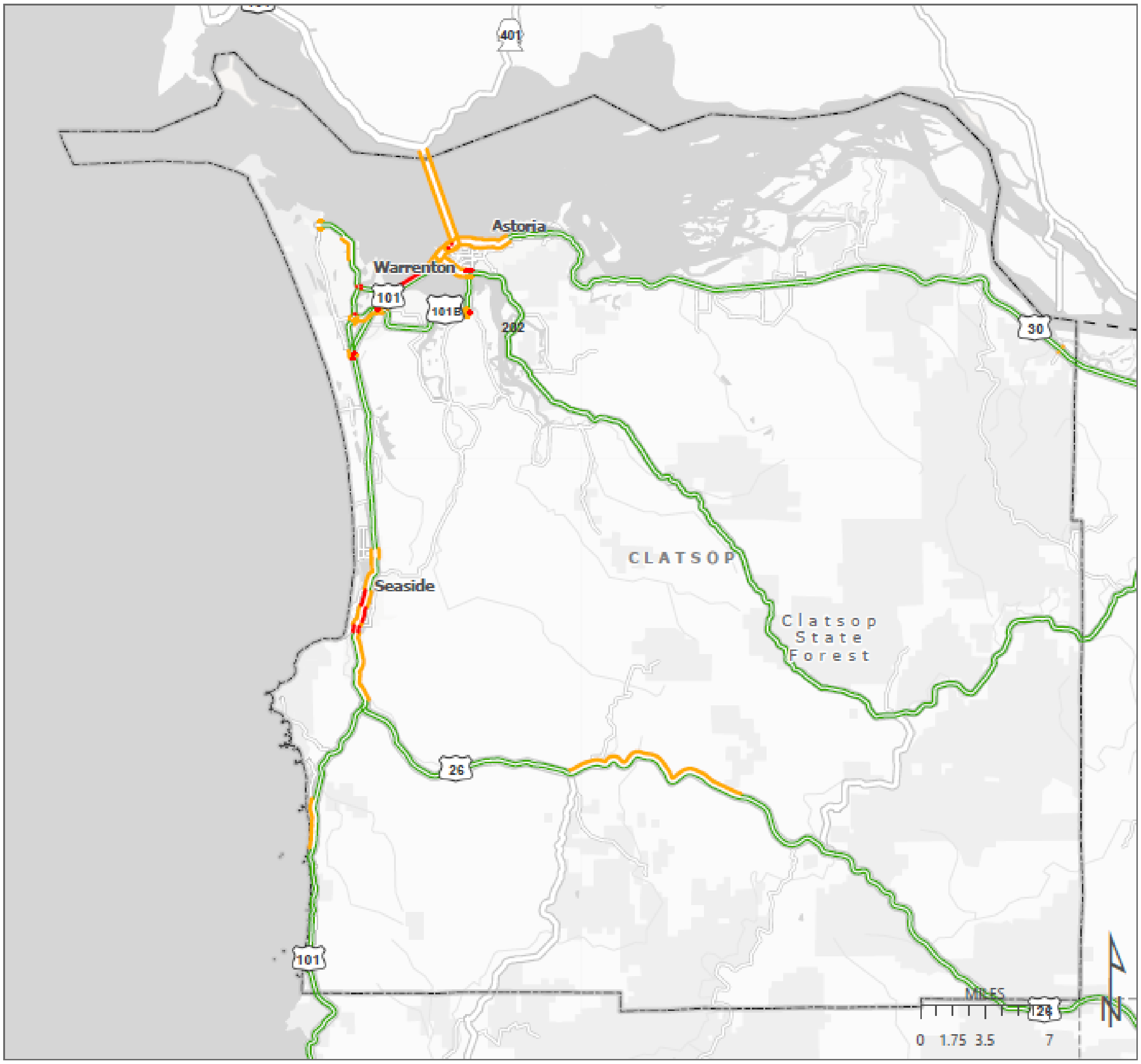
Planning Time Index Category

- Reliable (PTI < 1.33)
- Moderately Unreliable (PTI < 2.0)
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

Figure C4. Clatsop County Planning Time Index, 2023



CLATSOP

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during one of the worst traffic days to travel during the same hour on a normal traffic day.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Planning Time Index Category

- Reliable (PTI < 1.33)
- Moderately Unreliable (PTI < 2.0)
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C5. COLUMBIA COUNTY PLANNING TIME INDEX, 2023

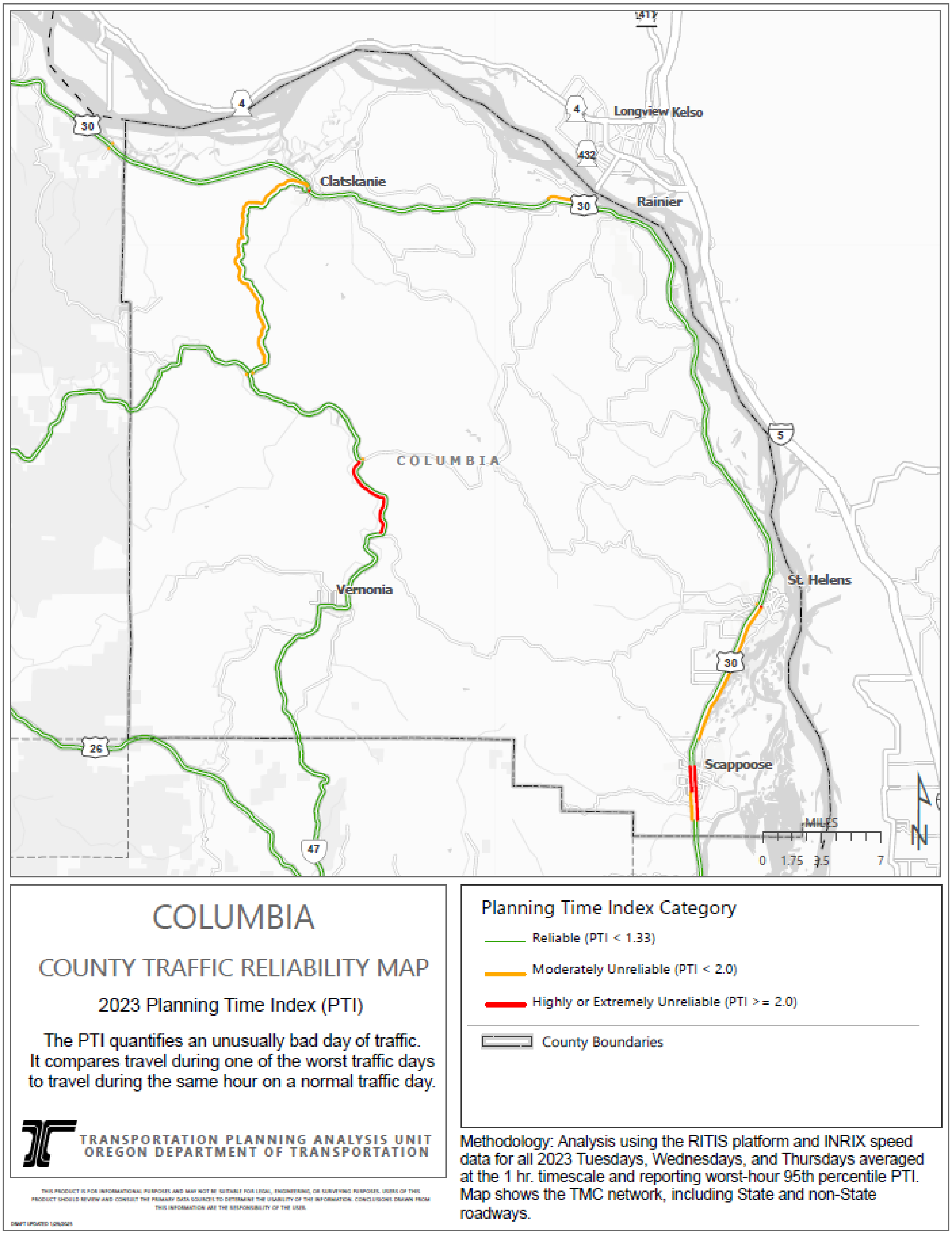
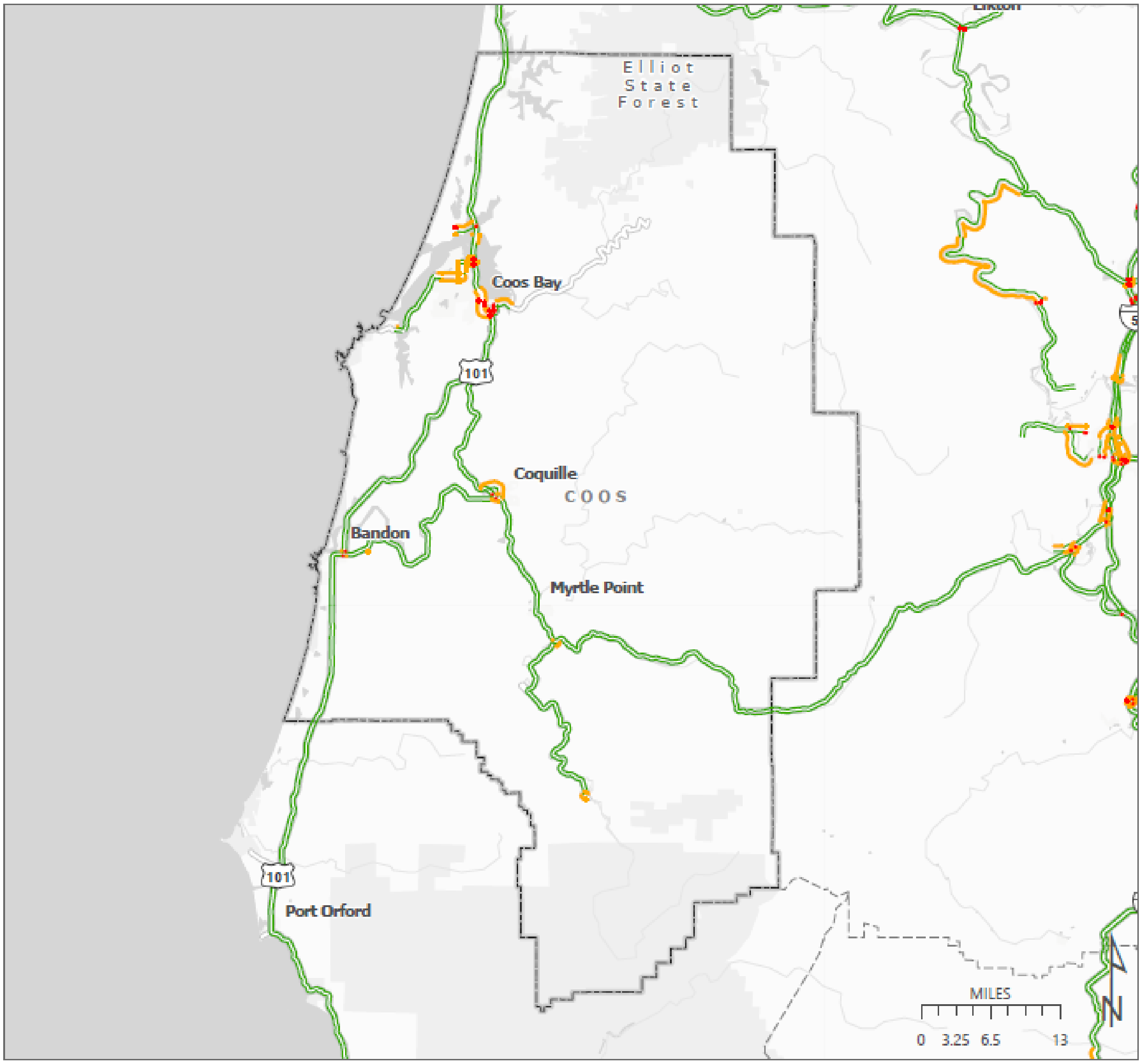


FIGURE C6. COOS COUNTY PLANNING TIME INDEX, 2023



COOS

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during one of the worst traffic days to travel during the same hour on a normal traffic day.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Planning Time Index Category

- Reliable (PTI < 1.33)
- Moderately Unreliable (PTI < 2.0)
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C7. CROOK COUNTY PLANNING TIME INDEX, 2023

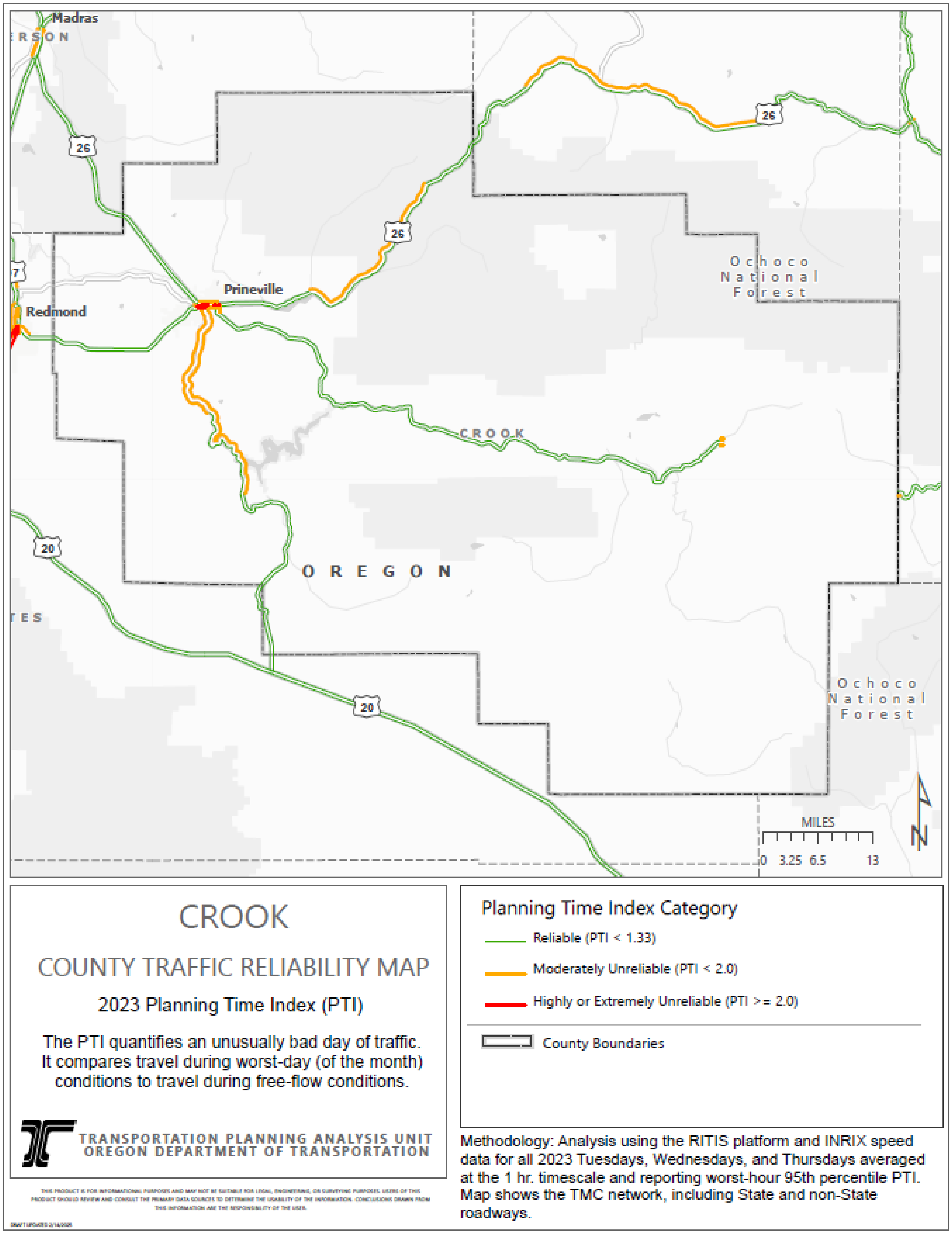
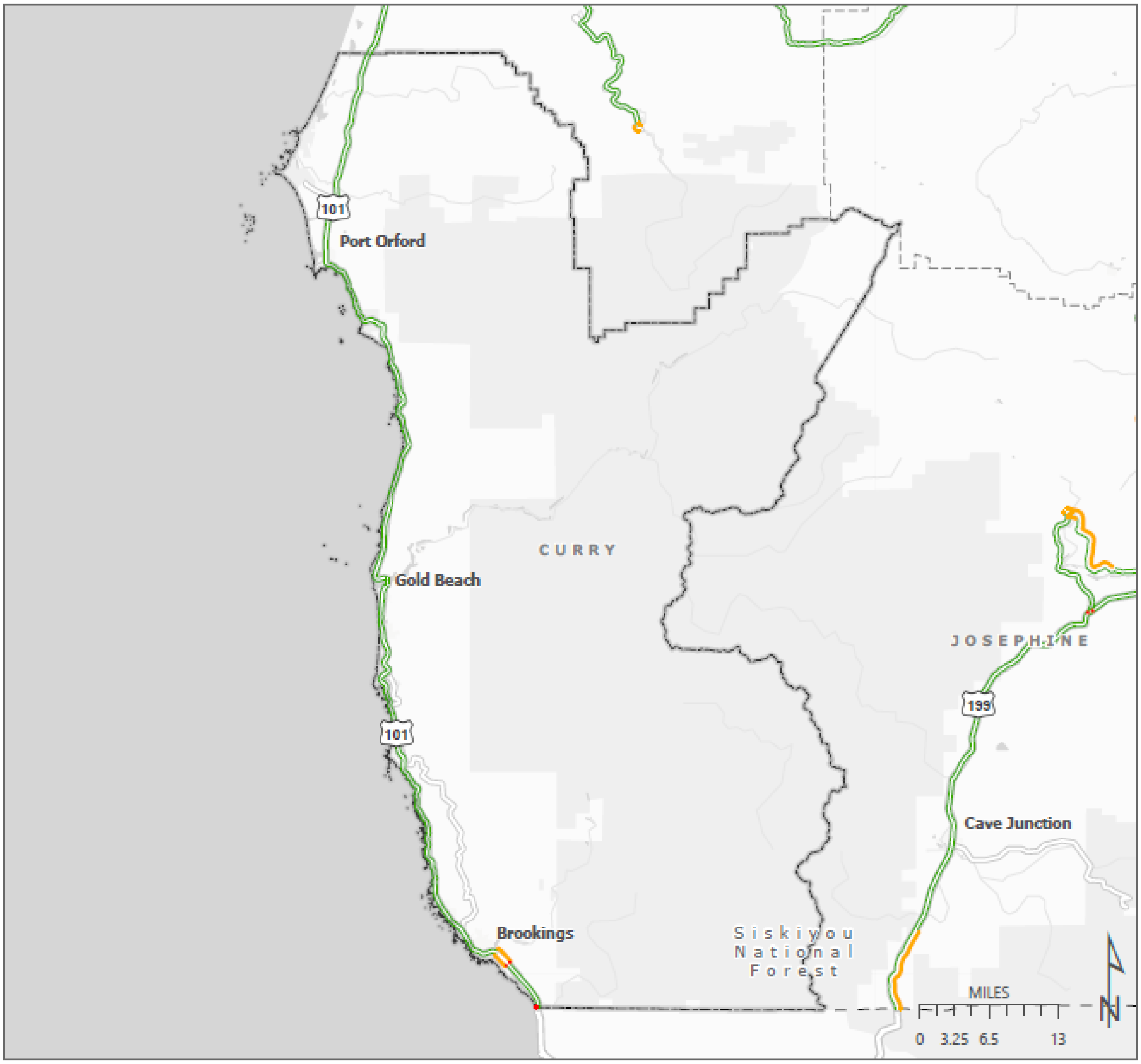


Figure C8. Curry County Planning Time Index, 2023



CURRY

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Planning Time Index Category

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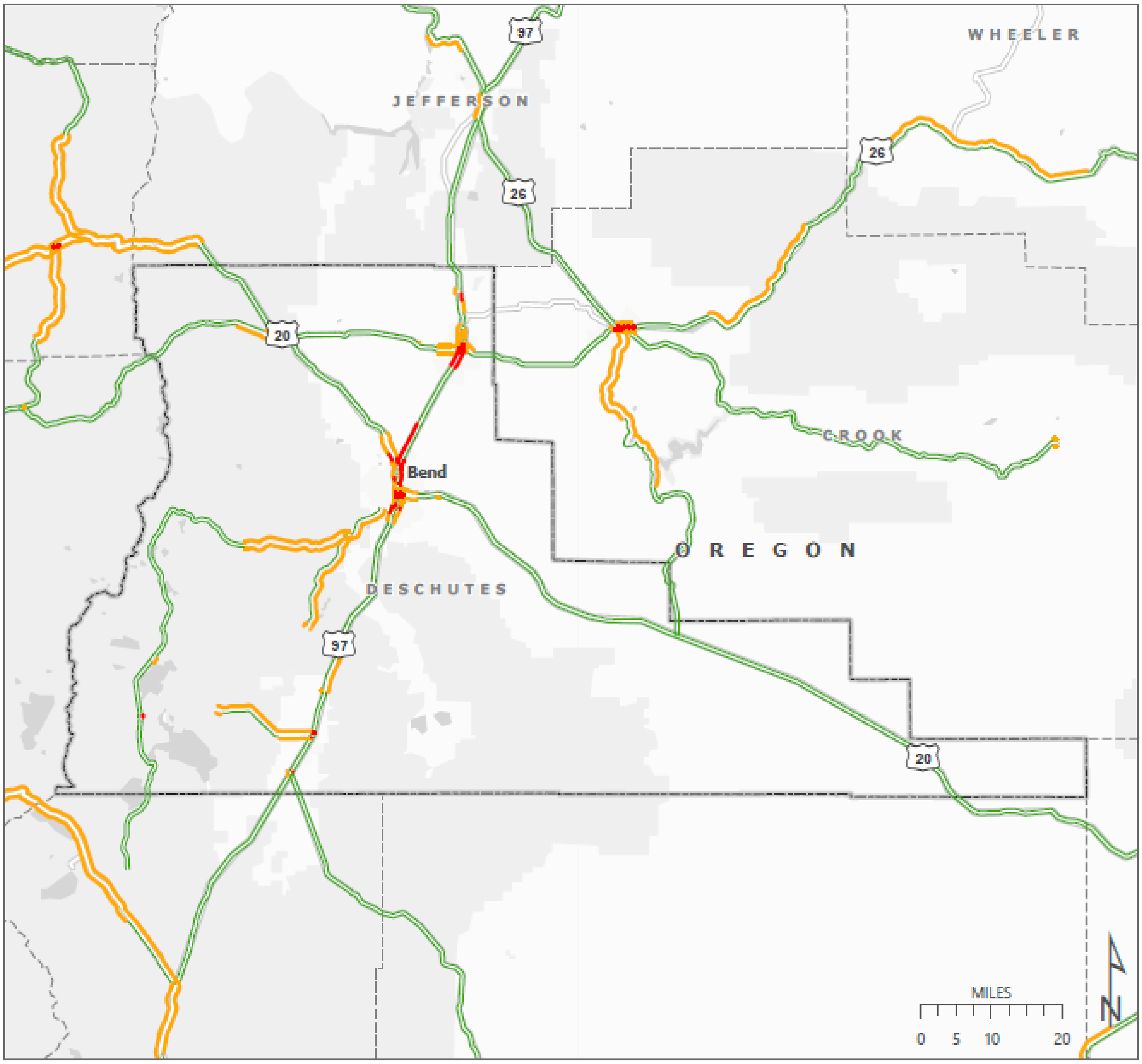
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C9. DESCHUTES COUNTY PLANNING TIME INDEX, 2023



DESCHUTES

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Planning Time Index Category

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- Highly Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

Figure C10. Douglas County Planning Time Index, 2023

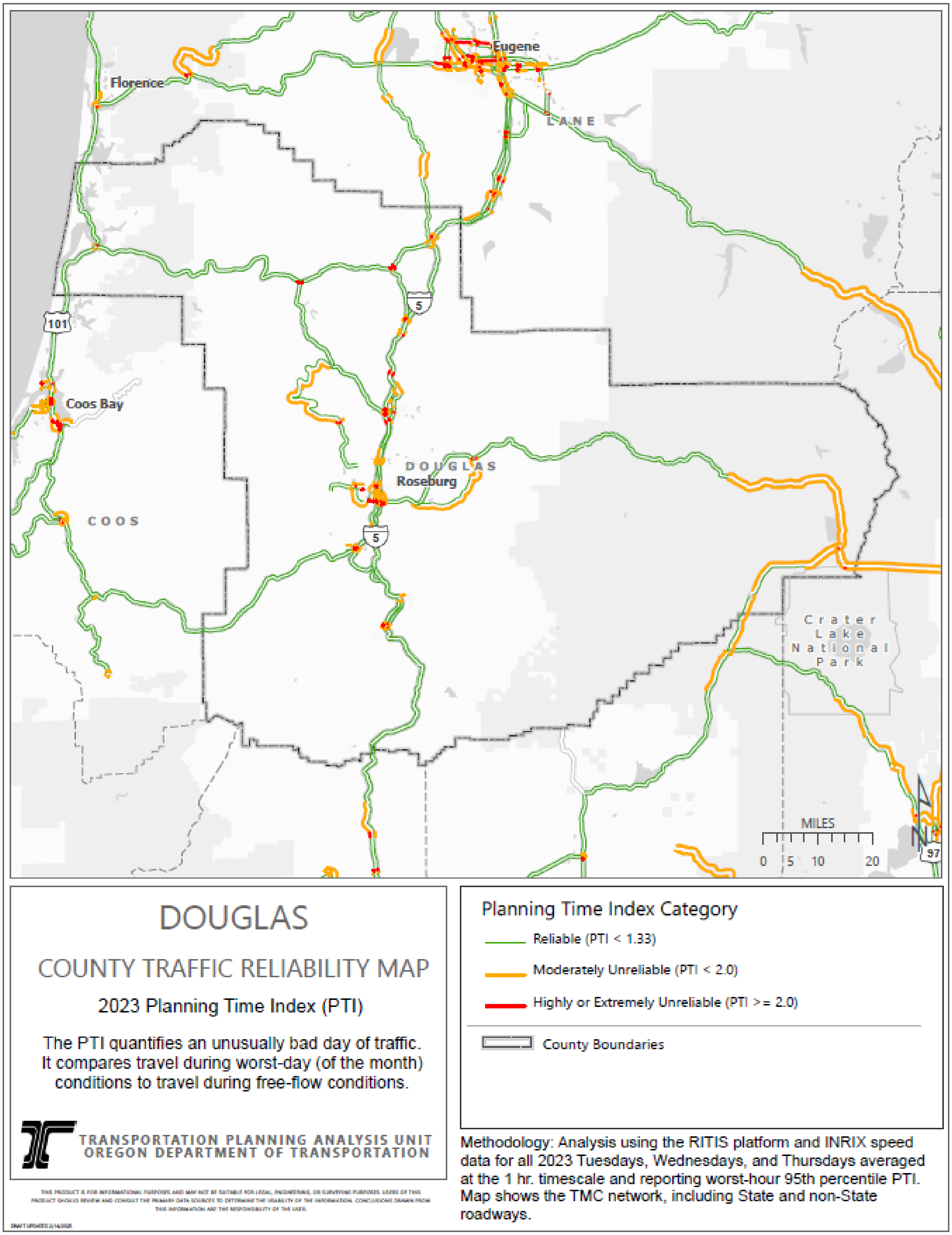
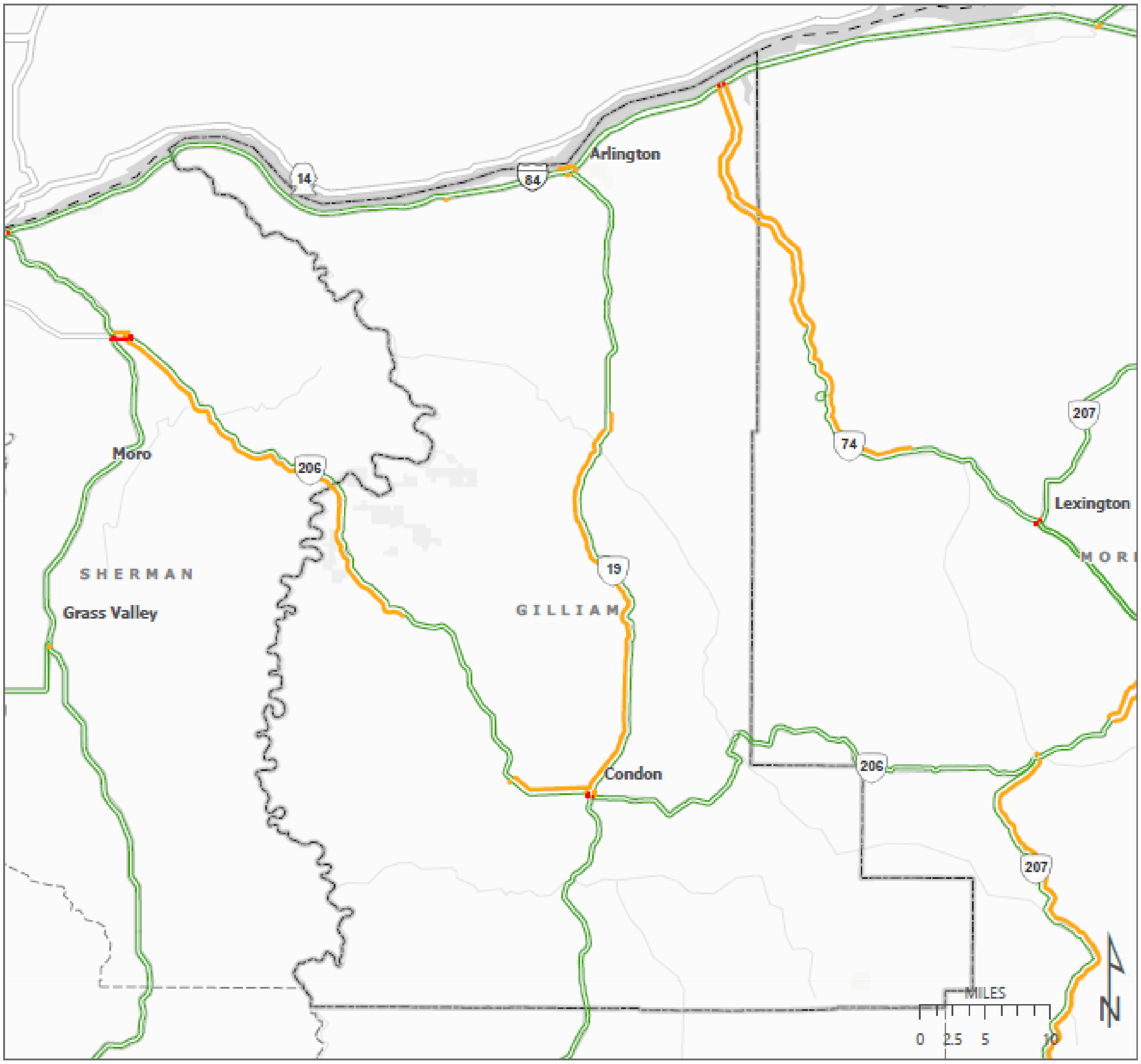


FIGURE C11. GILLIAM COUNTY PLANNING TIME INDEX, 2023



GILLIAM

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Planning Time Index Category

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- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

Figure C12. Grant County Planning Time Index, 2023

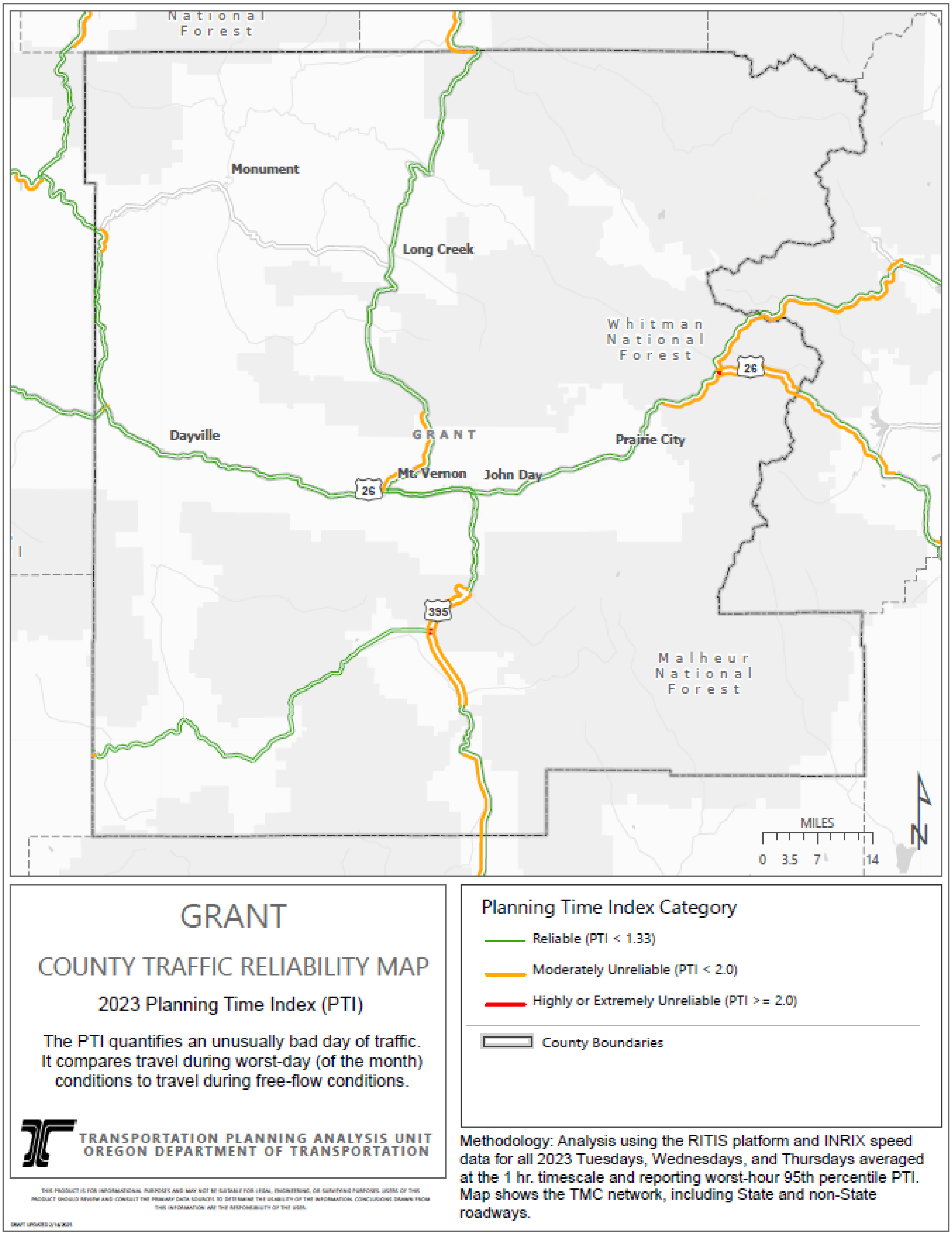


Figure C13. Harney County Planning Time Index, 2023

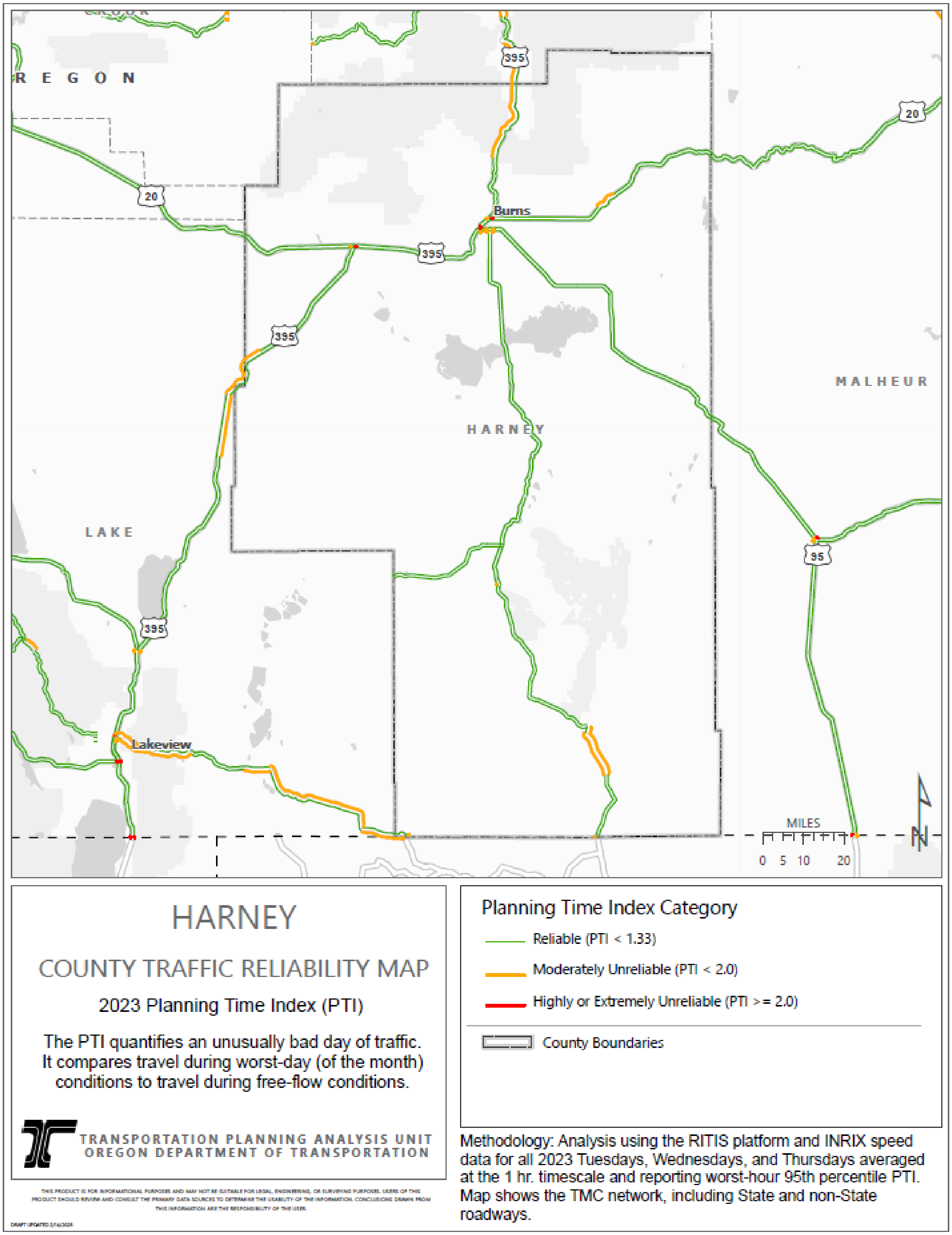
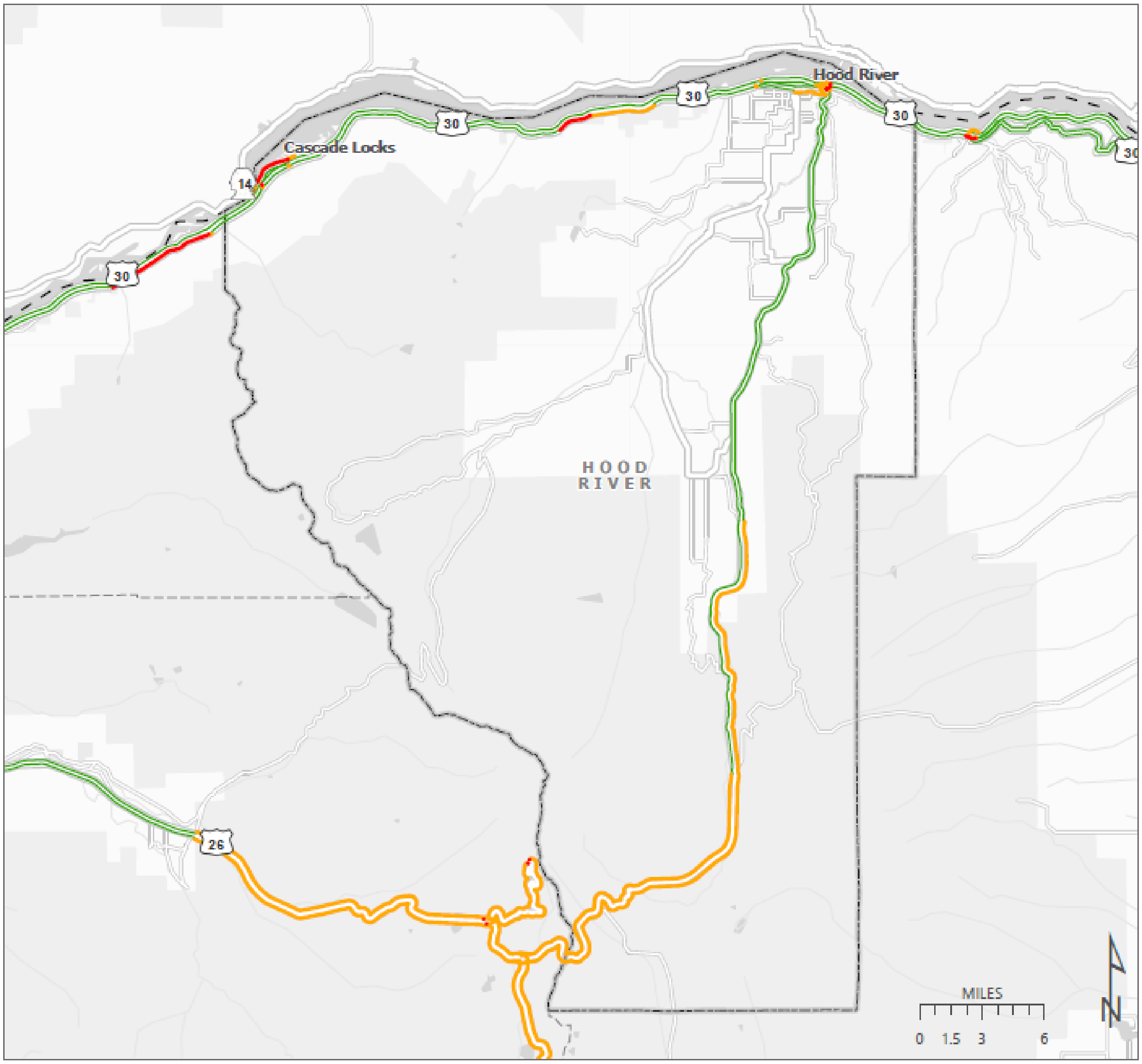


FIGURE C14. HOOD RIVER COUNTY PLANNING TIME INDEX, 2023



HOOD RIVER

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

Planning Time Index Category

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- Moderately Unreliable (PTI < 2.0)
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County Boundaries

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FIGURE C15. JACKSON COUNTY PLANNING TIME INDEX, 2023

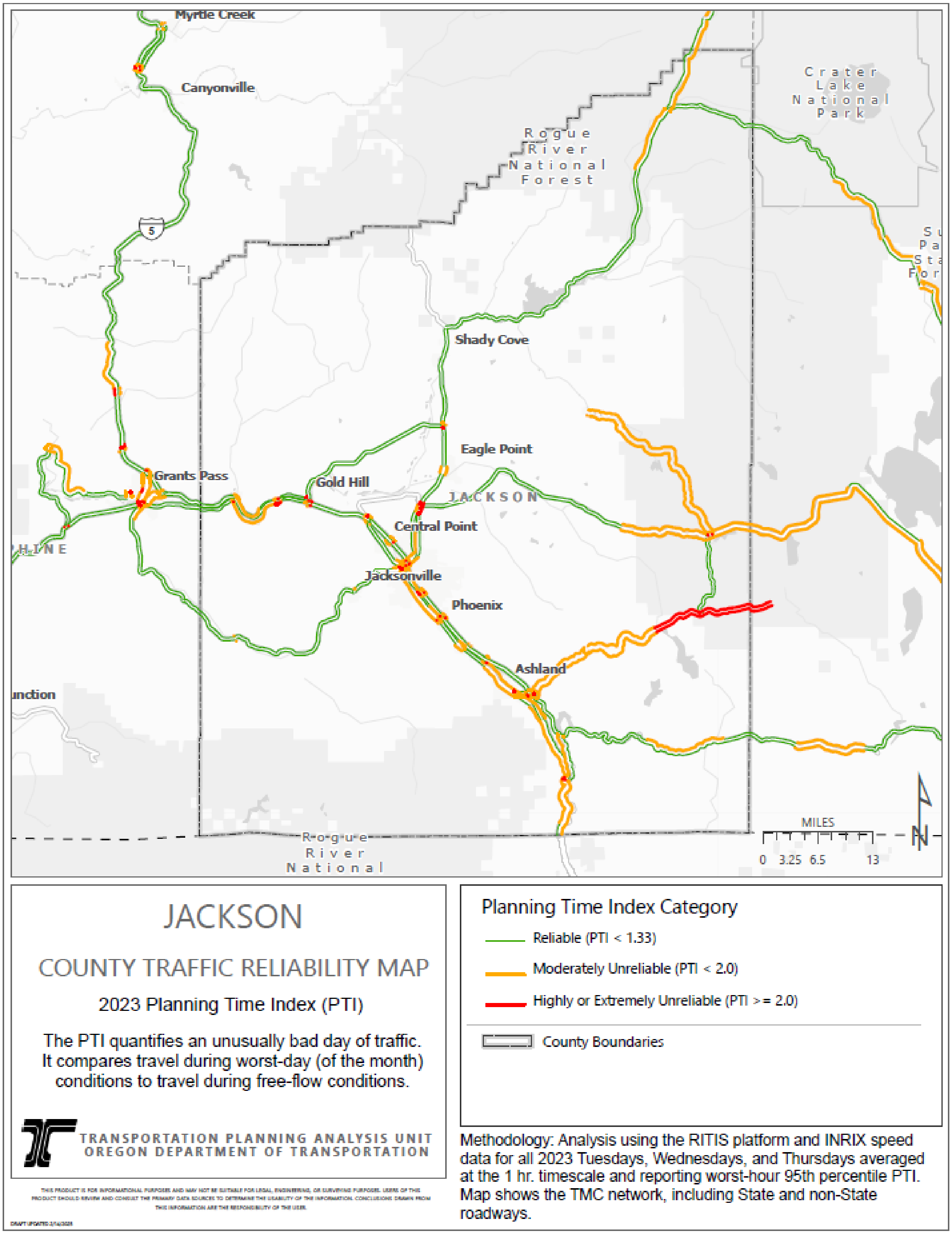
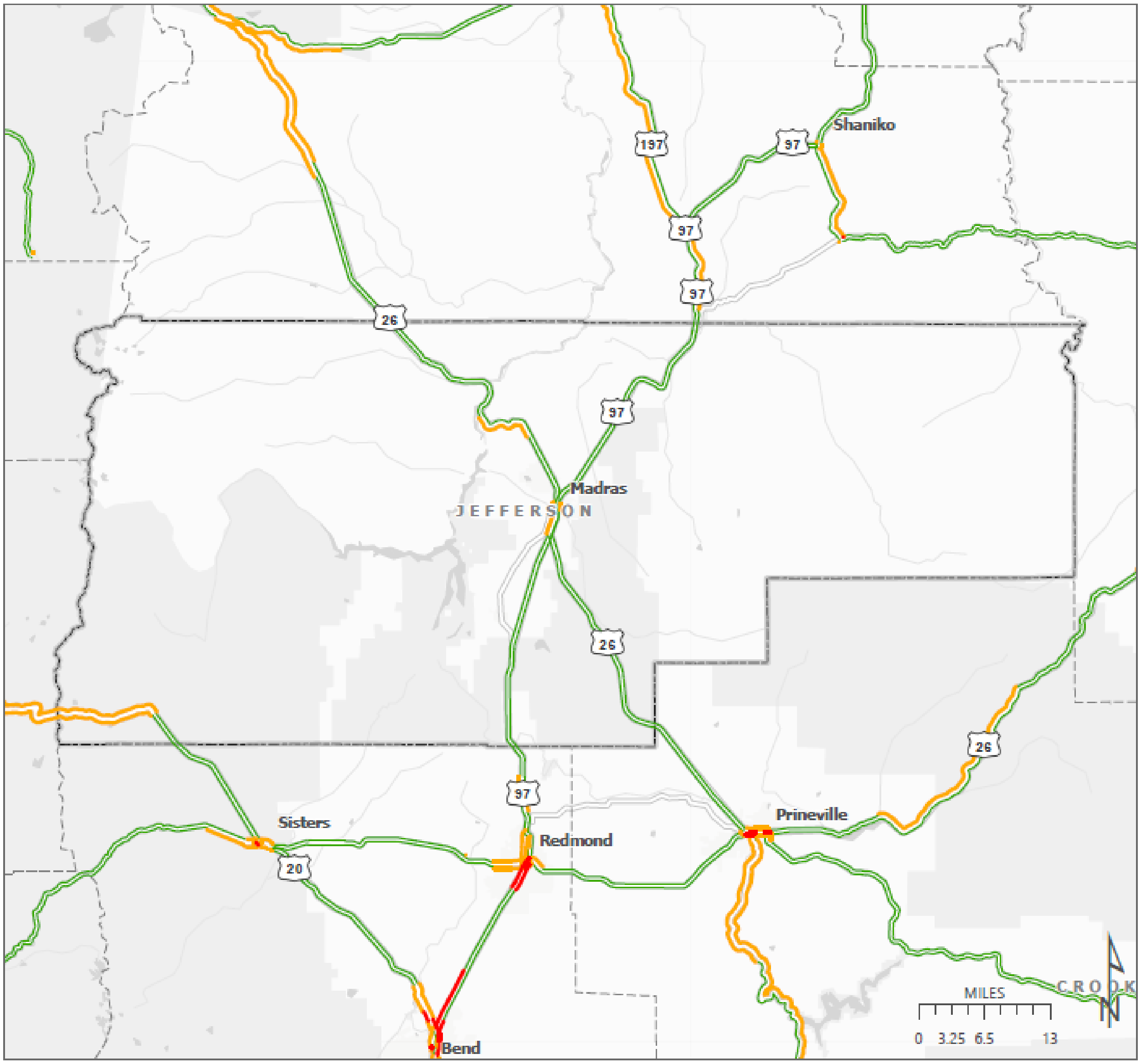


FIGURE C16. JEFFERSON COUNTY PLANNING TIME INDEX, 2023



JEFFERSON

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Planning Time Index Category

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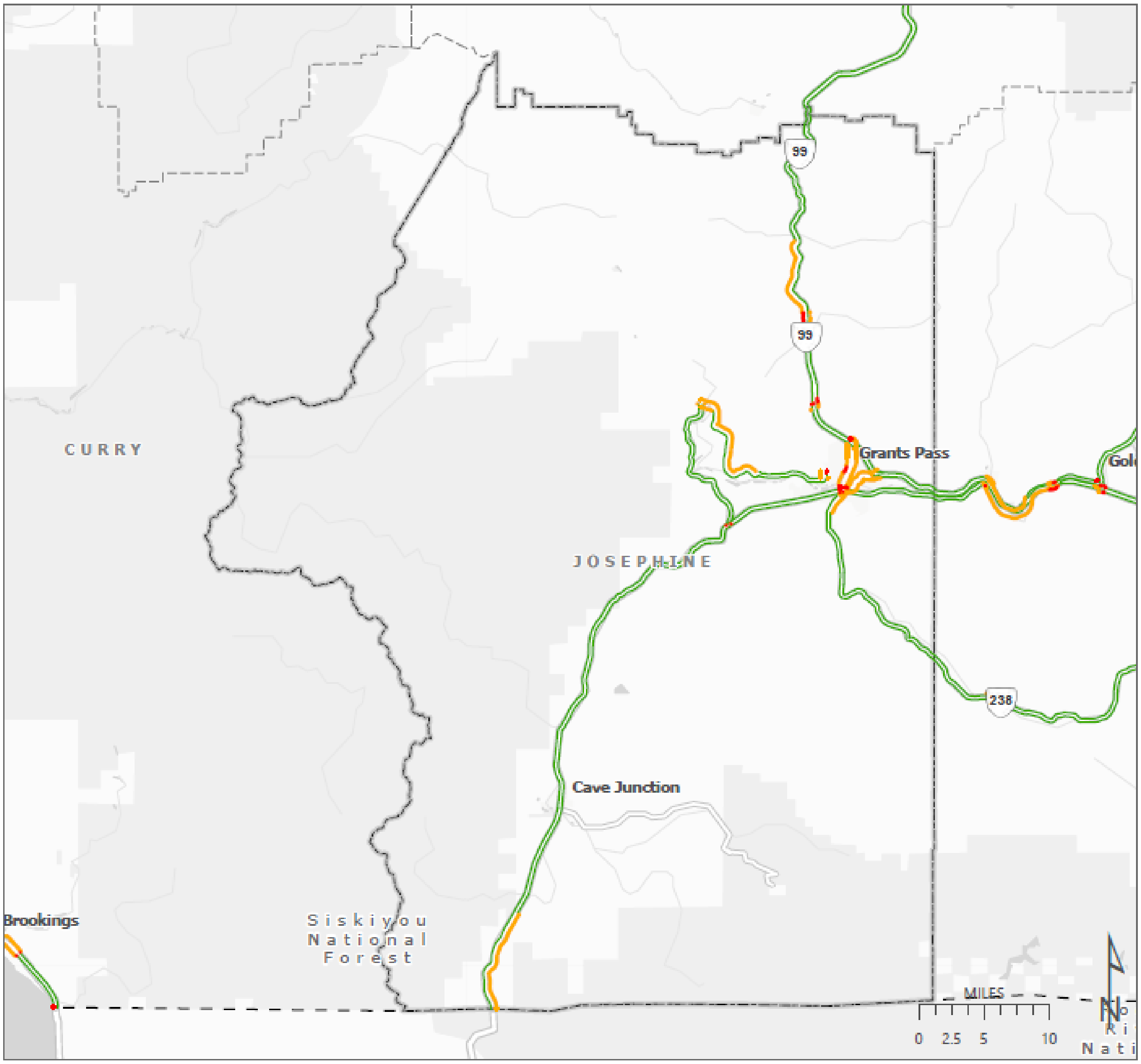
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

Figure C17. Josephine County Planning Time Index, 2023



JOSEPHINE

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

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TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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DRAFT UPDATED

Planning Time Index Category

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- Highly or Extremely Unreliable (PTI >= 2.0)

County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C18. KLAMATH COUNTY PLANNING TIME INDEX, 2023

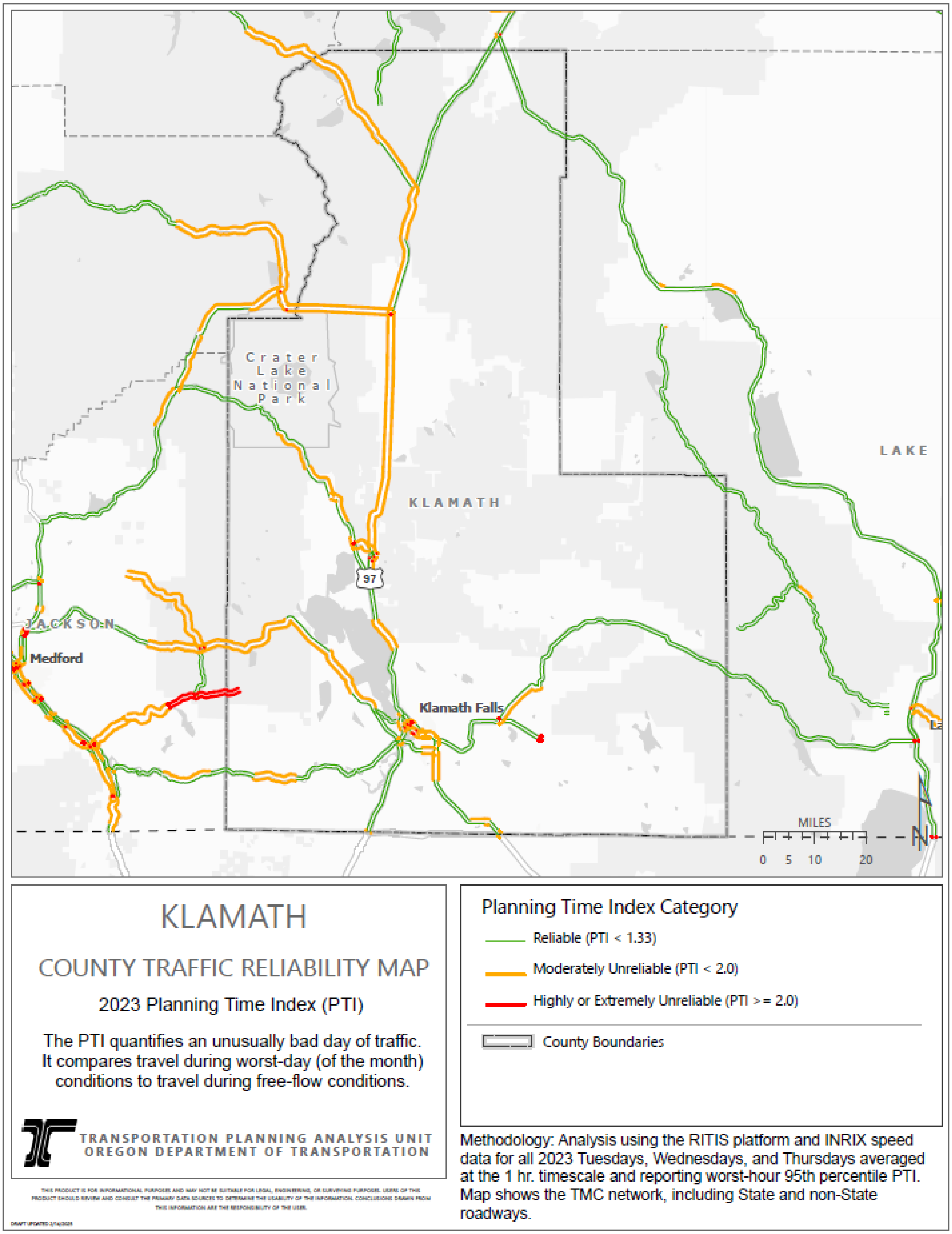
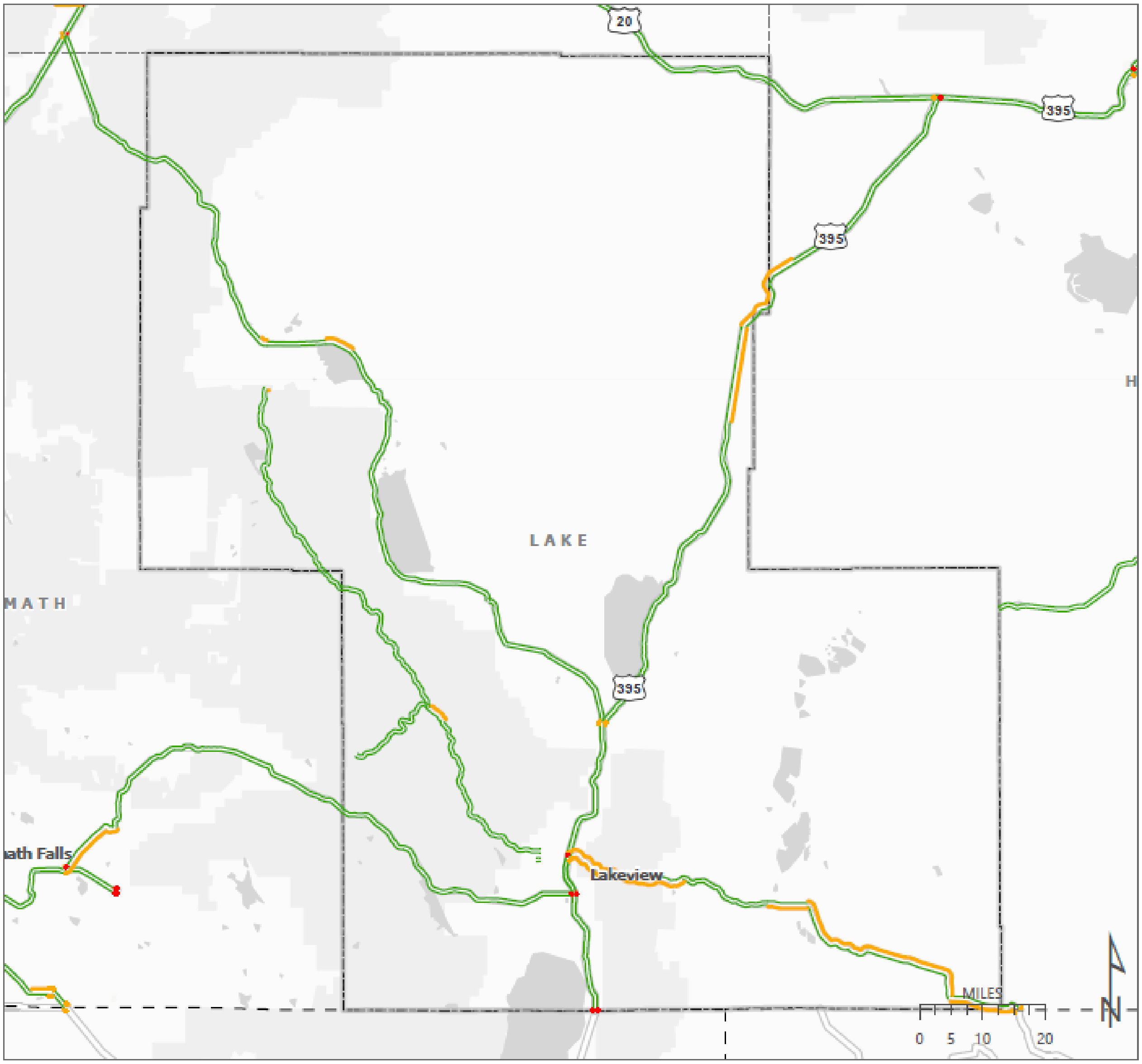


Figure C19. Lake County Planning Time Index, 2023



LAKE

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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- County Boundaries

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FIGURE C20. LANE COUNTY PLANNING TIME INDEX, 2023

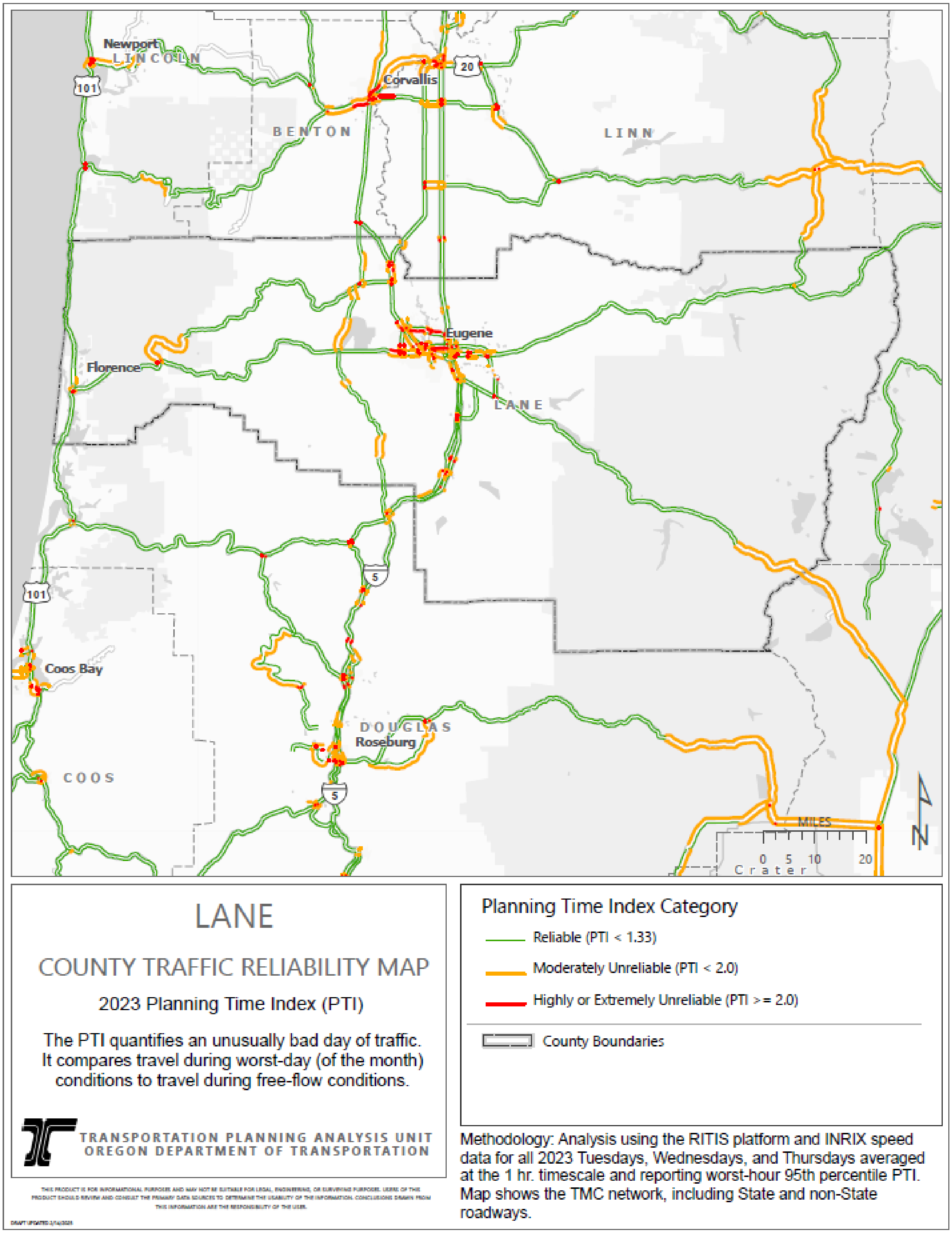
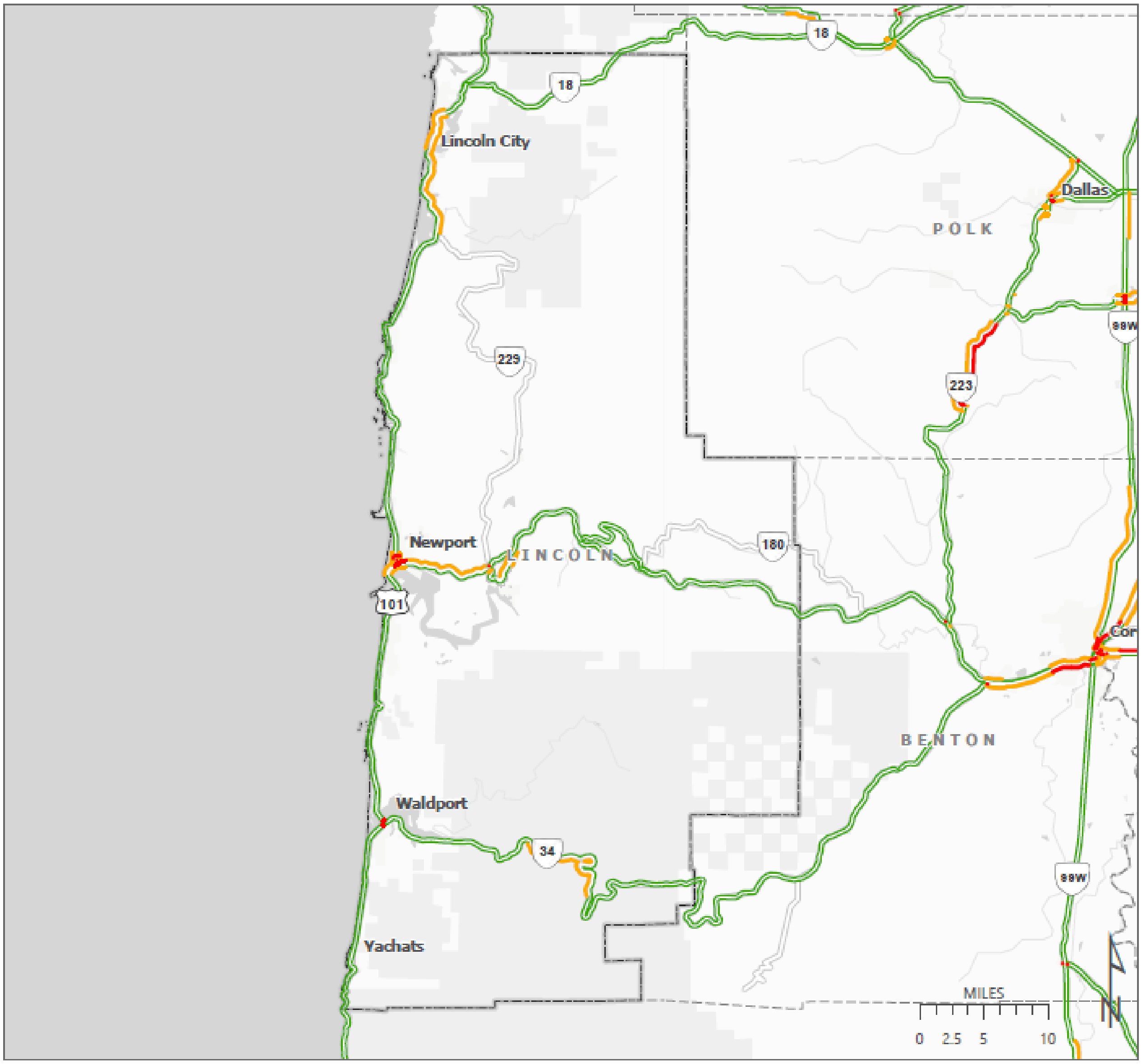


FIGURE C21. LINCOLN COUNTY PLANNING TIME INDEX, 2023



LINCOLN

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

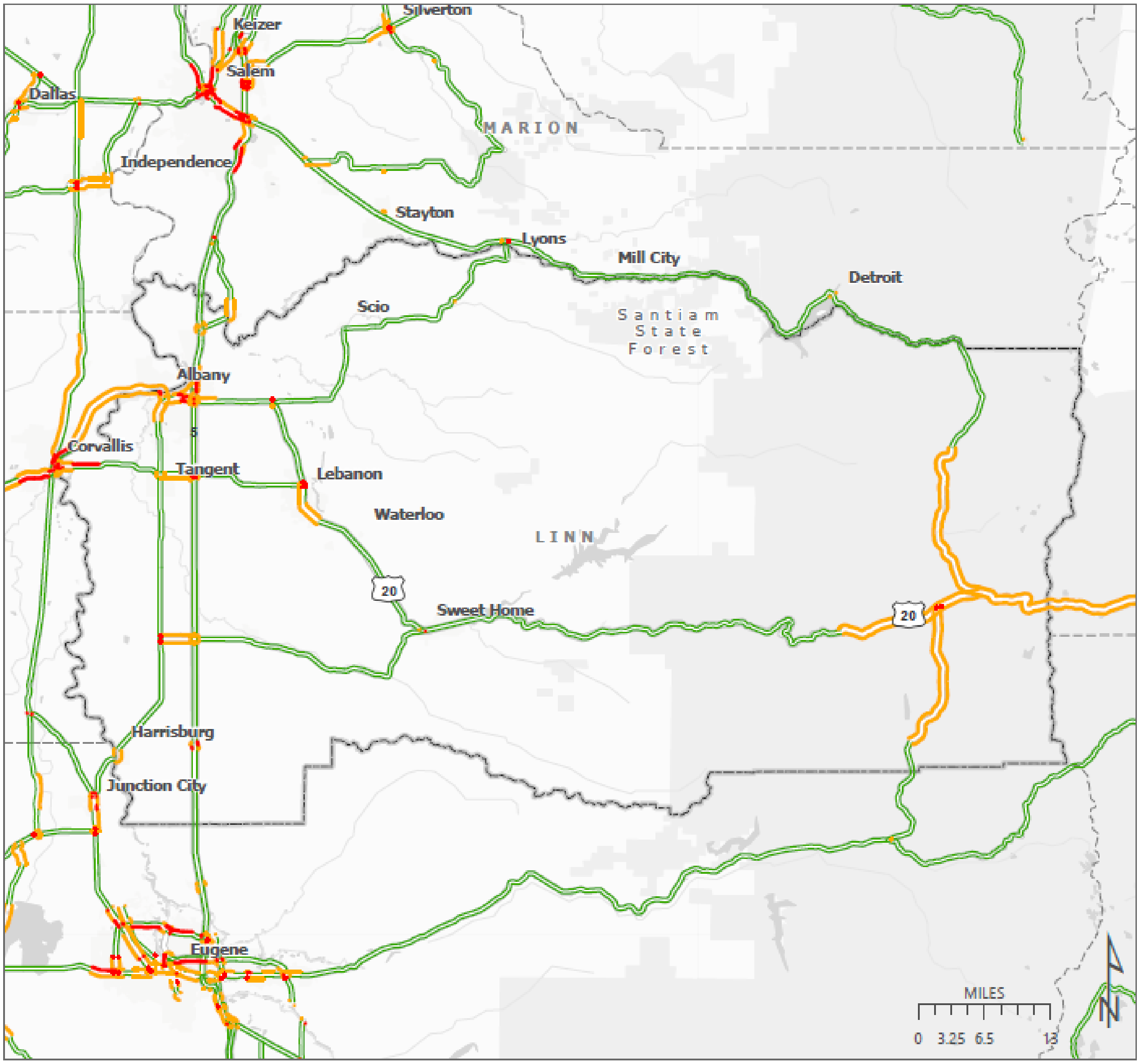
Planning Time Index Category

- Reliable (PTI < 1.33)
- Moderately Unreliable (PTI < 2.0)
- Highly or Extremely Unreliable (PTI >= 2.0)

County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C22. LINN COUNTY PLANNING TIME INDEX, 2023



LINN

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

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TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Planning Time Index Category

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- County Boundaries

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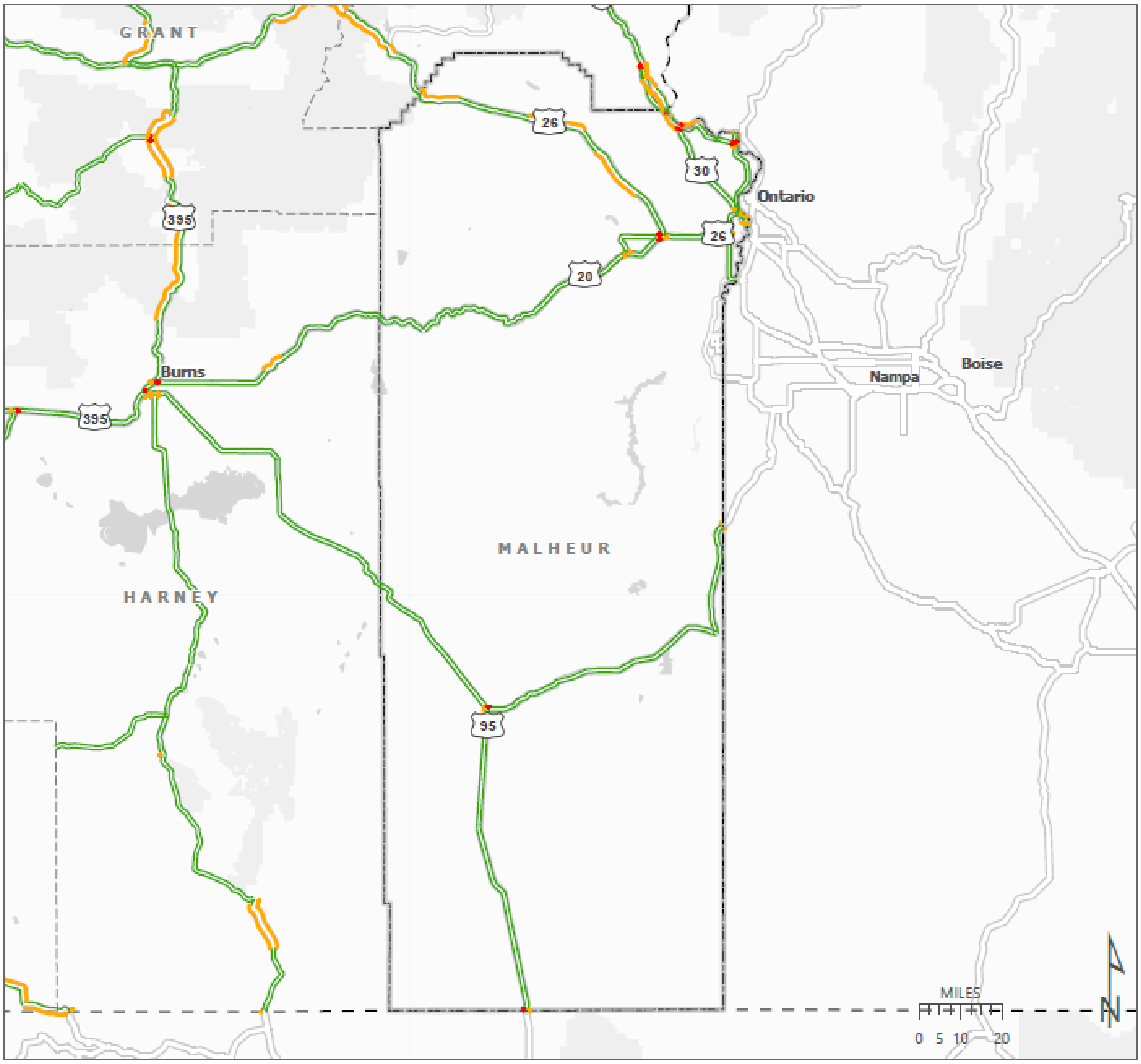
Figure C23. Malheur County Planning Time Index, 2023



MALHEUR

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

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TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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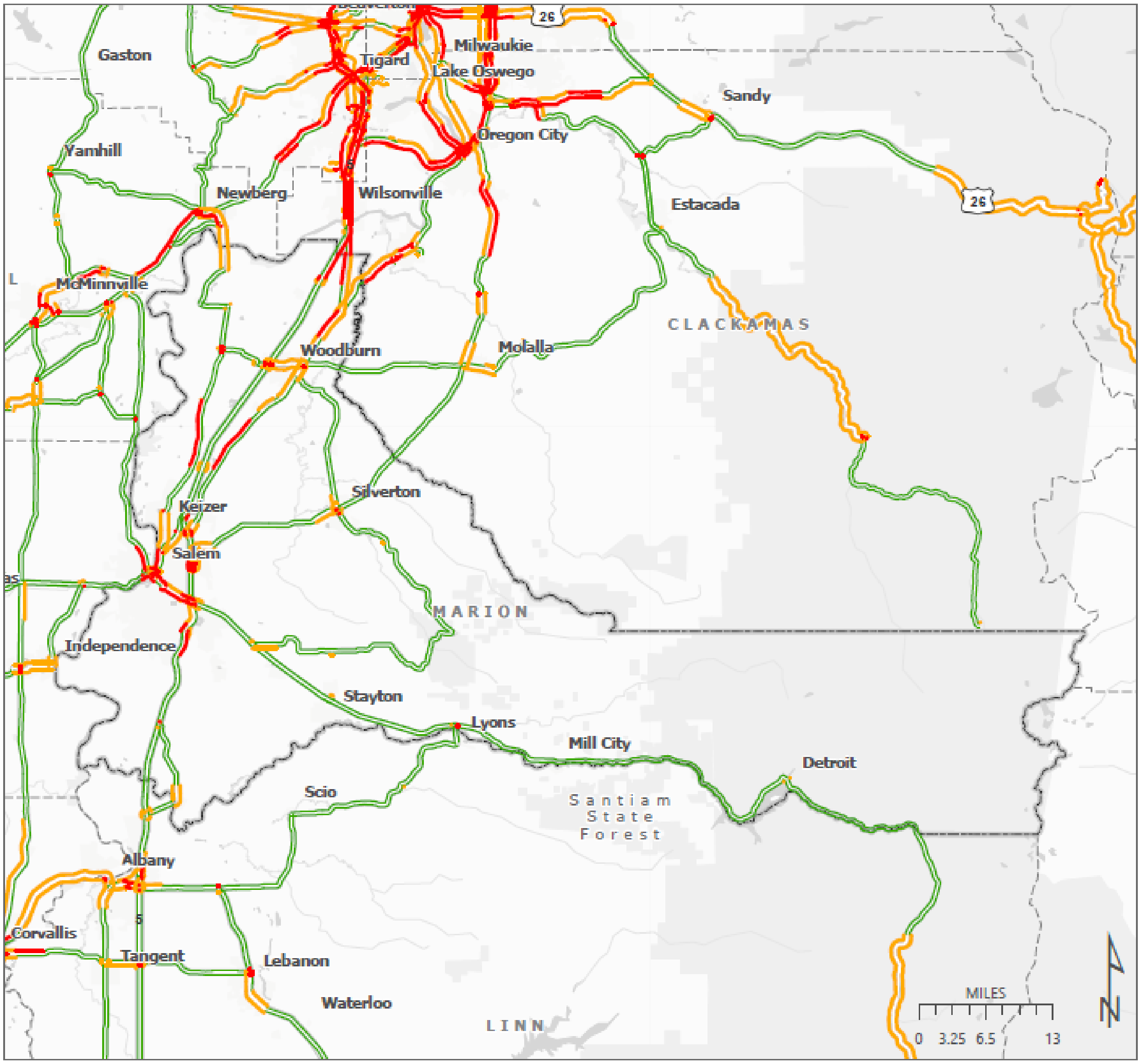
FIGURE C24. MARION COUNTY PLANNING TIME INDEX, 2023



MARION

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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- County Boundaries

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FIGURE C25. MORROW COUNTY PLANNING TIME INDEX, 2023

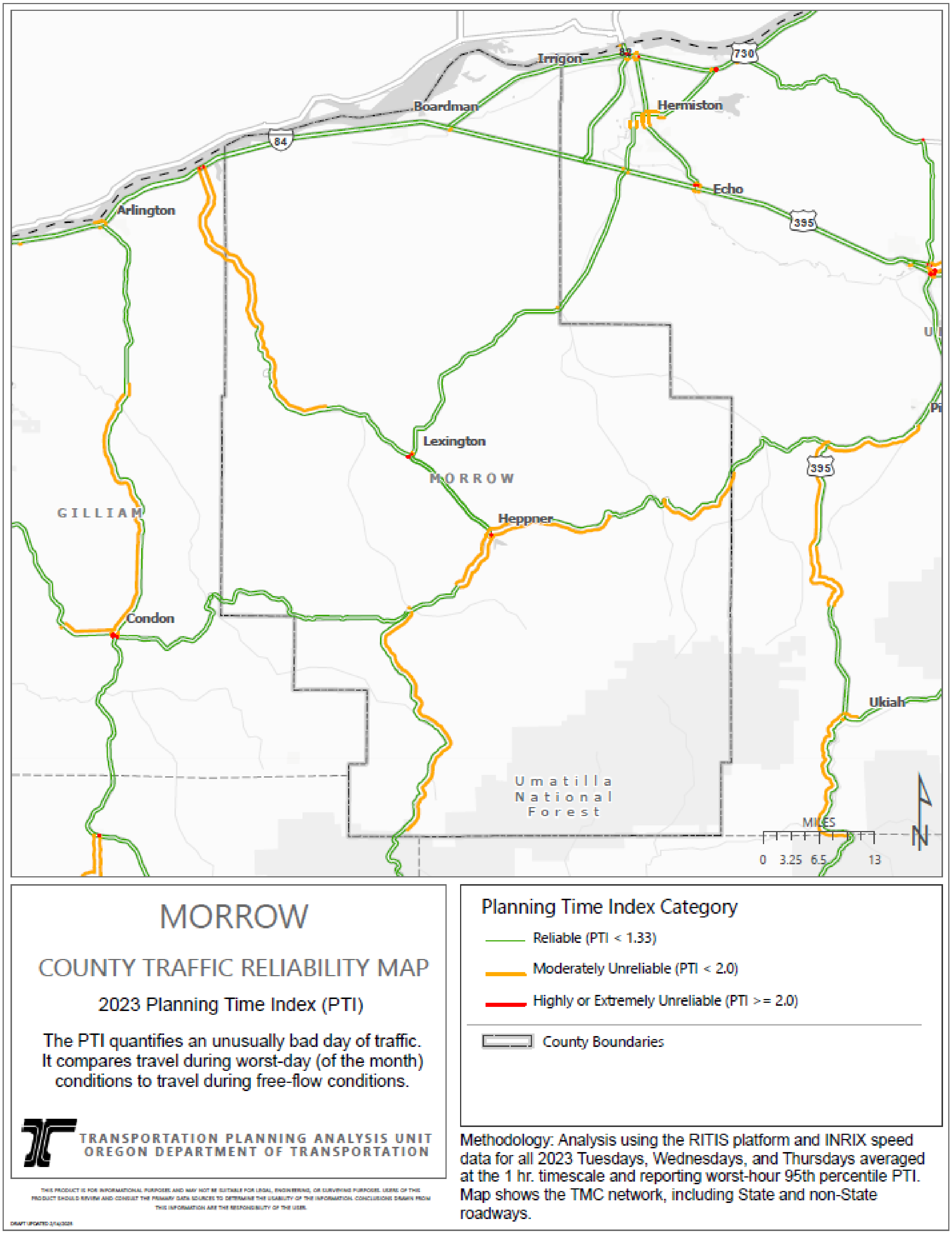
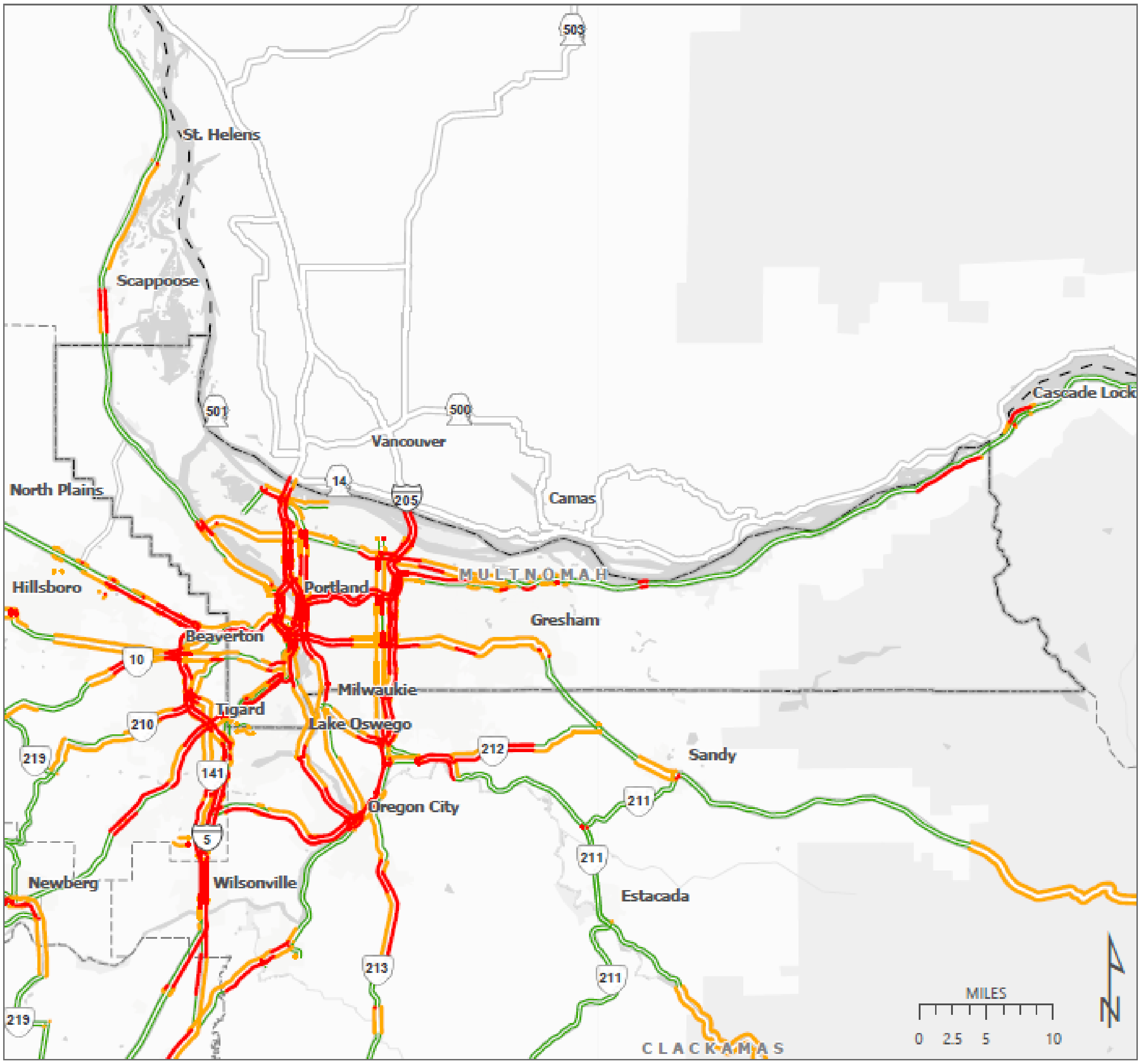


Figure C26. Multnomah County Planning Time Index, 2023



MULTNOMAH

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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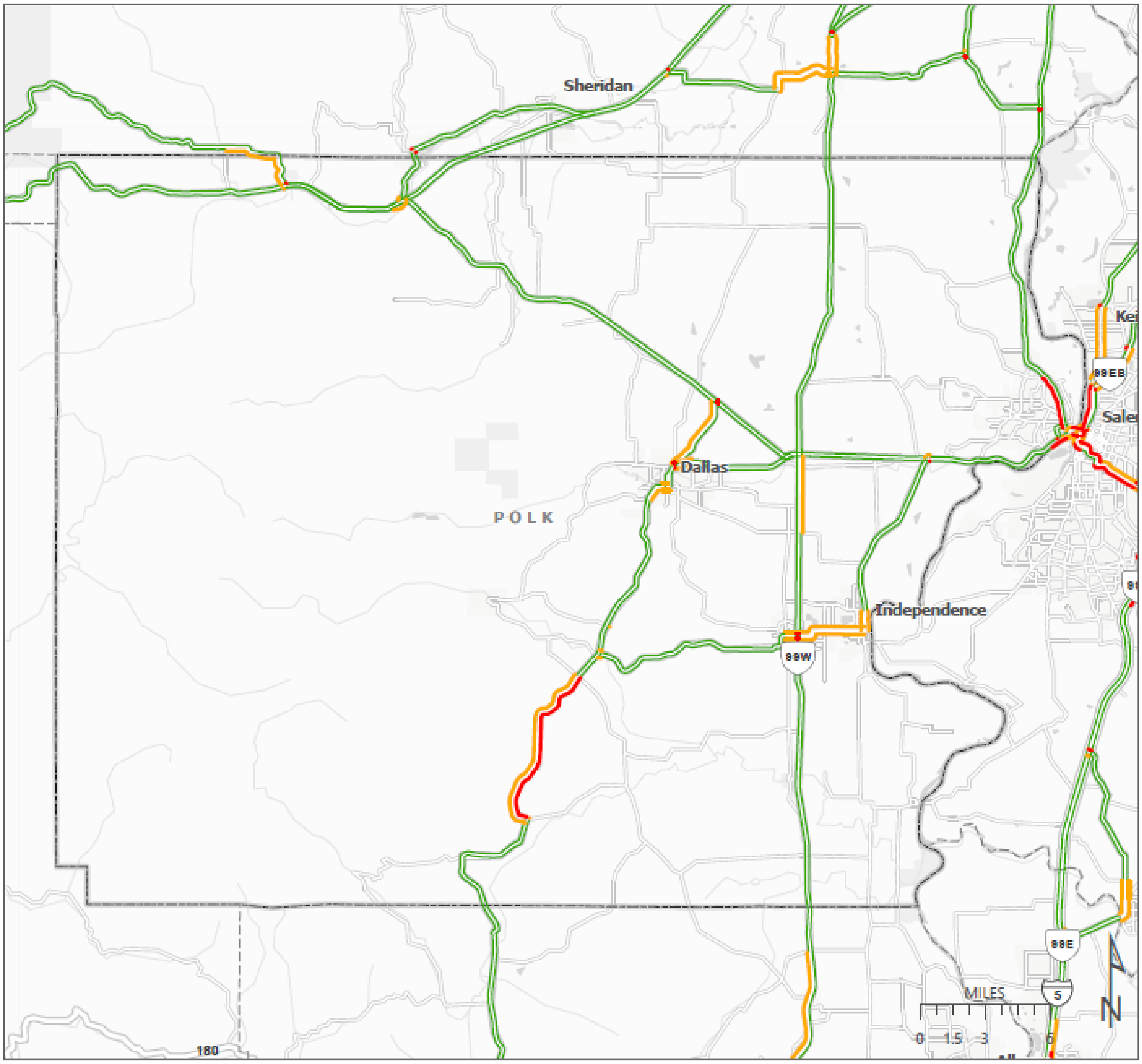
Figure C27. Polk County Planning Time Index, 2023



POLK

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

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TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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Planning Time Index Category

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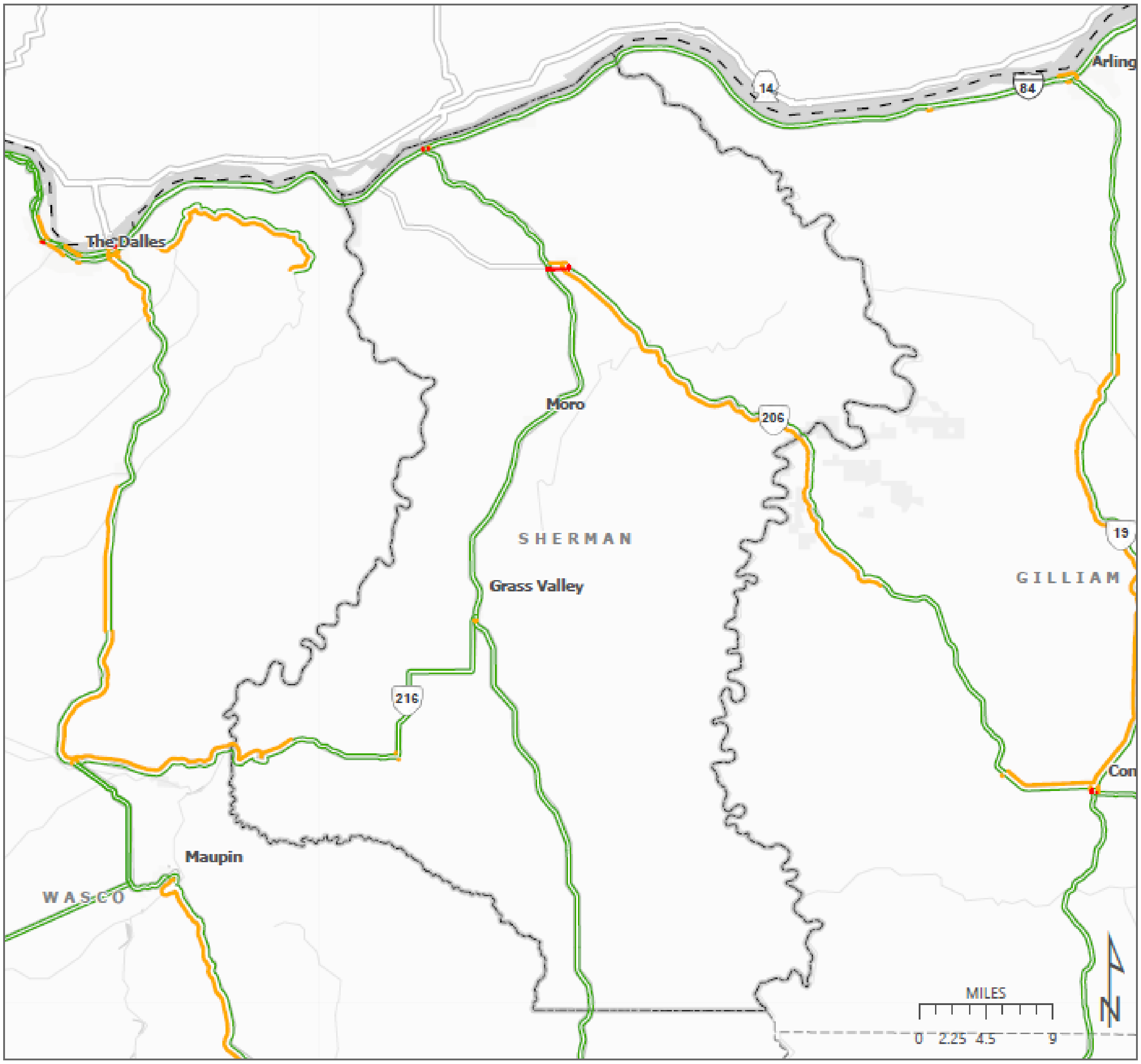
Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C28. SHERMAN COUNTY PLANNING TIME INDEX, 2023



SHERMAN

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

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TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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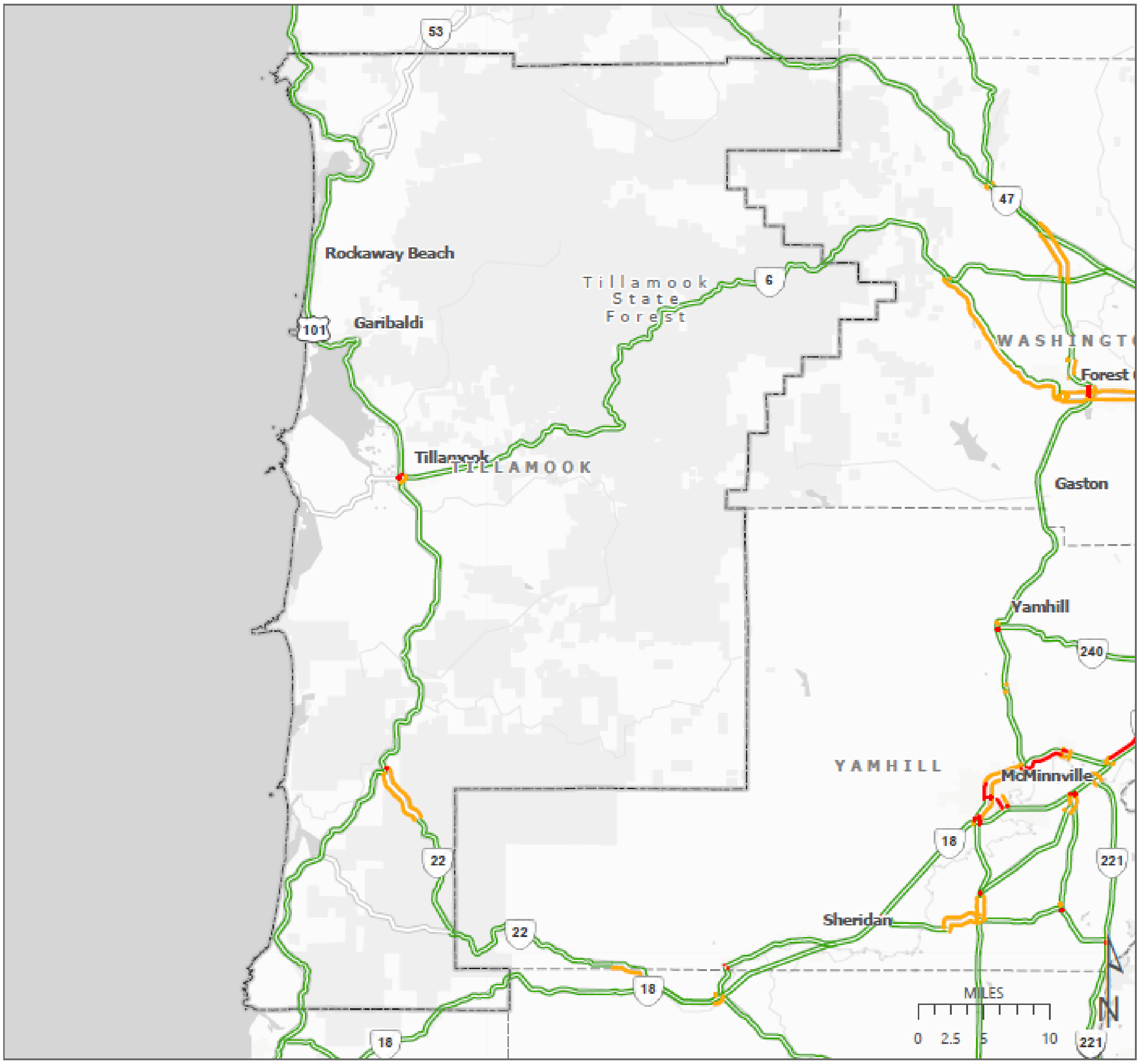
FIGURE C29. TILLAMOOK COUNTY PLANNING TIME INDEX, 2023



TILLAMOOK

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

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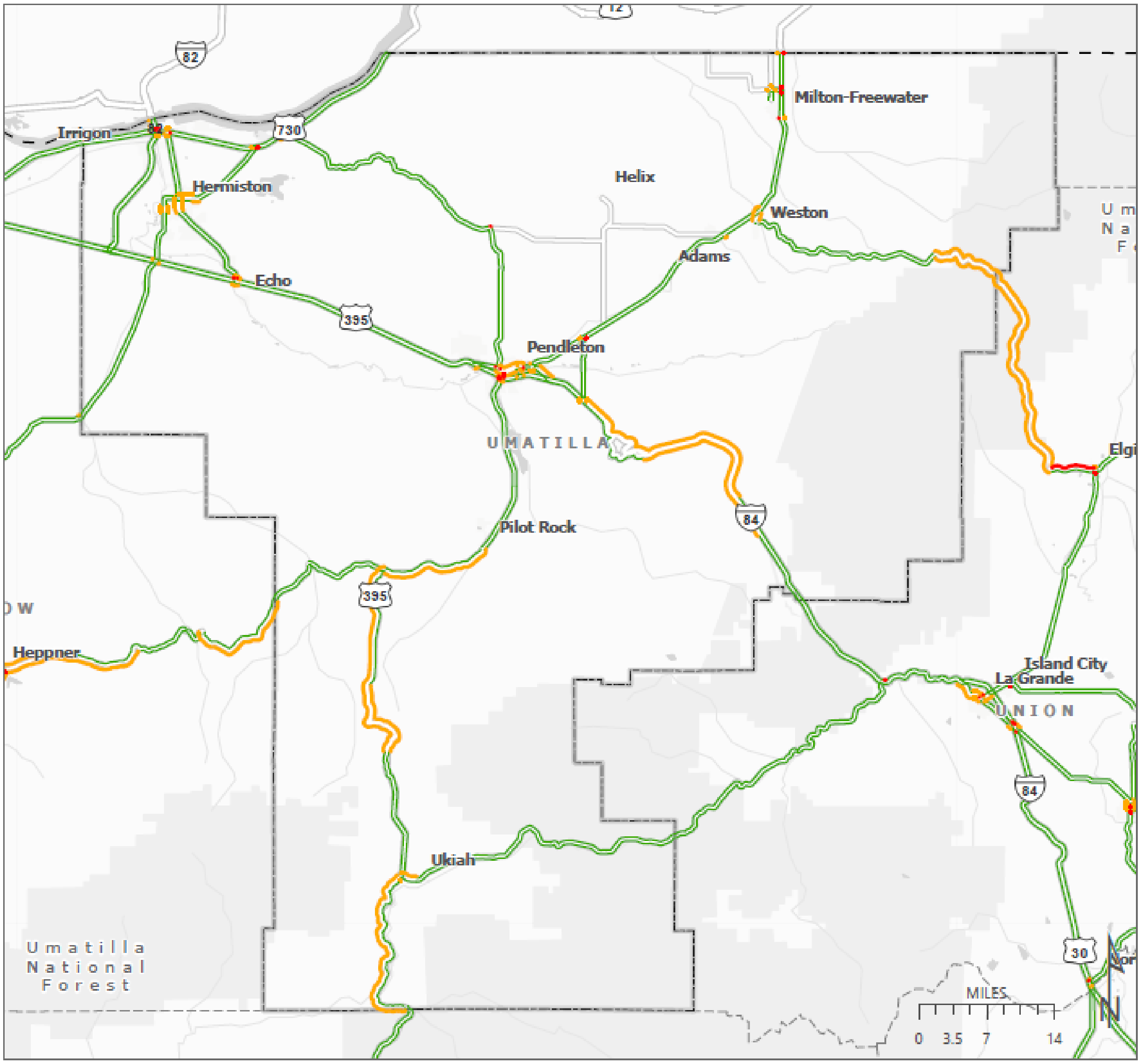
FIGURE C30. UMATILLA COUNTY PLANNING TIME INDEX, 2023



UMATILLA

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

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TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

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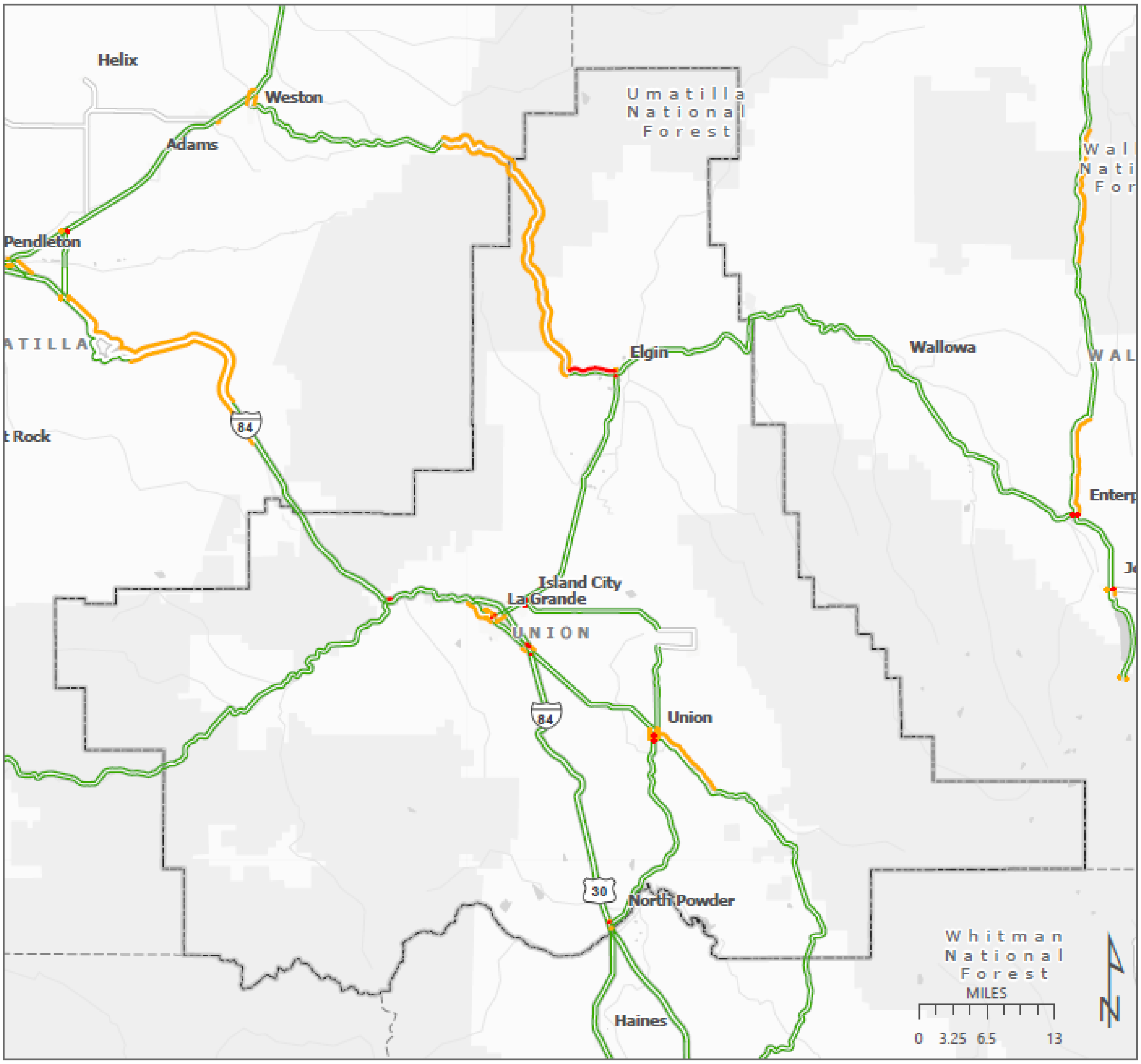
Planning Time Index Category

- Reliable (PTI < 1.33)
- Moderately Unreliable (PTI < 2.0)
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C31. UNION COUNTY PLANNING TIME INDEX, 2023



UNION

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

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Planning Time Index Category

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- Highly or Extremely Unreliable (PTI >= 2.0)
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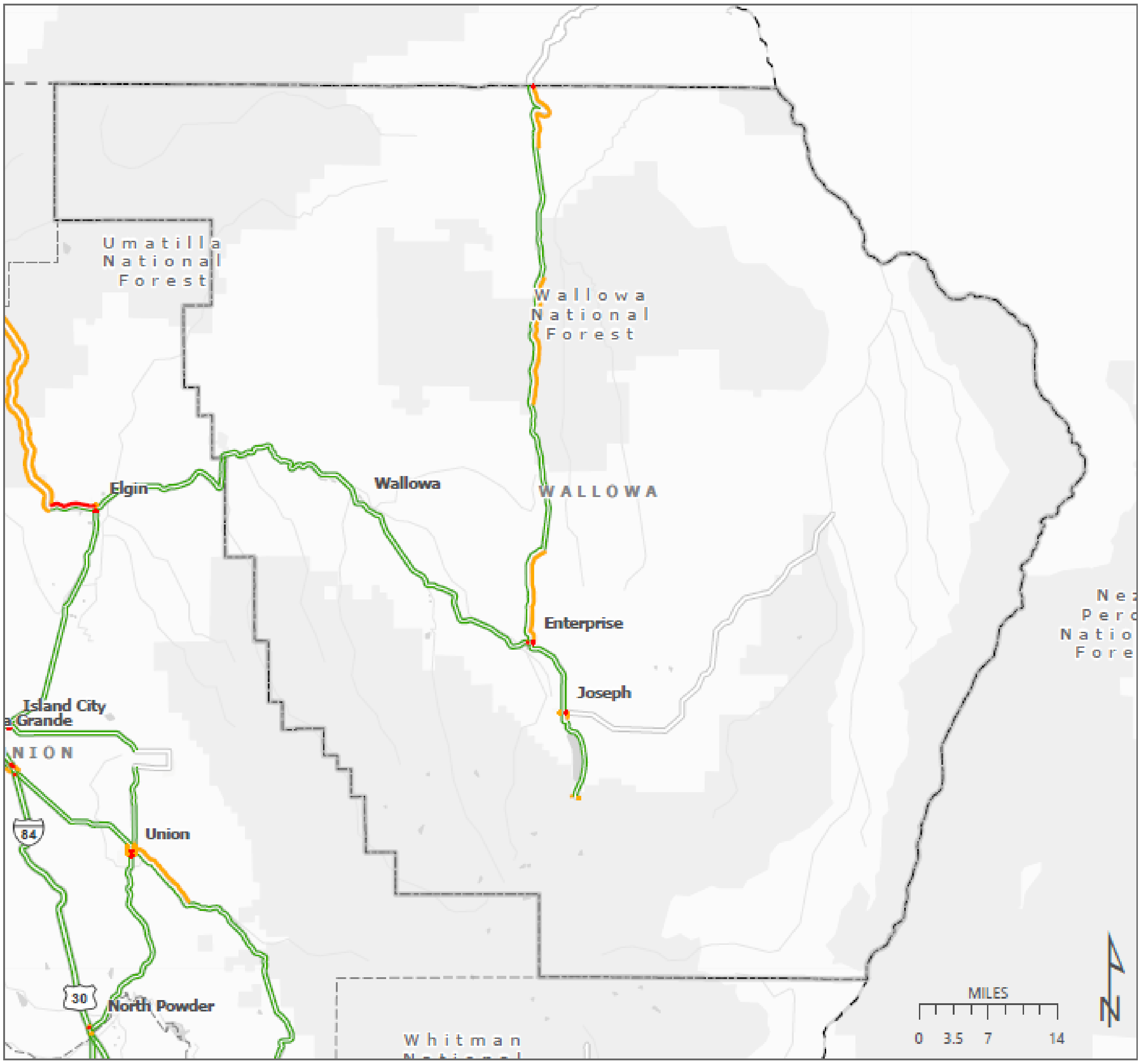
Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C32. WALLOWA COUNTY PLANNING TIME INDEX, 2023



WALLOWA

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

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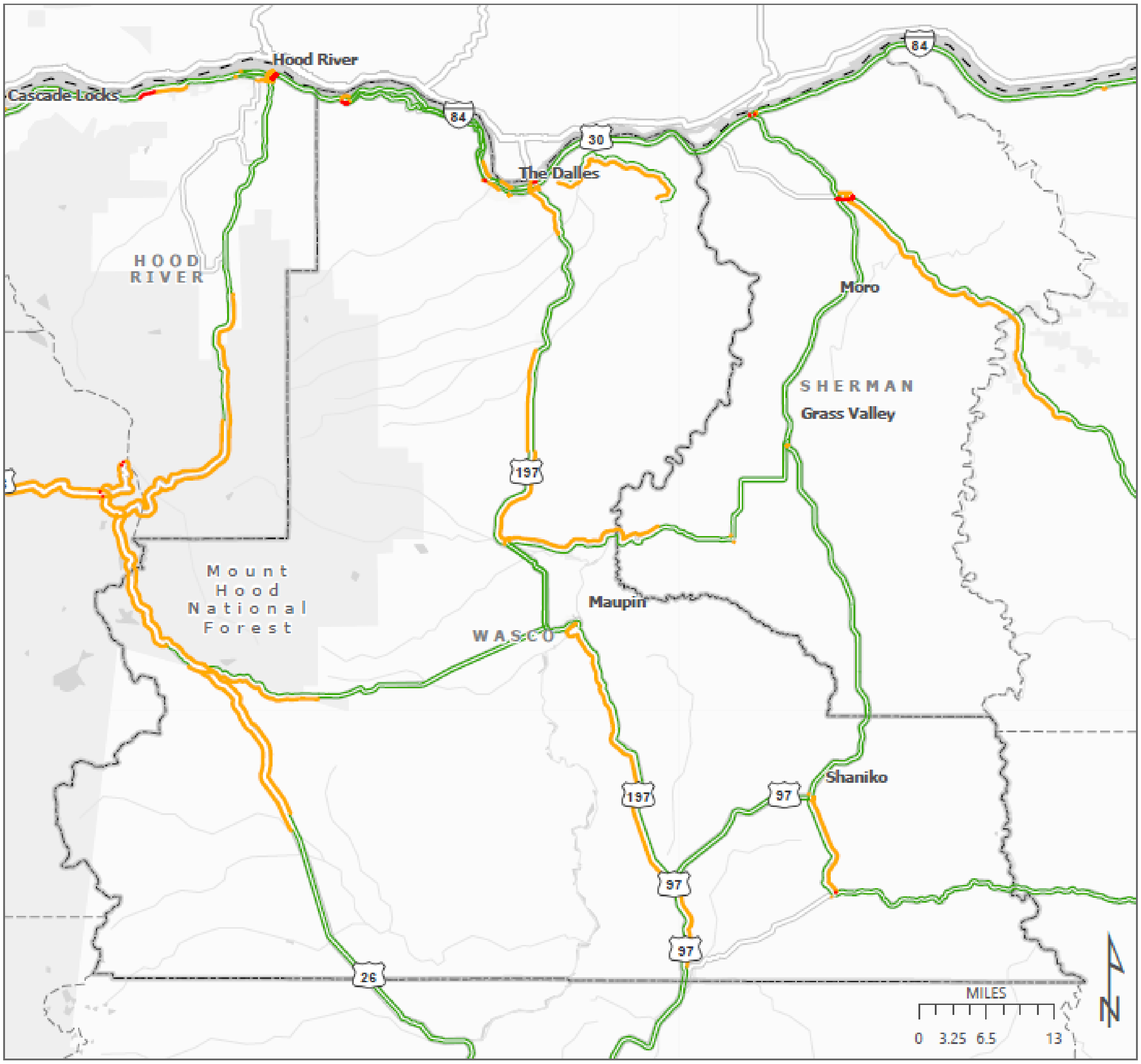
DRAFT UPDATED [illegible]

Planning Time Index Category

- Reliable (PTI < 1.33)
- Moderately Unreliable (PTI < 2.0)
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C33. WASCO COUNTY PLANNING TIME INDEX, 2023



WASCO

COUNTY TRAFFIC RELIABILITY MAP

2023 Planning Time Index (PTI)

The PTI quantifies an unusually bad day of traffic. It compares travel during worst-day (of the month) conditions to travel during free-flow conditions.

TRANSPORTATION PLANNING ANALYSIS UNIT
OREGON DEPARTMENT OF TRANSPORTATION

Planning Time Index Category

- Reliable (PTI < 1.33)
- Moderately Unreliable (PTI < 2.0)
- Highly or Extremely Unreliable (PTI >= 2.0)
- County Boundaries

Methodology: Analysis using the RITIS platform and INRIX speed data for all 2023 Tuesdays, Wednesdays, and Thursdays averaged at the 1 hr. timescale and reporting worst-hour 95th percentile PTI. Map shows the TMC network, including State and non-State roadways.

FIGURE C34, WASHINGTON COUNTY PLANNING TIME INDEX, 2023

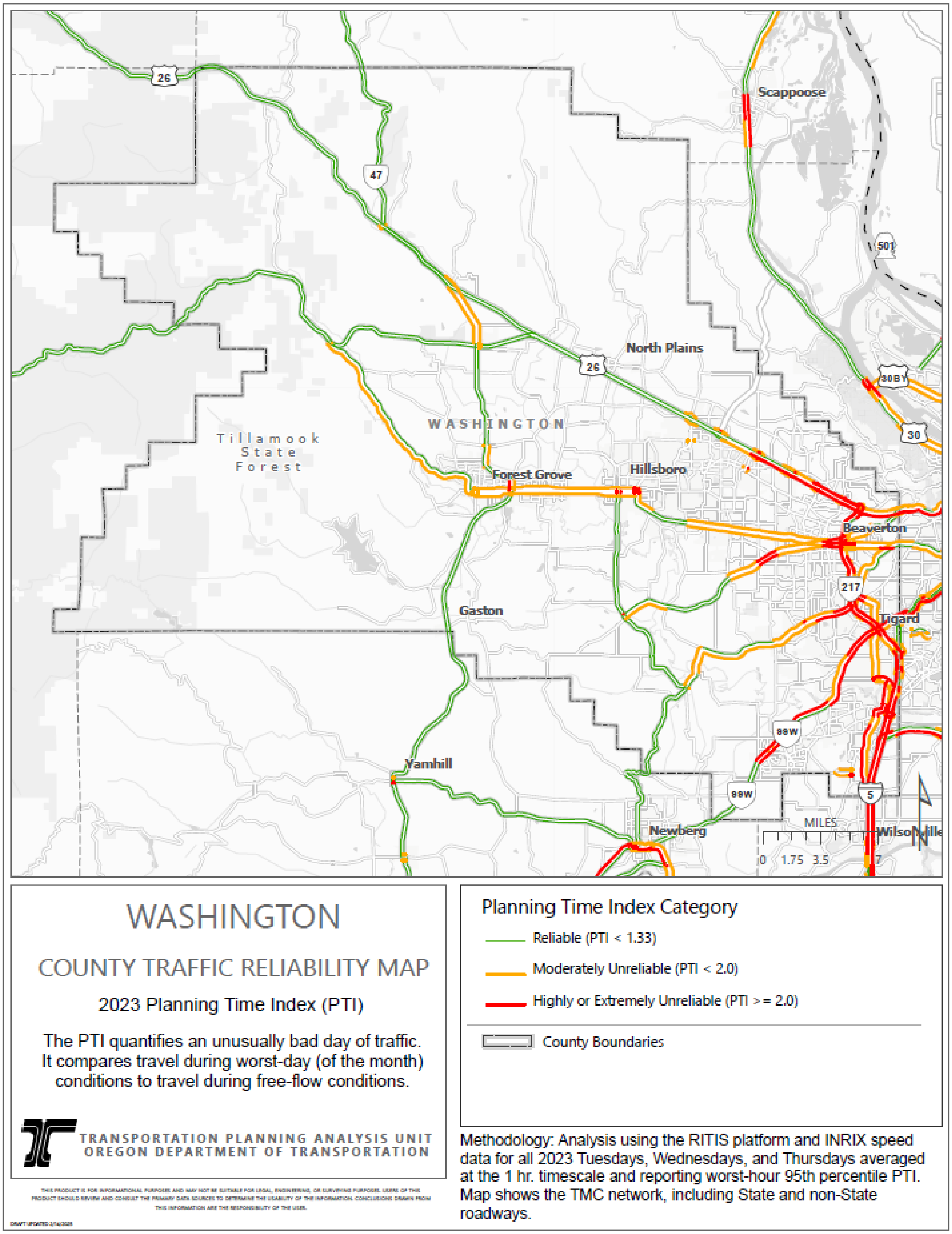


FIGURE C35. WHEELER COUNTY PLANNING TIME INDEX, 2023

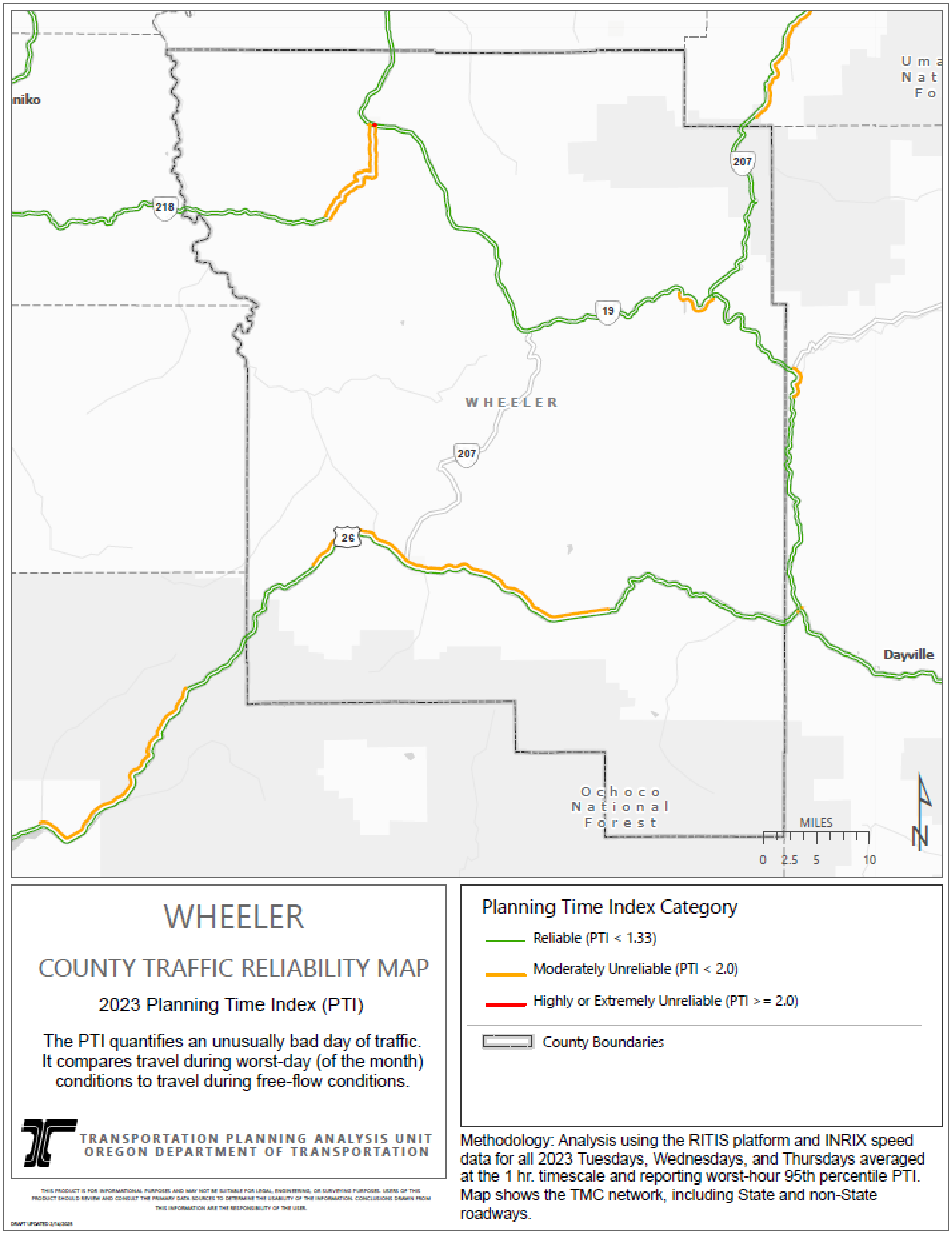


FIGURE C36. YAMHILL COUNTY PLANNING TIME INDEX, 2023