



2020

Chelan-Douglas Regional Transportation Plan Update



Chelan-Douglas
TRANSPORTATION COUNCIL
CDTC

Prepared by

Chelan-Douglas Transportation Council

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This document is also available on our website at: www.chelan-douglas.org



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RESOLUTION No. 4-2020
ADOPTING THE 2020 REGIONAL TRANSPORTATION PLAN

WHEREAS, the Chelan-Douglas Transportation Council (CDTC) is the lead agency for the Metropolitan Planning Organization and the Regional Transportation Planning Organization with responsibility for transportation planning and programming in the Wenatchee Metropolitan Statistical Area encompassing Chelan County and Douglas County; and

WHEREAS, the updated 2020 Regional Transportation Plan addresses the federal metropolitan planning requirements in 23 U.S.C 134 and 49 U.S.C 5303; and

WHEREAS, the updated 2020 Regional Transportation Plan addresses the Washington state regional transportation planning requirements in 47.80 RCW; and

WHEREAS, the updated 2020 Regional Transportation Plan identifies regionally significant transportation needs and recommends transportation system improvements in urban, rural and small city areas throughout Chelan and Douglas counties; and

WHEREAS, the updated 2020 Regional Transportation Plan hereby replaces the previous metropolitan transportation plan "Transportation 2040."

NOW THEREFORE, BE IT RESOLVED BY THE CDTC GOVERNING BOARD: that the Chelan-Douglas Transportation Council hereby adopts the "2020 Regional Transportation Plan" as the long-range regional transportation plan for Chelan and Douglas counties.

DATED this 10th day of September, 2020.



Kyle Steinburg, 2020 Board Chair

Attest: 

Jeff Wilkens, Executive Director

Governing Board

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Commissioner, Douglas County

Randy Agnew
Mayor, City of Rock Island
Douglas County Small Towns/City Rep.

JC Baldwin
Commissioner, Regional Port Authority

David Bierschbach
Region Administrator, WSDOT-NCR

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General Manager, Link Transit

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Chelan County Small Towns/City Rep.

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Chad Daggett
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Riley Shewak
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Chelan County
Eric Pierson, Public Works Director

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Represented by: **Erik Howe**, RH2 Engineering

City of Cashmere
Steve Croci, Operations Director

City of Chelan
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City of Rock Island
Represented by: **Kurt Holland**, Varella Associates

Town of Waterville
Martin Ramin, Public Works Director

City of Bridgeport
Stewart Dezelle, Public Works Director

Town of Mansfield
[Vacant]

Link Transit
Paul Heffernan, Service & Facilities Planner

WSDOT — North Central Region
Nick Manzano, Transportation Planning Manager
George Mazur, Planner
Max Nelson, Planner

Federal Statutory Framework

The Chelan-Douglas Transportation Council (CDTC) is the federally mandated Metropolitan Planning Organization (MPO) for the Wenatchee/East Wenatchee Urbanized Area (UZA). Federal law requires the formation of an MPO for any urbanized area with a population greater than 50,000 and the development of a long-range transportation plan (23 USC § 134). The implementing regulations in 23 CFR § 450.306 define the scope of metropolitan planning, requiring a continuous, cooperative, and comprehensive process, that addresses the following factors:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize the preservation of the existing transportation system;
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance travel and tourism.

State Statutory Framework

State policy for regional transportation planning is shaped by the Growth Management Act, which contains provisions for a Regional Transportation Planning Organization (RTPO) program that extends regional planning out to rural areas that surround and are interconnected with metropolitan areas. CDTC is also designated as the RTPO for Chelan and Douglas Counties. In 2014 the Council merged its federal and state functions into a unified boundary designated by Governor Jay Inslee that encompasses Chelan and Douglas counties as a unified region. In 2015 the organization changed its name to the Chelan-Douglas Transportation Council.

Additionally, the State has articulated six transportation system policy goals (RCW.47.04.280) that are coordinated and consistent with the objectives found in the Growth Management Act.

1. **Economic vitality:** To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy.
2. **Preservation:** To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services
3. **Safety:** To provide for and improve the safety and security of transportation customers and the transportation system
4. **Mobility:** To improve the predictable movement of goods and people throughout Washington state
5. **Environment:** To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment
6. **Stewardship:** To continuously improve the quality, effectiveness, and efficiency of the transportation system.

The framework for achieving the six policy goals are provided in the Washington Transportation Plan. The plan is meticulously prepared with input from the citizens of the state and steward agencies of transportation planning like CDTC and its member agencies.

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Supporting Plans and Documents

CDTC Plans

2014 Chelan-Douglas Public Opinion Survey

Wenatchee Valley Bicycle Master Plan

Wenatchee Valley Urbanized Area Freight Study

North Wenatchee Transportation Master Plan

Human Services Transportation Plan

US 2 Upper Wenatchee Valley Transportation Corridor Study

Regional Transportation Improvement Program

2015 Chelan-Douglas Demographic Profile

All documents are available at www.chelan-douglas.org

Local Plans

Planning to Blossom 2037: Wenatchee Urban Area Comprehensive Plan

Greater East Wenatchee Area Comprehensive Plan

City of Leavenworth Comprehensive Plan

City of Chelan Comprehensive Plan

City of Cashmere Comprehensive Transportation Plan

City of Entiat Comprehensive Plan

Rock Island Urban Growth Area Comprehensive Plan

City of Mansfield Comprehensive Plan

City of Waterville Comprehensive Plan

2017-2037 Chelan County Comprehensive Plan

Douglas County Countywide Comprehensive Plan

Cashmere Area Transportation Study

Rock Island Waterfront Subarea Plan

Port of Douglas County North End Market Study

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CHAPTER 1

Existing Conditions, Challenges & Constraints





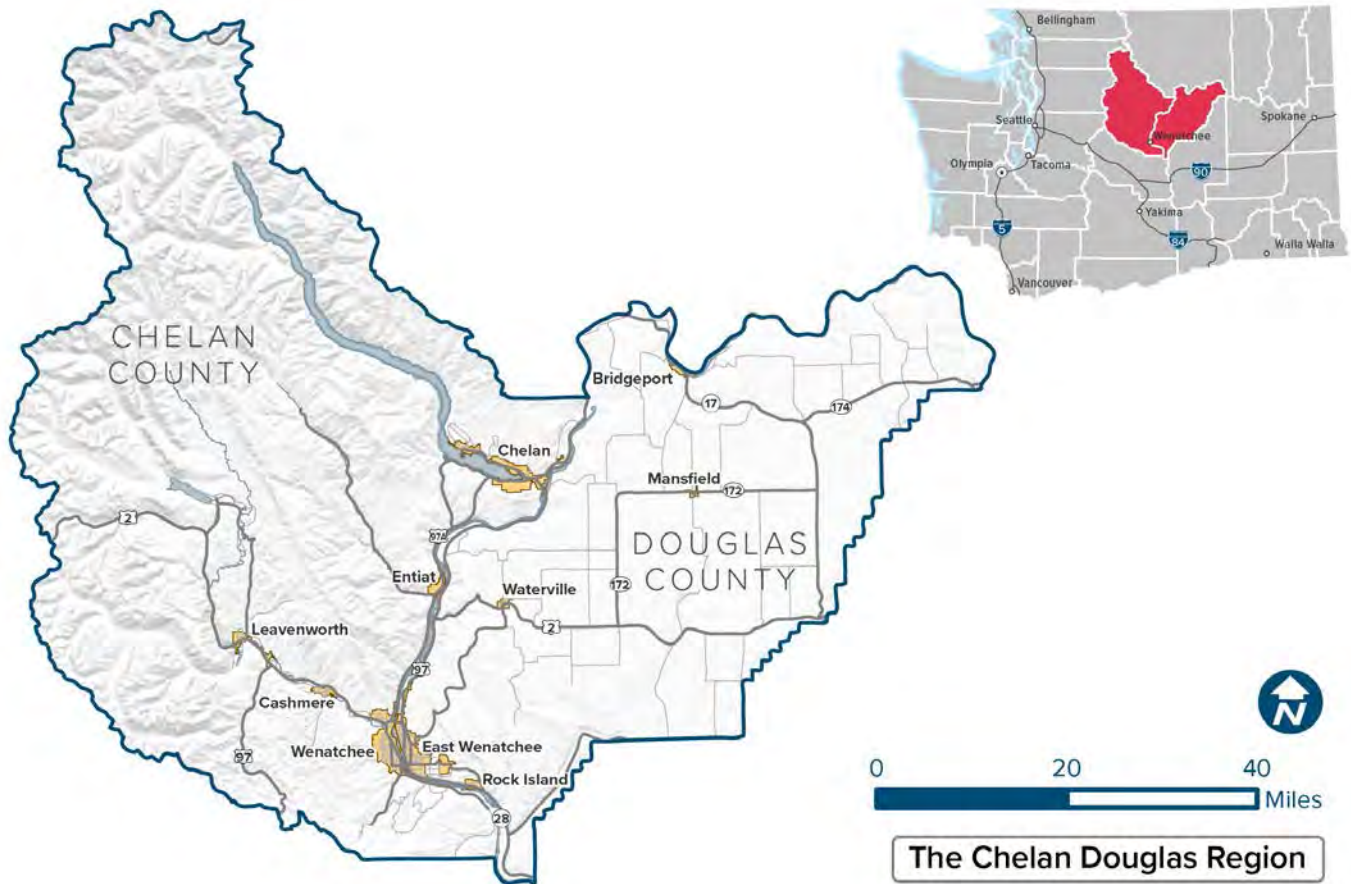
The Chelan-Douglas Metropolitan Planning Area (MPA) is located near the geographic center of Washington state (see Figure 1-1). It is made up of Chelan and Douglas Counties, which combine to form the Wenatchee-East Wenatchee Metropolitan Statistical Area (MSA). According to the Office of Financial Management (OFM), it has a population of approximately 122,000¹ and covers nearly 4,850 square miles.

The Wenatchee urbanized area is the region's economic, cultural and transportation hub. It is situated in a narrow valley, surrounded by steep terrain at the confluence of the Columbia and Wenatchee Rivers. These geographic and topographic constraints add complexity and limit options for addressing local and regional transportation issues.

¹: 2019 Postcensal Estimates

The region's geographic and topographic constraints are not limited to the Wenatchee Valley. Steep terrain and water features create physical barriers that restrict transportation and development options throughout Chelan County, and in parts of Douglas County. These restrictions create the need for efficient and well-planned land use patterns and supporting infrastructure; particularly in the region's thirteen Urban Growth Areas (UGA). The region's transportation infrastructure must support planned community and economic development by creating a context-sensitive, well-connected, multi-modal, and financially sustainable network in the region's urban and rural areas, as transportation networks shape land use.

Figure 1-1: Chelan-Douglas Region



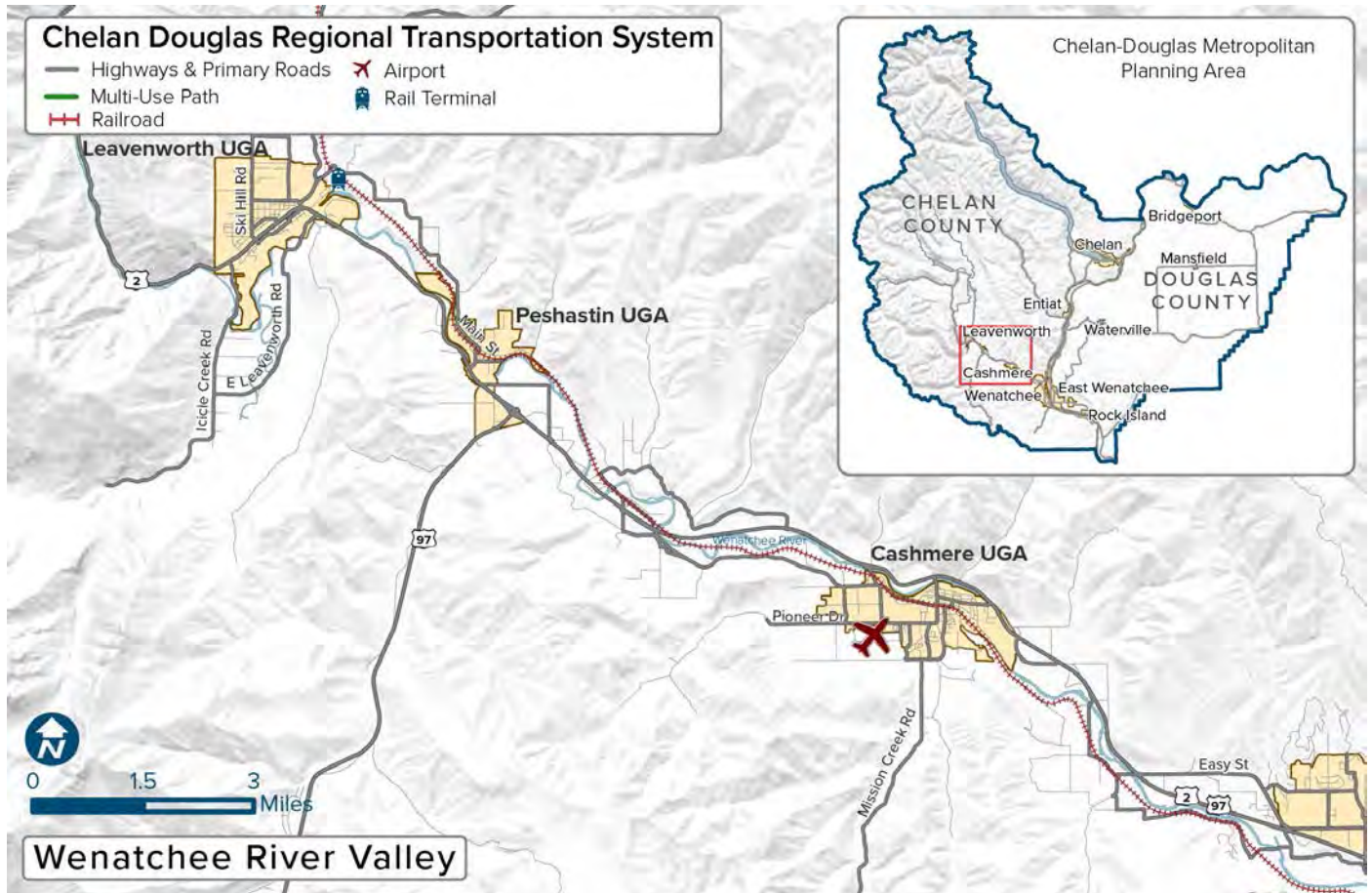
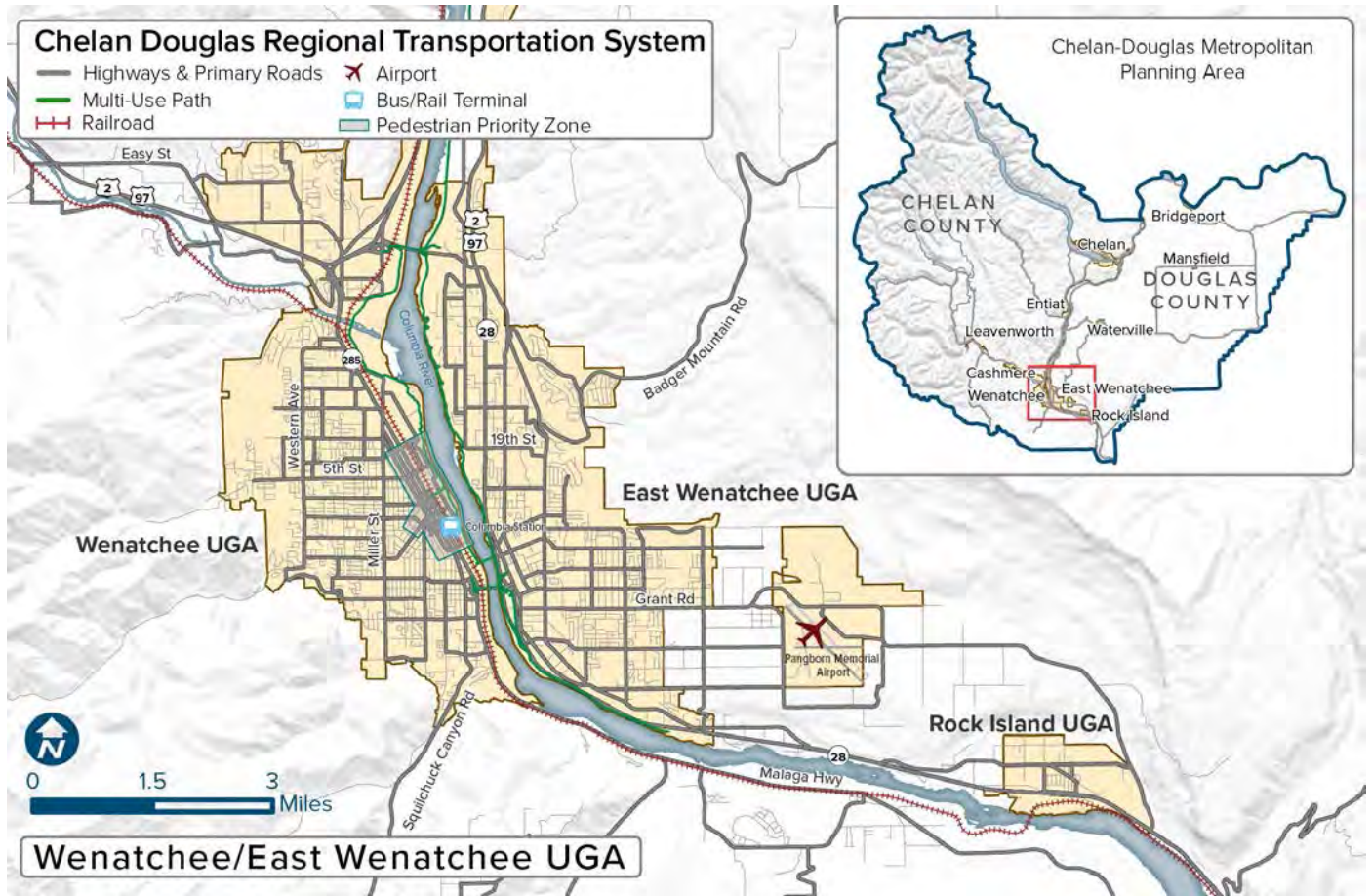
The Regional System

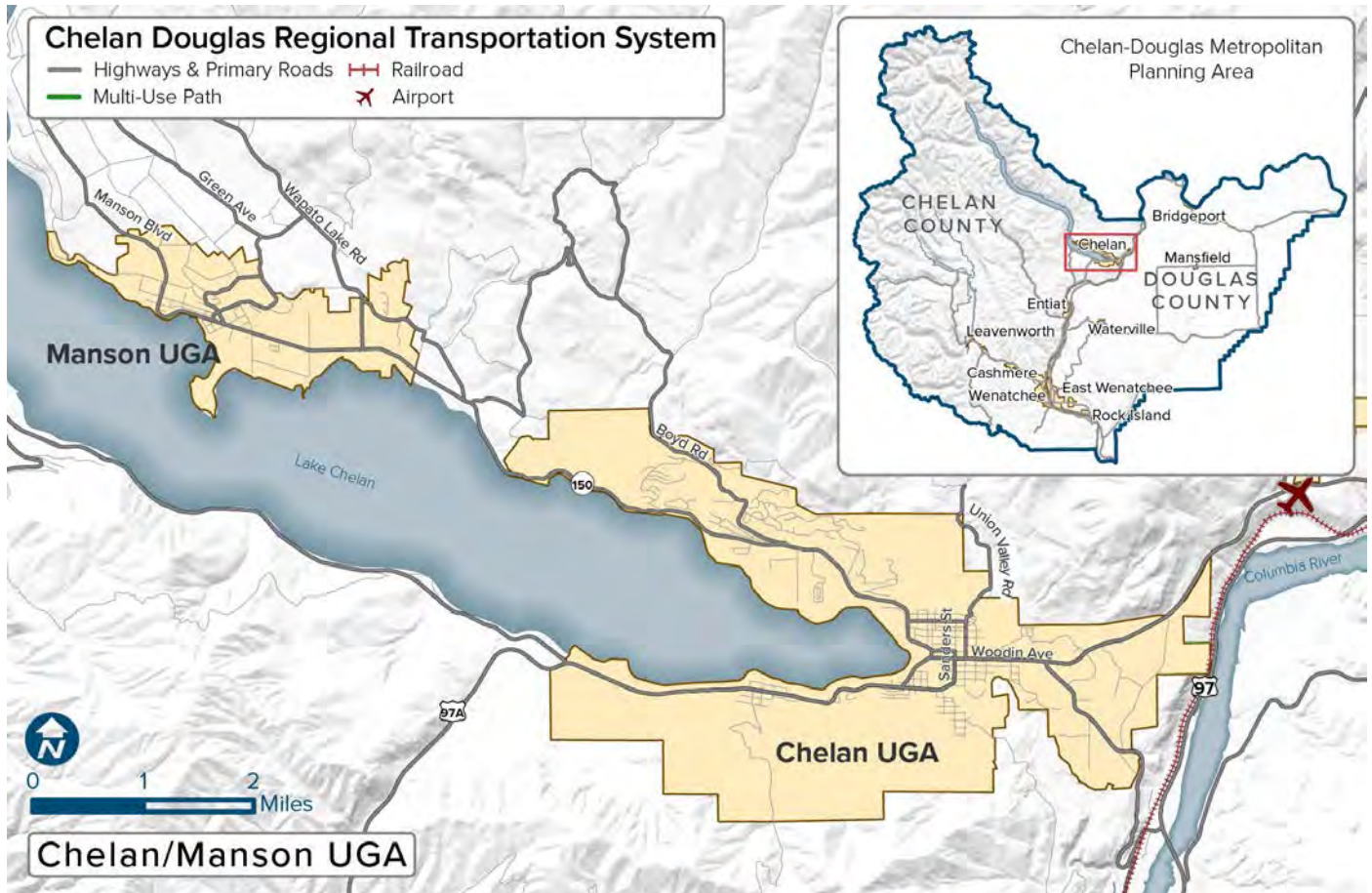
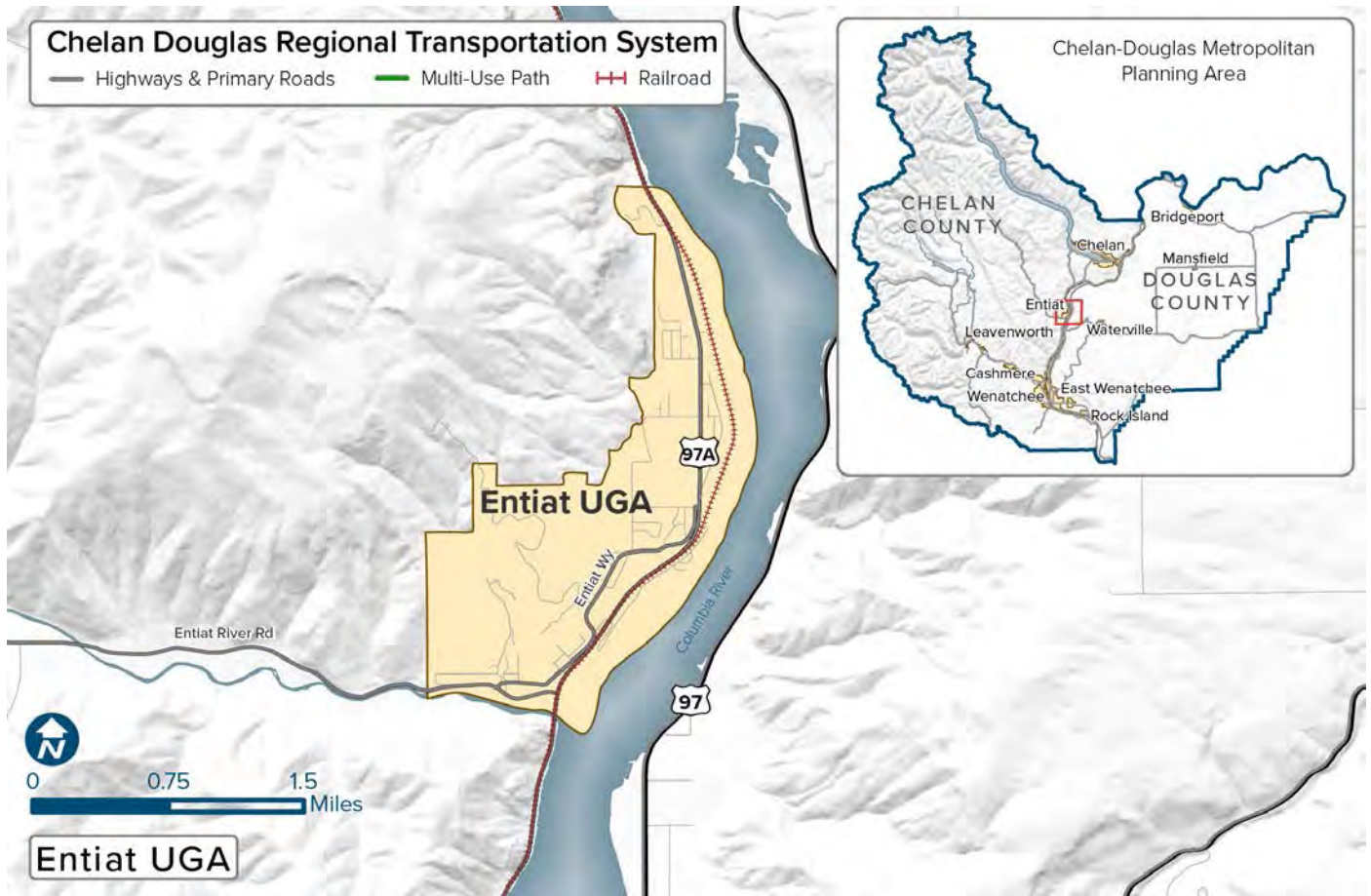
This plan focuses on the region’s transportation goals, policies, programs, and recommends investments on regionally significant transportation infrastructure, which includes state highways, primary county roads and city streets, and multi-use paths and other transportation infrastructure associated with regional mobility. Specifically, the Regional Transportation System consists of the following components and is shown in Figure 1-2:

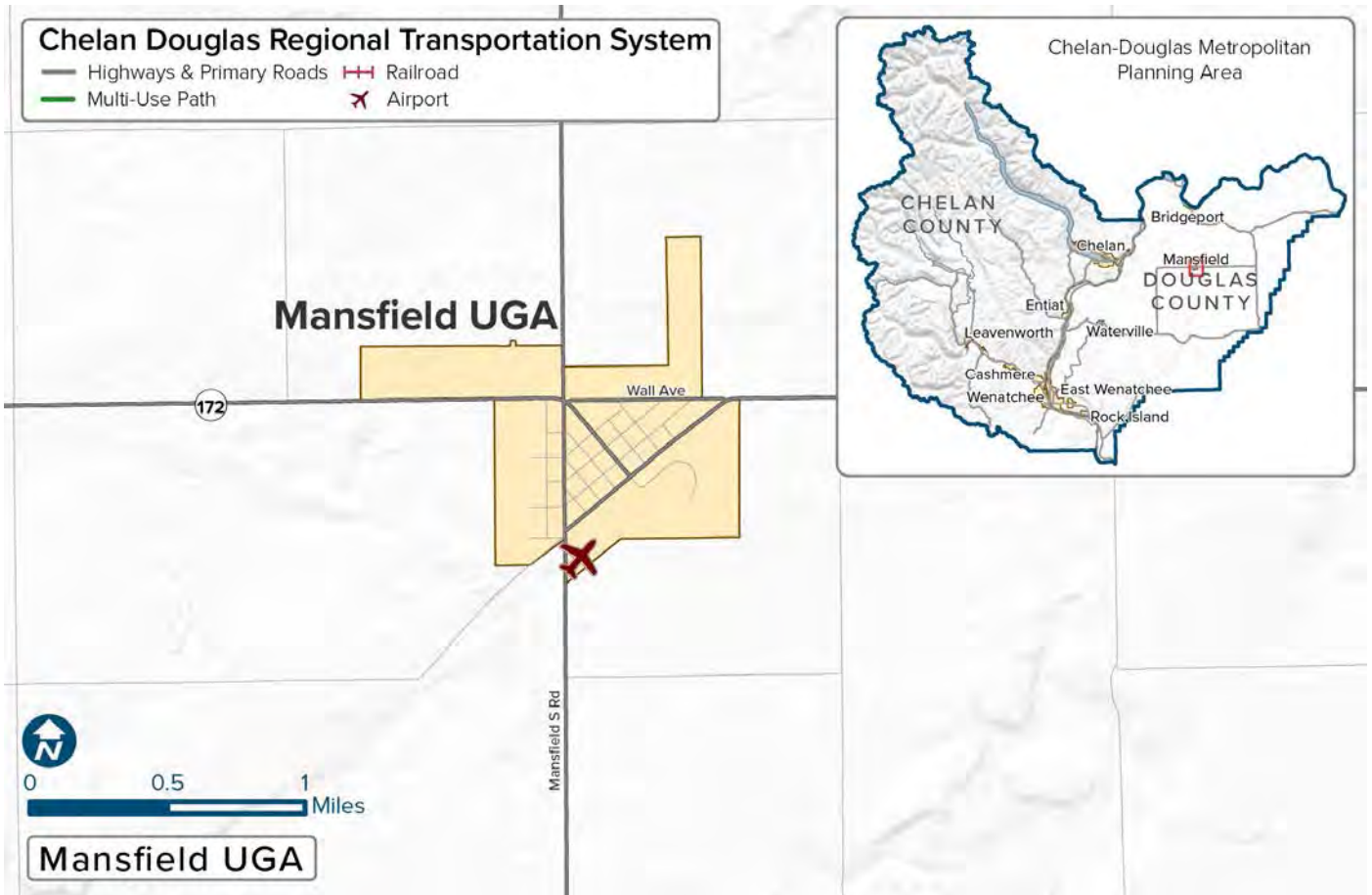
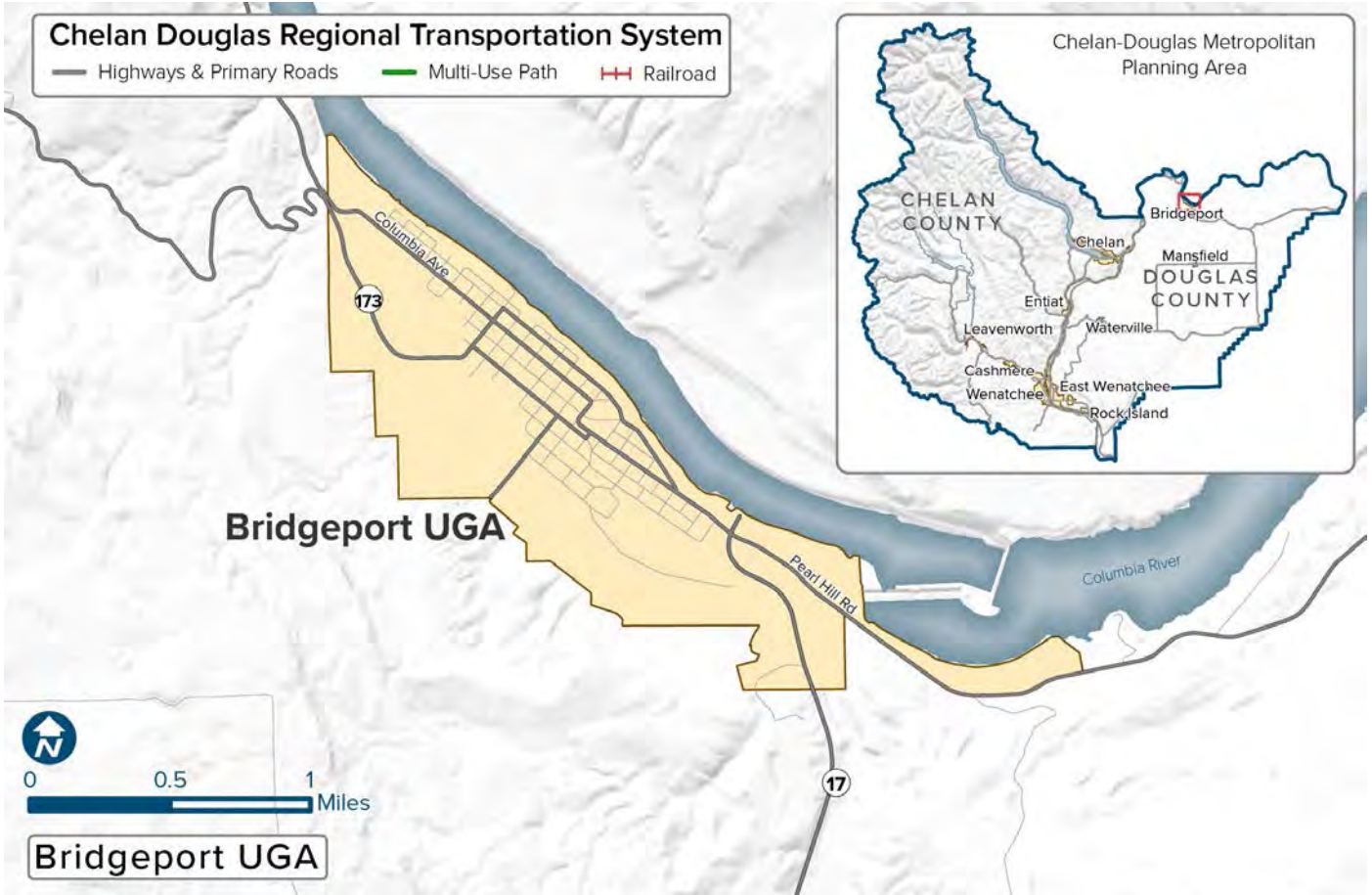
- Primary regional roads²
- LINK Transit facilities and services, including roadways serving bus routes
- Freight and passenger railroads
- Public airports
- Regional multi-use pathways
- On-street bikeway network as designated in the Wenatchee Valley Bicycle Master Plan

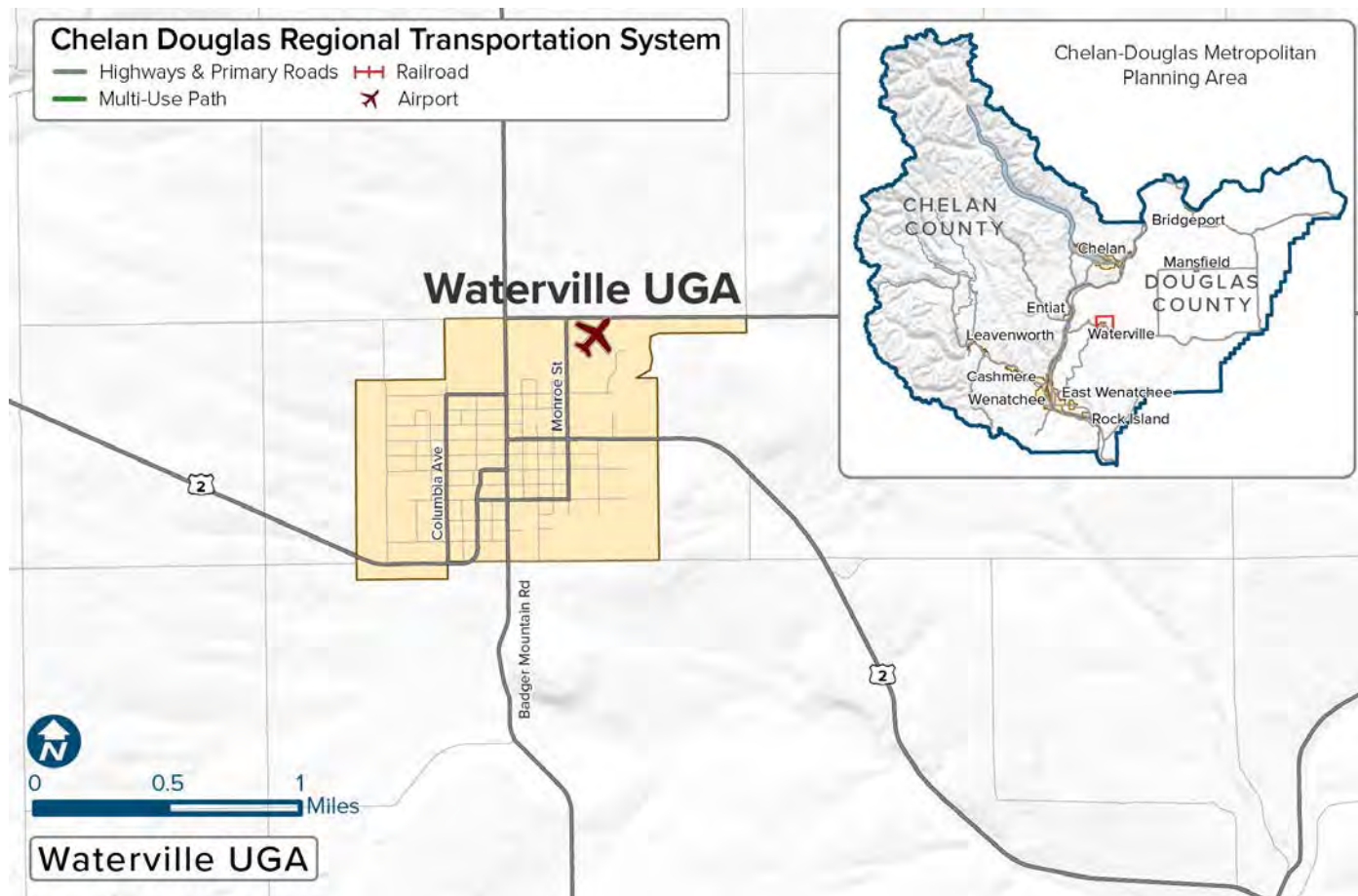
²: Highways and federally classified arterials and collectors eligible for federal funding

Figure 1-2: Regional Transportation System by UGA









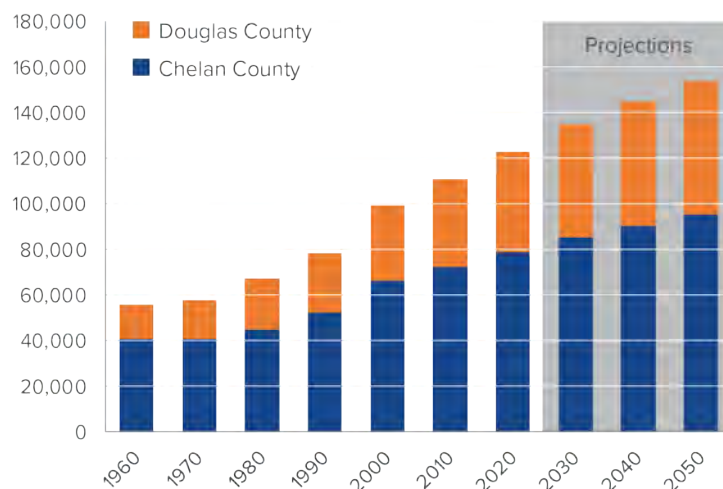
Regional Demographics and Economic Trends

The region has seen steady population growth over the past 60 years—adding roughly 9,000-12,000 persons every ten years. In 2020, the population of Chelan and Douglas Counties is estimated at roughly 122,000. The Washington State Office of Financial Management projects the current growth trend to continue through 2050 with the region adding 33,000 more people (Figure 1-3). Chelan County has long held most of the population, but the split is narrowing from 75% in 1960 to approximately 64% today, due to changing community development patterns.

Regional employment is expected to grow with population. As of 2017, the region had more than 55,000 employees, with 36,000 in Chelan County and 19,000 in Douglas County. However, the region only has 50,200 available jobs (38,700 in Chelan County and 12,000 in Douglas County) possibly indicating growing a trend of telecommuting in Chelan and Douglas counties for employment located outside the two-county region.

There are approximately 54,600 housing units in the region, with 37,600 in Chelan County and 17,000 in Douglas County, as of 2017. The geographic distribution and separation between jobs and housing at the county and MPA levels shows small imbalances and suggests inter-county commutes across the Columbia River, and

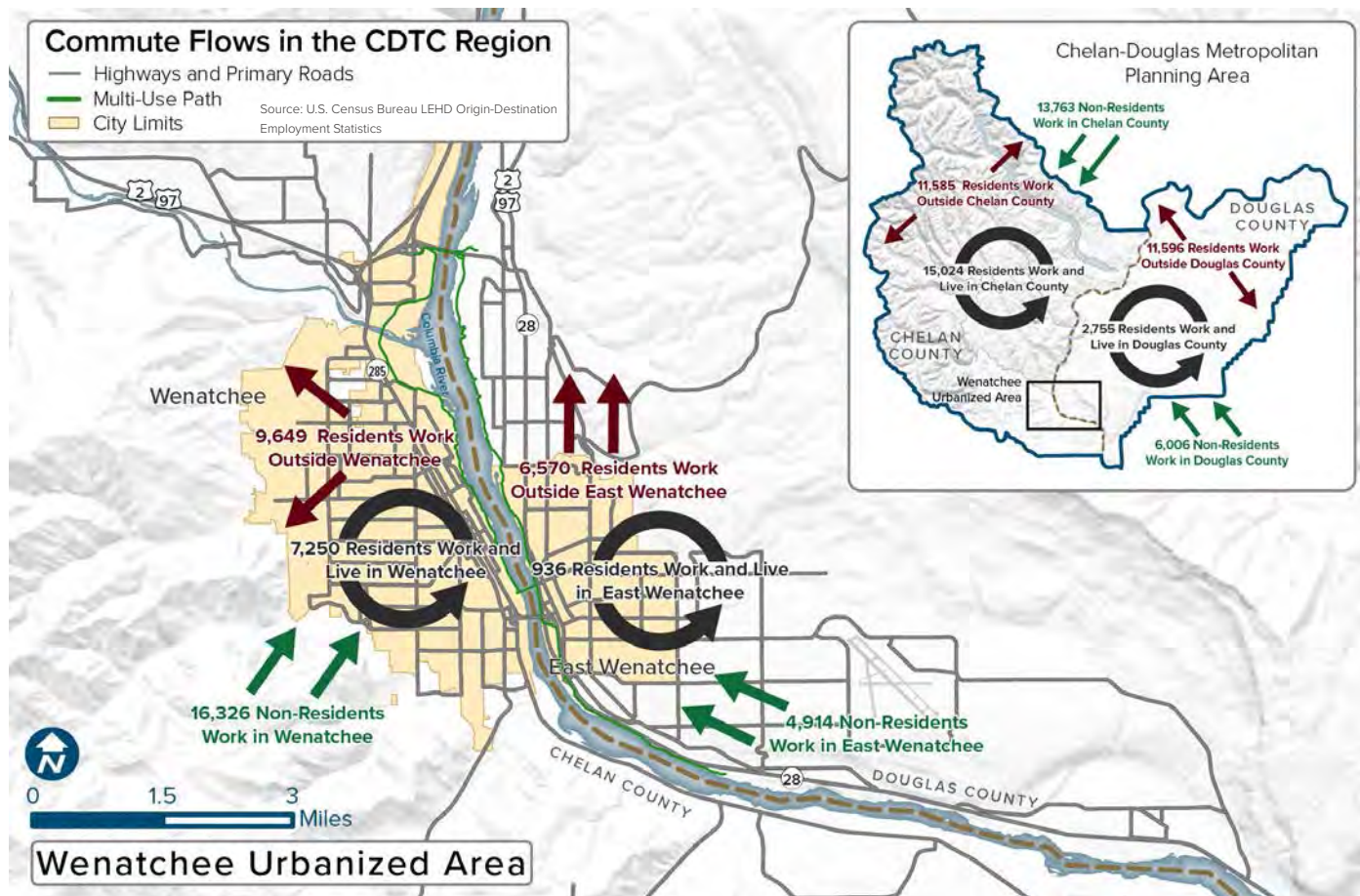
Figure 1-3: Regional Population Growth



commutes to jobs outside the two-county region. The largely residential character defining the UGAs in Douglas County may account for the lower number of available jobs.

Figure 1-4 shows regional commuting patterns confirming this imbalance—only 2,755 employed residents in Douglas County also work in Douglas County, while over 15,000 employed residents in Chelan County also work in Chelan County. As this trend continues, it will increase the strain on the regional transportation system, with more demand for travel across the Columbia and Wenatchee Rivers. This is especially problematic because Chelan County is only connected to Douglas County by two Bridges in Wenatchee/East Wenatchee Urban area, the region's employment hub.

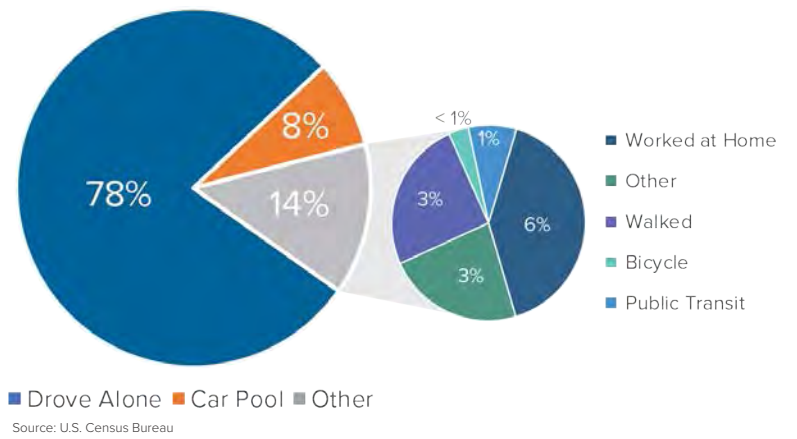
Figure 1-4: Commute Patterns



The existing auto-dependent character of the region may exacerbate the transportation issues associated with the region’s jobs-housing imbalance. The primary mode of commuting for the region’s 55,000 employees is to drive alone, as Figure 1-5 shows. Only 12% of employees use means other than driving alone to get to work. The mean commute time in the region was just over 18 minutes in 2017, and nearly one in four workers had a commute time of less than 10 minutes. Commute times are substantially less than the national average of over 26 minutes, as well as the Washington state average of 27 minutes. However, if the current jobs-housing imbalance and the preference for single occupancy commuting remain, the region’s short commutes are likely to increase.

In addition to providing efficient job access, it is important that the regional transportation system provide access and mobility for freight. As the economic hub of the region with significant commercial, agricultural and industrial activities, it is essential that freight be able to circulate through the region and urban growth areas. Due to population and employment growth in the region, freight mobility, like commuter mobility, is likely to decrease over time without proactive planning.

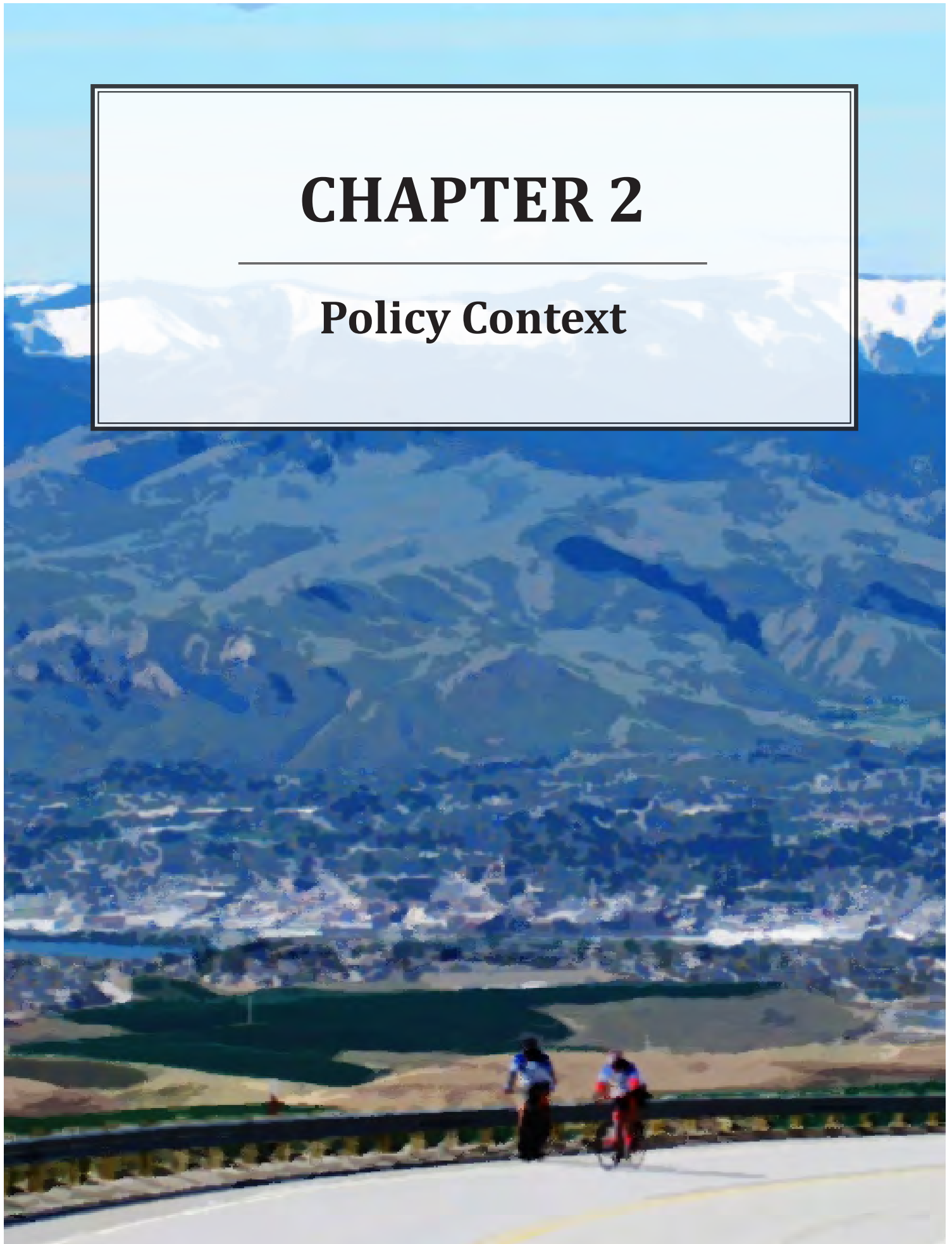
Figure 1-5: Commuter Mode Choice



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CHAPTER 2

Policy Context



Federal and state statutory requirements lay the general groundwork for the organizational structure, coordination, and responsibilities of MPOs. However, the means used to carry out regional planning responsibilities in every day practice are strongly influenced by the discretion of the MPO governing body. This allows the Chelan-Douglas Transportation Council (CDTC) to articulate its own goals and policies based on local knowledge and priorities that guide the regional vision for transportation, and for how transportation shapes the region's communities.

CDTC conducts regional transportation planning in order to respond to challenges and capture opportunities. Specifically, CDTC:

- Uses data and best-practice technical analysis to craft solutions for regional safety, mobility, and road condition deficiencies; and
- Works with public and private sector partners to identify opportunities to leverage community and economic growth and vitality through transportation system investments.

CDTC is regularly providing its member agencies with robust analysis of the region's transportation challenges and solutions to those challenges, while also exploring opportunities for tying transportation planning and investment to long-term growth and development. The Regional Transportation Plan (RTP) is a convergence of the day-to-day application of transportation analysis and the long-range projection of transportation trends and needs concurrent with growth and development, and the guiding strategies to achieve the regional vision.

CORE VALUES

CDTC conducts its work with an emphasis on public involvement, financial stewardship, and environmental stewardship; these represent CDTC's core operating values that underpin policies and guide board decisions in the following ways:

- CDTC continually reassesses citizen opinion, preferences and concerns to make decisions that are of the highest benefit to the public.
- CDTC strives to allocate existing and future financial resources to transportation improvements in a way that maximizes community benefit, distributes benefits equitably and balances the needs of citizens who walk, bike, drive, and use public transit.
- CDTC avoids and minimizes negative environmental and societal impacts from transportation improvements and, whenever possible, advances projects that enhance the natural and social environments.

GOALS, MEASURES, TARGETS & STRATEGIES

The goals, measures, targets, and strategies discussed in this section sharpen the focus of the general federal and state requirements for MPO planning. The following policy framework is based on local knowledge of the unique conditions in the Chelan-Douglas region and collaboration amongst CDTC's member agencies.

CDTC has established four goals to anchor the planning process and develop the regional vision. The plan for attaining three of the four goals is outlined using data-driven **measures, targets, and strategies** that clearly connect the goals with region's context-specific transportation challenges and deficiencies, and the recommendations to address them in this plan. Attainment of the fourth goal is driven by political values and growth aspirations of CDTC's local agencies, rather than objective measures.

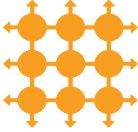
These measures and targets provide not only a tool for tracking the regional transportation system's performance, but also a feedback loop for maintaining the effectiveness of the RTP over time. This policy framework allows policy makers to periodically reassess how the region should define and achieve its transportation goals with every update to the RTP.

REGIONAL **GOALS**

The Transportation System is:



Safe



Connected & Efficient



Well-Maintained



**Supportive of
Community & Economic
Development**



THE TRANSPORTATION SYSTEM IS SAFE

This goal is evaluated by two measures with a single, shared target that defines achievement of the goal.

Measures

Number of Fatalities, Serious Injuries, and Non-Motorized Injuries and Fatalities

Rate of Fatalities, Serious Injuries, and Non-Motorized Injuries and Fatalities

Targets

Zero total and rate of fatalities, serious injuries, and non-motorized injuries and fatalities by 2030¹

Strategies

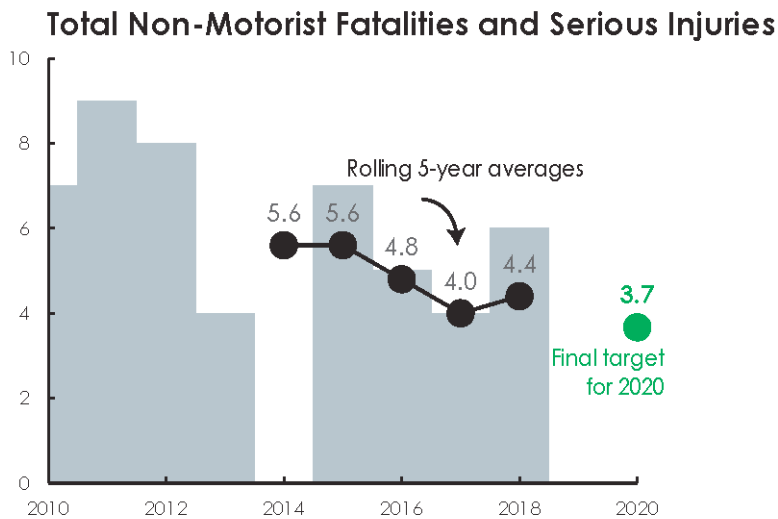
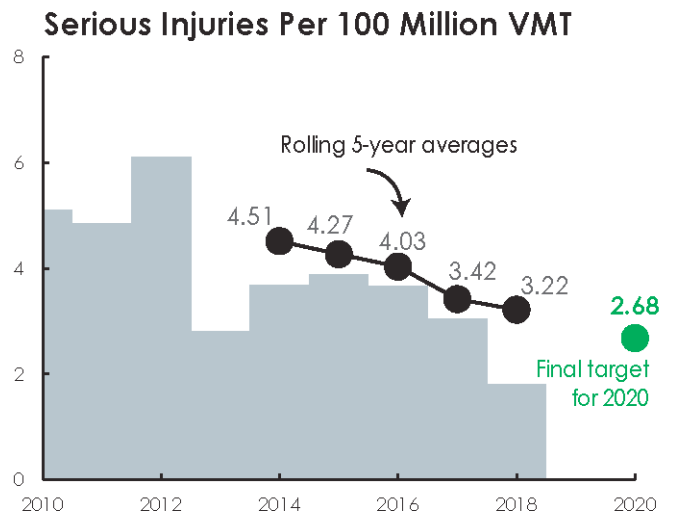
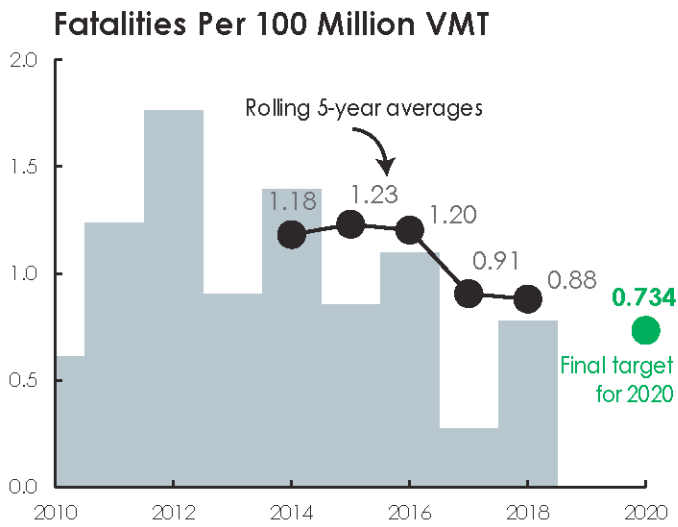
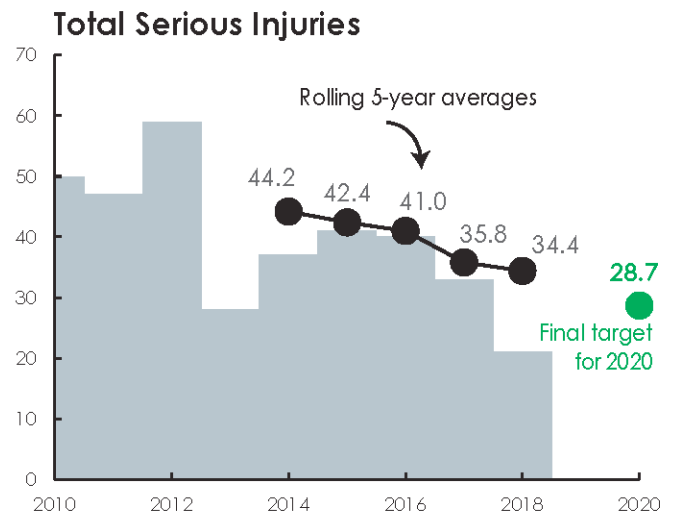
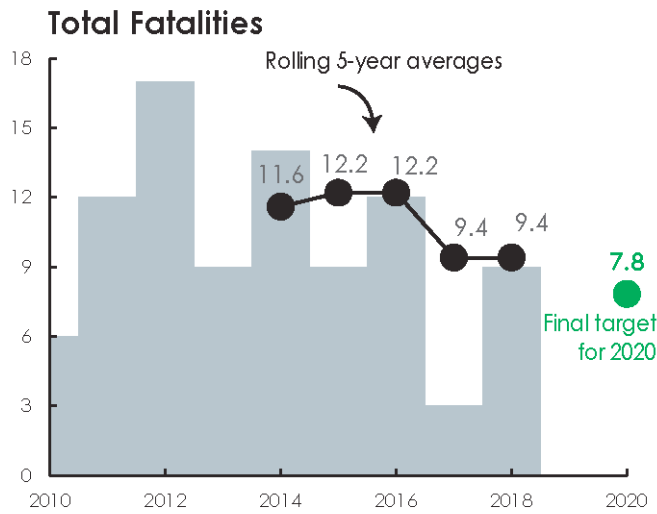
Continue to collect and track safety data to determine corridors of concern that need further study and analysis

¹: Reflects Washington State’s Target Zero Policy

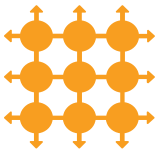
Figure 2-1 highlights the principle way CDTC tracks safety data. Though CDTC periodically tests new ideas for tracking safety, these measures are the standards across the state. While its recognized that ultimate achievement of the safety target is unattainable, the Target Zero approach demonstrates a strong commitment by CDTC to improve safety regardless of how people use the transportation system. CDTC will continue to track the data shown in figure 2-1 to guide future studies and continually make transportation in Chelan and Douglas counties safer.

Safety has improved in the region over the last five years as indicated by the downward trend of raw totals and five-year averages for all safety measures—a trend anticipated to continue. Roughly \$11.9 million in federal funds are programmed for safety projects over the next four years in CDTC’s Regional Transportation Improvement Program (RTIP), demonstrating a commitment by WSDOT, CDTC, and local agencies to plan, pursue funds, and program projects addressing safety in the region.

Figure 2-1: Safety Data Tracking Tools



Note: Safety figures and performance targets are updated annually and can be found at chelan-douglas.org



THE TRANSPORTATION SYSTEM IS CONNECTED & EFFICIENT

This goal is evaluated with four performance measures that are tied to the freedom and convenience of moving from place to place on the transportation system, whether on foot, bicycle, transit or driving a vehicle.



Measures

% of Fed-Aid Road Network with Sidewalks¹ on Both Sides

% Completion of Bicycle Network²

Peak Hour Vehicle Delay at Signalized Intersections

Peak Hour Vehicle Volume on Arterials



Targets

100% completion of network

- Less than 55 seconds
- Average delay less than 55 seconds for all intersections in Pedestrian Priority Zone

Volumes below 85 % of capacity³



Strategies

- Add planned bikeways during all preservation, reconstruction, and striping
- Add sidewalks during all road reconstruction
- Pursue grants to implement standalone sidewalk and bicycle projects
- Member agency adoption of CDTC active transportation plans

Identify improvements for all intersections with delay higher than 55 seconds

Identify efficiency improvements for all roadways with volumes above 85% of capacity

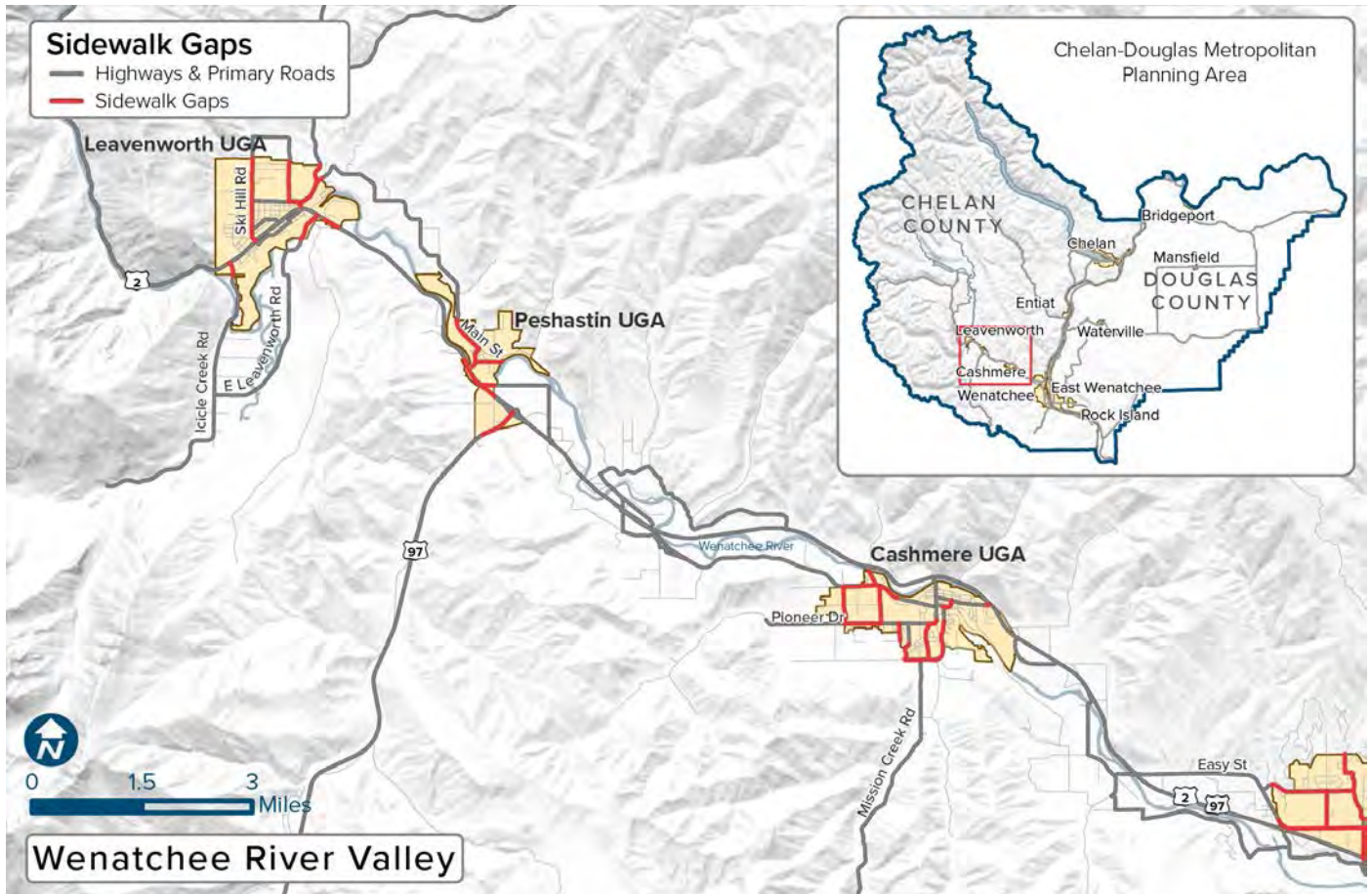
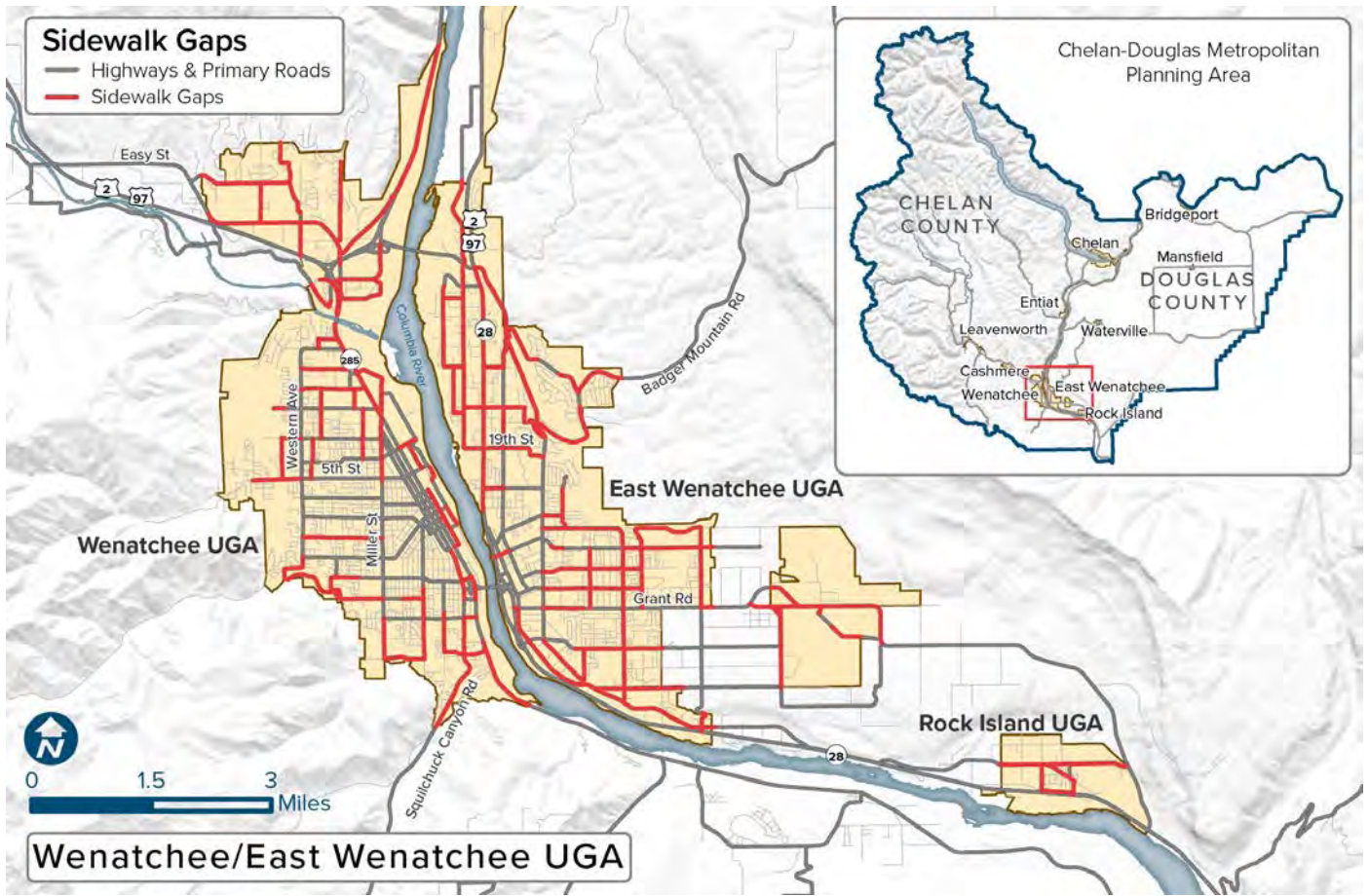
1: Roads in UGAs; Managed access class 1, 2, 3, and limited access roads exempt; Sidewalks on both sides of road exempt when application of Complete Streets ordinance indicates a sufficient alternative; Principle arterials must have 4' of separation from outside travel lane.

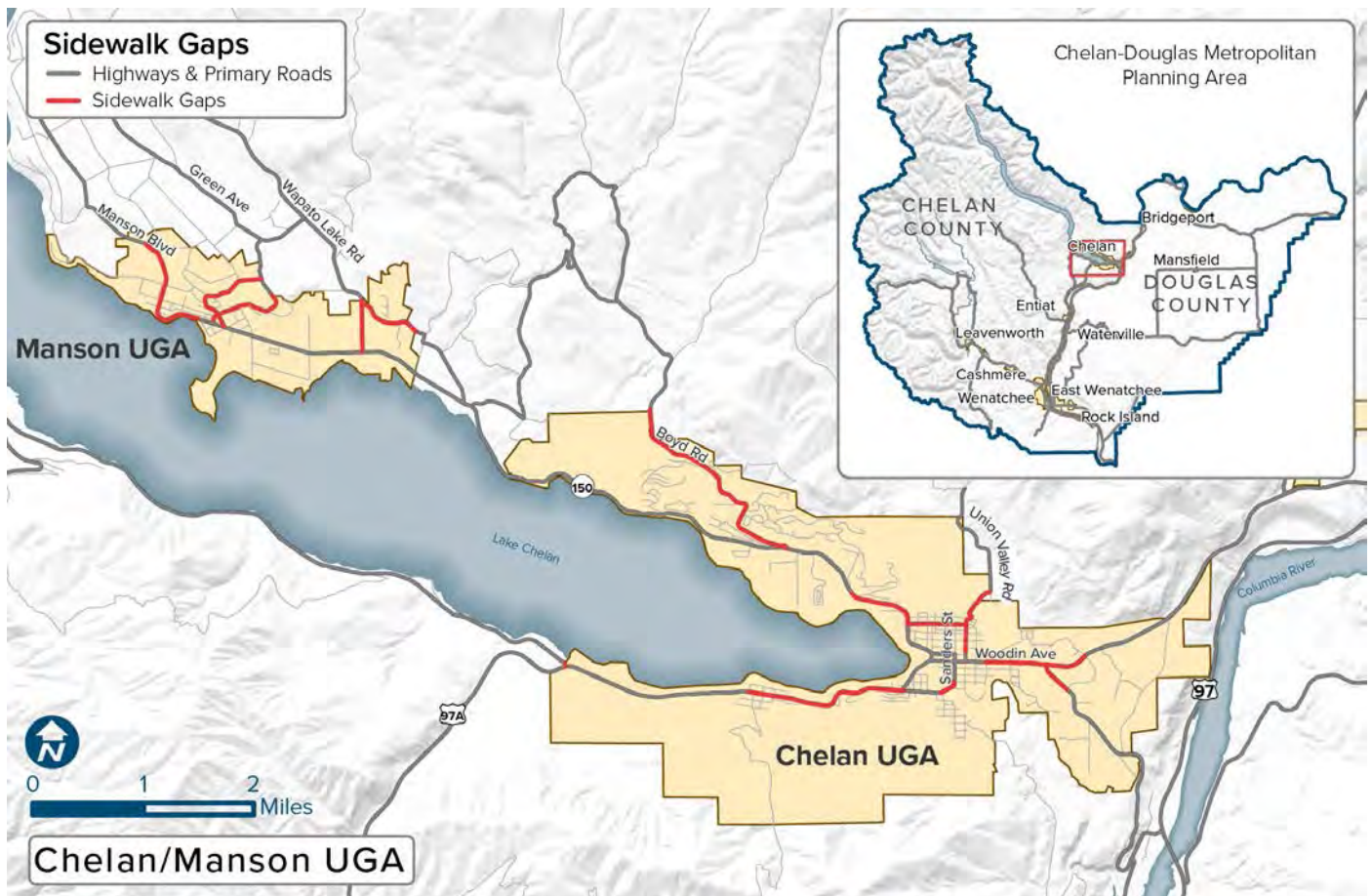
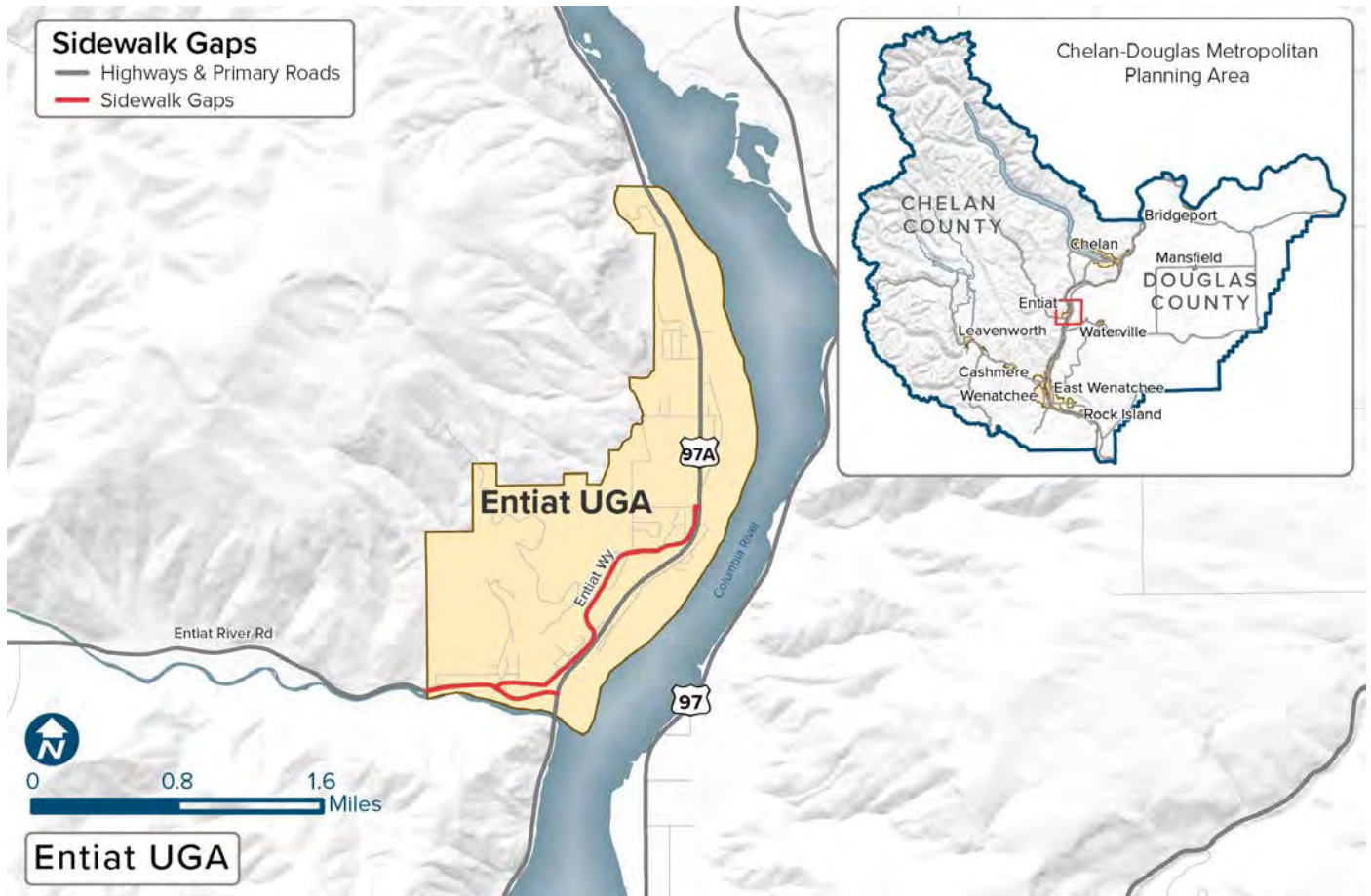
2: Bikeway network is designated in 2018 Wenatchee Valley Bicycle Master Plan; Applies only to Wenatchee and East Wenatchee UGAs

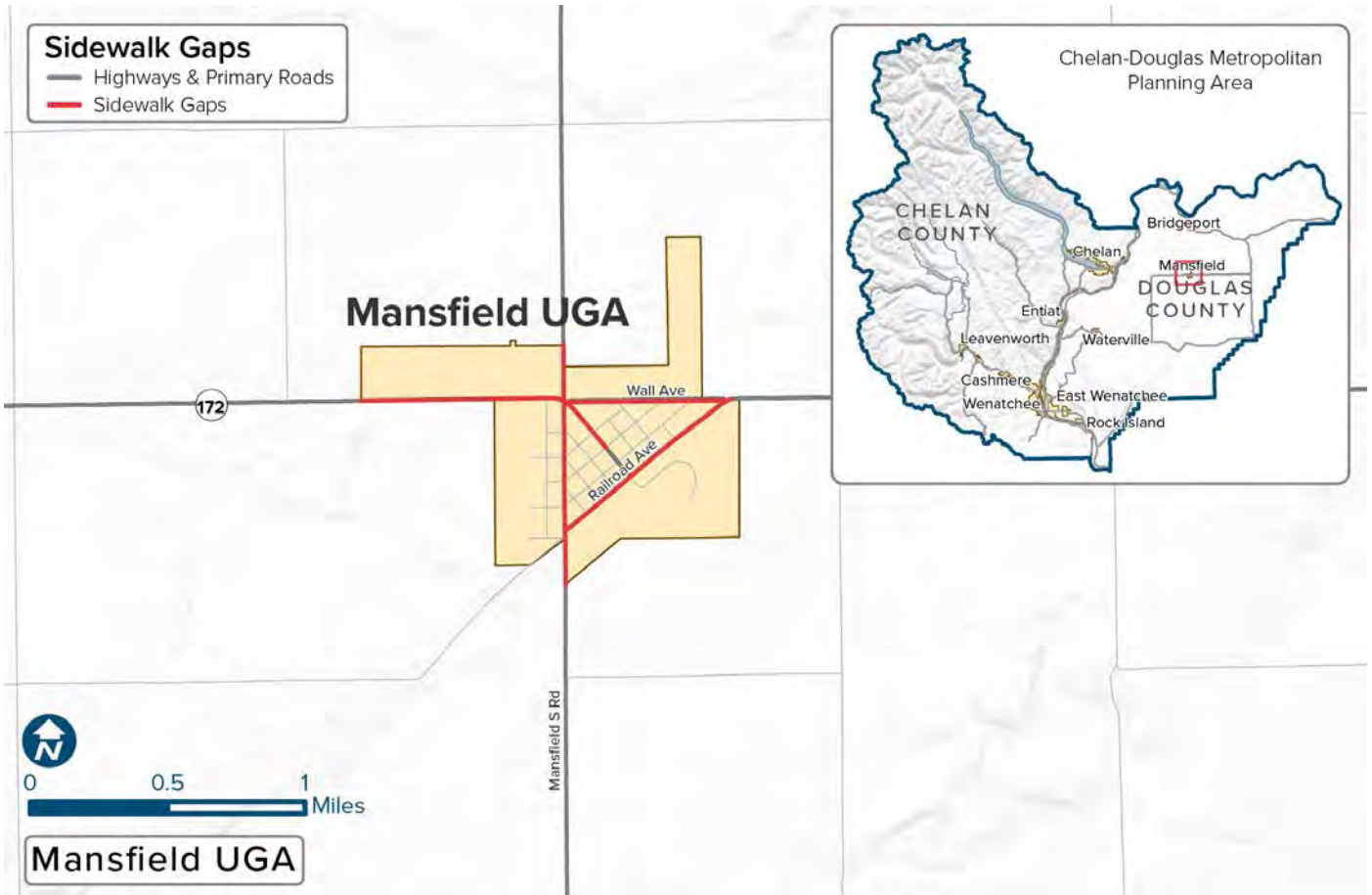
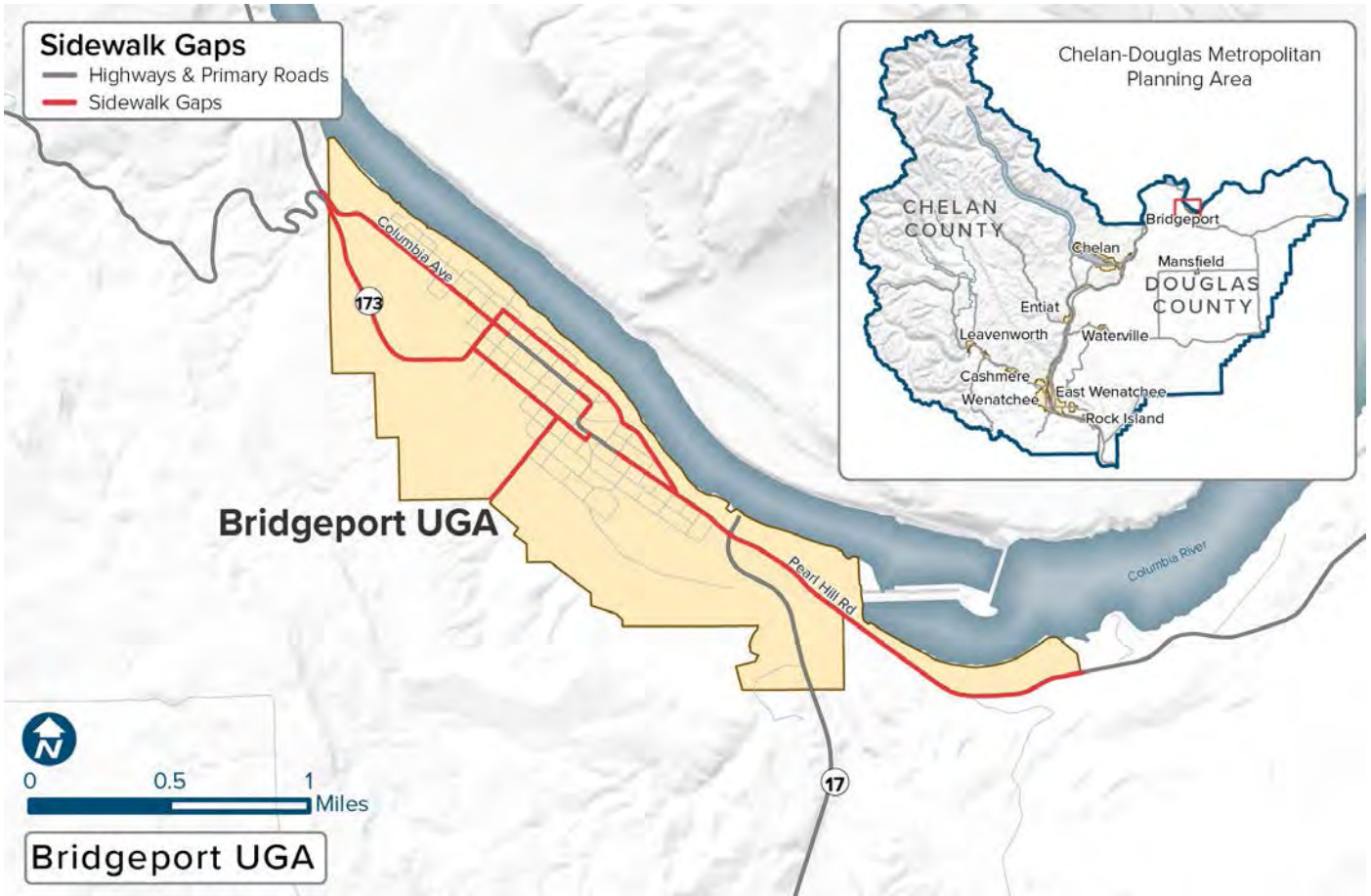
3: Capacity is measured by travel lanes on highways and unsignalized corridors; and by intersection throughput on signalized arterial street corridors.

Figures 2-2 through 2-4 show the locations where CDTC's connectivity and efficiency policy have identified a deficiency. These guide project-level discussions and decisions for maintaining and improving mobility in the region.

Figure 2-2: Sidewalk Gaps in the UGA







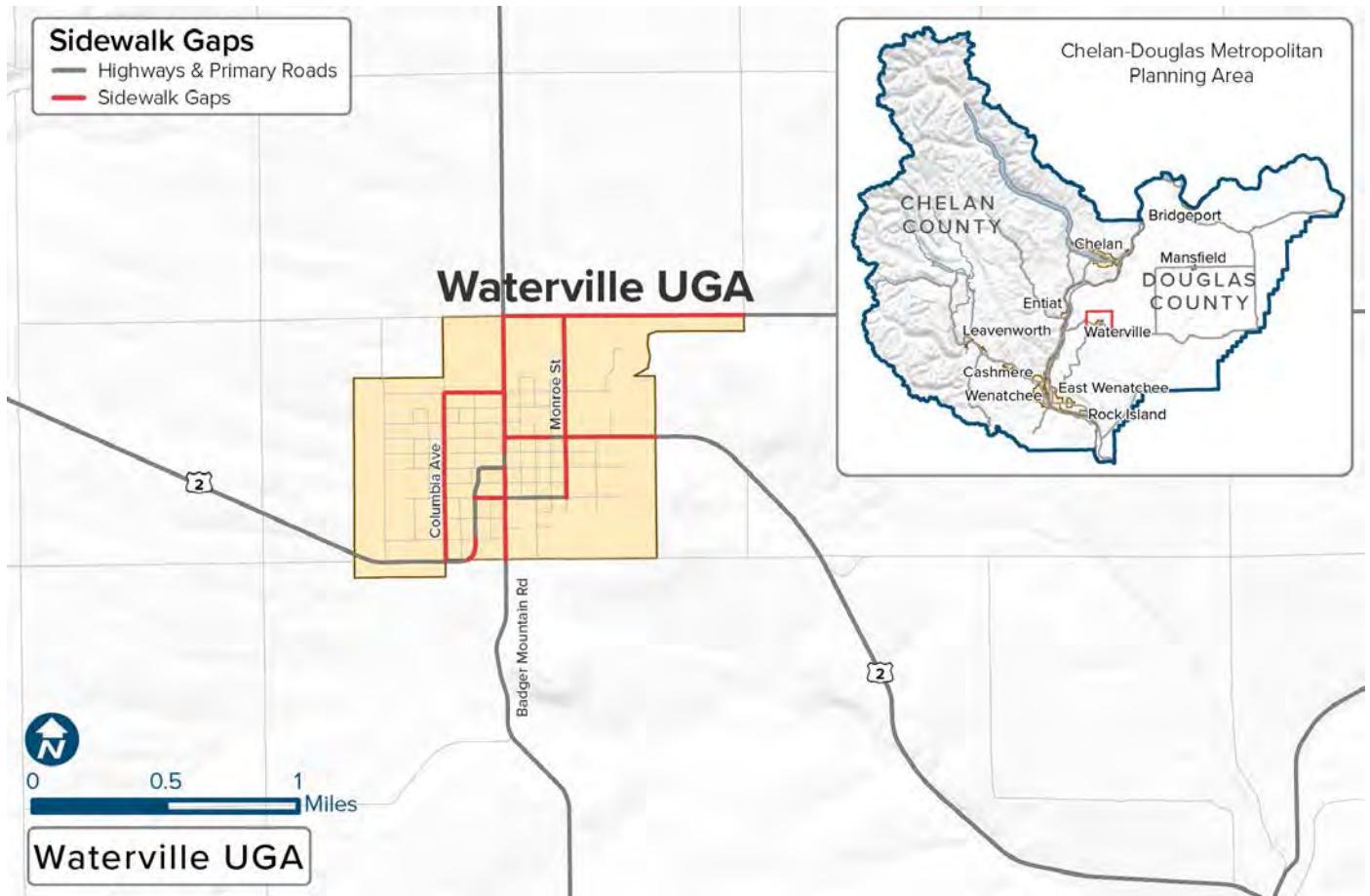
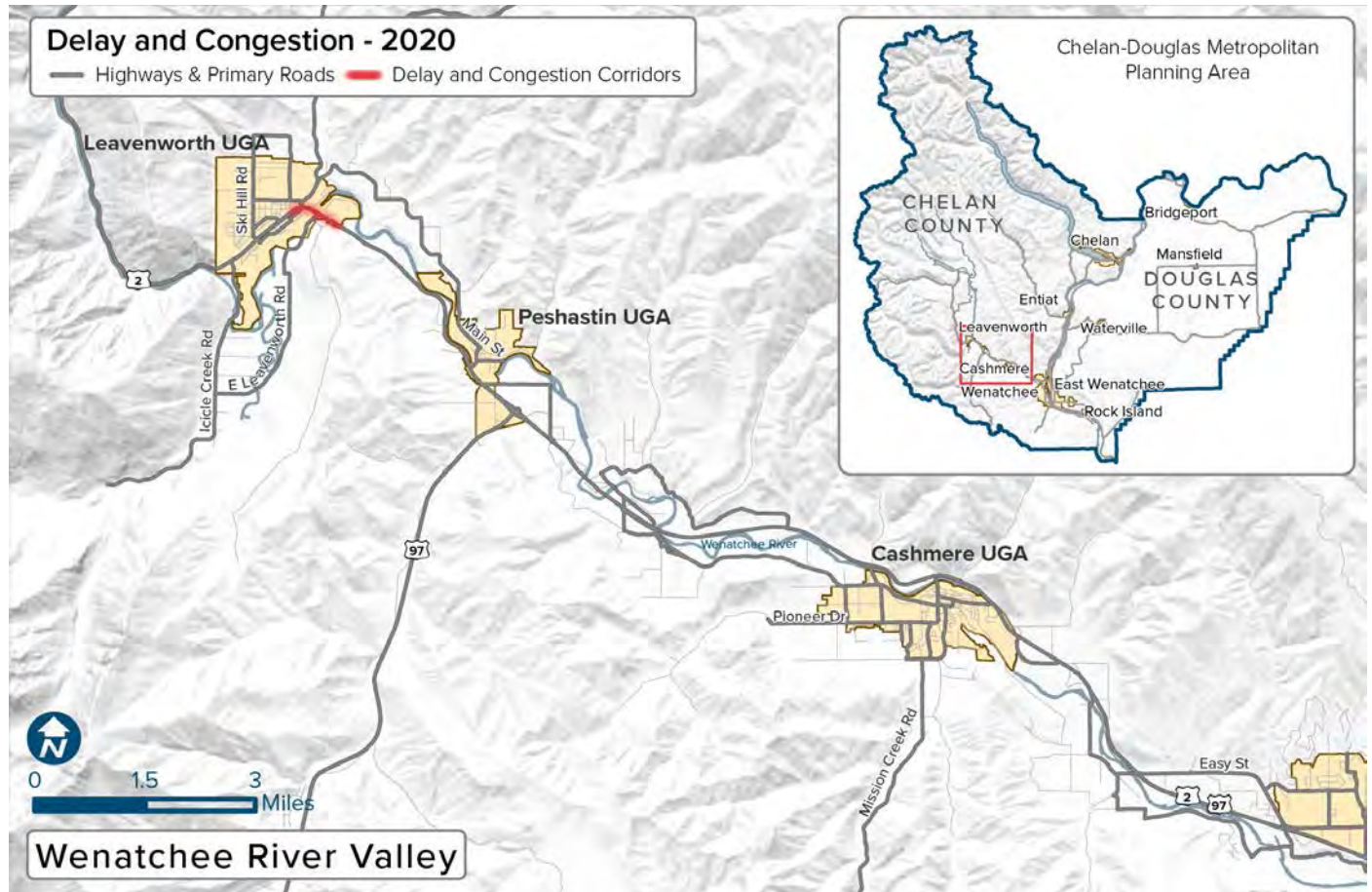
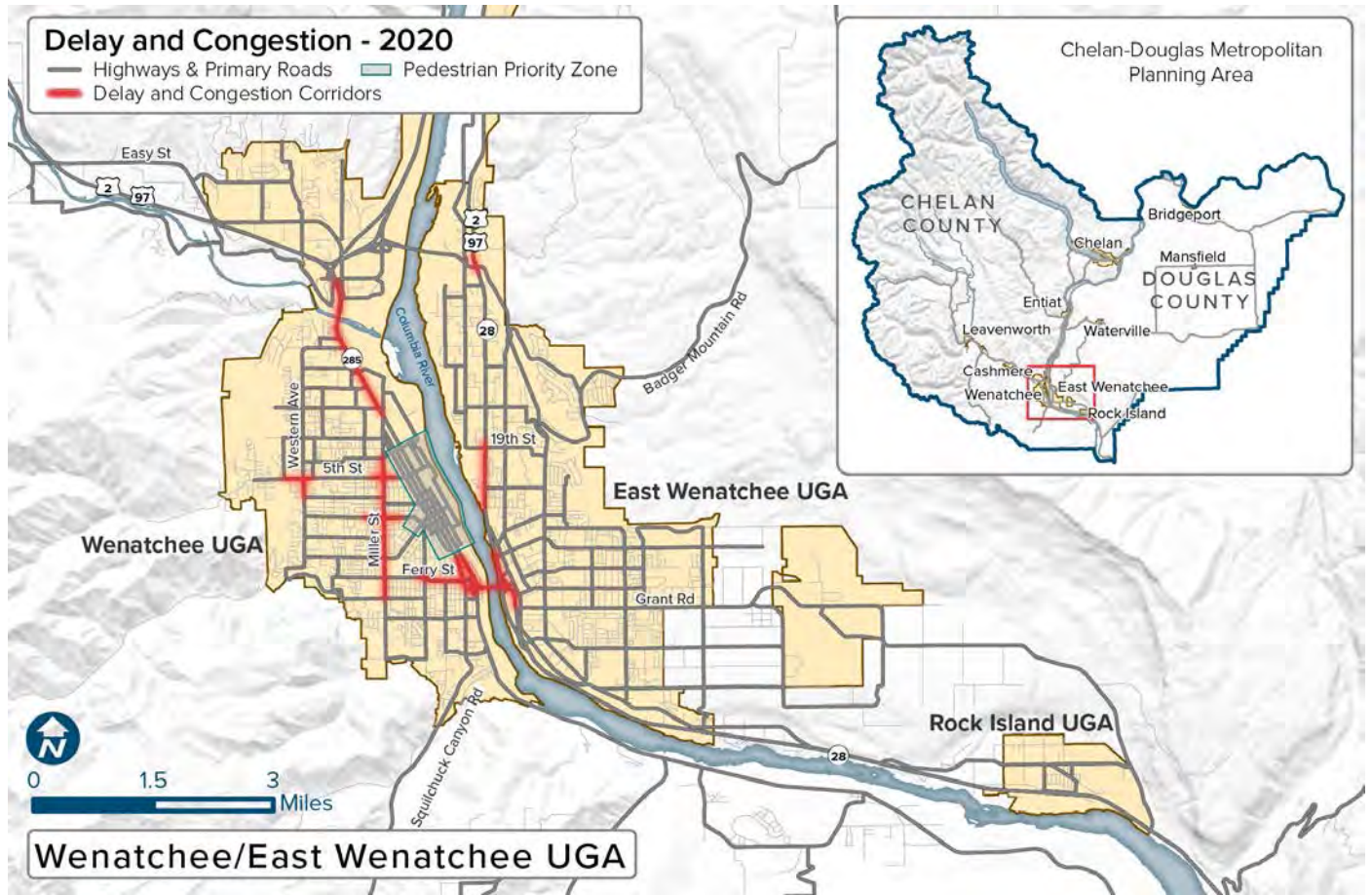
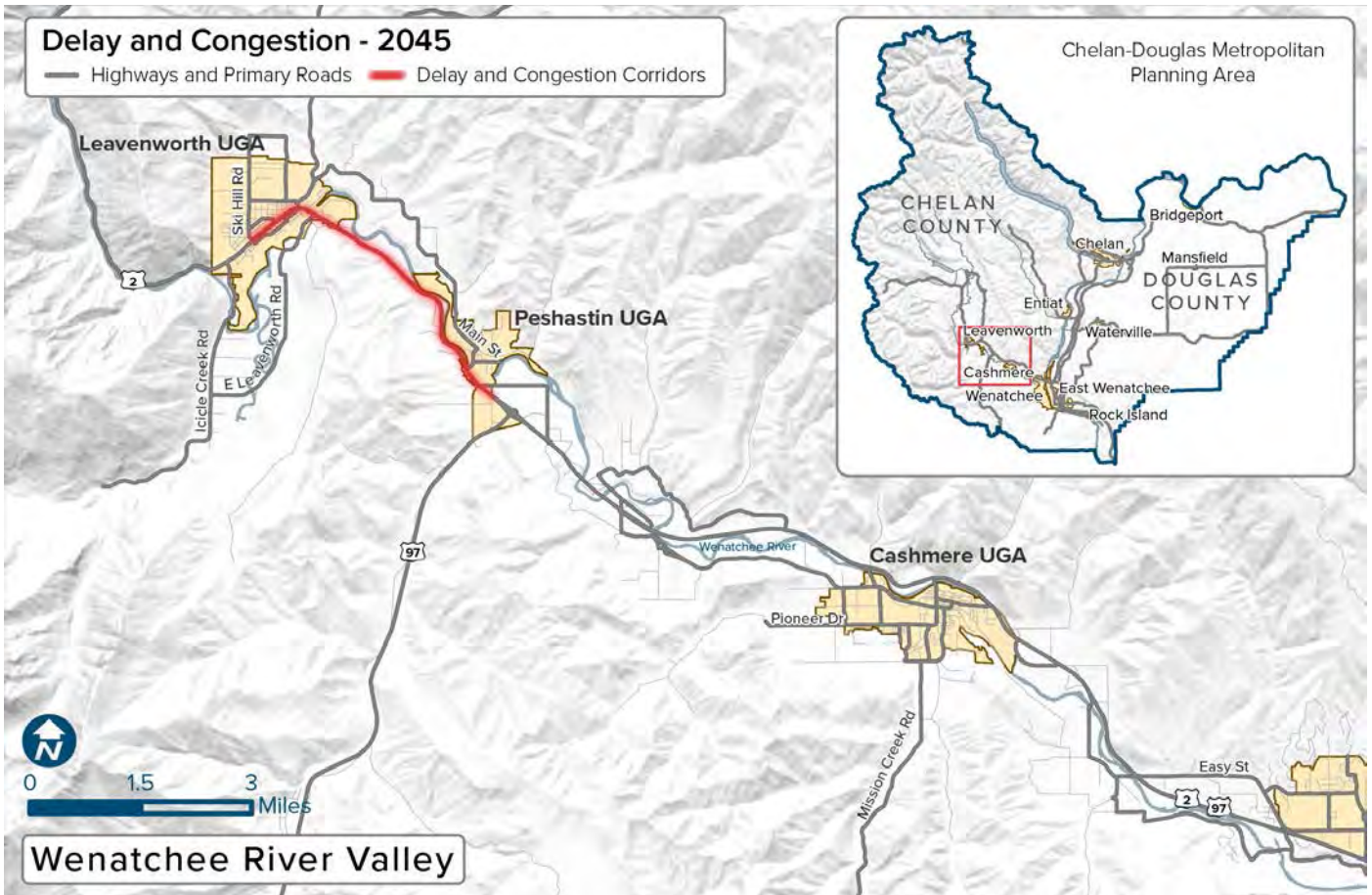
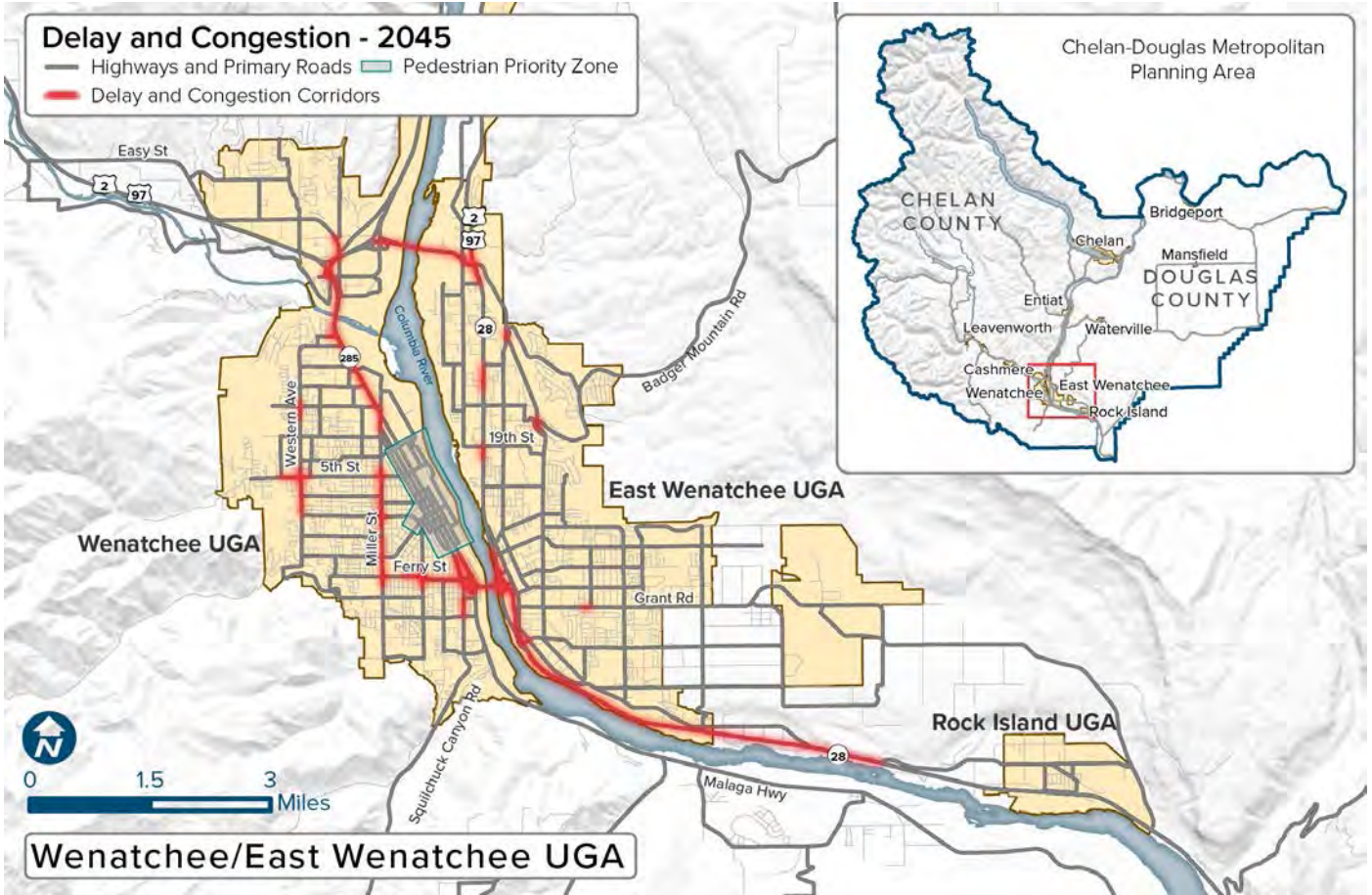


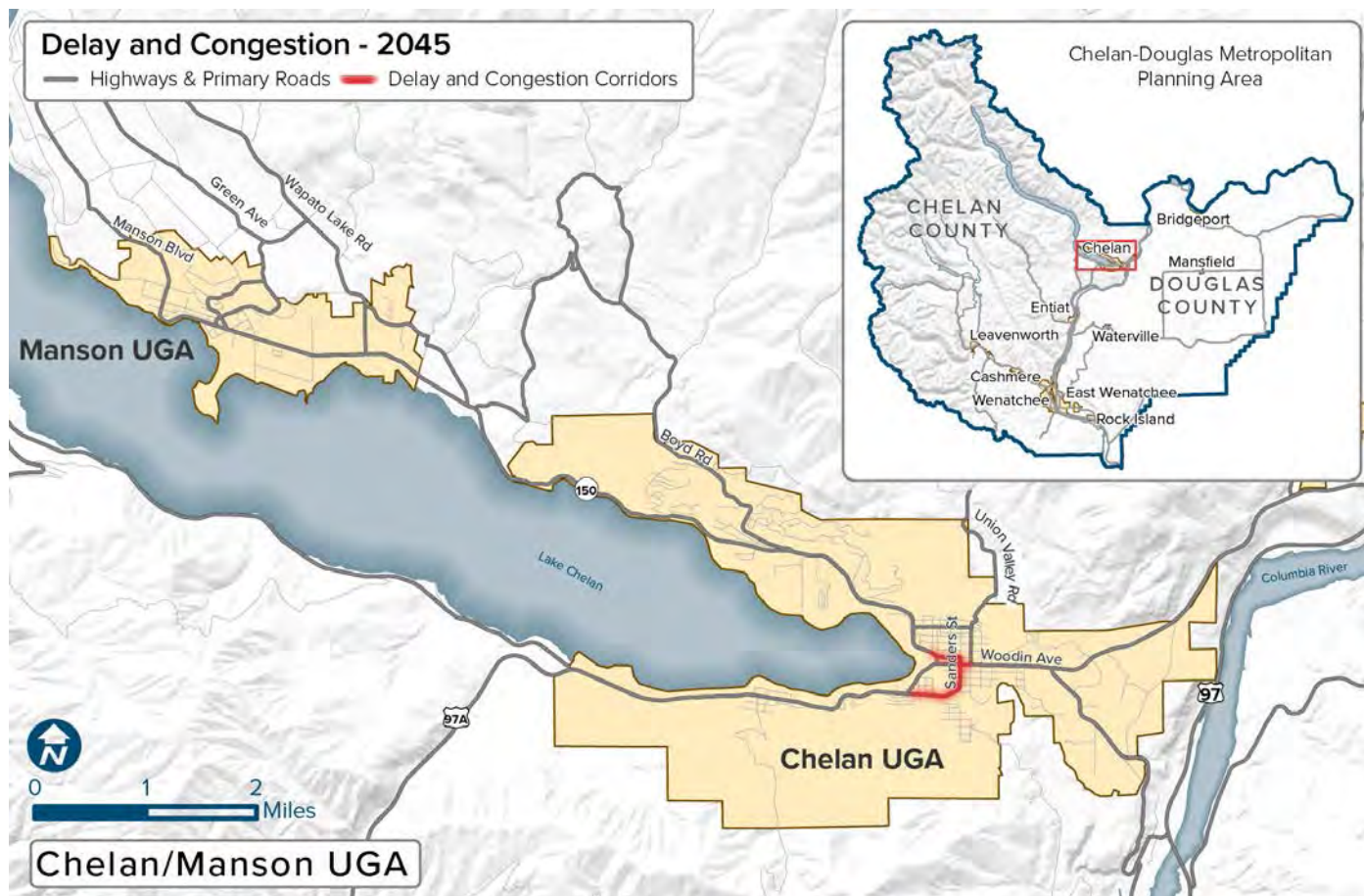
Figure 2-3: 2018 Wenatchee Valley Bike Network Recommendations



Figure 2-4: Delay and Congestion







Vehicle mobility and efficiency issues only currently exist in the Wenatchee/East Wenatchee Urbanized Area (UGA). The concentration of residents, jobs, and services in the UGA lends to high auto demand for not only trips starting in the UGA, but also trips into the UGA from the adjacent rural communities. Generally, the rural communities don't generate enough trip volume to create mobility deficiencies, though road segments characterized as small town walkable main streets are projected to have deficiencies.



THE TRANSPORTATION SYSTEM IS WELL-MAINTAINED

This goal is evaluated by a single state of good repair measure and target that defines attainment.



Measure

Pavement condition¹



Target

100% of the Regional Transportation System in Good or Fair condition



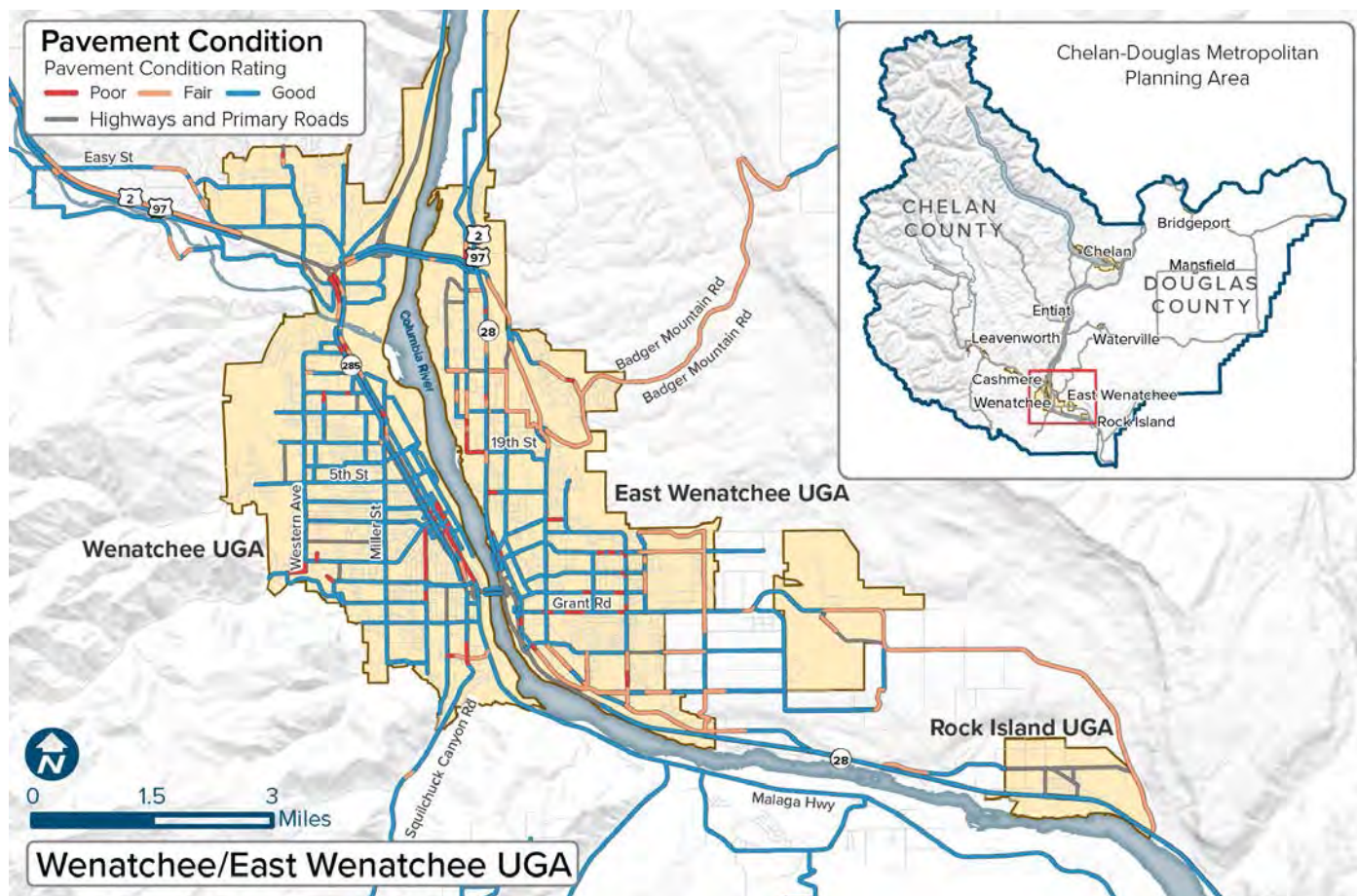
Strategies

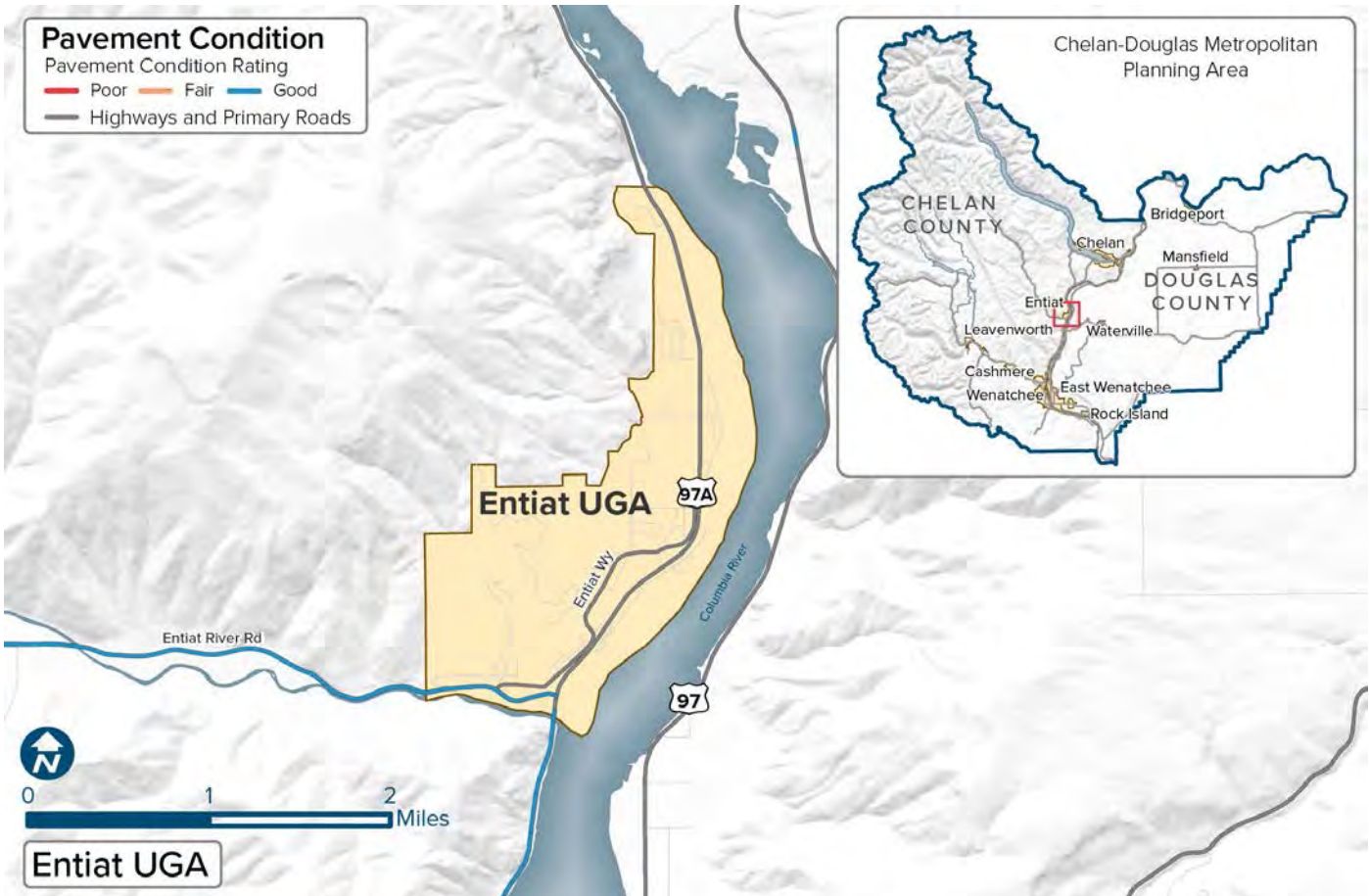
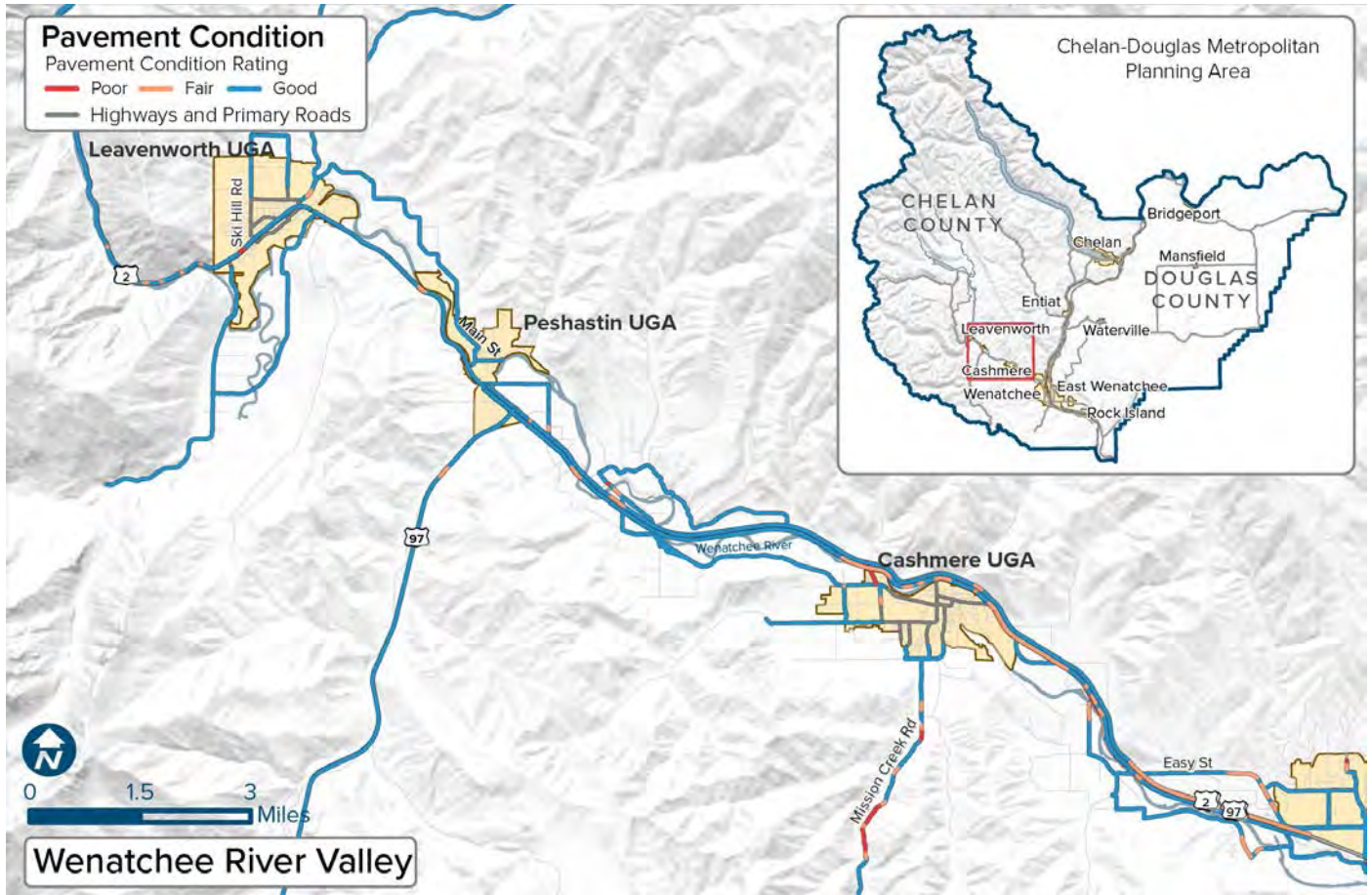
- Encourage local agencies to create permanent, adequate funding for pavement preservation.
- Study alternate preservation strategies for different pavement quality scenarios based on projected revenue constraints
- Develop a long-range forecast for regional pavement condition and preservation needs

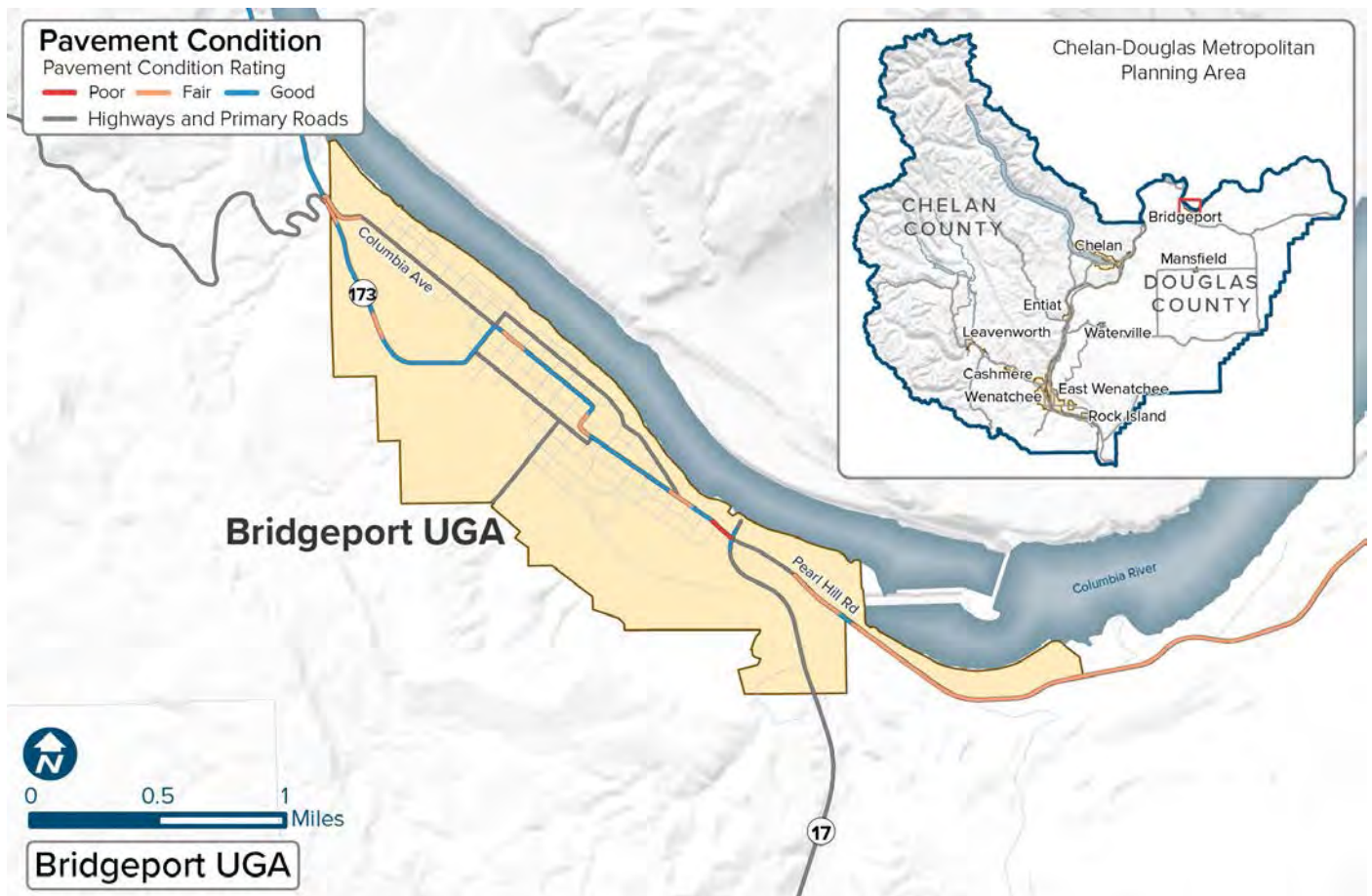
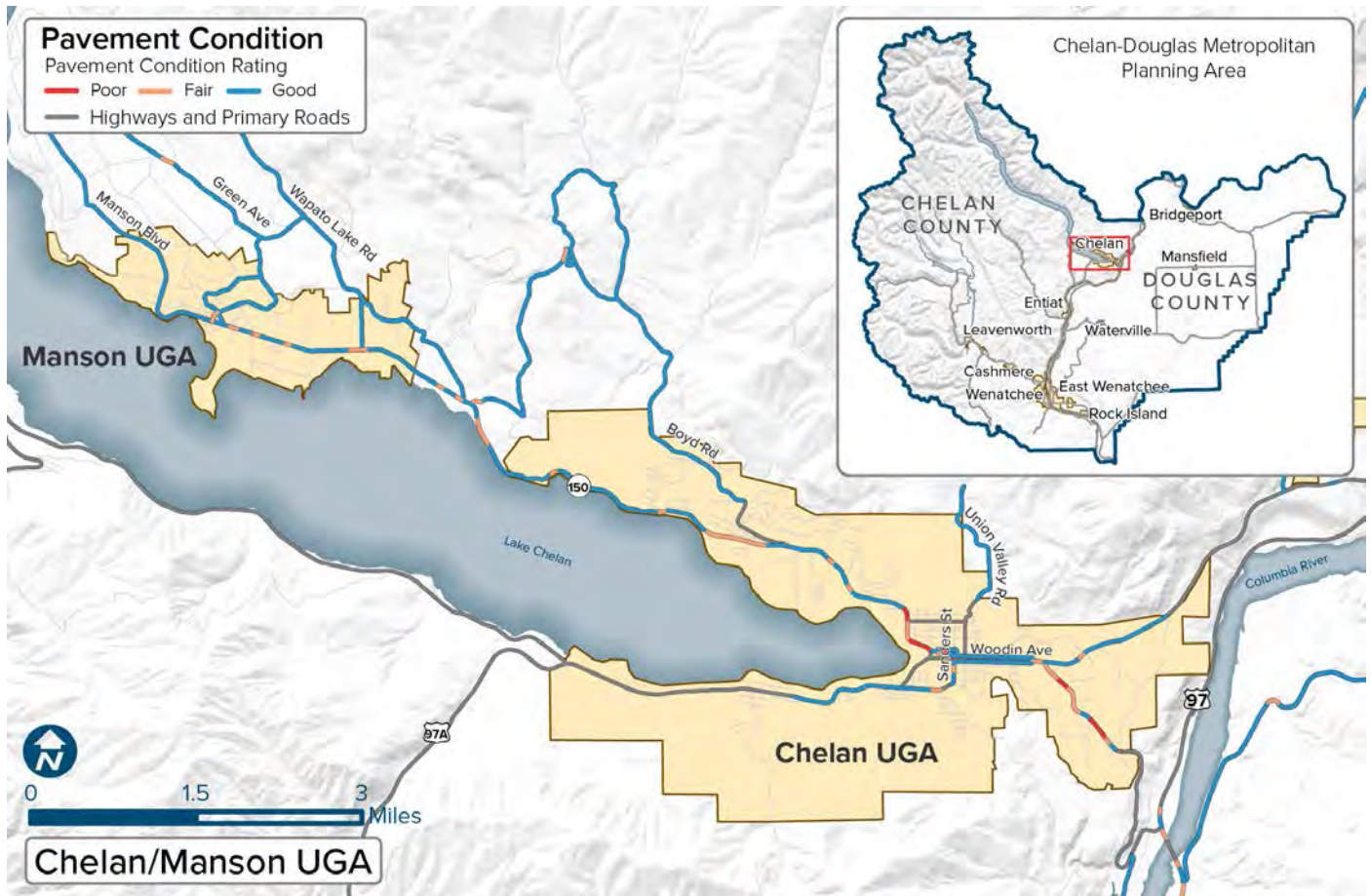
¹ Pavement Condition is based on the pavement condition index, pavement surface condition, rutting, or international roughness index. Each agency applies these metrics using different methods and ranges defining the condition category. See Appendix C for more details.

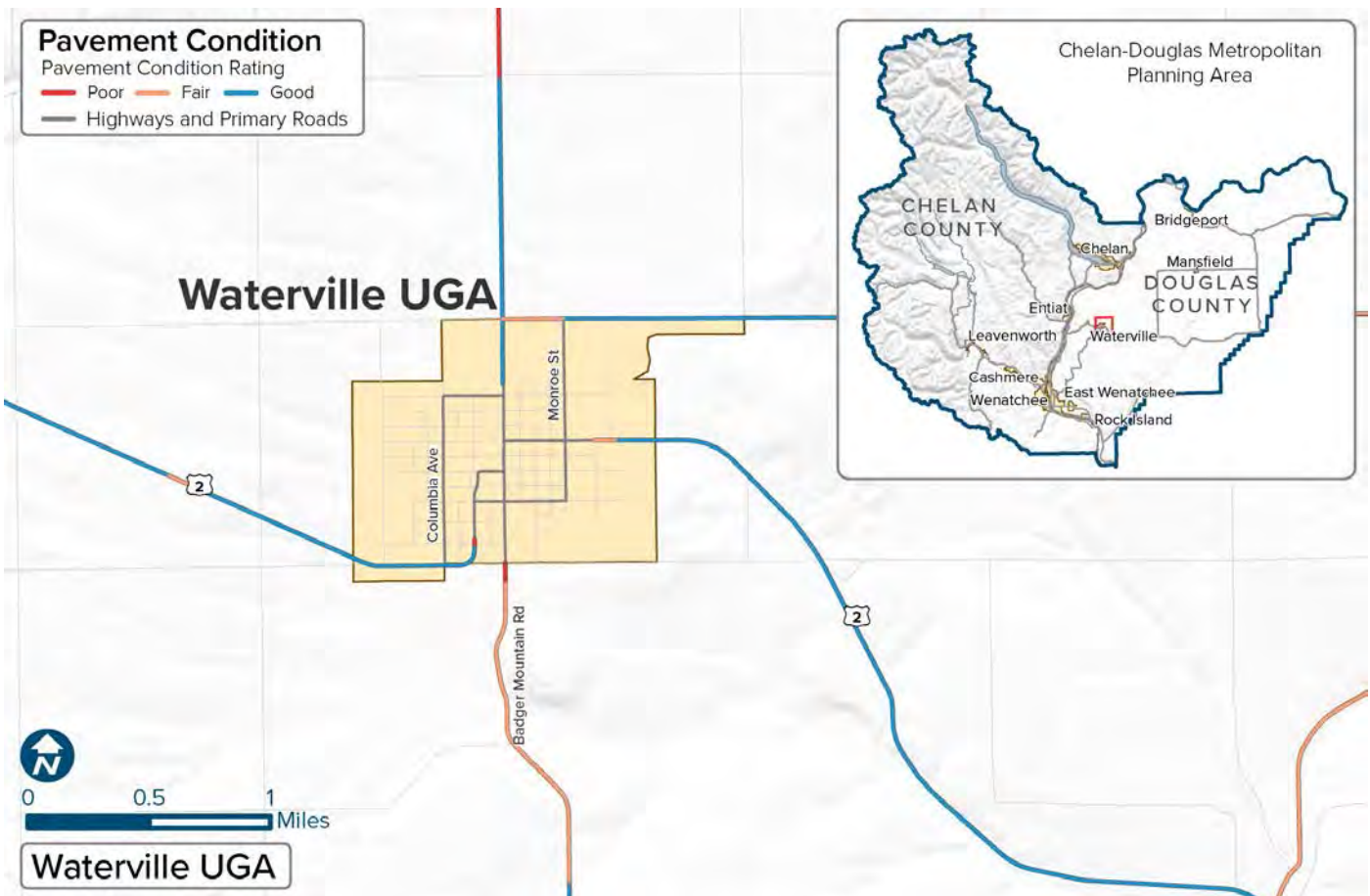
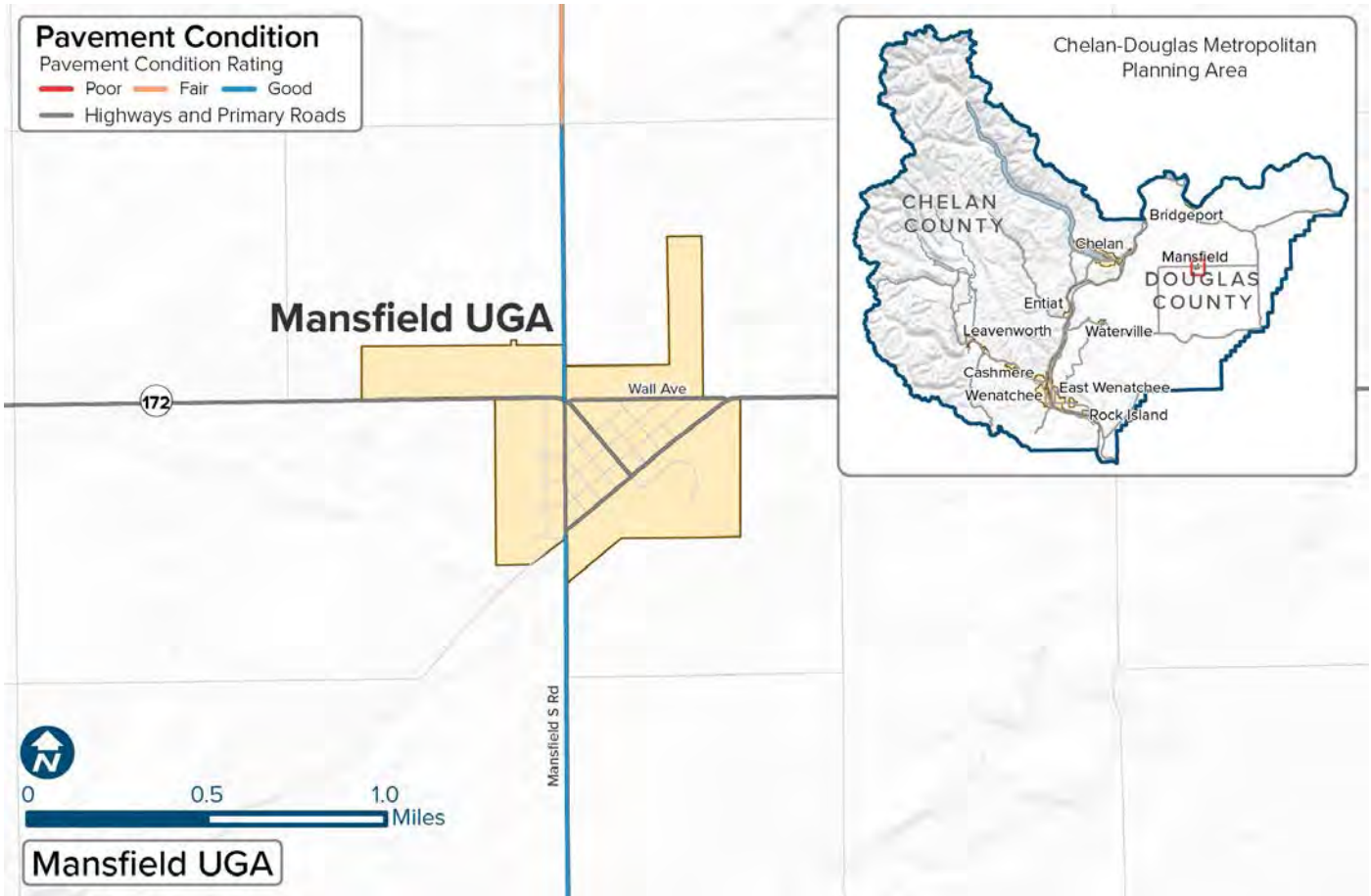
Figure 2-5 shows the existing pavement condition across the region. This measure serves as the regional policy basis for local and state preservation program management.

Figure 2-5: Pavement Surface Condition









Currently, 82% of the regional system is in Good or Fair condition. While this may suggest local jurisdictions have nearly adequate funding available for roadway preservation, they're facing a growing cost liability for preserving regional and local roads. The cost of full reconstruction compared to periodic preservation and cost of deferred treatment must be considered to fully understand the financial challenge of meeting CDTC's system preservation goal. For example, Once a roadway degrades from Fair to Poor condition, full reconstruction costs up to ten times that of periodic preservation, depending on the type of roadway surface. Additionally, local budgets haven't been able to keep pace with preservation need; total road mileage past due for treatment has been increasing year-to-year, further exacerbating the financial liability of road preservation. With this understanding, CDTC places a high priority assisting its member agencies with development of financially viable, long-term strategies for roadway preservation.

While not a comprehensive funding option, CDTC funds local preservation projects through its competitive Surface Transportation Block Grant Program (STBG). CDTC takes a long-term, regional view to assess ideas for generating additional local revenue in the face of insufficient funding, and if necessary, redefining the state of good repair.



THE TRANSPORTATION SYSTEM SUPPORTS COMMUNITY & ECONOMIC DEVELOPMENT PLANS

Unlike the three previous goals, attainment of this goal is not evaluated with measurable data and specific targets.

CDTC envisions transportation investment decisions as not only addressing transportation-specific deficiencies, but also as ways to capture or leverage opportunities in community and economic development. There are challenges in applying objective metrics to capture the wide range of economic development opportunities that can be leveraged by transportation investment. Moreover, economic development is often tied to emerging opportunities, making them even more difficult to anticipate and plan for years in advance. In order to be included in the Plan, transportation improvements characterized with an economic development need must exhibit economic benefit and be identified in an economic development or sub-area plan adopted by one or more public governing bodies with clearly articulated economic or community development benefits.

There are also circumstances where community and economic development may preclude investment where transportation deficiencies exist. For example, temporary mobility issues occur in Leavenworth during festivals and summer weekends and in Chelan during summer holiday weekends. In these cases, where tourism is a driving force of the local economy, decision makers must weigh the implications of transportation investment on the character of its location and any economic development potential. These considerations can be applied across the region. The potential to harness the character of a place for community and economic development may outweigh investment benefits guided solely by transportation deficiency policies.

MAP-21 Performance Based Planning

Federal agencies have had evolving requirements for regional transportation planning beyond the statutory requirements and planning factors described in the front matter of this document. The Moving Ahead for Progress in the 21st Century (MAP-21) Act recently established a performance-based planning process covering safety, infrastructure condition, congestion reduction, and system reliability. This legislation has established a new obligation for CDTC to demonstrate progress in achieving regional, state, and national targets. MAP-21 lays

out the requirements for performance-based planning by creating the following responsibilities:

- MPOs will establish performance targets that address surface transportation performance measures for the categories of safety, infrastructure condition, congestion reduction, and system reliability;
- The performance targets selected by an MPO will be coordinated with the State and transit providers to ensure consistency to the maximum extent practicable;
- The long-range transportation plan will include a description of the performance measures and performance targets used in assessing the performance of the transportation system; and
- The transportation improvement program (TIP) will include a description of the anticipated effect of the MPO's short-term funding priorities toward achieving the performance targets established in the plan, linking investment priorities to those performance targets.

CDTC, in coordination with WSDOT and FHWA, now uses this target setting framework as an additional tool for tracking performance and condition of the transportation system. CDTC's framework for compliance with MAP-21 performance measures, targets, and reporting dates are outlined in Table 2-1 below.

Table 2-1: MAP-21 Performance Measure Framework

	Measures	Metrics	Baseline & Targets	Reporting Dates
System Performance	Percent of person-miles traveled on Non-Interstate National Highway System (NHS) ¹ that are reliable	Ratio of the longer travel times (80th percentile) to normal travel times (50th percentile) using Level of Travel Time Reliability Ratio (LOTTR). ²	Current Performance: 92% 2022 Target: Greater than 70%	2-year Report: October 1, 2020 4-year Report: October 1, 2022
Pavement Condition	Percent of non-interstate NHS pavement in good condition	Pavement condition determined by the following metrics: <ul style="list-style-type: none"> • International Roughness Index (inches/mile) • Cracking (%) • Rutting (inches) • Faulting (inches) • Present Serviceability Rating 	Current Performance: 77% 2022 Target: 18%	October 1, 2022
	Percent of non-interstate NHS pavement in poor condition		Current Performance: 6% 2022 Target: 5%	

1: The NHS includes interstate highways, non-interstate principal arterials, the strategic highway network, major strategic highway network connectors, and intermodal connectors.

2: LOTTR ranks segments as reliable or not reliable using a ratio of the of the time it takes 50% of drivers (50th percentile) to traverse a segment and the time it takes 80% (80th percentile) of drivers to traverse a segment. The ratio of the 80th percentile to the 50th percentile must fall below 1.5.

Table 2-1 Cont.: MAP-21 Performance Measures

	Measures	Metrics	Baseline & Targets	Reporting Dates
Bridge Condition	Percent of all NHS bridges classified in poor condition	Ratio of total deck area of NHS bridges in good/poor condition to total deck area of NHS bridges in the state.	Current: 8.2% 4-year target: 10% or less	October 1, 2022
	% of all NHS bridges classified in good condition		Current: 53.3% 4-year target: 30% or more	
Safety	Number of motorist fatalities on all public Roads	Fatalities on all public roads	Current Performance: 9.4 2020 Target: 7.8 2030 Target: 0	Annually with coordination and data from WSDOT
	Number of fatalities per 100 million vehicles miles traveled (VMT) on all public roads	Ratio of fatalities per every 100 million VMT on all public roads	Current Performance: 0.88 2020 Target: 0.734 2030 Target: 0	
	Number of serious injuries on all public roads	Serious injuries on all public roads	Current Performance: 34.4 2020 Target: 28.7 2030 Target: 0	
	Number of serious injuries per 100 million VMT on all public roads	Ratio of serious injuries per every 100 million VMT on public all roads	Current Performance: 3.22 2020 Target: 2.68 2030 Target: 0	
	Number of non-motorist fatalities and serious injuries on all public roads (bike/ped)	Non-motorist fatalities and serious injuries on all public roads	Current Performance: 4.4 2020 Target: 3.7 2030 Target: 0	

Additional detail on MAP-21 performance can be found in Appendix E.

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CHAPTER 3

Implementation Strategy



he transportation investments included in this Plan maximize the region’s ability to meet the projected mobility and accessibility needs within projected future funding constraints. Investment priorities are identified in this document in two ways: at the individual project level with discrete extents and termini, and at the program level identifying 25 year expenditures. This approach to defining and prioritizing needs allows the focus of the plan to sharpen on the large, regionally significant projects that require multi-jurisdictional coordination and collaboration.

Transportation investments identified in this chapter are grouped into three broad categories reflecting the distinct policy trade-offs in the face of limited funding among:

- **Expansion** of the transportation network through construction of new roads, bridges, trails or increased public transit services;
- **Improvement** to the safety and efficiency of existing transportation infrastructure and transit services; and
- **Preservation** of existing transportation infrastructure and transit services.

This document does not identify and recommend an unlimited number of projects. Priority investments must be tied to reasonably available revenues, a federally required process known as fiscally constraining the plan.

The revenue sources presumed available to fund this plan include state and federal gas tax allocations, competitive and formula-based grant programs, local-option taxes and fees, and periodic legislative appropriations. An expected amount of revenue from each federal, state, and local source was projected over the 25-year time frame of the plan to establish a total fiscal constraint threshold of \$2.2 Billion (adjusted for inflation).

Needed transportation investments are identified at an inflated year-of-expenditure (YOE) cost to reflect inflation and the reduction in the buying power of a dollar over time. Two cost ranges were used as a simplified method for calculating YOE project costs.

Figure 3-1 summarizes the total investment needed in each of the three investment categories, in comparison with the amount of revenue forecasted to be available over the 25-year plan horizon. The amount of revenue assigned to each of the three investment categories represents this plan’s overall strategy for balancing the three competing categories of need.

Expansion Projects

Expansion projects include new roads, bridges, trails, traffic lanes, and transit services that grow the reach and capacity of the transportation system. Expansion projects were identified through a review of local agency TIPs, transportation plans, public transit plans, economic development plans, regional corridor studies and sub-area plans, and state highway planning documents.

Figure 3-1: Revenue, Investment Need, and Shortfall



The expansion investment category is the only category fiscally constrained at the project level, sharpening the focus of the plan on the investments that have significant impact on regional mobility and accessibility and require multi-jurisdictional collaboration, coordination, and support. The funded and unfunded expansion projects are described in detail in Table 3-1 with project locations and termini shown in Figure 3-2. Figure 3-3 compares the expansion investment need amongst the state, local agencies, and LINK Transit.

Table 3-1: Prioritized and Unprioritized Expansion Needs

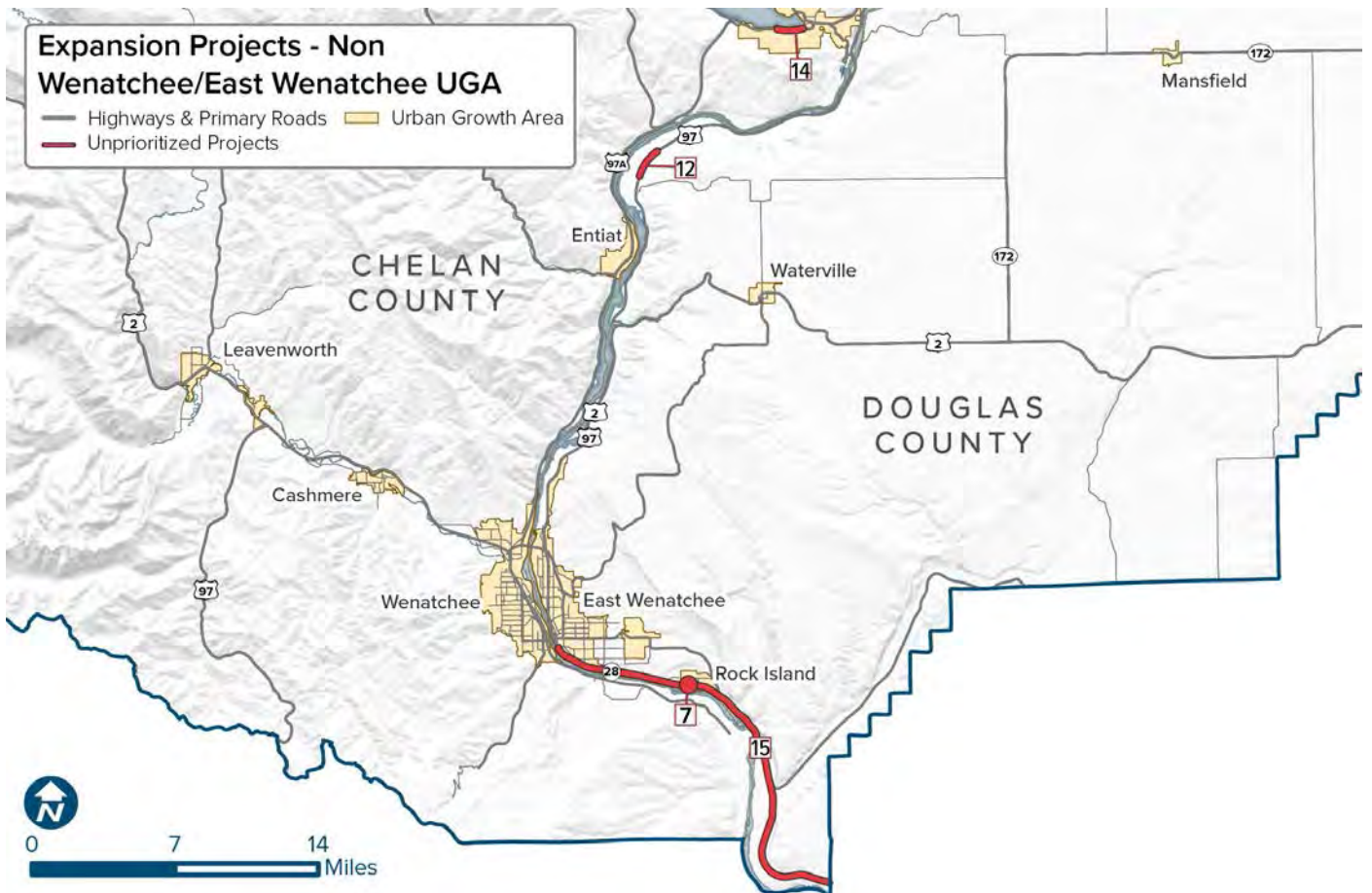
	Project	YOE Cost	Map #
Prioritized Expansion Projects	Underpass at Miller St and BNSF right of way & new road with a bridge over the Wenatchee River (Confluence Parkway)	\$119,000,000	1
	Interchange at the Wenatchi Landing Economic Development District with connections to 38th St and 35th St	\$20,000,000	2
	McKittrick Street extension to Walla Walla Ave with an underpass at the BNSF right of way	\$29,000,000	3
	Widen SR 28 to four-lane from 9th St to Hadley St	\$56,000,000	4
	Pedestrian and Bike Crossing at Bridge St over the BNSF right of way connecting to the Columbia River Pedestrian and Bike Bridge	\$5,000,000	5
	Total	\$229,000,000	

Less than half of the expansion project investment need is fundable and prioritized with the revenue projected to be available over the life of the plan, as demonstrated by table 3-1. Moreover, No additional funding sources are anticipated at the state or federal levels for large capital investments beyond those detailed in the revenue forecast (Appendix B). Revenue generating mechanisms are available for local agencies, but they only have the capacity to fund smaller improvement and preservation projects and programs. The funding limitations illustrates the importance of a coordinated, regional process for establishing priorities.

Table 3-1 Cont: Prioritized and Unprioritized Expansion Project Needs

Unprioritized Expansion Projects	Project	YOE Cost 1	YOE Cost 2	Map #
	New roadway connecting NW Empire from Wenatchi Landing Interchange to Cascade Ave	\$9,075,000	\$12,284,000	6
	Access and circulation projects consistent with Rock Island Waterfront Plan	\$4,876,300	\$6,689,800	7
	SR-285 Easy Street ramp and north/south connections to Technology Center Wy	\$1,210,000	\$1,660,000	8
	Trail along Pioneer Irrigation Easement from Walnut St to Chatham Hill Rd with Wenatchee River Crossing	\$9,075,000	\$12,450,000	9
	Multi-use pathway connecting Loop Trail to Old Station Rd	\$726,000	\$996,000	10
	Single point urban interchange at Grant Rd and SR 28	\$42,350,000	\$58,100,000	11
	Passing lanes on US 97 from Barber Rd to Weimer Rd	\$20,570,000	\$28,220,000	12
	SR 28 four-lane Hadley St to 38th St	\$141,570,000	\$194,220,000	13
	Bike path along US 97A from Woodin Ave to Lakeside	\$3,872,000	\$5,312,000	14
Passing lanes on SR 28 from Wenatchee to Crescent Bar	\$7,865,000	\$10,790,000	15	
Total	\$241,068,300	\$330,721,800		

Figure 3-2: Expansion Projects



Improvement Projects

Compared to expansion projects that increase system capacity, this category of transportation investments generally modernize and bring the system up to a higher standard. Improvement projects include a wide variety of spot location and corridor upgrades to sidewalks, intersections, the bicycle network, aesthetics and illumination, access management, signal communication and traffic control, frontage roads, bus stops, freight movement and access, fish passages, rockfall protection, and electric vehicle charging stations. Improvement investment needs were also identified through a review of local agency TIPs, transportation plans, public transit plans, economic development plans, regional corridor studies and sub-area plans, and state highway planning documents.

Improvement projects are fiscally constrained at the program level because the priorities of the granting agencies that fund most improvements projects may not align with the priorities of the CDTC policy board. Given this reality, combined with the relatively equal incremental benefit to the system of

spot improvements, CDTC chooses to view all improvement projects with equal significance, supporting local pursuit and implementation of projects that match the granting agency’s priorities and requirements. Figure 3-4 shows the fiscal constraint comparison for improvement projects for the state, local agencies, and LINK Transit. While constrained at the program level, a list of real projects does serve as the basis for assessing improvement investment need and can be found in Appendix B.

Preservation Projects

Preservation refers to the projects associated with keeping the existing transportation infrastructure in a state of good repair and condition, typically periodic roadway resurfacing and minor repairs. Preservation

Figure 3-3: Expansion Project Revenue and Need Summary



Figure 3-4: Improvement Project Revenue and Need Summary



investment need was estimated using a region-wide assessment of the cost to preserve the total center-line mileage of the regional road network over 25 years. A high-quality surface preservation strategy (asphalt overlay) was assumed as the base treatment for purposes of establishing a long-term understanding of network preservation cost requirements, and because CDTC has not yet evaluated alternative lower-quality options for system preservation. As with improvement projects, preservation projects are fiscally constrained at the program level.

Figure 3-5: Preservation Revenue and Investment Need Summary



Keeping the transportation system

in a state of good repair is at the core of public infrastructure stewardship. WSDOT and the local agencies in the region consistently strive to manage their pavement preservation programs to maximize lifespan at the highest benefit to the public. However, a significant gap between investment need and available revenues for preservation exists and is anticipated to grow. The current relationship between revenue and preservation investment need for the state, local agencies, and LINK Transit is summarized in Figure 3-5.

The region faces a growing long-term financial liability given the current revenue constraints. There are two policy options to address the growing cost:

1. Increase revenue; or
2. Maintain the network at a functional but lower quality

Local agencies can advocate for increased external state and federal dollars, and also use local mechanisms to generate revenue from their citizens and visitors to fund the preservation shortfall. This plan doesn't assume that new external or internal revenue will become available for local agencies; Any new revenue collected at the state level is assumed to be spent on state highways with the state legislature continuing to encourage the use of local revenue generating options. However, there is one tool for generating revenue that has yet to be used by many of CDTC's local agencies. A local sales tax levy of .02% per every dollar spent has an estimated capacity of nearly \$230 million (in real dollars) for the region over the life of the plan, covering nearly 25% of the preservation shortfall for cities and counties.

The inverse of funding the preservation shortfall is to preserve the network at a quality achievable with current revenue; Approaches for maintaining the network at a lower quality include:

1. Discontinuing asphalt treatment of select low volume roads indefinitely in order to guarantee funds for necessary high-volume roads
2. Limiting asphalt treatment to travel lanes only
3. Complete reclamation of local roads to gravel

CDTC will continue to support its local agencies in finding ways to overcome the preservation shortfall.

Addressing these challenges is one of the principle ways CDTC provides value to its member agencies as a forum for collaboration and problem-solving.

Demand Management

Demand management focuses on policy actions and transportation investments that reduce peak capacity demand for cars on the transportation system by promoting incremental mode-shift away from automobiles to strike a balance amongst auto, bike, pedestrian, and transit capacity investments. Rather than simply identify capacity-based improvements for auto congestion, demand management considers ways other modes reduce the demand for lane-miles while providing the same trip making capacity. Demand management solutions in the proper land use context may include projects as simple as high-frequency bus service and comfortable and connected active transportation facilities.

Providing a comparable and competitive transportation alternative to cars, combined with implementing mixed-use development within the urbanized areas, has the potential to reduce the strain that development and growth will put on the region's road network. Moreover, prioritizing demand management today may postpone the need for expensive auto capacity expansion on the network in the future.

Active Transportation

Bicycling and walking as a means of transportation is governed by the proximity of jobs, homes, schools, and commerce. However, long trip distances, and lack of sidewalk and bikeway connectivity limit the demand for active transportation trips. As a result, the focus of active transportation planning has been on the Wenatchee and East Wenatchee Urbanized Areas (UZA) where trip distances are short and could be substituted with a form of active transportation.

Bikeway and sidewalk networks need to be comfortable and connected in order to tap into the latent demand for active transportation trip making. High comfort facilities encourage use by a broad cross section of the public. Bikeway and sidewalk planning and design should consider treatments that benefit high-risk, less mobile users in order to provide capacity for all—a principle known as planning for the 8 and 80-year-old. Connectivity works hand in hand with comfort. One small section of uncomfortable bicycle lane or sidewalk may be enough to deter users in perpetuity. A comfortable, connected active transportation network may steer a shift away from automobiles for a relatively small number of trips, but a small reduction in peak-hour automobile demand on congested roads can have a significant benefit. The shift may be exacerbated when drivers notice bicycles traveling as fast or faster than cars through congested corridors and begin to consider whether a mode shift is possible for them.

The guiding document for bicycle investment priorities is the Wenatchee Valley Bicycle Master Plan. It provides a comprehensive blueprint for implementing a bike network that is connected, accessible, and comfortable. Full implementation of the bike plan would create a highly comparable and competitive alternative to driving for trips in the Wenatchee and East Wenatchee UGAs. The programmatic recommendations found in the bike plan are as follows:

- Fill in bicycle network gaps by building the priority projects
- Maintain the bike network
- Make incremental improvements to existing bicycle facilities
- Improve safety and comfort on existing bicycle facilities

- Add new bike routes when opportunities arise
- Implement a wayfinding plan
- Review and adopt standards for bike lane markings and other design features
- Review the development review process
- Maintain and expand the Goathead Warriors Program for reducing tire punctures
- Expand the current Bike Plan by developing intercity regional bicycle connections

In addition to programmatic recommendations, it is a CDTC policy goal to complete the bicycle network gaps identified in Chapter 2. Strong consideration should be given to the priority bicycle network recommendations where bikeway implementation may shift auto trips to bikes on critical multimodal roads—benefiting mobility for all modes.

The sidewalk policy measure stated in Chapter 2 has identified sidewalk gaps for all local agencies in the region. All trips begin and end with walking. Safe, comfortable sidewalks and crosswalks should exist to complete trips at multiple scales—across the block or across the neighborhood. Consistent and comfortable sidewalks are especially beneficial in areas with a high density of retail and commercial uses and limited parking. The portion of the trip (in distance) taken as pedestrian may increase with high comfort facilities. Additionally, auto mobility may benefit from active transportation priorities by reducing congestion created by drivers looking for parking and removing cars for short trips entirely.



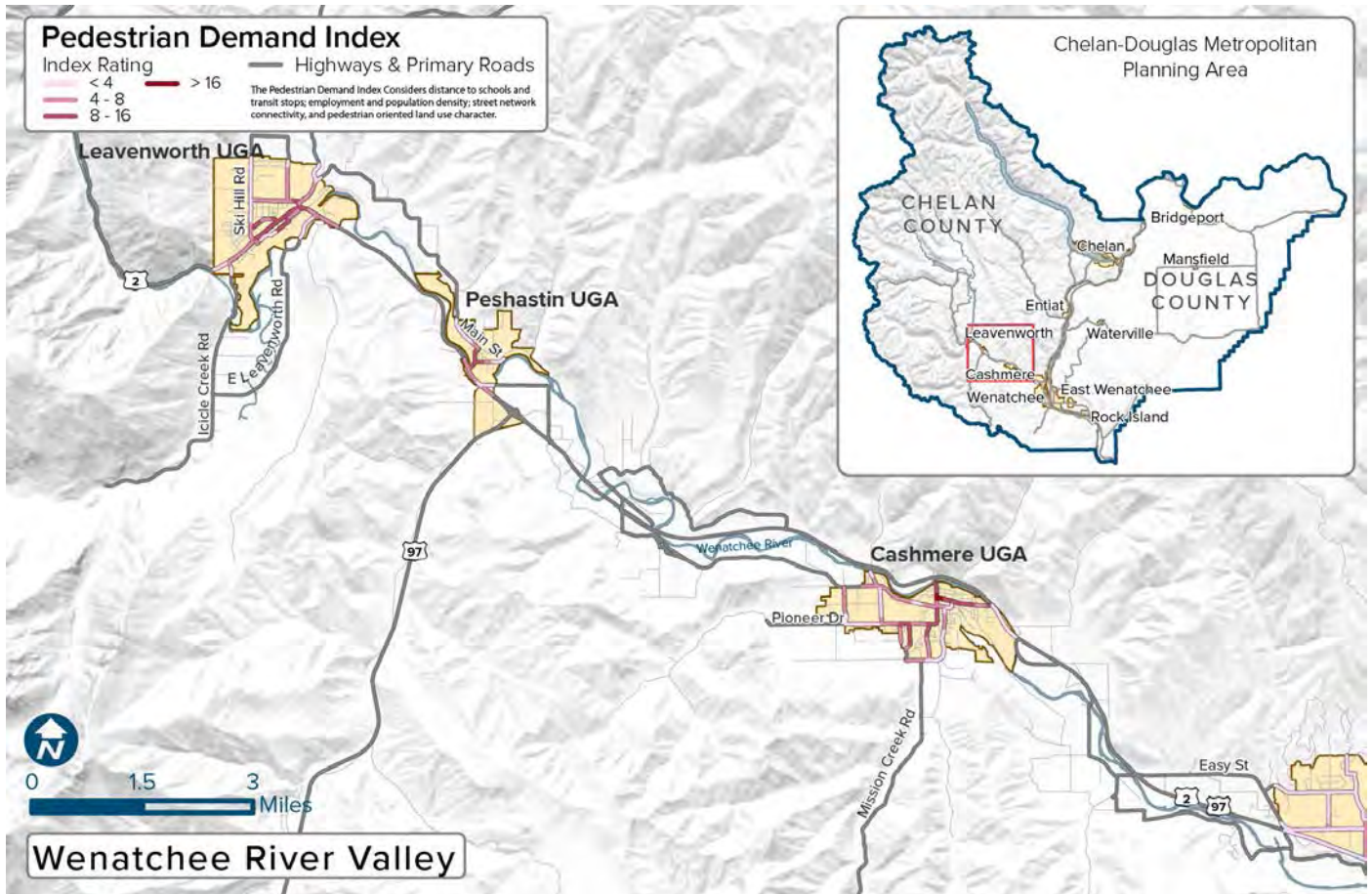
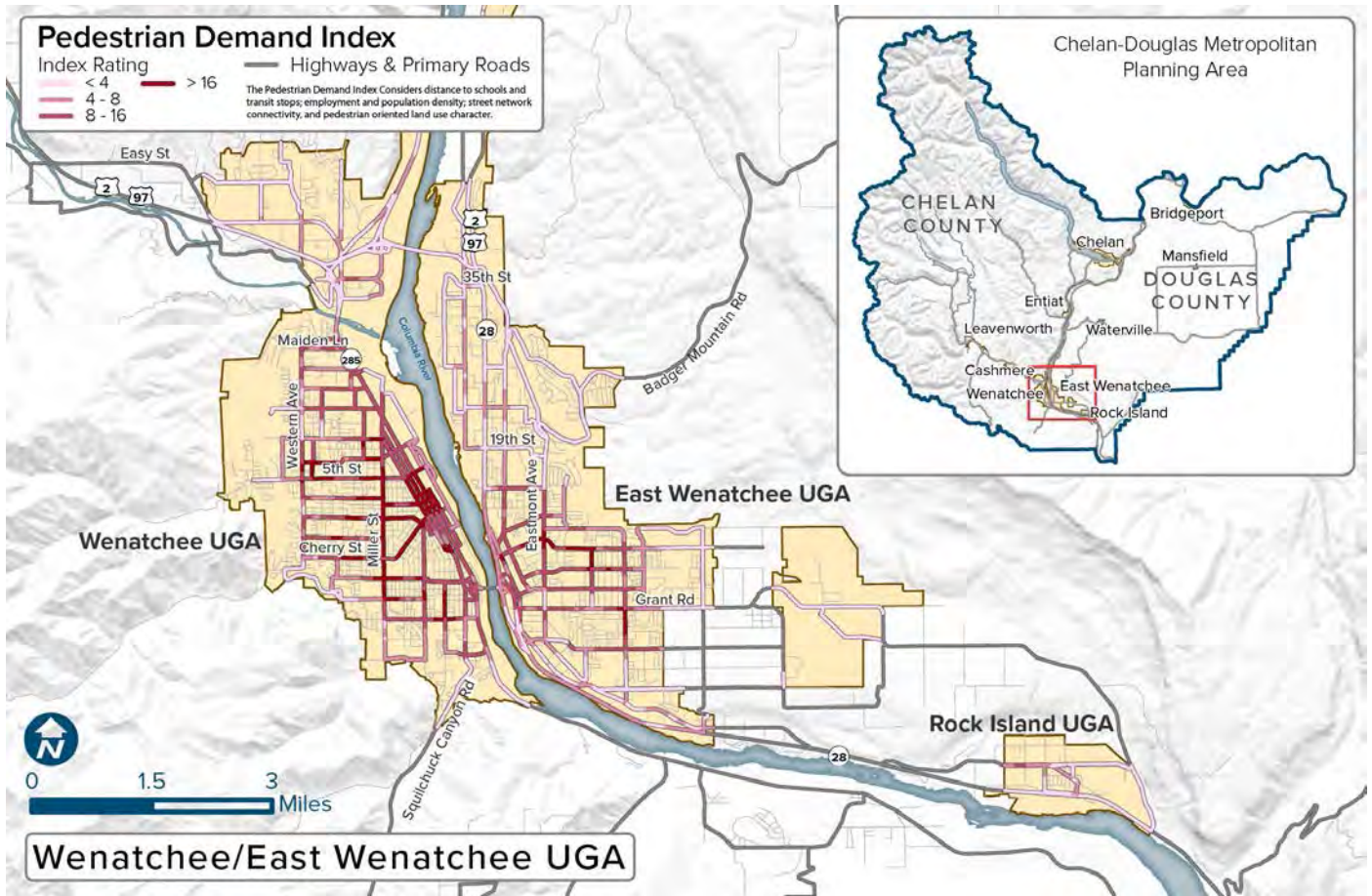
Princeton St Bikeway - Wenatchee

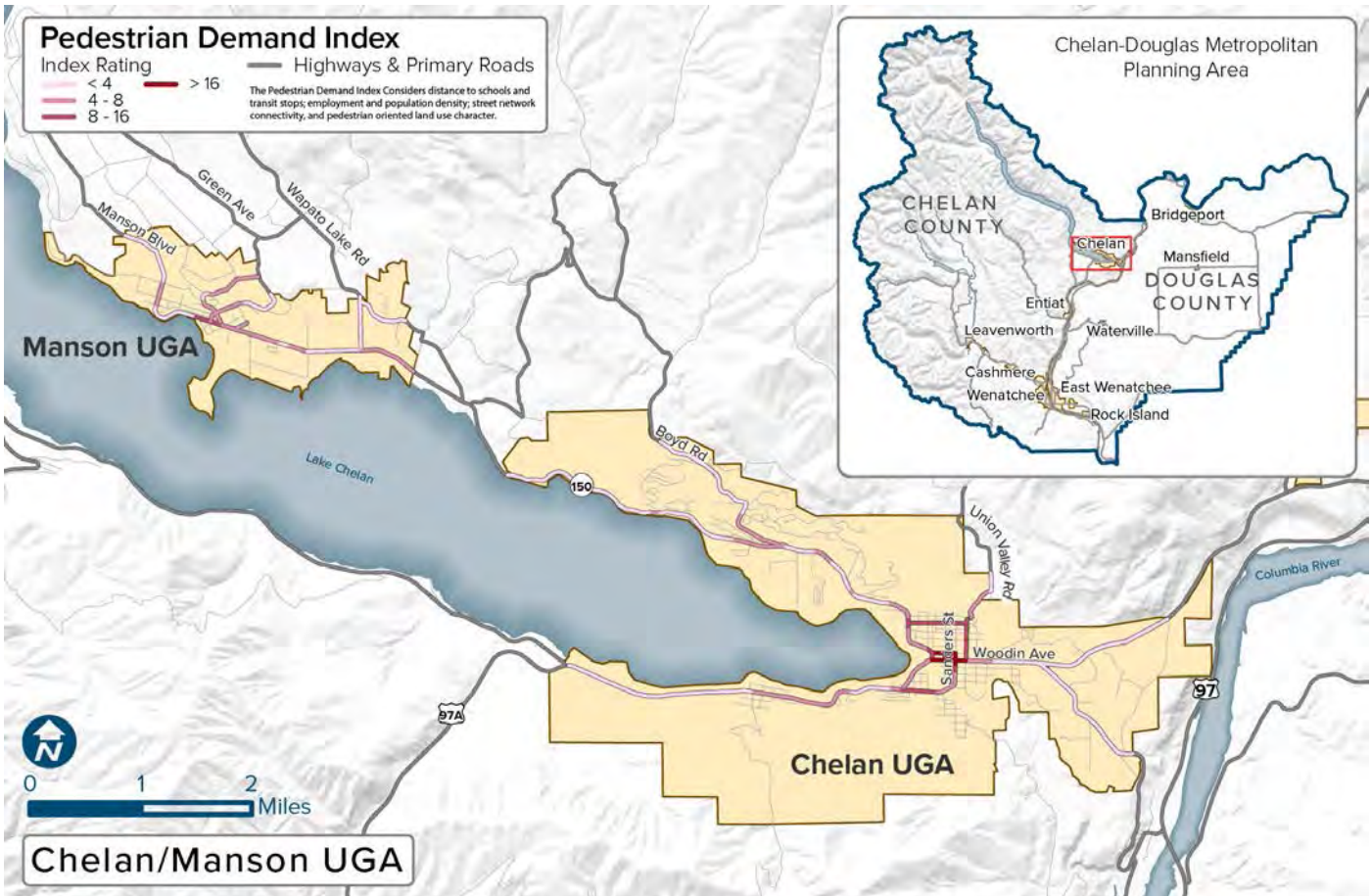
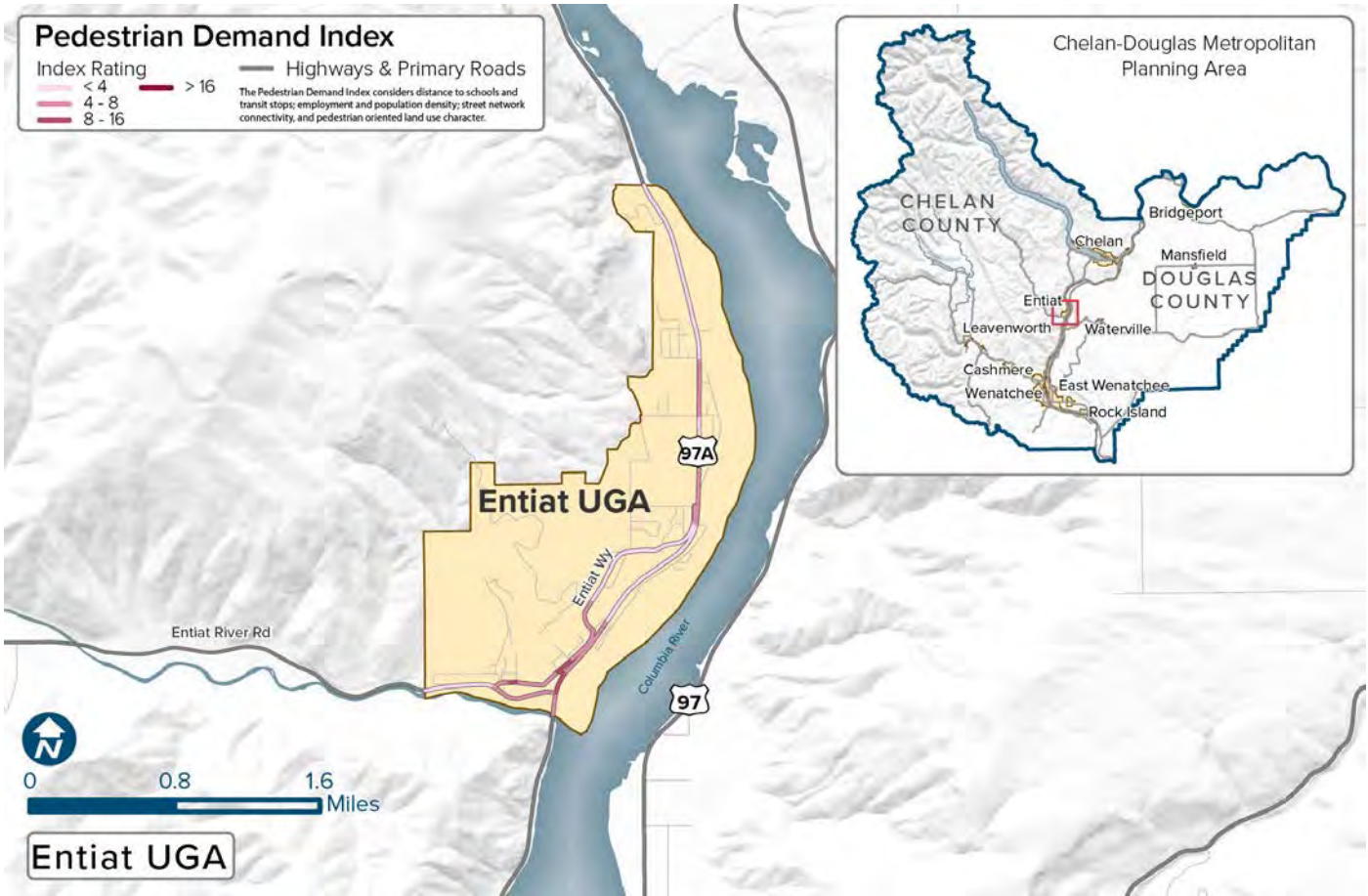
Multiple strategies exist for filling sidewalk gaps and have been used to varying levels of success. For example, local agencies have been regularly winning competitive grants to fix sidewalk gaps and have been incorporating sidewalks into larger projects, though a large portion of sidewalk gaps remain unfundable with current revenues. An opportunity to pay for sidewalk gaps exists in that many gaps in urban areas could be tied to the improvement of currently undeveloped parcels. While some local jurisdictions already require it in the development review process, its estimated that over nearly 40% of the existing sidewalk gap mileage and over 50% of the estimated costs can be provided as a mitigation for development. Stronger development review process would likely be needed to fully realize the potential of this strategy.

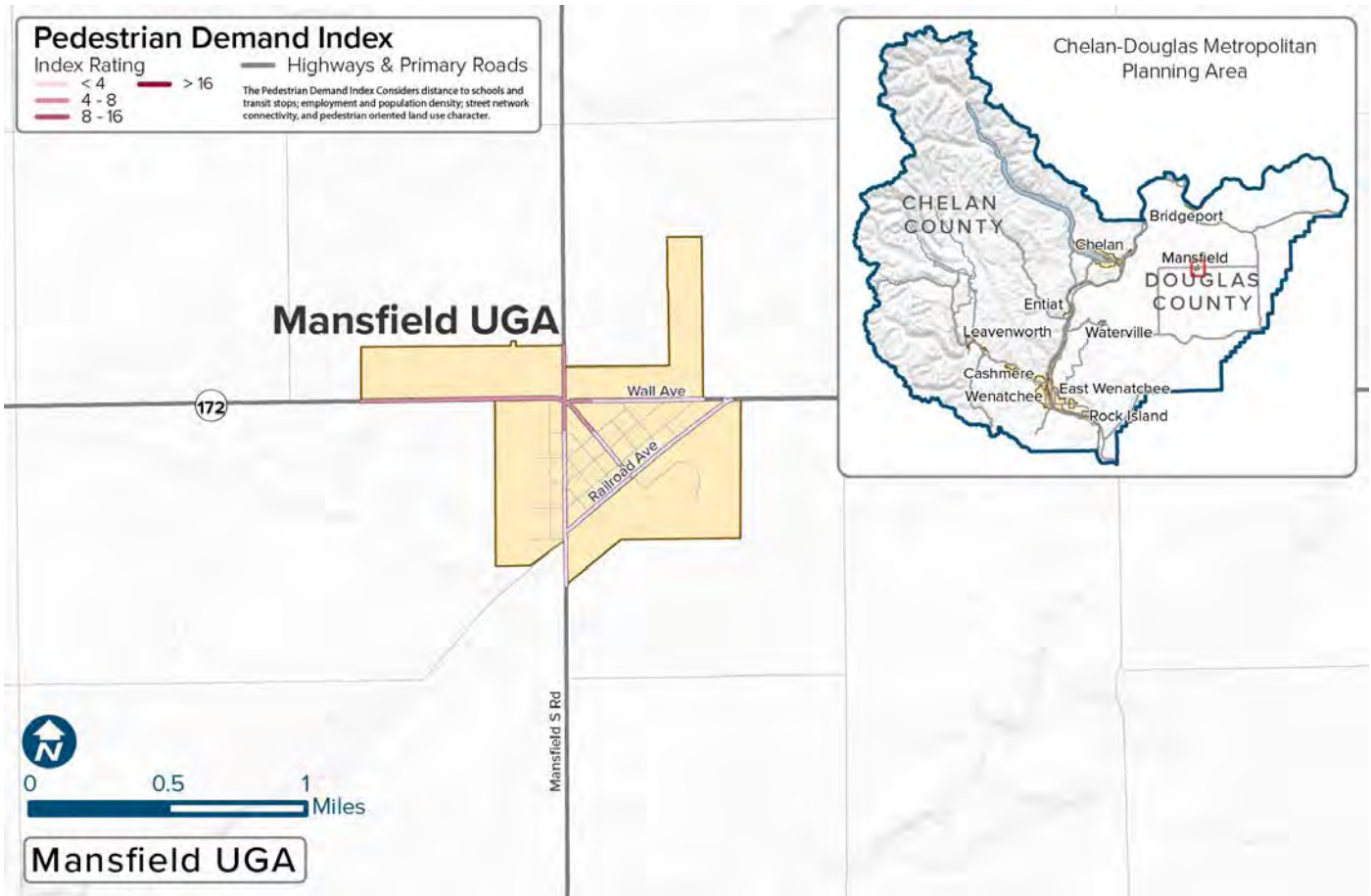
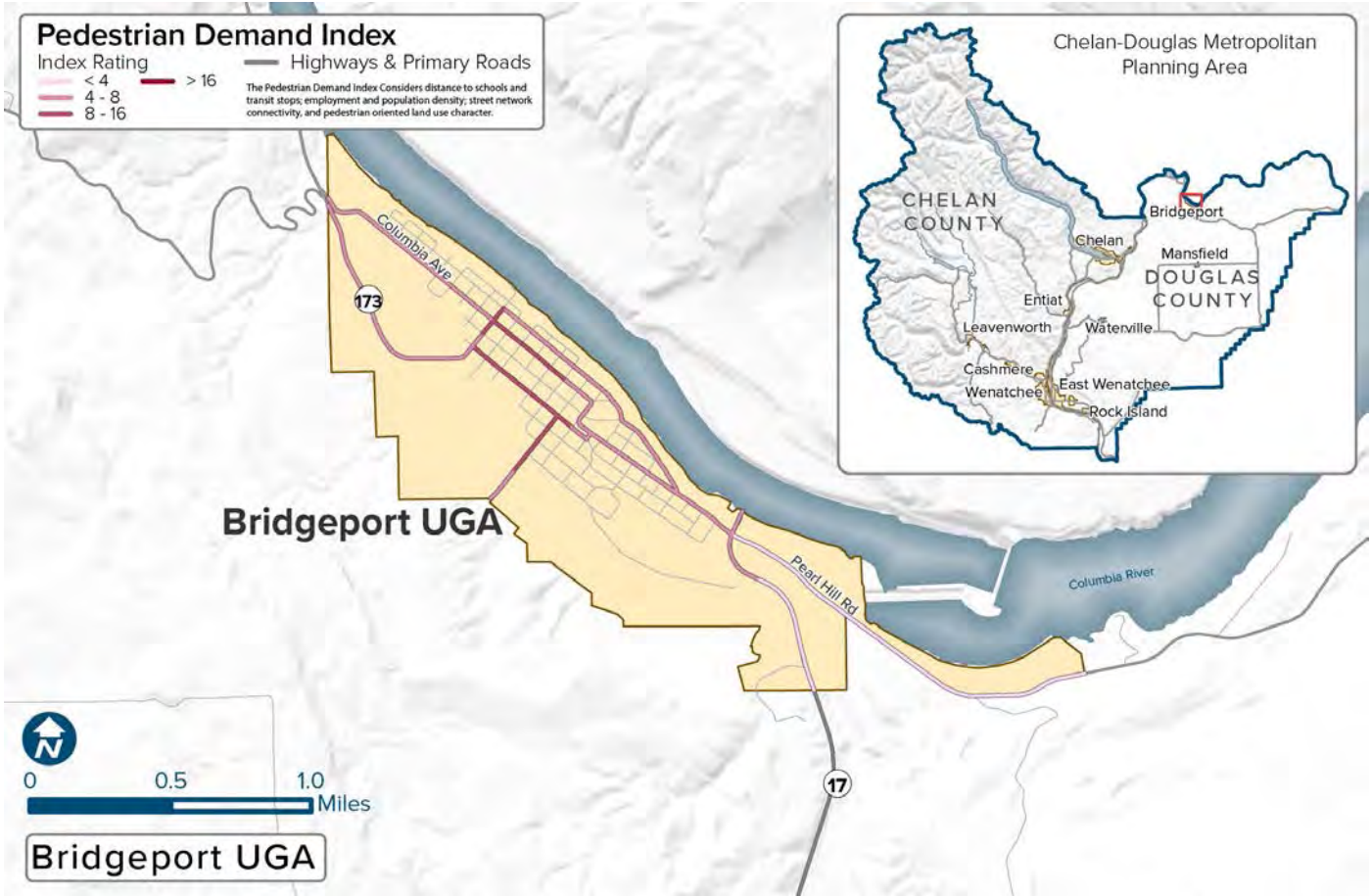
Additionally, tools have been developed that aid local agency prioritization of sidewalk projects such as the pedestrian demand index shown in Figure 3-6. This tool shows the latent pedestrian demand for roadway segments based on distance to schools and transit stops; employment and population density; street network connectivity; and pedestrian oriented land use character.

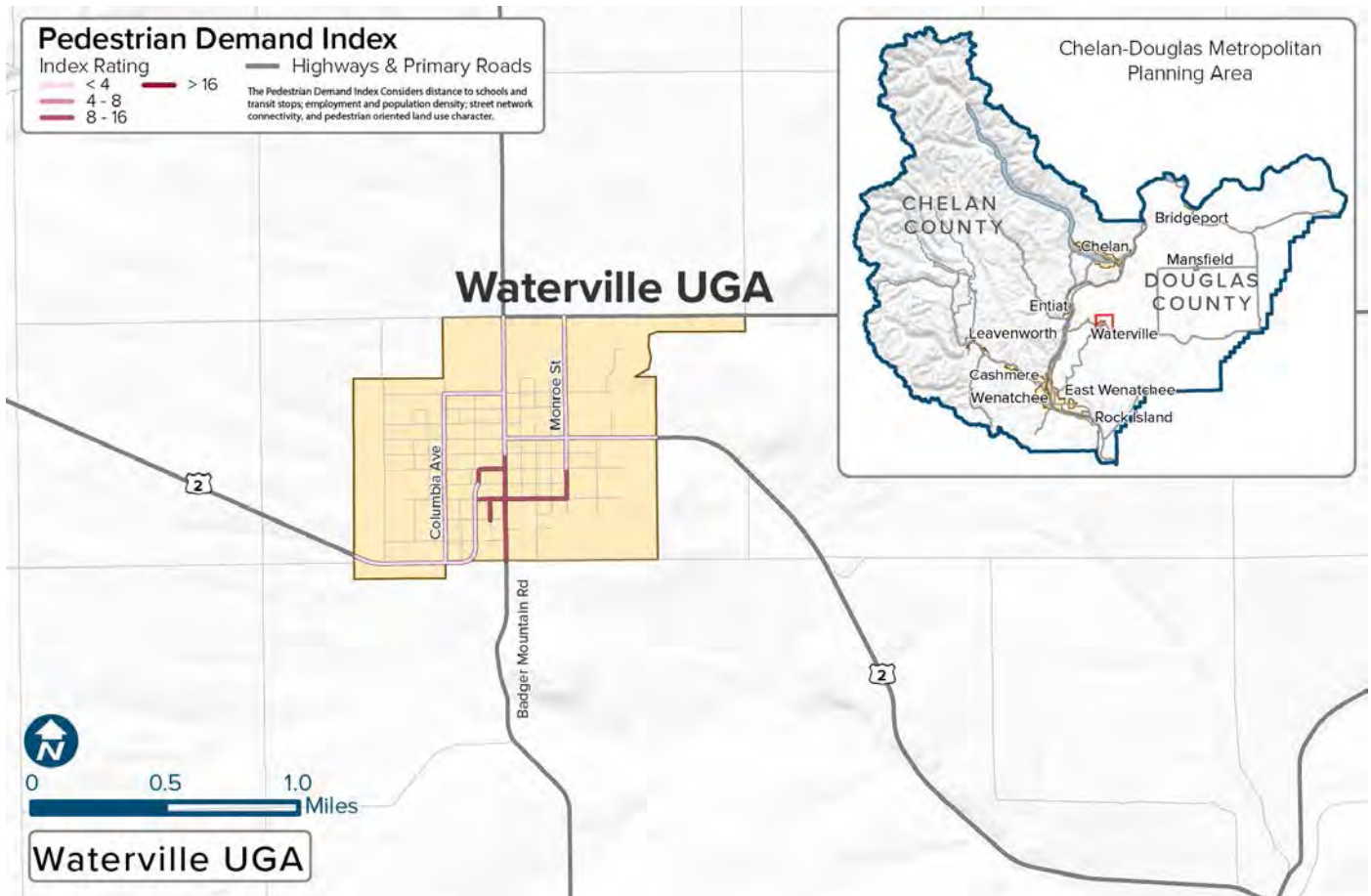
One regional option for generating revenue for active transportation projects is the formation of a Metropolitan Park District (MPD). MPDs levy a tax on property for the management, control, improvement, maintenance, and acquisition of parks, parkways, boulevards, and recreational facilities. Generally, a dollar has more impact when spent on active transportation than road capacity. Comparing active transportation demand management solutions to auto capacity solutions has the potential to be a low cost/high benefit policy for relieving congested roads.

Figure 3-6: Pedestrian Demand Index









Transit

LINK Transit is the public transit service provider for the Chelan-Douglas region. LINK provides service on 11 local routes serving Wenatchee, East Wenatchee, Leavenworth, and Chelan; 10 intercity routes connecting Wenatchee, East Wenatchee, Rock Island, Cashmere, Leavenworth, Entiat, Chelan, and Waterville; and dial-a-ride transit (DART) service. More information on LINK's routes and schedules can be found at linktransit.com.

Using transit as a demand management strategy relies heavily on surrounding land uses and the number of potential transit riders that can be conveniently connected to them. Transit works best in areas of higher density housing, employment, services, and recreation. A fast and reliable transit system between these complementary land uses may shift trips away from and delay the need for high cost lane capacity projects. As trips convert from cars to transit, more lane mileage becomes available, improving mobility for both cars and transit. Moreover, investment in transit and active transportation share a mutual benefit as all transit trips start and end as pedestrian trips.

Land use alone cannot cause demand shifts from cars to transit. Transit must be able to operate at speeds



Riverside Drive - Wenatchee

comparable to cars to be a viable demand management strategy. This may be done by increasing frequency of buses; implementing on-road transit priority infrastructure; or supplying express bus routes designed to connect high ridership land uses. Demand is tied to land use and service improvements should be implemented and prioritized in areas where demand may be highest.

Steps are being taken to improve transit service in the region. In August of 2019 the citizens of Chelan and Douglas counties voted in approval of Proposition 1, granting link the authority to levy .06% of a cent sales tax per every dollar spent equating to roughly \$5.5 million additional revenue per year. This additional revenue is tied to capital and operational projects that will improve service in the following ways:

- Longer operating hours
- Increased frequency
- Increase weekend service
- Route extensions
- Stop and station upgrades

These service improvements are steps towards transit becoming a viable substitute for many drivers. Outside LINK's strategic capital improvements, CDTC is exploring opportunities to collaborate with LINK and the local agencies on feasibility studies for express bus corridors, improving first and last mile connections, intelligent transportation system integration, and leveraging transit for economic development opportunities.

Appendix - A

Emerging Trends



One of the core activities of transportation planning is the identification of emerging trends that alter societal travel choices and behaviors and change the state of the practice. Trends in technology, resiliency, and environmental stewardship are altering transportation policy making and require new, overt discussions to properly address them in long-range regional transportation planning. Specifically:

- Technology advancements have created opportunities for improving system efficiency;
- Unpredictable natural disasters and climate patterns have demonstrated a need for resiliency in transportation systems design, stewardship, and fundability; and
- New environmentally sensitive infrastructure requirements carry growing cost liabilities for local agencies.

It's imperative that states, MPOs, and local agencies consider these trends and proactively understand them to make policy decisions that retain the efficiency, mobility, and accessibility of the transportation system.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) improve transportation by integrating advanced information and communications-based technologies (ICT) into transportation infrastructure and vehicles. ITS refers to a system of technologies and operational advancements that, when combined and managed, improve the capabilities of the overall transportation system. An intelligent transportation system is one where traffic controls, transit, emergency response, private vehicles, and traveler information systems communicate with each other to optimize the transportation system for any given mode.

While implementing ITS can improve the ability of the system to efficiently move cars, goods and people, challenges do exist. The regional transportation system is composed of many different systems that are operated by multiple jurisdictions and agencies. These agencies must be able to effectively manage local mobility in their jurisdictions while operating within a larger regional ITS system that is optimizing the system for regional mobility. For this reason, inter-agency coordination must drive ITS programs and projects. A regional joint programming body (RJPB) would be required for multi-agency ITS implementation. The United States Department of Transportation has established a framework for developing and implementing ITS for mainstream use. CDTC applies this framework to guide ITS planning (Table A-1).

Table A-1: ITS Framework

ITS Phase	Regional Joint Programming Body Role
Identify and Assess	In this opportunity- framing phase, the RJPB identifies and assesses potential technologies for their feasibility and applicability to the transportation system. The costs and public benefits of such technologies and the potential barriers to deployment may also be determined at this stage
Coordination and Lead Research and Development	The RJPB cultivates multimodal partnerships to research and develop selected technologies for the public interest; it also identifies early adopters for initial demonstrations
Demonstrate Value	In this phase, prototyping and testing of technologies in controlled and real-world environments occurs, project data and lessons learned are gathered, and results are evaluated.
Support Implementation	After demonstration of the application of particular technologies to transportation, this phase emphasizes the benefits of proven technologies to the public and provides assistance to new deployers.
Maintain ITS Technologies	Scaling the adoption of ITS technologies to realize the full potential of benefits across any given surface transportation modes is the emphasis of this phase. Additionally, the RJPB maintains a focus on standards and interoperability in this phase.

A well-coordinated regional ITS system can be a high-value, low-cost improvement to the transportation system at all scales. Traffic could be managed in each local jurisdiction using data collected at origins and destinations outside their boundaries to dynamically balance and optimize the system based on the needs for each mode throughout the day.

Resilience

The National Infrastructure Advisory Council (NAIC) defines resilience as, “the ability to reduce the magnitude and/or duration of disruptive events. The effectiveness of a resilient infrastructure or enterprise depends upon its ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event.”¹ Resiliency planning in the context of transportation has focused on natural disruptive events such as fires, floods, and earthquakes. These events test the ability of the infrastructure to absorb periods of abnormally high demand and physical stress on the transportation infrastructure. Recently, this focus has expanded to include new disruptions that break down the economic infrastructure of transportation systems, namely the COVID-19 pandemic. The pandemic is forcing decision makers to consider policy implications of events that may cause lasting damage to not only physical infrastructure, but also social and economic infrastructure.

Natural Hazard Risks from Fire, Flood, and Earthquakes

The CDTC region is at a high risk of forest fire because of its dry forest and brushland vegetation. Chelan County and the City of Wenatchee are uniquely situated in this ecosystem; They can be considered geographic islands

¹: A Framework for Establishing Critical Infrastructure Resiliency Goals, NAIC, 2010



contained by the Columbia River to the south and east and the Cascade mountains to the west and north. If a large fire were moving from west to east, only two bridges in the urbanized area would provide evacuation to the east side of the Columbia river. This scenario represents worst-case conditions and is a major consideration in establishing investment priorities as an element of traffic management and evacuation route redundancy. Additionally, post-fire flooding can washout and damage roads, creating safety and financial risks.

Though extremely unlikely, failure of any of the Columbia River dams would require immediate evacuation to high elevations. Most roads in and leading to higher elevations are either low volume asphalt or gravel roads. This type of event is likely to cause catastrophic impacts that will be unmanageable during the flooding period. Flooding would likely occur faster than emergency system mitigation efforts could be put in place. Also, High intensity rain storms and rain-on-snow events are occurring with increased frequency further increasing safety and financial liabilities of local agencies. Resiliency should focus on how the system is managed for efficient emergency response the ability for local agencies to clear, repair, and maintain the road and bridge system following a flood.

There are multiple implications of earthquakes for the CDTC region. According to the United States Geological Survey (USGS), the Pacific Northwest has a 10% chance of a magnitude 8-9 earthquake on the Cascadia Subduction Zone.² Although the region will be buffered from the most severe impacts experienced near the coast of Washington, the region's transportation network including airfields, highways, and bridges will serve a supply chain network for state and federal disaster relief. Furthermore, refugees crossing the cascades into the region would add strain to the transportation system in both the short and long term. In addition, the region isn't without its own risk of strong earthquakes. Most of the populated areas of the state have a 40–80% chance of having an earthquake in the next 50 years.³ High network redundancy will minimize the impacts of earthquakes with multiple network options for trips. This is especially valuable for emergency response efforts.

Economic and Social Disruptions

The early impacts of the COVID-19 pandemic have been widespread. In terms of transportation, sharp declines in travel have drastically reduced assumed gas and sales tax revenues that fund state and local agency transportation programs. At this early phase in the pandemic, the short, mid, and long-term severity of economic impacts and reductions in public revenues are unknown. Considerations of the resiliency of public infrastructure funding when the traditional funding mechanisms encounter unpredictable shocks and disruptions will be necessary at the local, regional, state, and federal levels.

Fish Passage Barrier Removal

WSDOT has been working for many years to remove fish passage barriers and in 2013 a federal injunction required Washington state to increase the effort for removing state-owned culverts that block the habitat for salmon and steelhead migration in counties west of the Cascades. The state legislature has applied this effort to the entire state, requiring WSDOT, the Washington Department of Fish and Wildlife (WDFW), and local agencies to work in partnership to identify and complete projects to eliminate fish passage barriers caused by publicly owned roads and highways statewide (RCW 77.95.180; RCW 77.95.185). The majority of barriers removed state-

2: United States Geological Survey

3: Washington Department of Natural Resources, <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/earthquakes-and-faults#what-to-do-before,-during,-and-after-an-earthquake>.1

wide each year are tied to the 2013 injunction and are located in the Puget Sound region. However, fish barriers have been removed in Chelan County as a part of the state's yearly fish barrier removal program as recently as 2018. This requirement is a growing cost liability for transportation projects in the region.

There are an estimated 249 fish barriers in the region—56 on federal-aid eligible roads. The cost to remove barriers is highly variable and represents a high risk-factor for transportation projects. For example, two fish barrier projects on US 97 cost \$1 million and \$3.3 million respectively, demonstrating the variability of barrier removal. Most agencies don't have a programmatic estimate for fish barrier removal costs due to the nuance and complexity of each barrier removal and the adjoining roadway. WSDOT has identified and prioritized barriers and has a larger financial capacity than local agencies to plan for and absorb fish barrier removal costs but could still be at risk. A detailed assessment of the fish barrier removal needs in the region may be appropriate to fully realize the cost liabilities for local agencies.

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Appendix - B

Financial Assumptions



The 2020 Update to the Regional Transportation Plan covers the time period from 2020-2045. The projects and programs recommended in the plan must be tied to documented and reasonably available revenue sources over the 25-year time-frame, resulting in a fiscally constrained plan. The region's total forecasted revenue capacity is approximately \$2.2 billion, in comparison to the total investment need estimated at \$4.1 billion. The investment need that is above the projected revenue is still included in the plan to illustrate a need for additional revenue beyond what is currently assumed to be available.

The three investment categories used in this plan (expansion, improvement, preservation) were constrained using one of two methodologies. The expansion investment category is constrained at the project level; the portion of total revenue available for this investment category was directly allocated to specific projects based on project specific state budget allocations, current funding awards, and CDTC priorities. In contrast, the improvement and preservation investment categories are constrained at the program level; the total available revenue for each category was projected but not allocated to specific projects. This approach recognizes that most of the projects that fit within the Improvements category are prioritized by other granting agencies at the state level and then programmed by CDTC, consistent with this plan. This Appendix does include a discrete list of all unconstrained improvement needs that will be considered regionally significant and programmed in the Regional Transportation Improvement Program upon award by granting agencies. The preservation need is simply characterized by total estimated cost-liability. CDTC considers all preservation investments based on regional pavement quality criteria to be regionally significant for any federal-aid roadways, bridges and transit rolling stock or facilities. Continuous data collection and year-to-year asset management by the steward agencies drive the need for Preservation spending rather than pre-selection and prioritization of roadways and facilities.

Needs Assessment

The project costs informing the investment need are inflated to year-of-expenditure (YOE) in order to satisfy federal statutory requirements. Two phases for project implementation were created to demonstrate the growth of the revenue shortfall over time. Inflation factors were developed by inflating the 2020 baseline plan year by 3.25% annually, consistent with the Consumer Price Index. Phase one spans 2020 - 2032 and inflates costs 121% to a mid-phase implementation year of 2026. Phase two spans 2033 - 2045 and inflates costs 183% to a mid-phase implementation year of 2039. The projects were not inflated to a single specific time period because the plan does not dictate exactly when the projects will be implemented. The two YOE costs are provided to show the increased cost liability of each project, the longer revenue decisions are deferred. The total assessed need for each investment category detailed in this appendix reflects the 2039 cost.

Expansion Projects

The projects in the expansion investment category were identified using a thorough review of local agency TIPs, transportation plans, public transit plans, economic development plans, regional corridor studies and sub-area plans, and state highway planning documents.

The list was evaluated and review by the Technical Advisory Committee (TAC) for accuracy and to screen projects without a nexus to prior planning work or CDTC's policy framework and performance measures. This list largely consists of large capital improvement projects, many of which require multi-agency coordination (Table B-1). The total expansion investment need is \$429.5 million, in contrast to \$230.5 million available revenue.

Table B-1: Expansion Projects

Project	Jurisdiction	Current Cost	Phase 1 Cost	Phase 2 Cost
Interchange at the Wenatchi Landing Economic Development District with connections to 38th St and 35th St	Douglas Co	\$20,000,000	\$24,200,000	\$36,600,000
New roadway connecting NW Empire from Wenatchi Landing Interchange to Cascade Ave	Douglas Co	\$7,400,000	\$8,954,000	\$13,542,000
All access and circulation projects consistent with Rock Island Waterfront Plan	Rock Island	\$4,030,000	\$4,876,300	\$7,374,900
SR-285 Easy Street ramp with north/south connections to Technology Center Way	Wenatchee	\$1,000,000	\$1,210,000	\$1,830,000
Multi-use pathway connecting Loop Trail to Old Station Road.	Wenatchee	\$600,000	\$726,000	\$1,098,000
New trail along canal from Walnut St to Chatham Hill Rd. with Wenatchee River Crossing	Wenatchee	\$7,500,000	\$9,075,000	\$13,725,000
McKittrick Street extension to Walla Walla Ave with an underpass at the BNSF right of way	Wenatchee	\$29,000,000	\$35,090,000	\$53,070,000
Underpass at Miller St. and BNSF right of way & new road with a bridge over the Wenatchee River (Confluence Parkway)	Wenatchee	\$119,000,000	\$143,990,000	\$217,770,000
Pedestrian and Bike Crossing at Bridge St over the BNSF right of way connecting to the Columbia River Bridge	Wenatchee	\$5,000,000	\$6,050,000	\$9,150,000
Passing lanes on US 97 from Barber Rd to Weimer Rd	WSDOT	\$17,000,000	\$20,570,000	\$31,110,000
Bike path along US 97A from Woodin Ave to Three Fingers	WSDOT	\$3,200,000	\$3,872,000	\$5,856,000
Passing lanes on SR 28 from Wenatchee to Crescent Bar	WSDOT	\$6,500,000	\$7,865,000	\$11,895,000
Single point urban interchange at Grant Rd and SR 28	WSDOT	\$35,000,000	\$42,350,000	\$64,050,000
Widen SR-28 to four lanes Hadley St to 38th St	WSDOT	\$117,000,000	\$141,570,000	\$214,110,000
Widen SR-28 to four lanes 9th St to Hadley	WSDOT	\$56,000,000	\$67,760,000	\$102,480,000

Improvement Projects

The projects in the improvement investment category need were assessed using a list of projects, though constrained at the program level. The projects were identified using a thorough review of local agency TIPs, transportation plans, public transit plans, economic development plans, regional corridor studies and sub-area plans, and state highway planning documents.

(Table A-2). The list was evaluated and review by the Technical Advisory Committee (TAC) for accuracy and to screen projects without a nexus to prior planning work or CDTC's policy framework and performance measures. The total improvement investment need is \$828.4 million, in contrast to \$406.6 million available revenue.

Table B-2: Improvement Projects

Project	Jurisdiction	Current Cost	Phase 1 Cost	Phase 2 Cost
Bridgeport Sidewalk Gaps Construction	Bridgeport	\$994,347	\$1,203,160	\$1,819,655
Cashmere Sidewalk Gaps Construction	Cashmere	\$2,009,834	\$2,431,899	\$3,677,996
Sunset Hwy Reconstruction: Mill St to City Limits	Cashmere	\$1,906,666	\$2,307,066	\$3,489,199
Evergreen Rd Reconstruction: Sunset Hwy to City Limits	Cashmere	\$1,126,666	\$1,363,266	\$2,061,799
Division St / Sunset Hwy / BNSF RR Intersection Improvements	Cashmere	\$440,000	\$532,400	\$805,200
SR 97A & Woodin Ave Modifications: Restripe and Update Signage	Chelan	\$1,233,403	\$1,492,418	\$2,257,127
Sanders Street Crosswalks Improvements	Chelan	\$692,000	\$837,320	\$1,266,360
SR 97A & Farnham St Intersection Improvements	Chelan	\$550,000	\$665,500	\$1,006,500
American Fruit Rd Reconstruction: Knowles Rd to Crestview Rd	Chelan Co	\$856,000	\$1,035,760	\$1,566,480
Binder Rd / Tigner Rd Pedestrian Improvements	Chelan Co	\$1,100,000	\$1,331,000	\$2,013,000
Chelan County UGA Sidewalk Gaps Construction	Chelan Co	\$15,283,568	\$18,493,117	\$27,968,929
Chiwawa Loop Road Phase IV: Reconstruct and Widen Shoulders	Chelan Co	\$1,800,000	\$2,178,000	\$3,294,000
Chumstick Highway Rehabilitation: Upgrade Shoulders and Resurface Roadway	Chelan Co	\$14,750,400	\$17,847,984	\$26,993,232

Project	Jurisdiction	Current Cost	Phase 1 Cost	Phase 2 Cost
Chumstick Hwy / North Rd Intersection Improvement	Chelan Co	\$1,300,000	\$1,573,000	\$2,379,000
East Leavenworth Rd Reconstruction: Icicle Rd to Dye Rd	Chelan Co	\$13,700,690	\$16,577,834	\$25,072,262
Easy St / Crestview St Intersection Improvement	Chelan Co	\$380,000	\$459,800	\$695,400
Easy St / School St Intersection Improvement	Chelan Co	\$1,670,000	\$2,020,700	\$3,056,100
Easy Street Bikeway: SR 2/97 to School St	Chelan Co	\$66,000	\$79,860	\$120,780
Goodwin Rd Reconstruction: West Cashmere Bridge to Sunset Hwy	Chelan Co	\$2,000,000	\$2,420,000	\$3,660,000
Icicle Rd Safety and Guardrail Improvements: County-owned Section	Chelan Co	\$217,000	\$262,570	\$397,110
Knowles Road Phase 1: Resurface and Upgrade Alignment from American Fruit Rd to Rolling Hills Ln	Chelan Co	\$1,852,000	\$2,240,920	\$3,389,160
Lower Sunnyslope Rd Shoulder Widening: Sleepy Hollow Rd to School St	Chelan Co	\$4,500,000	\$5,445,000	\$8,235,000
Main St / Peshastin Rd Intersection Improvements	Chelan Co	\$1,000,000	\$1,210,000	\$1,830,000
Malaga Hwy / Stemilt Creek Rd Intersection Improvements	Chelan Co	\$440,000	\$532,400	\$805,200
Manson Blvd / Summit Blvd Intersection Improvements	Chelan Co	\$242,000	\$292,820	\$442,860
North Rd Phase II: Reconstruction	Chelan Co	\$3,500,000	\$4,235,000	\$6,405,000
School Street Mid-Block Crossings: Various Locations	Chelan Co	\$40,000	\$48,400	\$73,200
Ski Hill Dr Reconstruction: US 2 to Titus Rd	Chelan Co	\$1,790,000	\$2,165,900	\$3,275,700
Sunset Hwy Reconstruction: City Limits to Goodwin Rd	Chelan Co	\$200,000	\$242,000	\$366,000

Project	Jurisdiction	Current Cost	Phase 1 Cost	Phase 2 Cost
Titus Rd Improvements: Ski Hill Rd to City Limits	Chelan Co	\$5,000,000	\$6,050,000	\$9,150,000
Totem Pole Rd Reconstruction	Chelan Co	\$4,470,000	\$5,408,700	\$8,180,100
Wenatchee Heights Rd Reconstruction	Chelan Co	\$2,500,000	\$3,025,000	\$4,575,000
Peshastin Main St Sidewalks	Chelan Co	\$800,000	\$968,000	\$1,464,000
Stemilt Creek Rd Reconstruction, Widening and Spot Safety Improvements	Chelan Co	\$6,720,000	\$8,131,200	\$12,297,600
West Malaga Rd Improvements: Improve Shoulders and Install Turn Lanes	Chelan Co	\$4,603,200	\$5,569,872	\$8,423,856
4th St SE Reconstruction: Kentucky Ave to Lyle Ave	Douglas Co	\$1,314,670	\$1,590,751	\$2,405,846
Rd 4 SW Reconstruction: Road C CW to Road E SW	Douglas Co	\$200,000	\$242,000	\$366,000
S Nile Ave Reconstruction: SR 28 to 8th St SE	Douglas Co	\$2,375,000	\$2,873,750	\$4,346,250
NW Empire Ave Reconstruction: 29th St NW to 34th St NW	Douglas Co	\$4,891,700	\$5,918,957	\$8,951,811
NW Cascade Ave Widening: 19th St NW to Wilshire Rd NW	Douglas Co	\$2,700,748	\$3,267,905	\$4,942,369
Badger Mountain Road Reconstruction	Douglas Co	\$6,500,000	\$7,865,000	\$11,895,000
Grant Rd / Nevada Ave Intersection Improvements	Douglas Co	\$1,700,000	\$2,057,000	\$3,111,000
Grant Road / Nile Ave Intersection Improvements	Douglas Co	\$1,700,000	\$2,057,000	\$3,111,000
Grant Rd / Mary Ave Intersection Improvements	Douglas Co	\$1,700,000	\$2,057,000	\$3,111,000
Grant Rd / S Van Well Ave Intersection Improvements	Douglas Co	\$1,500,000	\$1,815,000	\$2,745,000

Project	Jurisdiction	Current Cost	Phase 1 Cost	Phase 2 Cost
S Van Well Ave / 4th St SE Intersection Reconstruction	Douglas Co	\$1,500,000	\$1,815,000	\$2,745,000
NW Empire Ave / 35th St NW Roundabout	Douglas Co	\$1,520,200	\$1,839,442	\$2,781,966
Douglas County UGA Sidewalk Gaps Construction	Douglas Co	\$21,707,179	\$26,265,687	\$39,724,138
East Wenatchee Sidewalk Gaps Construction	East Wenatchee	\$10,354,937	\$12,529,474	\$18,949,535
19th St NW Reconstruction: Cascade Ave to SR-28	East Wenatchee	\$2,694,000	\$3,259,740	\$4,930,020
Kentucky Ave Reconstruction: 10th St to Grant Rd	East Wenatchee	\$6,350,400	\$7,683,984	\$11,621,232
19th St NE Phase II Reconstruction: SR-28 to Baker Ave	East Wenatchee	\$1,669,680	\$2,020,313	\$3,055,514
19th St NE Phase III Reconstruction: Baker Ave to Eastmont Ave	East Wenatchee	\$3,736,000	\$4,520,560	\$6,836,880
Valley Mall Pkwy Sidewalk Widening and Parking Reconfiguration: 6th St NE to 9th St NE	East Wenatchee	\$928,000	\$1,122,880	\$1,698,240
Valley Mall Pkwy Sidewalk Widening and Parking Reconfiguration: 9th St NE to SR 28	East Wenatchee	\$720,000	\$871,200	\$1,317,600
Eastmont Ave / 19th St NE Intersection Control: Signal or Roundabout	East Wenatchee	\$715,000	\$865,150	\$1,308,450
Baker Ave / 9th Street NE Intersection Control: Signal or Roundabout	East Wenatchee	\$715,000	\$865,150	\$1,308,450
Eastmont Ave / 11th St Intersection Control: Signal or Roundabout	East Wenatchee	\$640,000	\$774,400	\$1,171,200
3rd St SE / Rock Island Rd Intersection Control: Signal or Roundabout	East Wenatchee	\$715,000	\$865,150	\$1,308,450
US 97A / Pine Meadows Dr Intersection Left Turn Lanes	Entiat	\$1,000,000	\$1,210,000	\$1,830,000
Entiat Sidewalk Gaps Construction	Entiat	\$2,081,897	\$2,519,095	\$3,809,871

Project	Jurisdiction	Current Cost	Phase 1 Cost	Phase 2 Cost
US 97A / Lakeshore Dr Roundabout and Streetscape	Entiat	\$4,000,000	\$4,840,000	\$7,320,000
Leavenworth Sidewalk Gaps Construction	Leavenworth	\$285,598	\$345,573	\$522,644
US 2 / Ski Hill Dr Intersection Control: Signal or Roundabout	Leavenworth	\$550,000	\$665,500	\$1,006,500
Rock Island Sidewalk Gaps Construction	Rock Island	\$1,435,468	\$1,736,916	\$2,626,906
Waterville Sidewalk Gaps Construction	Waterville	\$2,741,399	\$3,317,093	\$5,016,760
5th St / Western Ave Intersection Improvements	Wenatchee	\$650,000	\$786,500	\$1,189,500
SR-285 / North Wenatchee Corridor Improvements Phase 2	Wenatchee	\$45,000,000	\$54,450,000	\$82,350,000
SR-285 / North Wenatchee “Connecting Washington” Corridor Improvements	Wenatchee	\$23,500,000	\$28,435,000	\$43,005,000
Wenatchee Sidewalk Gaps Construction	Wenatchee	\$15,496,824	\$18,751,157	\$28,359,188
Red Apple Road School Zone Crossing Improvements: Miller St to Okanogan St	Wenatchee	\$106,000	\$128,260	\$193,980
Miller St / Walla Walla Curve to Hawley St Realignment and Reconstruction	Wenatchee	\$4,200,000	\$5,082,000	\$7,686,000
Millerdale Reconstruction and Safety Improvements: Miller St to Gellatly St	Wenatchee	\$1,836,000	\$2,221,560	\$3,359,880
McKittrick St Reconstruction: Pine Ave to Stella St	Wenatchee	\$1,600,000	\$1,936,000	\$2,928,000
Walnut St Reconstruction: Pine Ave to Stella St	Wenatchee	\$1,500,000	\$1,815,000	\$2,745,000
Red Apple Rd Reconstruction Phase 2: Miller St to Vista Pl	Wenatchee	\$1,800,000	\$2,178,000	\$3,294,000
Woodward Dr Reconstruction: 5th St to Springwater Blvd	Wenatchee	\$3,600,000	\$4,356,000	\$6,588,000

Project	Jurisdiction	Current Cost	Phase 1 Cost	Phase 2 Cost
5th St Freight Improvements: Wenatchee Ave to Chelan Ave	Wenatchee	\$138,600	\$167,706	\$253,638
First St Bikeway Phase 2: Signal Detection at Wenatchee, Mission and Chelan Intersections	Wenatchee	\$310,086	\$375,204	\$567,458
Orondo Ave Freight Improvements: Wenatchee Ave to Chelan Ave	Wenatchee	\$192,500	\$232,925	\$352,275
Skyline Drive Reconstruction	Wenatchee	\$3,500,000	\$4,235,000	\$6,405,000
North Wentchee Ave Complete Streets Improvements: 5th St to 2nd St	Wenatchee	\$1,500,000	\$1,815,000	\$2,745,000
Chelan Ave / Kittitas St Traffic Signal	Wenatchee	\$316,250	\$382,663	\$578,738
Crawford Ave / Okanogan Ave Intersection Control: Signal or Roundabout	Wenatchee	\$450,000	\$544,500	\$823,500
Easy St / Penny Rd Intersection Improvements	Wenatchee	\$660,000	\$798,600	\$1,207,800
Crawford Ave / Miller St Intersection Control: Signal or Roundabout	Wenatchee	\$450,000	\$544,500	\$823,500
Mission Street to Mission Ridge Gateway Aesthetic Improvements	Wenatchee	\$500,000	\$605,000	\$915,000
SR 28: East Wenatchee to Rock Island Safety Improvements	WSDOT	\$8,800,000	\$10,648,000	\$16,104,000
State Highway Urban Sidewalk Gaps Construction	WSDOT	\$16,226,236	\$19,633,746	\$29,694,012
Targeted Highway Safety Program	WSDOT	\$50,000,000	\$60,500,000	\$91,500,000
State Route Traffic Operations Program	WSDOT	\$5,000,000	\$6,050,000	\$9,150,000
State Route Environmental Retrofit Program	WSDOT	\$50,000,000	\$60,500,000	\$91,500,000
US 2 / Cottage Way Roundabout	WSDOT	\$4,400,000	\$5,324,000	\$8,052,000

Project	Jurisdiction	Current Cost	Phase 1 Cost	Phase 2 Cost
US 2 Leavenworth Corridor Improvements	WSDOT	\$7,000,000	\$8,470,000	\$12,810,000
US 2 / Aplets Way Intersection Improvements	WSDOT	\$4,779,310	\$5,782,966	\$8,746,138
US 2/97 / 38th St Roundabout	WSDOT	\$3,769,000	\$4,560,490	\$6,897,270
US 2 / Peshastin Main St Intersection Improvements: Replace Signal or Construct Roundabout	WSDOT	\$5,000,000	\$6,050,000	\$9,150,000

Preservation

The preservation investment category need was assessed using a top-down approach to normalize different jurisdictional standards for preservation. The estimate calculated road and bridge independently to fully detail the cost liabilities related to bridge structure and deck preservation.

The 25-year road preservation cost for cities and counties was derived by assessing the total center-line mileage of the fed-aid roadway system and multiplying it by a unit-cost for overlaying one mile of road. Urban road preservation was estimated at \$505,000 per center-line mile, while rural road preservation was estimated at \$308,000 per center-line mile. Asphalt overlay was the assumed preservation treatment with a treatment interval of 12 years.

The bridge preservation cost for cities and counties was derived by multiplying the square footage of each bridge deck by a unit-cost multiplier, differentiating by structure type—\$698 per square foot for steel and \$562 per square foot for concrete bridges. A life cycle multiplier based on the structural sufficiency rating was also applied to account for current condition of each bridge and how much work would occur on each bridge within the plan horizon. Bridges below a 50% sufficiency rating were assumed to require replacement rather than being repaired and were not included in the assessment of total 25-year preservation cost.

WSDOT provided its own annual preservation cost estimate for state highways. The estimate included annual program estimates for road overlays, bridge repair, and other state highway facility preservation.

All of LINK Transit’s assessed need was allocated to the preservation investment category. LINK doesn’t have a long-range plan that identifies illustrative transit expansions. Its capital improvements are directly tied to strategic revenue increases like Proposition 1, a ballot measure increasing LINK’s sales tax levy for a defined list of route expansions, stop and station upgrades, and the associated operation costs. LINK Transit’s 25-year constrained needs and revenues balance at \$779 million.

The total 25-year preservation investment need is \$2.79 billion with a \$1.58 billion revenue threshold.

Revenue Forecast

The 2045 revenue forecast uses planning-level estimates to determine the reasonably available revenues used to constrain the estimated investment need. The forecast is based on the following core assumptions:

1. All existing revenue sources will continue to be available for the next 25 years
2. All existing revenue sources will remain constant, increasing only with inflation
3. The region will continue to win competitive grant dollars at the current rate
4. No new revenue sources will be enacted at the **local** or **federal** levels
5. A **state** revenue package will be enacted within the next five years with dedicated transportation funding

Each revenue source listed below was inflated by 3.25%, compounding with each revenue source's distribution cycle, with all 25 years of revenue being added together. The forecasted total revenue from each source was allocated amongst the three investment categories by reviewing the percentage of dollars awarded to past projects characterized under each investment category; or, by using the revenue source's documented allocation practices. Each source of funding is outlined below.

Competitive Grant Programs

Many transportation revenue sources are competitive grant programs. Local agencies in the region have excelled at securing these funding awards. Revenues from competitive grant programs were forecasted by finding the average program size per grant cycle statewide and the average percentage of the statewide program won by the region over the last five to ten years, depending on available data and grant program age. The following competitive grant programs were forecasted using this methodology with total revenue identified in millions of dollars:

- WSDOT Bicycle and Pedestrian Programs including Safe Routes to School Grants – \$35.5
- Transportation Improvement Board (TIB) Complete Streets – \$15.9
- TIB Urban Streets – \$104.4
- TIB Small City Streets – \$28.3
- WSDOT Local Bridge Program – \$44.0
- County Road Administration Board (CRAB) Rural Arterial Program (RAP) – \$69.3
- CDTC Regional STP Program – \$90.6
- WSDOT Highway Safety Improvement Program (HSIP) – 32.5\$
- FHWA Federal Lands Access Program (FLAP) – \$0.6
- State and Federal Transit Grants – \$39.9

State Gas Tax Direct Allocation – \$60.8

A portion of all state gas tax revenues are allocated directly back to cities and counties. Direct gas tax allocations were assessed at \$20.6 per capita annually, based on guidance from the Washington Municipal Research and Services Center (MRSC). Based on existing practice, It was assumed that 80% of gas tax revenues

to the cities and counties would continue to be spent on local neighborhood roads with only 20% available for the regional fed-aid roadway system All revenues were allocated to preservation.

County Arterial Preservation Program (CAPP) – \$32.5

The County Arterial Preservation Program (CAPP) is a separate, formula-based, allocation of state gas tax revenue to counties based on population, annual maintenance costs, and the assessed need of each county. All revenues were allocated to preservation.

Freight Mobility Strategic Improvement Board (FMSIB) – \$6.0

In the last 10 years the region has secured \$3 million for one project, the West Cashmere Bridge project. It's assumed that the region will secure two more \$3 million awards in the next 25 years.

WSDOT Internal Programs – \$655.2

Transportation revenue allocated to WSDOT by the state legislature is generally budgeted in one of two ways— programmatic allocations such as pavement preservation, and by identifying discreet construction projects. This estimate identifies WSDOT's programmatic allocations. This estimate assumes 55% of WSDOT's regional budget is available for preservation and improvement projects. 82% was allocated to preservation and 18% was allocated to improvement.

Federal Transit Formula Grants – \$84.5

Link Transit is the official “designated recipient” of federal formula funds that come to the region by federally determined apportionments. The 2045 revenue projection of \$84.4 million is based on current formula programs and the assumption that they will be stable and continue through the plan horizon.

Link Sales Tax – \$654.3

In August of 2019 Proposition 1 was passed increasing LINK's sales tax levy to .006 percent for every dollar spent. This increased LINK's sales tax revenue from \$12 million yearly to nearly \$19 million yearly. The estimate was provided directly by LINK. All of link's revenues were allocated to preservation as they were tied to specific route expansions, stop and station improvements, and associated operational costs.

Local Transportation Benefit District (TBD) – \$16.7

One Transportation Benefit District (TBD) exists at the municipal level as of 2020. The city of Leavenworth passed, through public vote, a 0.002 percent sales tax. The revenue forecast Leavenworth utilizes TBD revenue as match to leverage regional and state grant programs.

Connecting Washington – \$78.5

Governor Inslee and Washington's Legislators have made an important investment in our state's multimodal transportation system. The 2015 Connecting Washington funding package uses a 11.9 cent gas tax increase to fund a prescribed list of projects state-wide, including two projects in the region.

State Appropriations and Federal Grants – \$169.6

The state legislature periodically increases and/or creates new transportation fee and tax programs tied to

specific programs and projects. This Plan assumes the legislature will pass another bill similar to Connecting Washington providing funding for select expansion projects. In addition to state funding, the Plan assumes the region will secure one grant award through competitive programs administered by the USDOT, providing funding for select expansion projects. Table B-3 provides a detailed breakdown of the forecasted revenues by source and investment category allocation.

Table B-3: 2045 Revenue Forecast and Investment Category Allocation (In Millions)

Revenue Sources	Investment Category			
	Expansion	Improvement	Preservation	All Categories
TIB Urban Streets	-	\$94.5	\$9.9	\$104.4
CDTC Regional STBG/TAP	\$5.4	\$58.2	\$27.0	\$90.6
CRAB RAP	-	-	\$69.3	\$69.3
State Gas Tax Direct Allocation	-	-	\$60.8	\$60.8
WSDOT Local Bridge Program	-	\$26.4	\$17.6	\$44.1
WSDOT Bike Ped Program/SRTS Program	-	\$35.5	\$0.0	\$35.5
WSDOT HSIP	-	\$32.5	-	\$32.5
CRAB CAPP	-	-	\$29.8	\$29.8
TIB Small City Streets	-	\$13.2	\$15.1	\$28.3
Local TBDs	-	-	\$16.7	\$16.7
Connecting Washington	\$55.5	\$23.0	-	\$78.5
TIB Complete Street Program	-	\$15.9	-	\$15.9
FMSIB	-	-	\$6.0	\$6.0
FLAP	-	-	\$0.6	\$0.6
Link Sales Tax	-	-	\$654.3	\$654.3
Federal Formula Transit Grants	-	-	\$84.5	\$84.5

Table B-3 Cont: 2045 Revenue Forecast and Investment Category Allocations

Revenue Sources	Investment Category			
	Expansion	Improvement	Preservation	All Categories
State & Federal Transit Grants	-	-	\$39.9	\$39.9
WSDOT Internal Programs	-	\$107.4	\$547.9	\$655.2
State Appropriations and Federal Grants	\$169.6	-	-	\$169.6
All Revenue	\$230.5	\$406.6	\$1,579.4	\$2,216.5
Total Investment Needed	\$429.5	\$829.6	\$2,794.6	\$4,053.6
Total Unfunded Need	\$199.0	\$423.0	\$1,215.1	\$1,837.1

Appendix - C

Policy Measure Methodologies



The methods described in this appendix explain how CDTC’s policies are applied to identify deficiencies the regional transportation system. CDTC uses locally vetted measures and methods for identifying connectivity and efficiency deficiencies and pavement condition deficiencies. CDTC uses the same methods as the MAP-21 safety performance framework for identifying safety deficiencies.

Safety

The methods for tracking safety trends and projecting programmatic targets for reducing and eventually eliminating fatalities and serious injuries were developed cooperatively by WSDOT and the state's MPOs. Each MPO’s has agreed to establish regional targets that represent a share of a larger statewide target, which is updated and reported annually to FHWA as a part of the national performance-based planning process. The ultimate statewide target for all safety measures: fatalities, fatality rate, serious injuries, serious injury rate, and non-motorist fatalities and serious injuries is zero by 2030. A target maximum of fatalities and serious injuries is reset annually by projecting the most recent five-year rolling average to zero by 2030. The underlying data informing the calculations are as follows:

1. Fatality data is from the preliminary fourth-quarter 2018 data release from WSDOT.
2. Serious injury data is from the WSDOT Engineering Crash Database and represents reported crashes on state highways, county roads, and city streets involving at least one motor vehicle and meeting the requirements of RCW 46.52.070, RCW 46.52.030 and WAC 446-85-010.
3. The rolling 5-year average is used as the baseline for the calculation of Chelan and Douglas counties' portion of the adopted statewide targets.
4. For the 2020 statewide targets, a 'Target Zero approach' was followed. Using the baseline point (5-year average for 2014-2018), a straight-line trend is projected to a zero value at 2030. The proposed target, using this method, is currently set for 2020, and represents a rolling five-year average value for 2016 through 2020.
5. The Vehicle Miles Traveled (VMT) values were estimated using the official Highway Performance Monitoring System (HPMS) submittal for 2010 through 2018, using spatial conflation.
6. FHWA will use the statewide baseline point and actual performance for 2016-2020 to determine whether the state has met targets or made significant progress. FHWA does not assess MPA targets in a similar way.
7. For further information, please visit the WSDOT MAP-21 safety page at <http://wsdot.wa.gov/Accountability/MAP-21safety.htm>. The website includes a link to the recording of a target setting webinar during June 2017; and the Safety MAP-21 WSDOT Technical Folio.
8. The VMT estimates are based on processing spatial files, including local access roadways where assumptions (per the HPMS) are made about a standard AADT value (or factor used to represent AADT) given the urban classification code. Reliability of VMT estimation that uses actual or simulated traffic volumes will differ from the estimate.
9. For federal resources related to safety target setting, please visit: https://safety.fhwa.dot.gov/hsip/spm/target-setting_resources.cfm

Connectivity and Efficiency

The methods described below were used to apply the regional connectivity and efficiency policies and define deficiencies.

Sidewalks

CDTC policy defines a sidewalk deficiency as any federal aid eligible road within an Urban Growth Area without sidewalks on both sides¹, and any principal arterial without a 4' buffer separating the sidewalk from travel lanes on both sides². State highways defined as "limited access" and "managed access" class one, two, and three are exempt from the sidewalk deficiency analysis. State highways defined as managed access class four and five are included to capture small town main streets with high pedestrian use like SR 150 through Chelan and Manson and US 2 through Leavenworth.

Sidewalk gaps were digitized in ESRI ArcMap GIS software and confirmed using Google Maps, Google Earth, Bing Maps, and staff knowledge. There is an inherent variable margin of error when using imagery and street view applications to confirm infrastructure. The imagery and street view data used were dated between August 2018 and October 2019.

Bike Facilities

Bike facility deficiencies are based on the completion of the recommended bikeways in the 2018 Wenatchee Valley Bicycle Master Plan. All recommended facilities that have not been constructed or added to roadways are considered deficient gaps. . Bikeway segments that have been implemented since 2018, and more recently defined projects that have been added since the plan's adoption have been accounted for in the analysis. For more information regarding the bike plan network recommendation process see the 2018 Wenatchee Valley Bike Plan.

Vehicle Delay and Volume/Capacity

A volume/capacity methodology was used to identify existing and predicted delay and congestion on individual road segments. Deficient segments are defined as having a volume/capacity (V/C) ratio of .85 and higher, or volumes exceeding 85% of capacity. Multiple adjoining segments with V/C ratios higher than .85 were termed "delay corridors." Data from CDTC's travel demand model (model) was used for assessing delay and congestion within the Urbanized Area covering Wenatchee, East Wenatchee, and Rock Island. Volume data from FHWA's Highway Performance Management System (HPMS) was used for assessing congestion on federal-aid eligible, regional county roads and small city streets outside of the Urbanized Area. Volume data and estimates from WSDOT were used for assessing congestion on state highways outside the Urbanized Area. V/C ratios were calculated for both existing and projected 2045 traffic volumes.

Wenatchee Valley Urbanized Area

V/C ratios generated from CDTC's model were used as the starting point for assessing delay in the urbanized area. All roadway segments in CDTC's model are coded with hourly vehicle capacities; the model assigns vehicle and truck volumes to each segment and a V/C ratio is then calculated based on the assigned segment capacities. Truck volumes are doubled in the V/C calculation to account for truck length—one truck is equal to two cars. This methodology allows CDTC to identify general corridors for more detailed delay and congestion

1: Subject to application of a locally adopted Complete Streets policy that is consistent with CDTC Regional Complete Streets Policy

2: Any method may be used to achieve 4' separation from outside travel lane.

analysis. Local agencies are encouraged to use the V/C analysis in this plan as a planning-level starting point for detailed analysis in order to identify specific spot- or corridor-wide operational or capacity improvements.

CDTC chose to develop a V/C that was more sensitive to intersection green-time for major and minor street approaches, rather than strictly rely on raw model outputs. The model's V/C ratio outputs do not consider intersection capacity and signal timing constraints on corridor operations. This leads to incorrect presumptions of the quality of traffic flow, potentially understating delay and intersection queuing. To improve the sensitivity and accuracy of the V/C analysis CDTC factored the capacities of all model segments adjacent to intersections down using signal timing plans and the percentage of green time for the critical lane groups (through lanes) of each intersection. Additionally, volumes were factored up by 5% to capture the margin of error in model volume outputs.

It was assumed that a signalized intersection would constrain the effective capacity of a segment between intersections with another federal-aid road or a quarter mile, whichever is less. This is a planning-level estimate and any project-level discussion regarding the extents of the impacts of an intersection control and queue lengths should include a detailed intersection analysis. Intersection V/C constraining was used for both 2020 existing and 2045 projected model volumes.

County and Small City Roads

2019 Volume data from FHWA's HPMS system was used to assess the V/C ratios on local federal aid eligible roads not included in the model. HPMS data was used for its standardized data curation of locally submitted traffic data. Data wasn't available for all roads, but this is only the case on low volume roads.

HPMS traffic data was expressed in Average Annual Daily Traffic (AADT). The volume data was converted to PM peak volume for consistency with CDTC PM peak model outputs. A .10 peak-hour factor was applied meaning a road with 5,800 AADT was assumed to have 580 PM peak hour trips. Road capacities were assumed at 1,000 vehicles per lane, per hour.

The 2045 volume projection for county and small city roads was developed by applying a 1.26% annual growth rate to the 2019 HPMS AADT, consistent with the annual growth on state highways in the region between 1998 and 2018.

State Highways

2019 volume data from WSDOT's Traffic GeoPortal was used to assess V/C ratios on state highways. WSDOT volume data is expressed in AADT and adapted from short duration traffic counts occurring every two-to-four years.

HPMS traffic data was expressed in Average Annual Daily Traffic (AADT). The volume data was converted to PM peak volume for consistency with CDTC PM peak model outputs. A .10 peak-hour factor was applied meaning a road with 5,800 AADT was assumed to have 580 PM peak hour trips. Road capacities were assumed at 1,000 vehicles per lane, per hour.

The 2045 volume projection for state highways was developed by applying a 1.26% annual growth rate to the 2019 AADT, consistent with the annual growth on state highways in the region between 1998 and 2018.

V/C ratios on state highway segments operating as small town main streets were constrained similarly to the segments in the CDTC model area. The state highways in the region are commonly high-speed, high-volume facilities. However, highway segments through Leavenworth, Chelan, and Waterville are walkable streets that contribute to the walkable character of the towns. The capacities on segments approaching intersections were factored down by 25%. this is a conservative assumption considering minor streets crossing at state highways have low volumes of local traffic in comparison to the highway.

Pavement Condition

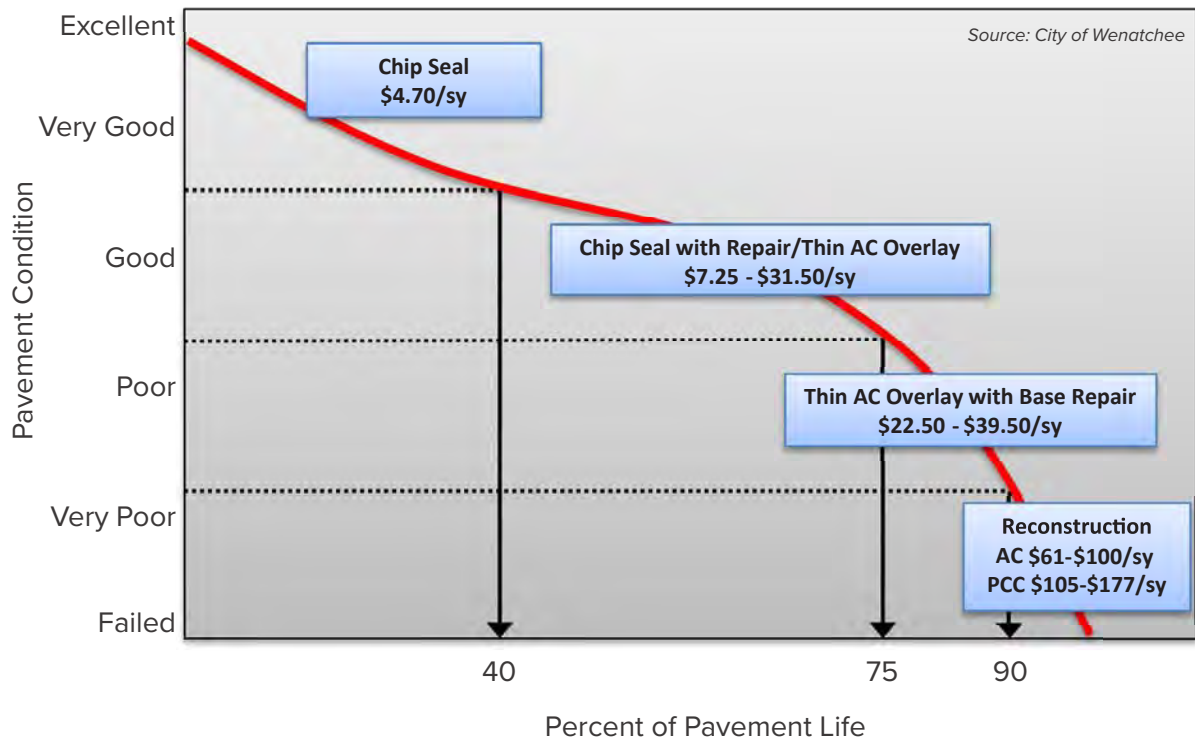
Pavement condition data is routinely collected and provided directly by CDTC’s member agencies. WSDOT, Wenatchee, East Wenatchee, Chelan County, and Douglas County maintain and update a pavement management system to track pavement condition. The cities and counties use either the pavement surface condition rating system or the pavement condition index rating system. Both rating systems assess pavement condition using a number of measurable factors such as cracking, rutting, and bleeding. WSDOT uses a combination of the pavement surface condition, international roughness index, and a detailed rutting assessment to determine pavement condition. The condition factors are indexed and scaled from 0-100 with ascribed categorical descriptions of good, fair, and poor. Table C-1 describes the rating systems used by each jurisdiction.

Pavement rated in good condition is smooth with few bumps, depressions, or defects. Pavement in fair condition has intermittent bumps, depressions, or defects. Pavement in poor condition is uncomfortable with frequent or constant bumps, depressions, or defects caused by cracking, patching, and rutting. Any pavement rated as poor is defined as deficient. Generally speaking, pavement in good condition can be treated using low cost options to preserve its condition. Once a pavement falls below good condition more capital intensive treatments are required (Figure C-1).

Table C-1: Pavement Condition Ratings

Jurisdiction	Rating System	Scale	Categories
Wenatchee	Pavement Condition Index	0-100	Good = 50 - 100 Poor = 0 - 50
East Wenatchee	Pavement Condition Index	0-100	Good = 50 - 100 Poor = 0 - 50
Chelan County	Pavement Surface Condition	0-100	Good = 60 - 100 Fair = 40 - 60 Poor = 0 - 40
Douglas County	Pavement Surface Condition	0-100	Good = 70 - 100 Fair = 50 - 70 Poor = 0 - 50
WSDOT	Pavement Surface Condition, International Roughness Index, and Rutting	Multiple	Good = 0 - 40, <= 170, <=.41 Fair = 40 - 60, 171 - 220, .42 - .58 Poor = 60 - 100, > 220

Figure C-1: Pavement Treatment Comparison



Appendix - D

Public Involvement



A Engaging citizens in the region on transportation issues is the foundation of this Regional Transportation Plan update. Because this plan update maintains a focus on the same long-term transportation priorities, the public engagement strategy was based on a diverse range of targeted public engagement activities, often related to specific projects as components of the Regional Transportation Plan.

The following is a brief summary of activities, both targeted, project-based activities as well as ongoing outreach activities.

Targeted Engagement Activities

CDTC has generated more than 1000 survey responses on transportation topics since 2017 across a range of targeted community outreach efforts. The following information summarizes community engagement activities where CDTC was a lead or partner agency.

US 2 Upper Wenatchee Valley Corridor Transportation Study: In 2019, in coordination with WSDOT, Chelan County, LINK Transit and the City of Leavenworth, CDTC initiated a study aiming to improve mobility and safety on the US 2 Upper Wenatchee Valley Corridor, as a westward continuation of the US 2 Cashmere Area Transportation Study completed a few years earlier. The study was guided by a stakeholder committee, one-on-one stakeholder interviews, broad-based public engagement via interactive online comment mapping and survey questions, and an open house to collect community feedback from individuals who preferred in-person engagement. Engagement efforts on this project were led by a specialized consultant, and included considerable outreach to non-English speaking residents and employees in the corridor study area, although response rates from disadvantaged populations were still very low.

Chelan-Douglas Mobility Council Survey: In 2018, CDTC staff worked with Confluence Health and Action Health Partners to survey 800 community members about public transit and active transportation for the purpose of expanding our knowledge of needs and opportunities in the next update to the Human Services Transportation Coordination Plan, and how these needs and opportunities dovetail with the broader transit strategy for the region.

Wenatchee Valley Bicycle Master Plan Update: A comprehensive updated to the bikeways plan for the Wenatchee-East Wenatchee-Rock Island urbanized area was adopted in 2018. This planning process was guided by CDTC's Regional Bicycle Advisory Committee (RBAC) comprised mostly of citizen volunteers, augmented with public outreach that included public opinion surveys, outreach at multiple public venues and events, and open houses.

Lake Chelan Valley Bicycle Master Plan: In 2019, CDTC staff began working on a bikeway development plan for the Lake Chelan Valley. Public outreach was the foundation and starting point for this effort, including one-on-one stakeholder surveys, open community meetings, engagement with the Chelan City Council in open public meetings, public opinion surveys, and open houses with interactive mapping exercises. At this time the plan is on hold due to shifting priorities at the City of Chelan and Chelan County, but the public input has led to an improved understanding by CDTC of active transportation needs, opportunities and priorities in a large subarea of the two-county region.

North Wenatchee Avenue Master Plan Update: The original 2011 SR 285 North Wenatchee Transportation Master Plan identified a menu of corridor-wide improvement to the SR 285 corridor between US 2 and downtown Wenatchee. With partial funding secured through the Connecting Washington program, this effort

was initiated to make sure the public is informed about the improvements, and more importantly, to prioritize segments of the corridor for the available Connecting Washington program funding. The City of Wenatchee was the lead agency on this effort, with support from CDTC. In addition to a business-oriented stakeholder committee and a series of open public houses, a public opinion survey netted over 800 responses that were broadly useful for understanding community priorities related to safety, transit opportunities and congestion relief.

Confluence Parkway Environmental Assessment: The original 2011 SR 285 North Wenatchee Transportation Master Plan also identified the long-term need for additional corridor capacity, in the form of a parallel, limited-access arterial street corridor that will function as a bypass for the state highway and commercial activity along the highway corridor. CDTC completed a “Pre-NEPA” study in 2017, which led to initiation of the NEPA process and an Environmental Assessment (EA) for the proposed bypass route known as Confluence Parkway. This project remains the CDTC region’s top priority in the Regional Transportation Plan, included as a prioritized investment. Both the scoping process for developing Purpose and Need for the EA, and the EA development include robust stakeholder and public involvement, which continues to provide ongoing direction and awareness for the CDTC governing board about community priorities and concerns. The City of Wenatchee is the lead agency for the EA with support and technical assistance from CDTC staff.

Ongoing Engagement Activities

CDTC works through its own standing sub-committees and with other non-profit entities to sustain ongoing community engagement, and to obtain direction and feedback on a broad range of transportation planning activities.

Regional Bicycle Advisory Committee: The Regional Bicycle Advisory Committee (RBAC) is a standing sub-committee that advises the CDTC governing board, comprised of volunteer community members, representatives of various organizations and local jurisdiction staff. RBAC is facilitated by CDTC staff and meets monthly to review and work on regional bicycle planning initiatives, including periodic and ongoing community engagement.

Chelan-Douglas Mobility Council: The Chelan-Douglas Mobility Council is an informal committee jointly facilitated by LINK Transit, Confluence Health and CDTC that focuses on human services transportation planning. The Council includes members from public and non-profit social service agencies and transportation services providers, and provides CDTC with ongoing awareness from the perspective of human services providers and their clients.

Our Valley Our Future: The Our Valley Our Future (OVOF) initiative is a non-profit organization that engages the greater Wenatchee Valley community on a wide variety of topics to develop a regional action plan and improve the region’s quality of life. CDTC is an active participant, including past service on the OVOF Core Team, and is identified as a “Lead Partner” for 7 action items related to transportation. All of the OVOF action items are the result of community outreach and public opinion surveys including successful engagement with non-English speaking residents, providing CDTC with invaluable knowledge and awareness of community priorities.

Public Comment on the Regional Transportation Plan Update

The 2020 Update to the Regional Transportation Plan was written based on the cumulative public and stakeholder engagement outlined above. Initially, finalization the plan update presumed some form of traditional public meeting. Due to the variety of limitation and meeting restrictions posed by the COVID-19 pandemic, CDTC

limited final public comment period to digital format, and relied on the CDTC website along with member agency websites for soliciting final public comment. Ultimately, no public comments were received.

Appendix - E

System Performance Report



Introduction

The Federal Highway Administration (FHWA) defines Transportation Performance Management as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. In short, Transportation Performance Management:

- Is systematically applied, a regular ongoing process;
- Provides key information to help decision makers to understand the consequences of investment decisions across transportation assets or modes;
- Improves communications between decision makers, stakeholders and the traveling public; and
- Ensures targets and measures are developed in cooperative partnerships and based on data and objective information

The Federal Aid Highway Program as authorized by the Fixing America's Surface Transportation (FAST) Act appropriates \$305 billion through 2020 for highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, research, technology, and statistics programs that address deficiencies on the Federal-Aid Highway System. The Federal-Aid Highway System includes the Interstate Highway System, primary highways and secondary local roads.

In 2015, using the Transportation Performance Management Framework, Congress established the following seven Federal Performance Goals (23 USC 150(B)) for the federal aid highway system:

1. Safety – Achieve significant reduction in traffic fatalities and serious injuries on all public roads.
2. Infrastructure Conditions – Maintain the highway infrastructure asset system in a state of good repair.
3. Congestion Reduction – Achieve a significant reduction in congestion on the National Highway System.
4. System Reliability – Improve the efficiency of the surface transportation system.
5. Freight Movement and Economic Vitality – Improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. Environmental Sustainability – Enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. Reduced Project Delivery Delays – Reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

With direction from Congress, the U.S. Department of Transportation (USDOT) published rules in 2017 that identify specific processes and timetables for measuring and establishing targets for the performance of National Highway System (NHS) in order to meet the seven federal performance goals. These rules help FHWA, state DOTs, and Metropolitan Planning Organizations (MPO) to plan, program, and invest in transportation where its most needed, while increasing the transparency and accountability of investment of federal dollars. CDTC has nearly \$65 million in federal dollars programmed through 2023 in its four-year Regional Transportation Improvement Program (RTIP).

Performance Measures

USDOT published 21 different rules for national performance measures to be administered by the FHWA and FTA. The individual state DOTs are required to report their performance on each of the 21 national performance measures to the FHWA and FTA. The state DOTs coordinate with the MPOs to establish targets at the Metropolitan Planning Area (MPA) level that work toward state targets. However, not all 21 performance measures and targets apply to every MPO. CDTC is required to set and report on target attainment for the following 6 performance measures:

1. Safety

- a.** Number of fatalities
- b.** Fatalities per 100 million vehicle miles traveled (VMT)
- c.** Number of serious injuries
- d.** Serious injuries per 100 million VMT
- e.** Number of non-motorized fatalities and non-motorized serious injuries

2. Pavement Condition

- a.** Percent of non-interstate pavement on the national highway system in good condition
- b.** Percent of non-interstate pavement on the national highway system in poor condition

3. Bridge Condition

- a.** Percent of national highway system bridges classified in good condition (weighted by deck area)
- b.** Percent of national highway system bridges classified in poor condition (weighted by deck area)

4. Highway System Reliability

- a.** Percent of person-miles traveled on the non-interstate national highway system that are reliable

5. Transit Asset Management

- a.** Equipment: The percentage of non-revenue service vehicles (by type) that meets or exceeds the useful life benchmark (ULB)
- b.** Rolling Stock: The percentage of revenue vehicles (by type) that meets or exceeds the ULB
- c.** Facilities: The percentage of facilities (by group) that are rated less than 3.0 on the transit economic requirements model (TERM) Scale

6. Transit Safety

- a.** Fatalities
- b.** Fatalities per 100 thousand vehicle revenue miles (VRM)
- c.** Injuries
- d.** Injuries per 100 thousand VRM

- e. Accidents and incidents
- f. Accidents and incidents per 100 thousand VRM
- g. Mean vehicle revenue miles per system reliability failure
- h. On the job injuries

The final performance rules give MPOs the option to either adopt their own performance targets, or to adopt targets developed by the state and transit providers. However, not all targets are achievable through MPO planning, programming, and investment. Thus, CDTC adopts targets in three different ways.

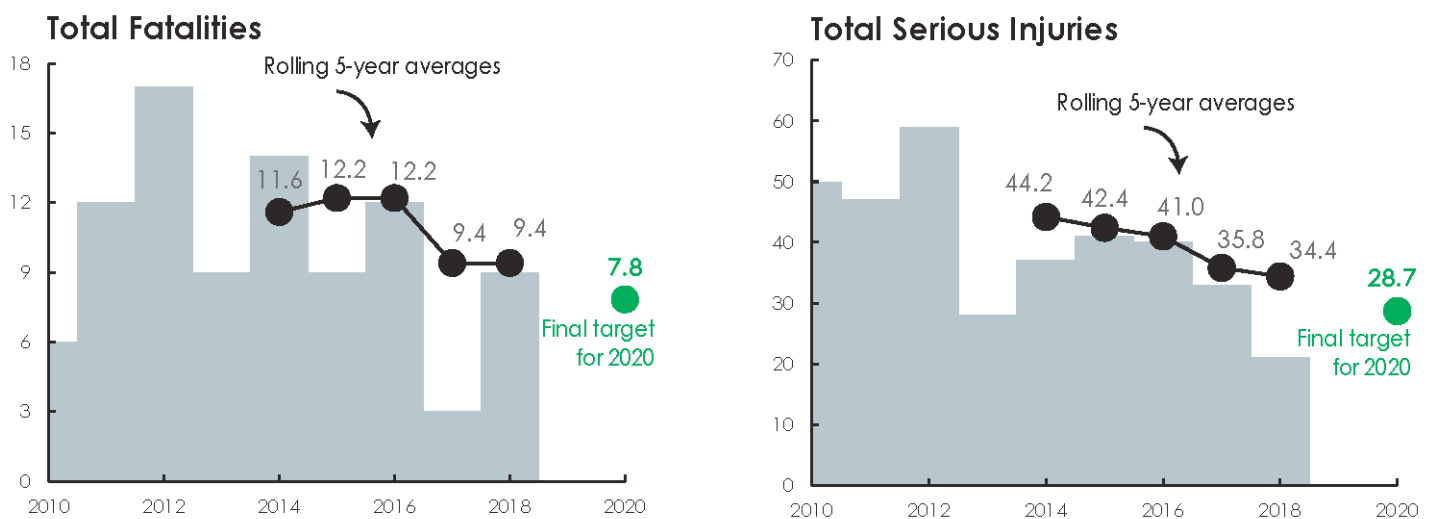
1. CDTC chooses to adopt a region-specific share of the state target as developed by WSDOT for measures where CDTC can plan, program, and invest to meet the target (safety).
2. CDTC adopts statewide targets for measures related to infrastructure condition (pavement condition, bridge condition, system reliability). These measures fall outside of MPO purview, as maintenance of the National Highway System (NHS) is largely under the jurisdiction and management of the state DOTs.
3. CDTC adopts transit asset management (TAM) and transit safety targets directly from LINK Transit.

Safety

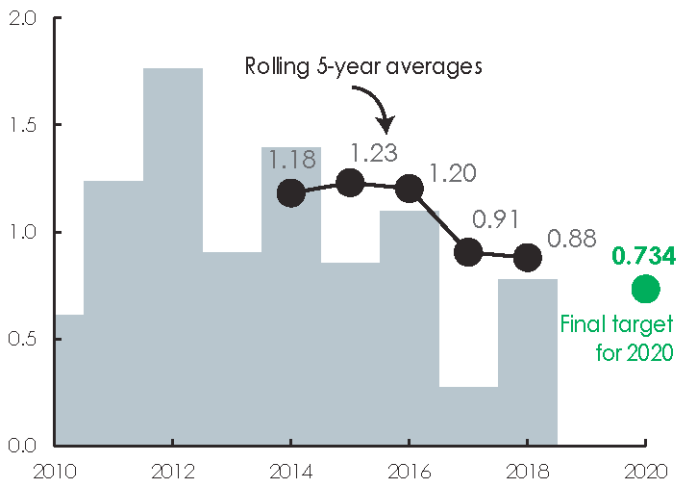
Target Zero, the Washington State Strategic Highway Safety Plan (2016) and the update to the plan in 2019, provide the framework for safety performance measures. The state and CDTC have adopted a goal to reduce traffic fatalities and serious injuries on Washington’s roadways to zero by 2030. To achieve this goal, safety data is collected, analyzed, and distributed annually by WSDOT to aid MPO planning and programming for safety. Using the past years’ data WSDOT sets annual safety targets projecting a 5-year rolling average out to zero by 2030. WSDOT provides region-specific shares of the annual target to CDTC and the other MPOs for collective planning and programming that move the entire state towards the Target Zero goal. CDTC’s shares for the safety performance targets are provided in Figures E-1.

Safety has improved in the region over the last five years as indicated by the downward trend of raw totals and

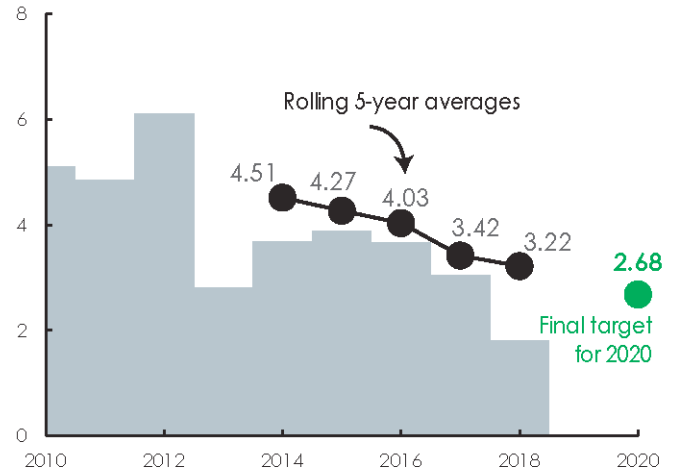
Figure E-1: Safety Targets



Fatalities Per 100 Million VMT

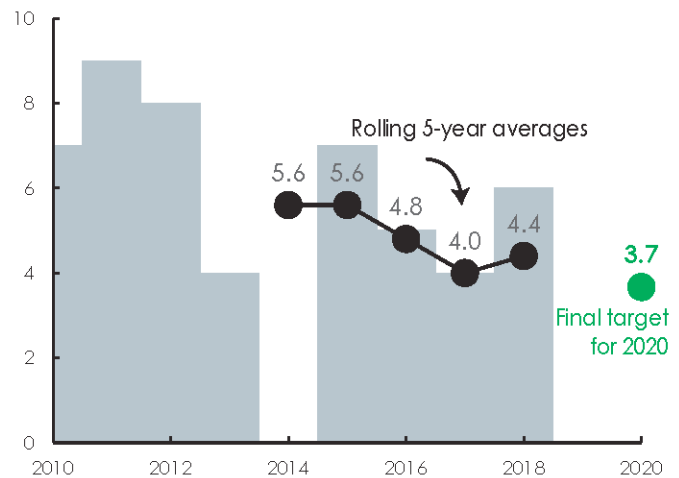


Serious Injuries Per 100 Million VMT



five-year averages for the five safety measures—this trend is anticipated to continue. CDTC is performing better than the state for safety, with the five-year rolling averages increasing statewide. There is roughly \$11.9 million in federal funds programmed for safety projects over the next four years in CDTC’s Regional Transportation Improvement Program (RTIP), demonstrating a continued commitment by WSDOT, CDTC, and local agencies to pursue funds and program projects addressing safety in the region.

Total Non-Motorist Fatalities and Serious Injuries



Highway Infrastructure Condition

MAP-21 requires the state to measure the condition of both pavement and bridges on routes that make up the NHS. The NHS routes in the CDTC MPA are shown in Figure E-2. Pavement performance is measured by assessing the percentage of pavement in both good and poor condition, while bridge performance is measured by assessing the percentage of bridges classified in both good and poor condition (weighted by deck area). As mentioned above, targets for infrastructure condition on the NHS are set by WSDOT for the entirety of the state. The Transportation Policy Goals found in RCW 47.04.285 and the Highway System Plan guide WSDOT decision making and investment prioritization for meeting the state’s infrastructure condition targets.

Targets for these measures apply statewide; there is no CDTC specific target for highway infrastructure condition.

Pavement Condition

Pavement condition refers to the percentage of pavement in good condition and poor condition on the NHS. There are roughly 247 miles of NHS in Chelan and Douglas County—237 miles are under the jurisdiction of WSDOT, 4 miles are under the jurisdiction of the City of Wenatchee, 4 miles are under the jurisdiction of the City of East Wenatchee, and 2 miles are under the jurisdiction of Douglas County.

In October 2018, WSDOT assessed the existing conditions and set targets for pavement condition. WSDOT was required to set a 4-year target for 2022 to be reported to the FHWA. The 2022 target may be reassessed and

revised in 2020. WSDOT has selected four-year targets that they feel are achievable based on current conditions and current funding levels. The existing pavement conditions and targets for the state-wide NHS are provided in Tables E-2 and E-3. The existing pavement conditions for the CDTC region are provided for informational purposes only.

Figure E-2: National Highway System in CDTC MPA



Table E-2: Percent of Non-Interstate Pavements Rated in **Good** Condition

Facility	Current Performance	2022 Target ¹
Statewide NHS Roads	18%	18% or more
State NHS Roads in CDTC MPA	77%	n/a
Local NHS Roads in CDTC MPA	92%	n/a

1: Statewide target; there is no CDTC specific target for pavement condition

Table E-3: Percent of Non-Interstate Pavements Rated in **Poor** Condition

Facility	Current Performance	2022 Target ¹
Statewide NHS Roads	5%	5% or less
State NHS Roads in CDTC MPA	6%	n/a
Local NHS Roads in CDTC MPA	2%	n/a

1: Statewide target; there is no CDTC specific target for pavement condition

WSDOT is the lead agency for planning, programming, and tracking progress towards meeting pavement performance targets on the state owned NHS. WSDOT allocates funding for pavement preservation on the NHS and distributes funding through the National Highway Performance Program (NHPP) grant program. CDTC regularly funds preservation projects through its Surface Transportation Block Grant Program (STBGP) with an estimated \$10.2 million allocated to preservation projects since the program’s inception. Local jurisdictions fund their preservation programs using a combination of state managed gas tax revenue allocations and grants and local taxes and fees.

There is approximately \$84.5 million programmed for preservation and maintenance projects in CDTC’s RTIP demonstrating a continuing commitment to keeping the transportation system in a state of good repair.

Bridge Condition

Bridge performance measures are related to bridge deck condition on the NHS; these measures apply state-wide and are not specific to the CDTC region. WSDOT provides bridge condition data for this performance measures. There are 49 bridges on the NHS in the CDTC region, none of which are locally owned (Figure E-3). Table E-4 summarizes the current performance and targets for bridge condition.

Figure E-3: National Highway System Bridges in the CDTC MPA



Table E-4: Percent of Non-Interstate NHS Bridges Rated in Good and Poor Condition

Facility	Current Performance	2022 Target ¹
Bridges Statewide in good condition	32.8%	30% or more
Bridges Statewide in poor condition	7.8%	10% or less
Bridges in CDTC region in good condition	53.3%	n/a
Bridges in CDTC region in poor condition	8.2%	n/a

1: Statewide target; there is no CDTC specific target for bridge condition

Highway System Reliability

The highway system reliability performance measure describes how reliable a road segment is in terms of the time it takes to traverse a corridor during peak and off-peak traffic flow. The level of travel time reliability (LOTTR) metric ranks segments as reliable or not reliable using a ratio of the of the time it takes 50% of drivers (50th percentile) to traverse a segment and the time it takes 80% (80th percentile) of drivers to traverse a segment. The ratio of the 80th percentile to the 50th percentile must fall below 1.5. Figure E-4 shows the travel time reliability for the NHS network, where available, across the CDTC region. Figure E-5 shows the travel time reliability for the NHS network in detail for the Wenatchee, East Wenatchee, and Rock Island urban growth areas. These areas see the highest traffic flows due to the concentration of jobs and housing. Additionally, table E-4 summarizes the percentage of person miles travelled on the NHS that are reliable. Targets for these measures apply statewide; there is no CDTC specific target for highway system reliability.

Figure E-4: Level of Travel Time Reliability - CDTC MPA



Figure E-5: Level of Travel Time Reliability - UGA Detail

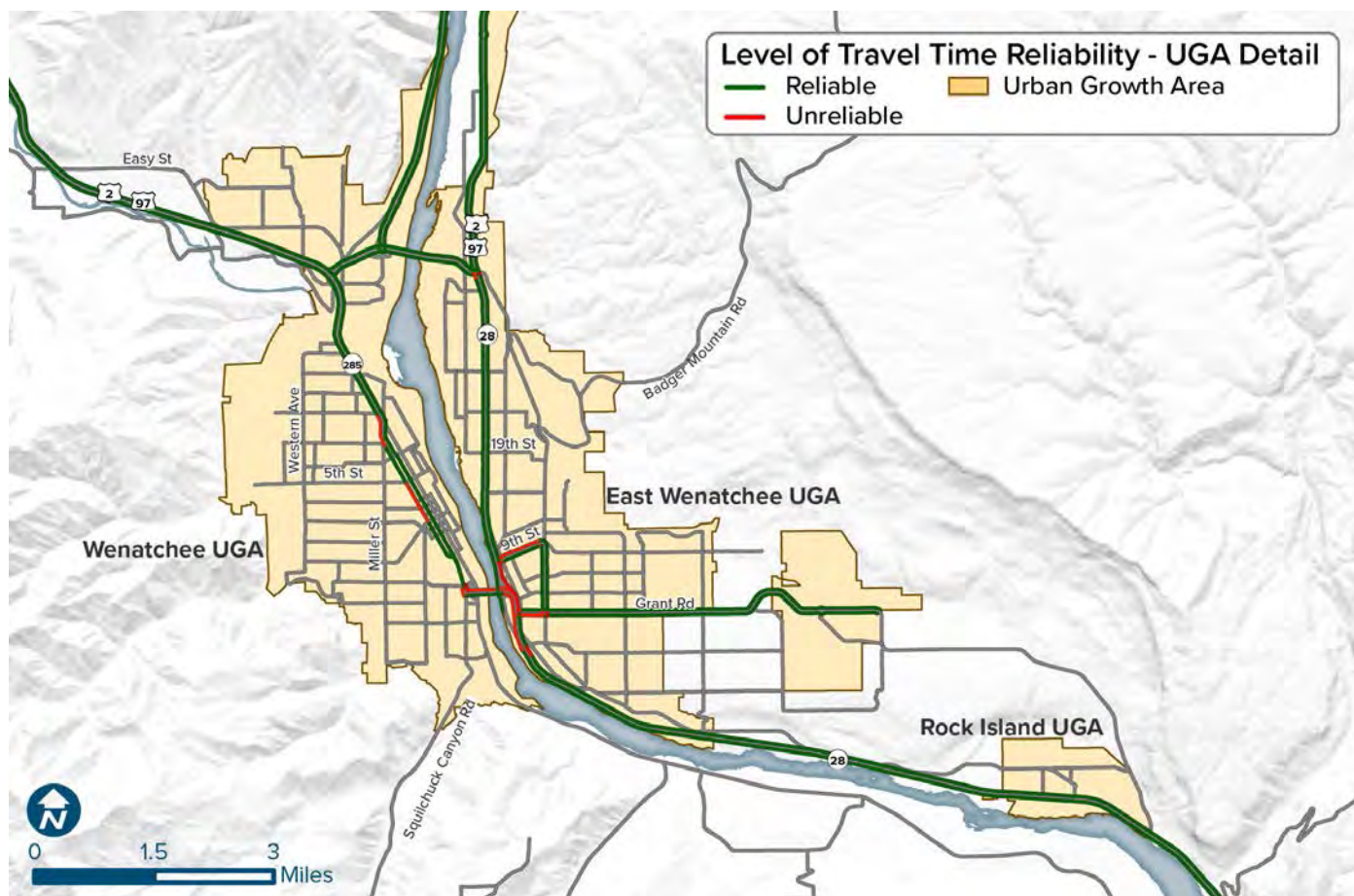


Table E-5: Level of Travel Time Reliability

Facility	Current Performance	2022 Target
Statewide NHS roads	77%	More than 70%
NHS roads in CDTC region	92%	n/a

92% of person-miles traveled in the CDTC region are reliable, as table E-5 shows, leaving only 8% of person-miles traveled as unreliable. The segments rated unreliable are at choke points where traffic flow from multiple sub-areas converge on single facilities such as the George Seller Bridge and the Miller St/SR 285 intersection. US-2 from Tumwater Canyon to Peshastin is rated as unreliable due to the high variability of weekend and holiday traffic traversing the Cascade mountains.

In Washington State, many of the projects selected to address mobility are prioritized through the legislative process. For this reason, it is essential that WSDOT, CDTC, and local agencies coordinate their transportation planning efforts to develop transportation priorities that contribute towards performance targets and can be shared with lawmakers. CDTC has also taken an approach with its local agencies and WSDOT to proactively plan and identify mobility projects on the NHS. In 2017 CDTC awarded nearly \$1.1 million for project addressing mobility issues at the intersection of 9th St and Valley Mall Parkway. Also, CDTC recently finished a study in partnership with WSDOT that identified potential strategies and projects that address mobility issues on US 2 from Tumwater Canyon to Peshastin.

CDTC, WSDOT, and its local agencies will continue to coordinate mobility priorities with an increased emphasis on local agencies playing lead roles in mobility projects on the NHS. This local ownership of mobility issues allows the region to be flexible in project implementation if the traditional state-led legislative process fails to provide funding for the needs in the region. Furthermore, the unreliable NHS roads in the region are urban in character. The scope of analysis done by local agencies may be more valuable than a project with needs articulated at a high level in the state legislature.

Transit Asset Management

MPOs are required to adopt transit asset management targets based on targets set by transit agencies within their boundaries. LINK Transit is the only transit agency within the MPO boundary.

The Transit Asset Management (TAM) performance measures are set for equipment (non-revenue service vehicles), rolling stock, and facilities. Performance measures are linked to either the useful life benchmark (ULB) or the Transit Economic Requirements Model (TERM) condition rating.

- **Useful Life Benchmark (ULB)** is the expected lifecycle of a capital asset for a transit provider’s operating environment, or the acceptable period of use in service for a transit provider’s operating environment.
- **Transit Economic Requirements Model (TERM)** is a tool for estimating transit capital expenditure needs over a 20-year period. The TERM condition rating is separated into five levels ranging from “excellent” to “poor.” The higher the rating, the better the condition rating.

Buses, cutaways, vans, non-revenue automobiles, and non-revenue service vehicles are assessed using the ULB; passenger/parking facilities and administrative/maintenance facilities are assessed on the TERM condition scale. The existing conditions and targets for LINK transit are shown in Tables E-6 and E-7.

Table E-6: Percent of Vehicles that Have Met or Exceed their Useful Life Benefit

Asset	2019 Performance	2020 Target
Buses	42.86%	6.25%
Cutaways	5.00%	3.23%
Vans	0%	0%
Non-revenue automobiles	0%	0%
Non-revenue service vehicles	29.41%	16.67%

Table E-7: Percent of Facilities Rated Below 3 on the TERM Condition Scale

Asset	Current Performance	Initial Target
Passenger/parking facilities	0%	0%
Administrative/maintenance facilities	0%	0%

Transit Safety

In addition to Transit Asset Management Targets, MPOs are required to adopt transit safety targets found in the Public Transportation Agency Safety Plan (PTASP) of the transit agencies within their boundaries, as required by 49 CFR Part 673. Transit providers must establish seven safety performance targets (SPT) for each type of service provided. LINK Transit provides both fixed-route and demand-response service, requiring target setting for both (Table E-8). The PTASP rule became effective in July 2019 with the FTA giving transit agencies until December 2020 to adopt PTASPs and the accompanying safety targets. Existing performance is not explicitly reported in the PTASP and is not provided here.

Table E-8: LINK Transit Safety Measures

Mode	Fatalities	Fatalities (100K VRM) ¹	Injuries	Injuries (100K VRM)	Events (Accident/ Incidents)	Events (100K VRM)	SR Failure/ VRM	OJI ²
Fixed-Route	0	0	3	.15	15	.3	20,000	10
Demand-Response	0	0	2	.4	5	1	20,000	10

1: Calculation for Vehicle Revenue Miles (VRM): (# expected*100,000)/Revenue miles estimation. Estimated miles: 2,500,000

2: On the Job Injury

The steps for improving safety for LINK Transit's guests and employees are described in the PTASP, starting with the Safety Policy Statement:

Providing a safe working environment for our employees and safe reliable transportation to our guests is our primary objective, which is why the management of safety is our top priority. We will work towards this objective by: making sure the right resources are available to implement and continually improve our Safety Management System and leveraging front line employees' knowledge through the safety reporting program. Supporting and improving safety in the workplace is an organization wide commitment starting with the General Manager.

Additionally, LINK is committed to:

- Supporting an organizational culture that fosters safe operational practices and encourages safety reporting and communication.
- Allocating the necessary resources to implement the safety management plan and to continually improve our safety performance.
- Focusing on proactive approaches to recognize and mitigate hazards.
- Ensuring that no action will be taken against any employee who discloses safety concerns through the safety reporting program, unless the disclosure indicates beyond any reasonable doubt, an illegal act, gross negligence, or deliberate or willful disregard of regulations and procedures.
- Training all employees adequately on our safety management system to identify, analyze, and mitigate hazards for a safer workplace.
- Effective communication with all levels of the organization to ensure information is flowing up to executive management and down to field employees.
- Ensuring hazards are mitigated to as low as reasonably practical.

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