Transition2040

Adopted May 2017 ▪ Amended January 2018

Metropolitan Regional Transportation Plan

For The Tri-Cities Metropolitan Area
And The Benton-Franklin Regional
Transportation Planning
Organization

Executive Summary

Transition2040 is the Benton-Franklin Council of Governments (BFCG) long-range, multimodal planning document that identifies the mobility needs of the region through the year 2040. Five identified Goals and sets of Objectives, along with Performance Measures, will provide assistance in guiding local planners, engineers, and stakeholders with solutions to regional transportation planning.

Throughout its eight chapters, *Transition2040* describes the current transportation system, outlines what is needed to accommodate future growth, explores how to fund future transportation needs, discusses how to maintain a safe and secure transportation system, and identifies environmental issues that impact or may be impacted by transportation investments.

Chapter 1 explores *Transition2040's* five goals: *Safety & Security, Preservation, Mobility & Accessibility, Freight Movement & Economic Vitality, and Community & Environmental Sustainability*, and their accompanying performance measures, which shaped the formation of the subsequent chapters. Performance based planning, the process of performance driven, outcome-based approaches to planning, is used throughout the plan. Finally, to maximize public involvement, BFCG conducted a regional survey, hosted a Transportation Fair, Farmer's Market booths, and two Open Houses, along with other speaking engagements and outreach efforts. Public participation indicated a demand for more multi-modal development.

The regional profile of Chapter 2 delves into the understanding of the region's geography, human characteristics, and the interaction of both with the natural environment. With 15 cities and towns, the Benton-Franklin region covers almost 3,000 square miles and is home to over 275,000 people. Based on data from the Office of Financial Management, the population of the metropolitan area is projected to increase 33% over the next 25 years, from 248,066 in 2015 to 369,419 in 2040. The population of the two-county area is forecast to increase more than 50%, from 307,051 to 465,927 over the same time period.

As the fourth largest metropolitan area in Washington State (by population), the transportation options in the region are complex. Chapter 3 divides transportation into two categories: movement of people and movement of freight and goods. A wide spectrum of personal mobility options in the MPO and RTPO - from active transportation to public transportation to the current status of ride hailing options and electric vehicles – are available at different degrees of accessibility; the personal automobile is the dominant form of transportation in the MPO and RTPO for work travel.

Movement of freight and goods in the MPO and RTPO is accomplished through truck, train and barge, and in a more limited capacity by air and pipeline. Similarly with the movement of people, freight and goods are dominated by auto (truck) usage, and the data available reflects that.

In Chapter 4, Transportation System Management and Operation (TSM&O) are described. TSM&O techniques are designed to improve traffic flow and the movement of people and goods, as well as enhance system accessibility and safety. BFCG's current TSM&O Programs and tools are the Congestion Management Process, Regional Traffic Count Program, Transportation Demand Management (TDM), SOV/HOV Survey, and Regional Intelligent Transportation System (ITS). As a Traffic Management Area (TMA), BFCG is required to prepare a CMP. TDM strategies currently operating in the MPO are Ben Franklin Transit's vanpool program, and the Metropolitan

Area Park and Ride System.

Financial forecasting is contained in Chapter 5. BFCG developed a process to forecast urban and rural revenues and expenditures. With this information, BFCG was able to ascertain reasonably available funds for project construction for the band years 2017-2025, 2026-2035, and 2036-2040. Based on available funds, a financially constrained list of projects was determined for construction in each time period, as well as a list of unfunded need.

BFCG, with assistance of local planning staff, has developed the 2015 Regional Travel Demand Model presented in Chapter 6. The model was used to determine impacts of population and employment growth on the metro area transportation system, as well as the effectiveness of scheduled transportation improvements for the horizon years of 2025, 2035 and 2040. The Model utilizes population and employment data, coupled with a travel modeling software platform called TransCAD, to estimate (model) the impacts of projected population and employment changes on the travel network.

To incorporate performance management into *Transition2040*, investment strategies (goals) are linked to performance measures (Chapter 7). Performance measures are data about the use, condition, and impact of the transportation system. These measures are best thought of as indicators – data that is publicly reported to demonstrate progress of transportation system improvements toward established targets. Each of *Transition2040*'s goals have an investment strategy. For the more subjective strategies, BFCG outlines two broad subjects: Environmental Health and Public Health.

Chapter 8 discusses the ongoing process of implementing Transition2040. The vision of *Transition2040* will not be built in the short run, but will act as a path in achieving long-term transportation goals. The BFCG will coordinate and manage a process to track progress towards *Transition2040's* goals and objectives, while maintaining engagement with local and state partners. BFCG will implement the goals and objectives from *Transition2040* in our project selection and programming. Following the adoption of *Transition2040*, the Unified Planning Work Program (UPWP), the Transportation Improvement Program (TIP), and the Congestion Management Process (CMP) will incorporate the goals and objectives that are instrumental to the performance based planning process. An integral part of *Transition2040* will be monitoring the performance of the regional transportation system over time.

Planning is a continuous process, and the M-RTP is updated at least every five years to consider recent developments and remain a relevant plan for the region. *Transition2040* looks out to the year 2040, a period of 23 years. While such a period extends beyond what can be accurately predicted, a value of a long-range plan lies in comprehensively assessing the region's current transportation system, and charting a course of action for coming years. It presents an opportunity to step back and take a big picture look at where we stand, the challenges we face, and how to best address those problems. *Transition2040* assists in guiding future decisions toward the goal of a safe, efficient transportation system to meet our region's current and future needs.

Contents

Executive Summary II
Notices X
Plan Incorporations X
Transition2040 Notice X
Acronyms XI
Definitions and Explanations XIII

Chapter 1 Plan Overview 2
Introduction 3
Transition2040 Goals and Objectives 8
Transition2040 Goals & Objectives 9
Federal & State Legislation 14
Public Involvement 16
Environmental Justice 23
Understanding this Plan 24

Chapter 2 Regional Profile 26
Introduction 27
Regional Geographies 28
Regional Characteristics 35
Environment & Natural Resources 50

Chapter 3 Transportation Choices 64
Introduction 65
Movement of People 66
Movement of Freight and Goods 90

Chapter 4 Transportation System Management and Operations 106
Introduction 107
Congestion Management Process 108
Transportation Demand Management 111
Transportation System Management 123
Safety and Security 127

Chapter 5 Financial Plan. 136
Introduction 137
Growth Rate Calculations 139
Ben Franklin Transit 145
Washington State Department of Transportation. 146
Submitted Projects 147
Unfunded Need 158
Chapter 6 Future Conditions 164
Introduction 165
Regional Travel Demand Modeling 166
Forecast Results 170
Travel Demand Model Analysis 177
Chapter 7 Investment Strategies 196
Introduction 197
Performance Based Planning. 199
Investment Strategies 205
Environmental Health 209
Public Health 212
Chapter 8 Plan Implementation 222
Introduction 223
Implementation 224
Regional Growth Strategy 226
Amending the Plan 228
Next Steps 230

List of Figures and Tables

Figure 1-1: Federal and State Requirement Comparison for Transportation Planning 5
Figure 1-2: SWOT Analysis 7
Figure 1-3: Transportation Buck$ Results (Number of $50,000 Bucks) 18
Figure 1-4: Open House Public Comments. 22
Table 2-1: FHWA & Census Geographic Boundaries and Terms. 28
Table 2-2: FHWA and FTA Geographic Planning Terms 28
Figure 2-1: BFCG Region in Washington 29
Figure 2-2: Regional Boundaries. 30
Figure 2-3: City Limits in the MPA 31
Table 2-3: Population by City in the MPA, Current and Projected 32
Figure 2-4: Cities Within the Metropolitan Area 32
Figure 2-5: Small and Rural Cities 33
Table 2-4: Population Breakdown by City Outside of the MPA, Current and Projected 33
Figure 2-6: Benton and Franklin County Rural Areas. 34
Table 2-5: Population Breakdown by Unincorporated County, Current and Projected 34
Table 2-6: Selected Regional Statistics 35
Figure 2-7: Largest Employers by Number of Employees 36
Figure 2-8: Inflow and Outflow of Workers in Benton and Franklin Counties 37
Figure 2-9: Inflow and Outflow of Workers in Benton and Franklin Counties, Worker Flows 38
Figure 2-10: Counts and Density of Home Locations for All Jobs and All Workers in the Region, 2014 39
Figure 2-11: Distance and Direction from Work Census Block to Home Census Block, All Jobs for all Workers in Benton and Franklin Counties. 40
Table 2-7: Selected Work Statistics (2014) 41
Figure 2-12: Benton-Franklin Counties In-Migration, 1999-2015 41
Figure 2-13: Washington In-Migration by States, 1999-2015 41
Figure 2-14: Percent of Families Under the Poverty Level, by Block Group. 42
Figure 2-15: Age Distribution of Under 19 and Above 62 Years. 43
Figure 2-16: Age Distribution by Sex Inside the Metropolitan Area 44
Figure 2-17: Age Distribution by Sex Outside the Metropolitan Area 44

Figure 2-18: Sex And Age Distribution Inside the Metropolitan Area 45
Figure 2-19: Sex and Age Distribution Outside the Metropolitan Area 45
Figure 2-21: Age Group Distribution in the RTPO, Metro Area, and WA State 46
Figure 2-20: Age Group Distribution in the RTPO & WA 46
Figure 2-22: Percent of Households with Language Other Than English Spoken at Home 47
Figure 2-23: Race and Ethnicity 48
Table 2-8: Projected Population in the MPA and Non-MPA 49
Figure 2-24: Region Population, Historic and Projected 49
Figure 2-25: Population and Employment Forecasts for the MPA 49
Figure 2-26: Average Monthly Temperatures for the Tri-Cities 50
Figure 2-27: Yakima River Delta and Bateman Island Causeway 53
Figure 2-28: Rivers in the RTPO 55
Figure 2-29: National Wetlands boundary 56
Figure 2-30: Sensitive Aquatic Areas in the RTPO 57
Figure 2-31: National Wetlands Inventory in the MPA 58
Figure 2-32: National Wetlands Inventory, Prosser 58
Figure 2-33: Sensitive Aquatic Areas in the MPA 58
Figure 2-34: Sensitive Aquatic Areas in Prosser 58
Figure 2-35: Prosser and Tri-Cities Urbanized Area Floodway 59
Figure 2-36: Ceded Tribal Lands in the RTPO Area 60
Figure 2-37: The B-Reactor in Hanford 62
Figure 3-1: Journey to Work Mode Choice in the RTPO, 2014 66
Figure 3-2: Household Vehicle Access 66
Figure 3-3: Journey to Work - Historic Mode Choice in the RTPO 67
Figure 3-4: Journey to Work - Historic Non-SOV Mode Choice 67
Figure 3-6: Journey to Work - Active Transportation in the RTPO 69
Figure 3-5: Journey to Work, Percent of Non-Motorized Trips, 2014 69
Figure 3-7: Multi-Use Trails in the RTPO 70
Figure 3-8: BFT Transit Annual System Ridership, 2005-2015 72
Figure 3-9: Public Transportation Benefit Area (PTBA) and Ben Franklin Transit (BFT) Routes in the Region 73
Figure 3-10: Public Transportation Benefit Area (PTBA) and Ben Franklin Transit (BFT) Routes in the MPA 74

Figure 3-11: Amtrak Ridership in Pasco, 2001-2014 76
Figure 3-12: Tri-Cities Airport (PSC) Passenger Enplanements 78
Figure 3-13: Airports in Benton and Franklin Counties 79
Figure 3-14: Journey to Work - SOV in the RTPO 80
Figure 3-15: Road Hierarchy Diagram 81
Figure 3-16: Federal and State Routes 82
Figure 3-17: Federal Classifications in the MPO 83
Figure 3-18: Federal Classifications in the RTPO 84
Figure 3-19: Electric Vehicle Infrastructure Grant Program Sites, Planned and Existing 86
Figure 3-20: Existing Electric Vehicle Fast Charging Stations in the RTPO and Neighboring Counties 87
Figure 3-21: Freight and Goods Transportation System (FGTS) Road Classifications in the RTPO 91
Figure 3-22: Truck Freight Economic Corridors in the RTPO 92
Table 3-1: Strategic Freight Roadways in the MPO, 2015 93
Figure 3-23: Average Daily Highway Truck Traffic in the RTPO 93
Figure 3-25: Average Truck Traffic as a Percent of AADT in the RTPO 94
Figure 3-24: Average Daily Highway Truck Traffic in the RTPO 94
Table 3-2: Strategic Freight Rail Corridors in the RTPO, 2015 95
Table 3-3: Freight Rail Service Providers in the RTPO 95
Figure 3-26: Active Rail Lines in the RTPO 98
Table 3-4: Strategic Freight Waterways in the RTPO, 2015 99
Table 3-5: Barge Tonnage, 2010-2015 99
Figure 3-27: The Columbia Snake River Inland Waterways 99
Figure 3-28: 2014 U.S. Wheat Exports 100
Table 3-6: Tonnage by Lock, 2012 & 2016 100
Figure 3-29: Port Districts and Rail in the RTPO 102
Table 3-7: Air Cargo Tonnage in Washington Airports, 2009 and 2014 103
Figure 3-30: Oil Movement In and Out of Eastern Washington 104
Table 4-1: Congested Corridors in the MPA 109
Figure 4-1: Congestion Management Process (CMP) Corridors 110
Figure 4-2: Space Required for Cars, Buses, and Bikes 114
Figure 4-4: BFT Vanpool Total Mileage and Ridership, 1995-2014 117

Figure 4-3: BFT Vanpool Operations Data, 1995-2014 117
Table 4-2: Park and Ride Lots- ID and Location. 118
Figure 4-5: Park and Ride Lots Avg Use and Capacity 2012-2015 118
Figure 4-6: Park and Ride Lots Yearly Average Percent Use, 2012-2015 119
Figure 4-7: Park and Ride Lots Total Usage, Quarterly 2012-2015 119
Figure 4-8: Average HOV Percentage, All Survey Locations by Year. 121
Figure 4-9: Single Occupancy Vehicles (SOV) and High Occupancy Vehicles (HOV) Windshield Survey 122
Table 4-3: Planned Projects - ITS 125
Table 4-4: ITS Modifications and Updates. 126
Figure 4-10: Washington State Shaking Intensity for the Cascadia Subduction. 132
Table 4-5: Earthquake MMI Scale in the RTPO 132
Figure 5-1: Historic Revenue Trends, 2005-2014 139
Figure 5-2: Historic Expenditure Trends, 2005-2014. 140
Table 5-1: Percent of Expenditure Group of Expenditure Total, 2005-2014. 140
Figure 5-3: Historic Expenditures by Category for Urban Areas, 2005-2014. 141
Figure 5-4: Historic Expenditures by Category for Rural Areas, 2005-2014. 141
Table 5-2: Historic Growth Rates, 2005-2014 142
Table 5-3: Forecasted Revenues, 2017-2040. 142
Table 5-5: Forecasted Revenues, Expenditures, and Available Project Funding Urban Areas 143
Table 5-6: Forecasted Revenues, Expenditures, and Available Project Funding, Rural Areas 143
Table 5-4: Forecasted Project Funds Available, 2017-2040 143
Table 5-7: Forecasted Project Funding, Projects Submitted & Unfunded Need, 2017-2040 144
Table 5-8: Ben Franklin Transit Financials, 2017-2040 145
Table 5-9: WSDOT Financials, 2017-2040. 146
Table 5-10: Connecting Washington Account. 146
Table 6-1: MPA Growth Forecast 165
Figure 6-1: BFCG Modeling Area. 165
Figure 6-2: Population Forecast MPA. 170
Figure 6-3: Base Year Percent of Population by County. 170
Figure 6-4: 2040 Percent of Population by County. 170
Figure 6-5: Population Forecasts by County 170

Figure 6-8: Housing Units Forecast MPA 171
Figure 6-6: Base Year Percent Housing Units by County. 171
Figure 6-7: 2040 Percent Housing Units by County. 171
Figure 6-9: Housing Units Forecasts by County 171
Figure 6-10: Employment Forecast MPA. 172
Figure 6-11: Base Year Percent of Employment by County. 172
Figure 6-12: 2040 Percent of Employment by County 172
Figure 6-13: Employment Forecasts by County 172
Figure 6-14: 2040 Population Forecasts by Nearby Regional and Metropolitan Planning Organizations 173
Table 6-2: Population Growth Areas. 174
Table 6-3: Employment Growth Areas 174
Figure 6-15: Population Growth 2015-2040 in MPA TAZ 175
Figure 6-16: Employment Growth 2015-2040 in MPA TAZ. 176
Table 6-4: Base Year Calibration Results 177
Table 6-5: Scenario Comparison 177
Table 6-6: Number of Modeled Projects by Jurisdiction 178
Figure 6-17: Forecasted Daily Transit Ridership by Scenario 178
Figure 6-18: Modeled Projects by Year. 179
Figure 6-19: Base Year AM Peak 181
Figure 6-20: Base Year PM Peak 182
Figure 6-21: 2040 Build AM Peak. 183
Figure 6-22: 2040 Build PM Peak 184
Figure 6-23: 2040 No Build AM Peak. 185
Figure 6-24: 2040 No Build PM Peak 186
Table 6-7: Vehicle Miles Traveled by Scenario. 187
Table 6-8: Vehicle Hours Traveled by Scenario 187
Figure 6-25: Percent of Road Segments At or Above 80% Capacity 187
Figure 6-26: Roadways at Capacity, 2015 AM Peak (.80 or above V/C) 189
Figure 6-27: Roadways at Capacity, 2015 PM Peak (.80 or above V/C) 190
Figure 6-28: Roadways at Capacity, 2040 AM Peak- Build Scenario (.80 or above V/C) 191
Figure 6-29: Roadways at Capacity, 2040 PM Peak- Build Scenario (.80 or above V/C) 192

Figure 6-30: Roadways at Capacity, 2040 AM Peak- No-Build Scenario (.80 or above V/C). 193
Figure 6-31: Roadways at Capacity, 2040 PM Peak- No-Build Scenario (.80 or above V/C) 194
Figure 7-1: Submitted Projects by Transition2040 Goals. 198
Table 7-1: Performance Metric Data Sources 201
Table 7-2: BFT State of Good Repair (SGR) Targets. 204
Table 7-3: National Costs Associated with Transportation 208
Figure 7-2: National Environmental Protection Agency Structure Process 211
Figure 7-3: Pedestrian Injuries at Impact Speeds 214
Figure 7-4: Food Deserts in the Region 216
Figure 7-5: Food Deserts in the MPA. 217
Figure 7-7: Health Outcomes: Health Rankings By WA Counties. 219
Figure 7-6: Health Factors: Health Rankings By WA Counties 219
Figure 7-9: Share of Adults who are Obese, Compared to Washington State. 220
Figure 7-8: Share of Adults with Diabetes, Compared to Washington State and the United States 220
Figure 8-1: How the TIP/MRTP Work Together 224

Notices

Americans with Disabilities Act (ADA)

Adopted in 1990, the Americans with Disabilities Act prohibits discrimination against individuals with disabilities in all areas of public life, as an addition to Section 504 of the Rehabilitation Act of 1973. Transportation is included in the Act. It ensures equal opportunity and access to goods and services.

Following 29 USC 794, no otherwise qualified individual with a disability shall, solely by reason of their disability, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

Title VI

Benton-Franklin Council of Governments hereby gives public notice that it is the policy of the agency to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities. Title VI requires that no person in the United States of America shall, on the grounds of race, color, sex, or national origin, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which BFCG receives federal financial assistance.

Title VI Notice

Any person who believes they have been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with BFCG. Any such complaint must be in writing and filed with the BFCG Title VI Coordinator within one hundred eighty (180) days following the date of the alleged discriminatory occurrence.

Title VI Complaint Forms may be obtained from BFCG at no cost by calling (509) 943-9185. If information is needed in another language, please contact BFCG at (509) 943-9185. Access the complete document on the BFCG website.

Si se necesita información en otro idioma, por favor contacte a BFCG (509) 943-9185.

Plan Incorporations

The 2014 and 2016 *Coordinated Public Transit-Human Services Transportation Plans* for Benton and Franklin Counties and the 2016 Active Transportation Plan for Benton and Franklin Counties and the Tri-Cities Metropolitan Area are incorporated by reference into this document.

Transition2040 Notice

This Regional Transportation Plan has been financed in part through grants from the Federal Highway Administration, Federal Transit Administration, and the Washington State Department of Transportation. The policies, findings, and recommendations contained in this plan, do not necessarily represent the views of the MPO/RTPO agencies identified herein and do not obligate those agencies to providing funding to implement the contents of the Plan as adopted.

Acronyms

AASHTO – American Association of State Highway and Transportation Officials
ADA - The Americans with Disabilities Act of 1990
ADT - Average Daily Traffic
AMPO – Association of Metropolitan Planning Organizations
AWV - Average Weekday Volume
BFCG - Benton-Franklin Council of Governments
BFT - Ben Franklin Transit
CFR – Code of Federal Regulations
CMP - Congestion Management Process
CRAB - County Road Administration Board
CAPP - County Arterial Preservation Program
RAP - Rural Arterial Program
CRCS - Columbia River Crossing Study Tri-Cities
CRT - Community Round Table
CTR - Commute Trip Reduction
DNS - Determination of Non Significance
DOE - U.S. Department of Energy
EA - Environmental Assessment
EIS - Environmental Impact Statement
EJ – Environmental Justice
EWITS - Eastern Washington Intermodal Transportation Study
FAST Act – Fixing America's Surface Transportation Act
FGTS - Freight & Goods Transportation System
FHWA - Federal Highway Administration
FMSIB - Freight Mobility Strategic Investment Board
FTA - Federal Transit Administration
GIS - Geographic Information System
GMA - Growth Management Act
HCM - Highway Capacity Manual
HOV - High Occupancy Vehicle
HSP - Highway System Plan
HSTP - Human Services Transportation Plan
HSS - Highways of Statewide Significance
ISTEA - Intermodal Surface Transportation Efficiency Act of 1991
ITS – Intelligent Transportation System
LEP – Limited English Proficiency
LOS - Level of Service
MAP-21 - Moving Ahead for Progress in the 21st Century
MPO - Metropolitan Planning Organization
MTP - Metropolitan Transportation Plan
NAAQS - National Ambient Air Quality Standards
NEPA - National Environmental Policy Act
NHS - National Highway System
NSB - National Scenic Byways
PAC - Policy Advisory Committee
PTBA - Public Transportation Benefit Area
RAMPS - Roadway Access Management Permits System
RCW - Revised Code of Washington
RTP - Regional Transportation Plan
RTPO - Regional Transportation Planning Organization
RTS - Regional Transportation System
R/W - Right of Way
SCR - South Central Region
SEPA - State Environmental Policy Act
SOV - Single Occupancy Vehicle

SR - State Route (route designation)
STIP - Statewide Transportation Improvement Program
STP - Surface Transportation Program
STRAHNET - Strategic Highway Network
TAC - Technical Advisory Committee
TAP - Transportation Alternatives Program
TCM - Transportation Control Measures
TDM - Transportation Demand Management
TE - Transportation Enhancement
TEA-21 - Transportation Equity Act for the 21st Century
TIB - Transportation Improvement Board
TIP - Transportation Improvement Program
TMA - Transportation Management Area
TRI-MATS - Tri-Cities Metropolitan Area Transportation Study
TSM - Transportation Systems Management
UPWP - Unified Planning Work Program
US - United States (route designation)
VMT - Vehicle Miles Traveled
WAC - Washington Administrative Code
WSDOT - Washington State Department of Transportation
WSRO - Washington State Ridesharing Organization
WSTC - Washington State Transportation Commission
WTP - Washington Transportation Plan

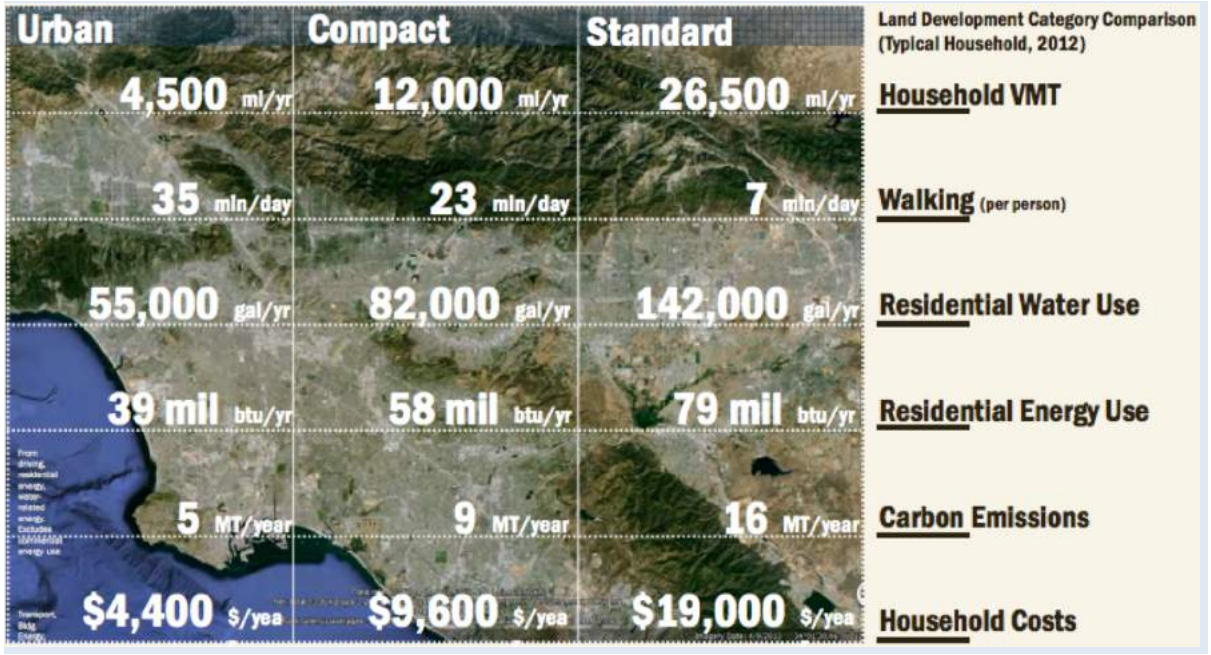
Definitions and Explanations

BFCG Staff developed Transition2040 with focus on land use and accessibility. To understand the background to this plan, several key concepts and planning assumptions are described below.

Connecting Land-Use and Transportation

Successful integration of land-use and transportation planning is a critical factor in creating and maintaining livable communities. Incorporating strategies and policies that exemplify coordination of these two efforts can lead to the preservation and enhancement of our regions natural and cultural resources, and help facilitate healthy and sustainable communities and neighborhoods. When these approaches are used, they tend to foster a balance of mixed-uses, such as housing, employment, recreational, retail and educational.

Figure 0-1: Land use and Road Design Impacts



The following principles, provided by the FHWA, can foster the integration of land-use and transportation planning:

- Developing land-use, economic development and transportation (or other infrastructure) plans in a coordinated manner, with all elements supporting a common vision.

- Establishing land-use goals and strategies to facilitate alternative transportation modes, including transit and non-motorized transportation.

- Using a context sensitive solutions approach in planning and project development that considers land-use conditions and implications.

- Knitting together transportation projects and programs and public/private investments so that they complement each other and support broader community goals.

- Accommodating the flow of freight throughout the country while avoiding and minimizing negative impacts on residential neighborhoods, city centers and the natural environment.

- Considering a wide range of strategies, tools and modal options to address transportation and land-

use issues.

Figure 0-1 shows how land use can impact transportation, cost of living, and environmental impact.

Accessibility, Connectivity, and Mobility

Accessibility, connectivity, and mobility are three distinct but often confusing concepts.

Essentially, mobility is movement based while accessibility is place based. Mobility emphasizes the movement of people between different activity sites. It is the potential for movement. In mobility based transportation, speed quantifies mobility.

On the other hand, accessibility is all about access; it supposes that the objective of transportation should be bringing people and places together. It is a product of mobility and proximity. Accessibility is measured by the number of opportunities within a certain distance or travel time, taking into consideration the needs of every person. A key component of accessibility is transportation equity, dealing with accessing affordable and reliable transportation for all users.

To maximize transportation efficiency, a good balance between accessibility and mobility needs to be met. For example, a system of all high speed, limited access highways has high mobility (cars and buses can flow at high speeds), but a low accessibility (limited opportunities for shopping, visiting friends, and crossing the street on foot). Figure 0-2 shows the relationship between mobility and accessibility. Using a context-specific design, local planners can determine how best to mix accessibility and mobility for that particular area.

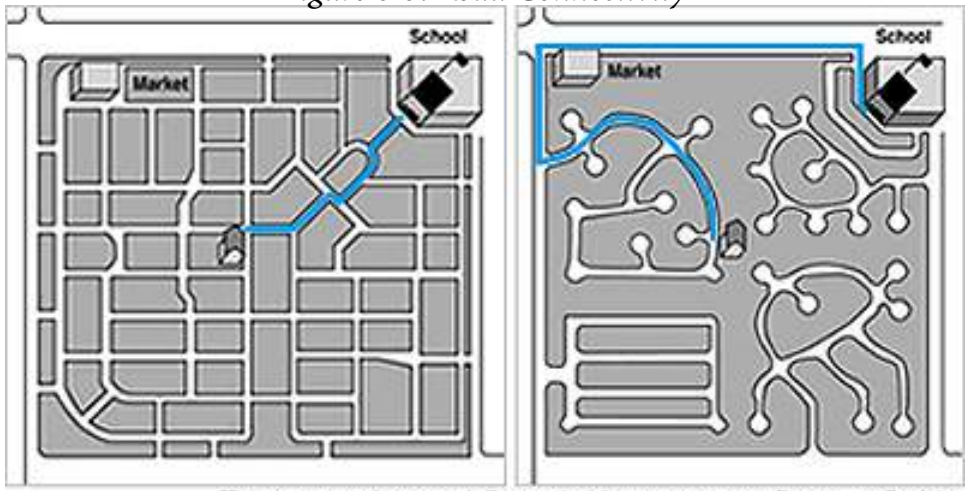
Figure 0-2: Relationship Between Accessibility and Mobility

Connectivity is about the location of people to the destinations. Connectivity means a system of streets with multiple routes and connections serving the same origins and destinations. An example of good connectivity is a traditional downtown grid system, and an

example of poor connectivity would be a deadend cul-de-sac.

Figure 0-3 shows how road design impacts connectivity. In this example, connectivity creates a pedestrian friendly street design by reducing the walking distance from the house to school, offering more route choices and more quiet local streets, and dispersing traffic.

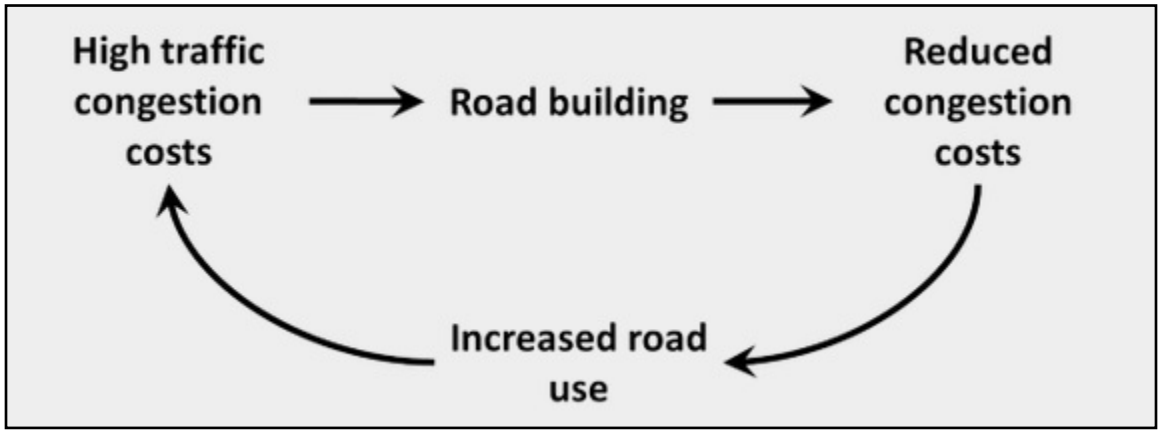
Figure 0-3: Road Connectivity



Induced Demand

Induced demand, or induced traffic, is a concept of supply and demand. It is a phenomenon that after new roads are built or roads are expanded to relieve congestion, more traffic is produced. Economists describe it as when there is an increase in the supply of the good, more of that good is consumed. This phenomenon is used to explain why adding capacity does not always solve congestion. Figure 0-4 shows the theory.

Figure 0-4: A Cyclical View of Traffic Congestion and Road Building (Induced Demand)



Plan Overview

1

INTRODUCTION | GOALS AND OBJECTIVES | FEDERAL & STATE LEGISLATION | PUBLIC INVOLVEMENT | ENVIRONMENTAL JUSTICE

Introduction

This Metropolitan and Regional Transportation Plan (M/RTP) is a compilation of coordinated city, county and state planning efforts for the Tri-Cities Urban Area and the Benton-Franklin region.

The Mid-Columbia region has experienced tremendous growth over the past two decades, with more expected to come. As new industries and jobs locate here, additional housing, schools, parks and health services will be needed to serve the growing populations needs, and with that, transportation infrastructure.

In order to provide efficient transportation options, new polices and methods will need to be developed to maintain accessibility and mobility with the added vehicles on our roadways. This will include reviewing our local land-use decisions (where people live and work), working with our large employers for potential commute mitigation efforts, and researching solutions for today and tomorrows transportation challenges. *Transition2040* is a plan for the public to understand regional transportation decision making, and to create a regional vision uniting the jurisdictions.

Transition2040 is BFCG's long-range, multi-modal planning document that will identify the mobility needs of the region through the year 2040. It provides a policy framework for the investments of anticipated federal, state and local funds, based on the needs of the region. Five identified Goals and Objectives, along with Performance Measures, will provide assistance in guiding local planners, transportation engineers, public works staff, elected officials, and stakeholders with solutions to regional transportation planning.

Every Metropolitan Planning Organization (MPO) in the United States is required to develop a Metropolitan Transportation Plan (MTP) to describe the region's policies, strategies and projects to achieve the identified vision. In Washington State, Regional Transportation Planning Organizations (RTPOs) are required to develop a Regional Transportation Plan (RTP). *Transition2040* is the official Long-Range Metropolitan/Regional Transportation Plan (M/RTP) for the Tri-Cities Metropolitan Area and the Benton-Franklin region.

BFCG History

The Benton-Franklin Council of Governments (BFCG) provides economic development, transportation planning and metropolitan planning for Benton and Franklin Counties in Washington State. The BFCG is a federally designated MPO, RTPO, and a Transportation Management Area (TMA) for the Tri-Cities metropolitan area. The BFCG is also the Economic Development District (EDD) for Benton and Franklin Counties.

BFCG, previously the Benton-Franklin Governmental Conference, was established as a voluntary association of the units of local government in the two-county region in 1966. The organization is structured under state law as a regional planning commission (RCW 36.70.060), a council of governments (RCW 36.64.080), and a RTPO (RCW 47.80.020).

In 1973, BFCG was federally designated as the MPO for the Tri-Cities,

and in 2003 the Urbanized Area boundary expanded to include a portion of Walla Walla County commonly known as Burbank. Then, in 2012, the MPO was designated a Transportation Management Area (TMA) by meeting the required 200,000 population threshold.

The Metropolitan Planning Area includes the urban area and a projected 20 year urbanized area. A Memorandum of Agreement between the Washington State Department of Transportation (WSDOT), BFCG, and the metropolitan transit agency, Ben Franklin Transit (BFT), defines the responsibilities for cooperatively carrying out transportation planning and programming in the metropolitan area.

Membership

The BFCG is comprised of 16 member jurisdictions:

MPO/RTPO Membership	RTPO Membership
Ben Franklin Transit	City of Mesa
City of Kennewick	City of Connell
City of Richland	City of Kahlotus
City of Pasco	City of Prosser
City of West Richland	
City of Benton City	
Franklin County	
Benton County	
Port of Pasco	
Port of Benton	
Port of Kennewick	
WSDOT- South Central	

What is a MPO?

MPOs are federally designated and federally funded planning organizations for metropolitan areas over 50,000 people. BFCG is the designated MPO for the Tri-Cities region. MPOs were introduced by the Federal-Aid Highway Act of 1962.

The purpose of an MPO is to:
"carry out a continuing, cooperative, and comprehensive performance-based multimodal transportation planning process, including the development of a metropolitan transportation plan and a TIP [Transportation Improvement Program], that encourages and promotes the safe and efficient development, management, and operation of surface transportation systems to serve the mobility needs of people and freight, fosters economic growth and development, and takes into consideration resiliency needs, while minimizing transportation-related fuel consumption and air pollution." (23CFR1.450)

What is a RTPO?

The BFCG serves as lead planning agency for the Benton-Franklin RTPO. RTPOs were created in 1990 as part of Washington State's Growth Management Act (GMA). RTPOs, much like MPOs on a metropolitan scale, serve as a mechanism for local governments and the state to coordinate planning for regional transportation facilities and services. Information regarding boundaries are available via the 2015 *Regional Boundaries and Transportation Funding Report*.

The duties of an RTPO include:

- Develop a Regional Transportation Plan (RTP) consistent with

countywide planning policies, local comprehensive plans, and state transportation plans.

- Certify that the transportation elements of local comprehensive plans are consistent with the adopted Regional Transportation Plan and conform to the requirements of the GMA.
- Develop a six-year Regional Transportation Improvement Program, which proposes regionally significant transportation projects and programs and transportation demand management strategies.

Figure 1-1 shows federal and state transportation planning requirements.

State Requirements For A Regional Transportation Plan (RTP)

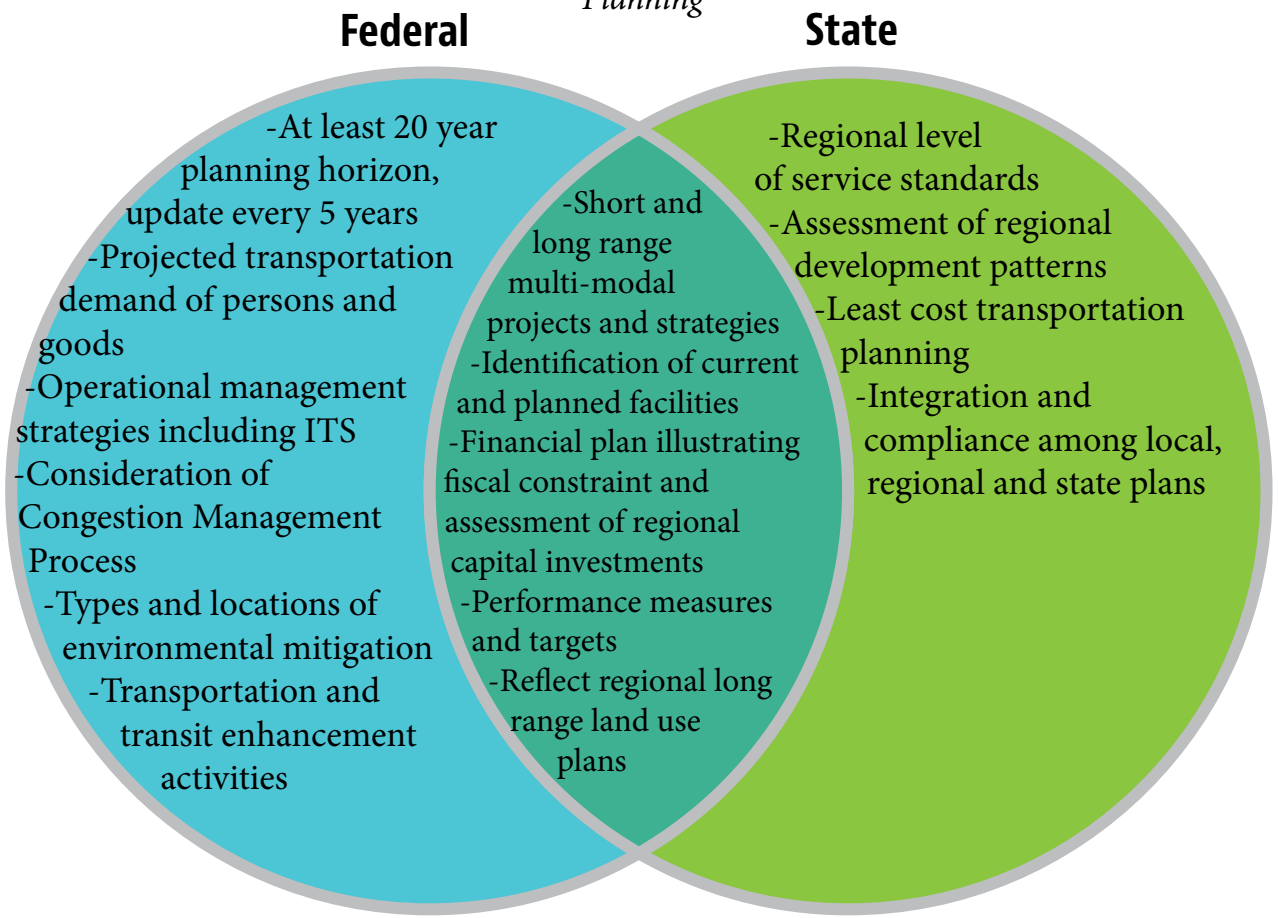
To satisfy GMA requirements for an RTP, *Transition2040* must include:

- Least cost planning methodology;
- Existing or planned transportation facilities, services, and programs;
- Level of service standards for state highways;
- A financial plan;
- Assessment of regional development patterns; and
- A regional transportation strategy.

Regional Level Of Service Standards

The Benton-Franklin Council of Governments adopted uniform urban and rural area Level of Service (LOS) standards for the two-county region. For urban areas over 5,000 in population the uniform LOS is "D". For rural areas and small cities under 5,000 in population the uniform LOS is "C".

Figure 1-1: Federal and State Requirement Comparison for Transportation Planning



Region Issues and Concerns

This is not a complete list or descriptions of the issues and concerns of the region, but it does contain several identified topics. To accompany this list, a SWOT analysis was formed (Figure 1-2). A SWOT analysis is a Strengths, Weaknesses, Opportunities, and Threats analysis. The list and SWOT analysis were created based on several sources, including the *Transition2040* Regional Transportation Survey in 2016, the Transportation Fair on September 7th, 2016, and the Washington State Transportation Commission visit on September 20th-21st, 2016.

Columbia River Crossing Study

In 2010, BFCG, in partnership with multiple local jurisdictions and agencies, participated in the *Columbia River Crossing Study*, with the objective of identifying alternatives to relieve congestion on the US 395 Bridge. As an outcome of the study, the initial list of ten alternative river crossings was narrowed to three. Next steps for the study will involve a formal environmental process to evaluate and compare the three alternatives.

Columbia-Snake River Dam System Breaching

In September 2016, the U.S. Army Corps of Engineers initiated a scoping process as the initial step of developing an environmental impact statement (EIS) on the Columbia River System operations. The breaching of the Columbia-Snake River dam system will be considered. The BFCG Board has gone on record (resolution) opposing any breaching of Columbia River System dams. BFCG submitted a comment requesting a full evaluation of transportation impacts of breaching as part of the EIS process.

All Weather Roads

Seasonal weight restrictions during freeze/thaw cycles of late winter and early spring impact delivery of farm commodities from scattered rural storage facilities to railheads and water ports.

Seasonal road closures affect a diverse group - growers, harvesters, shippers, distributors, and ultimately, consumers. *WTP (Washington Transportation Plan) 2035* includes a Recommended Action stating: "Help establish an all-weather transportation system, prioritizing investments that will minimize closures affecting agriculture, freight dependent industries, and tourism". Though endorsed at the State level, the seasonal closure issue remains unfunded in Olympia. The process of all-weather surfacing these vital freight routes is moving slowly becuase of the lack of adequate funds.

Regional Truck Freight Report

The Mid-Columbia region is growing. With that growth comes increased traffic and congestion, as well as increased need for efficient distribution services. Congestion affects freight as well as passenger transportation. The Regional Truck Freight system has yet to be analyzed by BFCG. The Regional Truck Freight Report could identify components of the bi-county street and road network with highest levels of general traffic as well as specific truck use. Corridors with highest traffic and truck use could be used to develop a prioritized project list to address identified needs.

Pedestrian and Bicycle Safety

Review of fifteen years (2001-2014) of collision data from Benton and Franklin Counties shows that the number of cyclists injured by cars annually has been increasing. Automobile-cyclist collision-related fatalities have been consistently very low during that same period. One fatality is too many. The same data sets show annual vehicle–pedestrian collision injuries have increased and alarmingly, so has the occurrence of automobile-pedestrian collision fatalities. BFCG could associate with ongoing safety initiatives and/or sponsor additional workshops in cooperation with partner jurisdictions and agencies.

Regional Connectivity and ADA

Traveling throughout the MPA can be difficult, with the rivers, highways, and other factors creating barriers to accessibility. People using wheelchairs, walkers, and others may have issues with an absence of a continuous, ADA (Americans with Disabilities Act) supporting sidewalk and infrastructure system. People with bicycles may have difficulty with the fragmented locations of bike facilities in the MPA.

Rapid Growth and Urban Sprawl

The low density land use creates accessibility issues. With people living further away to their places of employment, commuters rely on SOV travel, which increases the automobile traffic congestion. With sprawl, transit has a harder time creating reliable routes that serve a large amount of people. With pockets of commercial space, people have to rely more on automobile travel.

Figure 1-2: SWOT Analysis

Transition2040 Goals and Objectives

FAST Act

In December 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act, a transportation funding authorization act, into law. The FAST Act carried forward the transportation planning innovations originated in its predecessor, Moving Ahead for Progress (MAP-21), including the national planning goals and performance-based planning.

Transition2040 Goals and FAST Act Planning Factors

The current federal transportation act, The FAST Act, contains ten planning factors; MPOs are directed[1] to consider and implement projects, strategies and services that address the factors in the development of their MTP. Each *Transition2040* Goal has a list of planning factors it relates to. The following are FAST Act planning 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 the accessibility and mobility of people and for 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 resilience and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation;
10. Enhance travel and tourism

1 23 CFR 450.306 (b)

TRANSITION2040 GOALS & OBJECTIVES

1 Safety and Security

2 Preservation

3 Mobility & Accessibility

4 Freight Movement & Economic Vitality

5 Community & Environmental Sustainability

Goal 1 Safety and Security

To provide for and improve the safety and security of transportation users and the transportation system through design, operations, maintenance improvements and public information.

Safety is a nationwide, statewide, and local goal. Safety concerns deal with wide ranging aspects of the transportation system, from pollution, to automobile crashes, and to the public health benefits of active transportation.

Objectives

- To achieve a significant reduction in the rate and number of traffic fatalities and serious injuries on all public roads
- To increase the safety and security of the transportation system for motorized and non-motorized users

Federal Planning Factors

#2, #3

Goal 2 Preservation

To maintain, preserve and prolong the life and utility of prior investments in transportation systems and services.

Timely maintenance of street and bridge facilities is needed to protect current investments. Maintaining the system reduces the need for costly reconstruction projects later, and monitors life-cycle costs. *Transition2040* is the initial step in a data-driven effort to preserve existing facilities.

Objectives

- To maintain federal aid eligible infrastructure assets in a state of good repair
- To emphasize the preservation of the existing transportation network

Federal Planning Factors

#7, #8, #9

Goal 3 Mobility & Accessibility

To improve the predictable movement of and access to goods and people throughout the region, and improve quality of life.

The key difference between mobility and accessibility is that mobility focuses on movement, while accessibility focuses on connecting people and destinations. By focusing on both instead of one or the other, *Transition2040* aims to increase the inclusivity of the transportation system, for all people and all modes.

Objectives

- To achieve a significant reduction in congestion on the regional system
- To provide the region with equitable, multi-modal access to employment, areas of need, and interest
- To implement projects that engage active, healthy communities

Federal Planning Factors

#1, #4, #6, #9, #10

Goal 4 Freight Movement & Economic Vitality

To promote and develop transportation systems that stimulate, support and enhance the movement of people and goods to ensure a prosperous economy.

In both the rural and urban areas, freight movement is an important part of economic development and vitality, from goods produced or processed in, delivered to, or passing through the region.

Objectives

- To maintain and improve the efficiency of the regional freight network
- To support access for identified essential freight facilities within the region, strengthen the ability of rural communities to access national and international trade markets
- To support regional economic development

Federal Planning Factors

#1, #4, #6, #10

Goal 5 Community & Environmental Sustainability

To make transportation decisions that protect the environment, promote sustainable development, and coordinate regional/ community stakeholders.

A regional overlook aims to address the environmental and social impacts of transportation planning across the different jurisdictions, agencies, and departments.

Objectives

- To increase alternative transportation trips and options
- To encourage compatible land uses and minimize air, land, noise, and visual pollution
- To encourage sustainable development by linking transportation and land use planning

Federal Planning Factors

#5, #9

Performance Measures and Metrics

	Performance Measures	Performance Metrics
Safety & Security	• Rate of traffic fatalities per 100 million vehicle miles travel on all public roads • Rate of serious traffic injuries per 100 million vehicle miles traveled on all public roads • Number of traffic fatalities on all public roads • Number of serious traffic injuries on all public roads • Number of non-motorized fatalities and non-motorized serious injuries • Ben Franklin Transit incidents as reported to the National Transit Database	*Pending Finalized Rules*
Preservation	• Pavement conditions on federal aid eligible infrastructure assets • Bridge conditions on federal aid eligible infrastructure assets	*Pending Finalized Rules*
Mobility & Accessibility	• Travel time delay and traffic volume trends on CMP corridors • Jobs and housing within ½ mile distance of frequent transit services • Share of households within ½ mile to community resources (Consider: education, food, places to be active, and healthcare) • Increase pedestrian and bicycle facilities in the region • Fill network gaps in existing bicycle and pedestrian facilities • Sidewalk connections to transit locations • Bicycle accommodations to/near/at transit locations • Percentage of income spent on housing and transportation by moderate-income and low-income residents (H+T Index) • Number of new or reconstructed ADA improvements	*Pending Finalized Rules*
Freight Movement & Economic Vitality	• Improvements on critical transportation links that connect to the Washington State Economic Corridors • Increase all-weather road mileage • Measure Truck AADT • Measure rural road closures by miles affected, and the length of closure due to weather related weight restrictions	*Pending Finalized Rules*
Community & Environmental Sustainability	• Use of Travel Demand Management strategies that are implemented in the region • Transit utilization – fixed route service, park and ride usage, Vanpools, and other services • Rates of SOV to HOV use, of non-motorized travel, and transit	*Pending Finalized Rules*

Federal & State Legislation

National Planning Goals and Performance-Based Planning

23 U.S.C. Section 150: National Goals And Performance Management Measures states "Performance management will transform the Federal-aid highway program and provide a means to the most efficient investment of Federal transportation funds by refocusing on national transportation goals, increasing the accountability and transparency of the Federal-aid highway program, and improving project decision making through performance-based planning and programming."

Section 150 follows "It is in the interest of the United States to focus the Federal-aid highway program on the following national goals" as it directs the Secretary of Transportation to "promulgate a rulemaking that establishes performance measures and standards." The seven national planning goals listed below precede and are directly linked to the performance measures.

National Planning Goals:

1. Safety — To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
2. Infrastructure condition — To maintain the highway infrastructure asset system in a state of good repair.
3. Congestion reduction — To achieve a significant reduction in congestion on the National Highway System.
4. System reliability — To improve the efficiency of the surface transportation system.
5. Freight movement and economic vitality — To improve the National Highway Freight Network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. Environmental sustainability — To enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. Reduced project delivery delays — To 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.

Appendix A page 6 compares the national planning goals to those adopted with *Transition2040.*

State Transportation System Policy Goals

The transportation system policy goals are established by the Washington State Legislature (RCW 47.04.280) for the Washington State Department of Transportation. The six established policy goals for the transportation system should guide public investment in transportation, as well as provide a basis for objectives and performance measures. The goals are: economic vitality, preservation, safety, mobility, environment, and stewardship.

RCW 47.04.280:

(a) Economic vitality: To promote and develop transportation systems that stimulate, support, and enhance the movement of

people and goods to ensure a prosperous economy;
(b) Preservation: To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services;
(c) Safety: To provide for and improve the safety and security of transportation customers and the transportation system;
(d) Mobility: To improve the predictable movement of goods and people throughout Washington state, including congestion relief and improved freight mobility;
(e) Environment: To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment; and
(f) Stewardship: To continuously improve the quality, effectiveness, and efficiency of the transportation system.

Public Involvement

Public involvement and outreach were key during the development of *Transition2040*. Outreach began in early 2016, and was designed to build upon, and to create new diverse relationships among partner agencies, enhance the understanding of regional transportation planning, and increase participation from the public.

BFCG's *Public Participation Plan*, adopted in April 2015, outlines the public outreach and review process the agency must follow in accordance with the development of the M-RTP. These include a variety of notification and participation techniques and methods to encourage early and continuous involvement of the community, agencies, and stakeholders.

Transportation Fair

The first public input session, the Transportation Fair, was held on September 7th, 2016, and covered the *2017 Transportation Improvement Program (TIP)* and *Transition2040*.

The Transportation Fair was held at the Tri-Cities Business & Visitor Center, and was co-hosted by Ben Franklin Transit and the Tri-Cities Regional Chamber of Commerce. BFCG staff and local agency representatives were on hand to provide one-on-one contact.

BFCG staff facilitated discussions between local jurisdictions and members of the public at the Transportation Fair.

Winter 2016
- Announcement of the plan to BFCG members and stakeholders

Spring 2016
- Development of Transition2040 informational brochure

Summer 2016
- Regional Transportation Survey shared via website/social media

Fall 2016
- Regional Transportation Fair

Winter 2017
- Outreach and presentations to regional agencies, city councils and community organizations

Spring 2017
- Plan Adoption

Display ads announcing the Transportation Fair were published twice in tu Decides, a weekly bi-lingual newspaper. Notices were also published in the BFCG newsletter and postcards were mailed or delivered directly to federal and state agencies, regional jurisdictions, and organizations and individuals known to have interest. Post cards were also dropped off at coffee shops, bookstores, and other places of community interest in the Tri-Cities.

The event also appeared on a KEPR (a local news station) news segment, and an article appeared on KVEW-TV, both featuring an interview with a BFCG staff member.

BFT advertised on buses and bus transfer centers, and the Tri-Cities Regional Chamber of Commerce advertised to their members.

Additionally, BFCG social media was utilized for promoting the Transportation Fair. Posts were made on Facebook, Twitter and Linkedin via the BFCG page and shared on other agency pages as well.

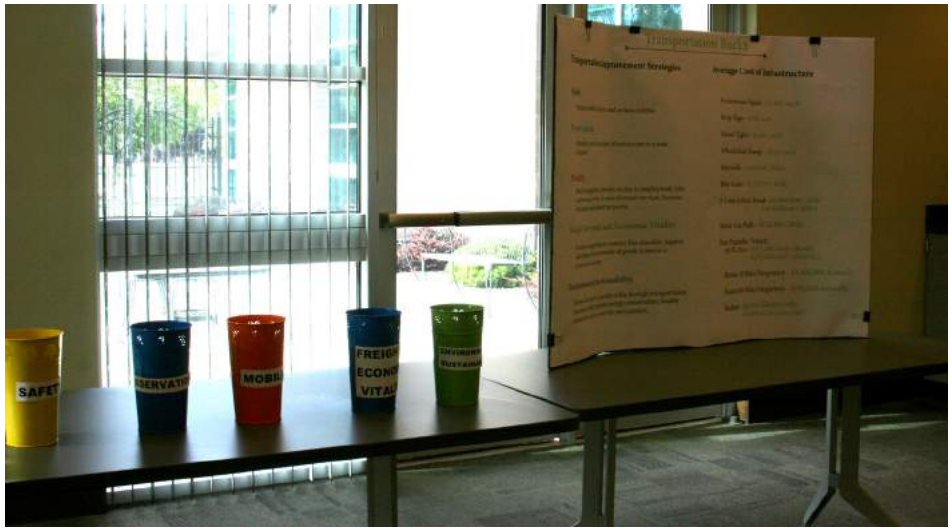
More than 30 attendants signed in, and 38 participated in the Transportation Buck$ game.

Transportation Fair Activities

Attendees at the fair were given the opportunity to play "Transportation Buck$". Fairgoers were given six Transportation Buck$, each representing $50,000, and asked to apply them towards five distinct transportation-related focus areas:

- **Mobility**: Reduce congestion, provide access to employment, jobs and housing within ¼ mile of transit services, increase bike lanes, and pedestrian access
- **Freight Movement & Economic Vitality:** Promote transportation systems that stimulate, support and enhance the movement of goods to ensure a prosperous economy.
- **Safety**: Reduce traffic fatalities and serious injuries
- **Preservation:** Maintain transportation infrastructure in a state of repair
- **Environmental Sustainability:** Enhance the regions quality of life through transportation investments that promote energy conservation, healthy communities and protect the environment.

Five small buckets - each labeled with a focus area- received the Buck$, while boards to the side of the voting table showed example projects



Transportation Buck$ Station-- Participants read the descriptions of the five focus areas, and sample project costs. Then they voted by placing their five Buck$ into the corresponding buckets.

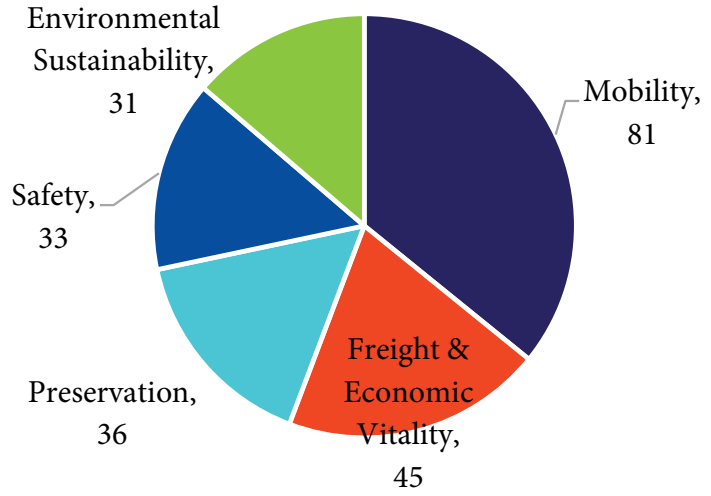
from each focus area and associated costs (ie. the average cost of 1 mile of sidewalk).

The game was both a source of public input for BFCG, as well as an activity to help the public understand the challenging exercise of funding various transportation projects with limited funds.

Figure 1-3 displays the Transportation Buck$ results. Mobility received more than a third of the Transportation Buck$. The advertisements and the partnership with certain organizations might have affected who attended the event. Participants did not have a wide range when it came to age.

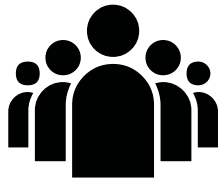
The other public engagement activity at the Fair was a series of questions in the entryway to the event. Each question was paired with a paper board, and participants were invited to answer the questions with words, sentences, or drawings. The results are shown in Appendix A page 7.

Figure 1-3: Transportation Buck$ Results (Number of $50,000 Bucks)

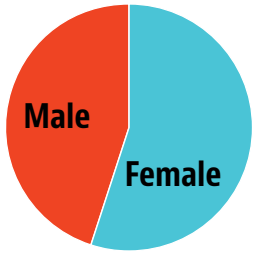


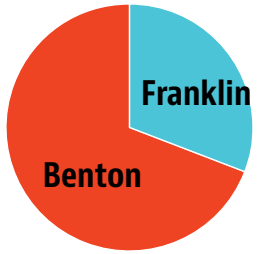
2016 Regional Transportation Survey

The 2016 Regional Transportation Survey provided essential public input for *Transition2040*. Available in English and Spanish, the survey could be taken from May through September, online through Survey Monkey or on paper. The survey garnered over 600 responses. BFCG authored the study with questions specific to this area.



603 Responses





BFCG advertised on social media, through partners, and at outreach events. Paper surveys were available at the Transportation Fair, and at the Farmer's Market outreach events.

For the Benton-Franklin region, this number is a statistically significant sample size. The survey asked several socio-economic questions to determine whether the survey had Selection Bias, and none were apparent. The commute mode choice (ex. drive alone, take transit, bike, etc) as well as the other factors align with Census data on the population. Based on this level of analysis, the BFCG considers these

data valid.

After the socio-economic information, the survey asked about transportation system performance and investment strategies. It asked: how well the transportation system works, what obstacles or barriers they see, what they are concerned about, and where they think investment should be made.

To the question "How well does the transportation system work for you," about a third said the transportation system doesn't work well, and two thirds said it worked well or very well.

How well does the transportation system work for you?

The top two concerns dealt with walkability – 86% concerned with pedestrian safety, and 80% with the lack of sidewalks. Then there was urban sprawl and rapid growth. At 75%, people were concerned about the lack of bicycle lanes, and 71% with lack of transit.

For investment, respondents remarked public transportation, pedestrian access and sidewalks, and bicycle access and lanes as the top 3.

A full report on the survey and results can be found on the BFCG website.

Which Concerns You?

86% Pedestrian Safety

78% Rapid Growth

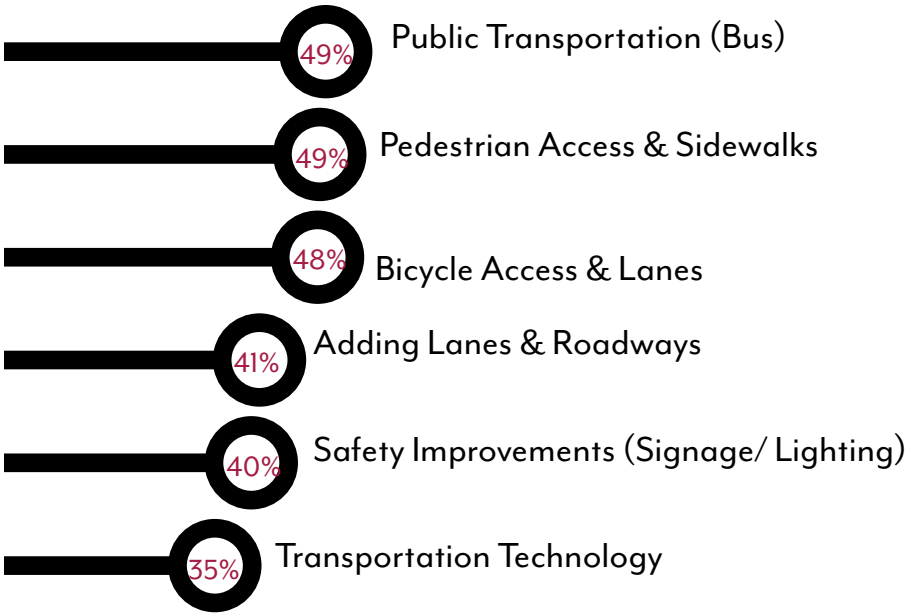
80% Lack of Sidewalks

75% Lack of Bicycle Lanes

79% Urban Sprawl

71% Lack of Transit

Where Should Investment Occur? (Could select up to 3)



Farmer's Markets

BFCG had outreach tables at the Richland Farmer's Market on August 26th, 2016, and at the Pasco Farmer's Market on August 27th, 2016. Staff advertised for the upcoming Transportation Fair, had the 2016 Regional Transportation Survey available, and provided general information about BFCG.

BFCG Transportation staff at the Richland Farmer's Market.

Membership Outreach

From February to mid-March 2017, BFCG staff presented at 13 council and commission meetings, as requested by the BFCG Board. Staff spoke for 10-20 minutes with time for questions.

These appearances allowed the staff to quickly describe the varying processes, frequency and requirements associated with the state and federal designations the agency holds. The purpose was to provide the BFCG membership a greater understanding of how the BFCG can assist upon individual or regional development efforts.

Other Events

BFCG was invited to present at the Tri-Cities Hispanic Chamber of Commerce, and three Rotary clubs:

- Tri-City Sunrise Rotary - December 2nd, 2016
- Tri-Cities Hispanic Chamber of Commerce - January 7th, 2017
- Columbia Center Rotary - February 9th, 2017
- Riverside Rotary - February 13th, 2017

The presentations ranged from five minutes to half an hour. BFCG staff started with background information about the BFCG and metropolitan/ regional transportation planning, and then onto *Transition2040*, with emphasis on the 2016 Regional Transportation Survey Results. Each presentation had time for questions and answers. Comment cards were available, and draft chapters, infographics, and other materials were located on a BFCG table.

Open Houses

BFCG held two public open houses for *Transition2040*, one in each county. The first open house was held in Kennewick on Thursday, March 23rd, from 4-7pm, at the Kennewick Mid-Columbia Library. The second open house was held in Pasco on the following Tuesday, March 28th, from 4-7pm, at the Pasco Mid-Columbia Library.

16 attendees signed into the Kennewick open house, and 12 signed into the Pasco open House.

After attendees signed in at station one, where BFCG Annual Reports, staff business cards, and comment cards were placed for the taking, they were guided to following stations. The structure of the open houses followed *Transition2040*'s structure.

Stations represented one or multiple chapters in *Transition2040*. Stations included:

1. Information
2. About our Region
3. Measuring Success
4. Transportation Costs
5. The Future
6. Where Do We Go From Here?

BFCG staff prepared numerous maps and other graphics to accompany each table, and were available at each station for public interaction. *Transition2040*, as well as each chapter, were printed and bound for the open houses.

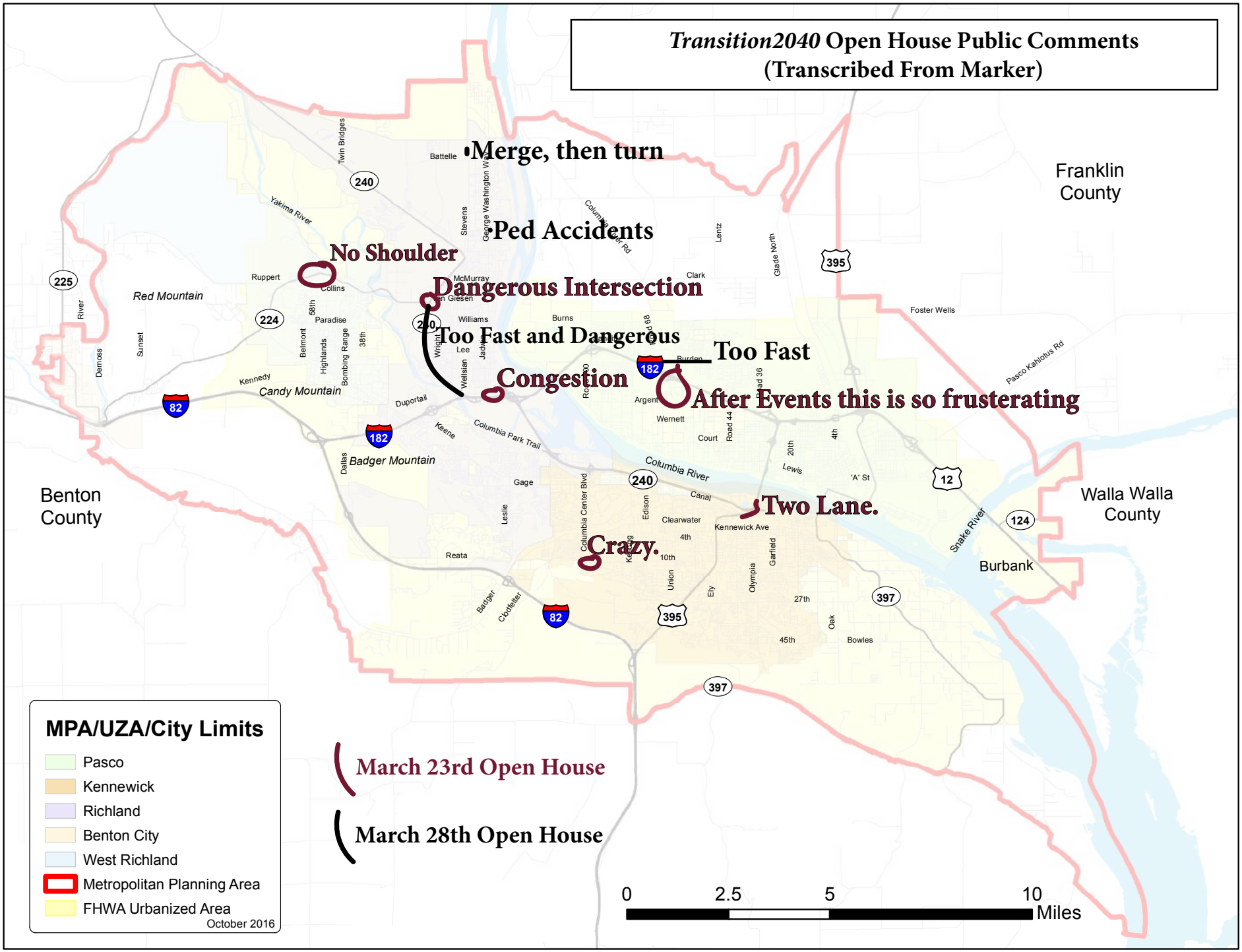
To accompany station 5, "The Future," BFCG provided a list of submitted projects by jurisdiction for the years 2017-2025, each with a description, estimated cost and start year.

For table 6, "Where Do We Go From Here?", BFCG provided a large Tri-Cities map and prompted participants to write directly on the map where they had transportation issues (see Figure 1-4 for transcribed copies of the maps).

Flyers, postcards, and other materials relevant to the Open Houses, and other outreach efforts, can be found in "Appendix A: Plan Overview".

BFCG Staff used stations equipped with visuals to showcase and elicit comments about Transition2040 at the Open House in Kennewick, on March 23rd.

Figure 1-4: Open House Public Comments



Environmental Justice

Transportation Decisions to Support the Community

Transition2040 was developed with accessibility and mobility for all people in mind. Improving access to goods, services and jobs with an emphasis on an effective and efficient transportation system. Planning for users of our transit, pedestrian, bicycle and trail systems along with vehicles provides benefits and services that can meet the needs of all individuals in our community.

Transition2040 and Environmental Justice

Planning must be done with involvement with and for the benefit of all of the region's residents. BFCG is guided by the Federal Title VI and Environmental Justice mandates to create a transparent and inclusive planning process. During the development and approval process for *Transition2040*, BFCG took special care to ensure that concerns from all of our region's residents were collected to properly address accessibility and mobility for all transportation users.

> "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."
>
> 42 U.S. Code § 2000d

Executive Order 12898, issued by President Clinton in 1994 is titled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations". This order, rooted in Title VI of the Civil Rights Act of 1964 which prohibits discrimination based upon race, color and national origin, was a response to concerns that low-income or minority populations bear a disproportionate amount of health and environmental impacts of public projects, and do not receive the same benefits.

The United States Department of Transportation issued an update to Order 5610.2(a): (Actions to Address Environmental Justice in Minority Populations and Low-Income Populations). This updated the department's original Environmental Justice Order, which was published April 15, 1997. It provided guidelines for how environmental justice analysis should be performed and how environmental justice should be incorporated into the transportation decision-making process.

BFCG complies with federal and state requirements through implementation of the *Title VI Plan*, adopted in July 2014.

Human Service Transportation Planning

The BFCG develops the biennial Coordinated Public Transit-Human Services Transportation Plan (HSTP). The HSTP helps to provide access to mobility for transportation disadvantaged through linking providers to funding sources.

Understanding this Plan

Plan Development

The plan was developed through a number of stages. The development diagram on the next page provides a basic understanding of the planning process, including the model development and the 5 year update.

Plan Overview

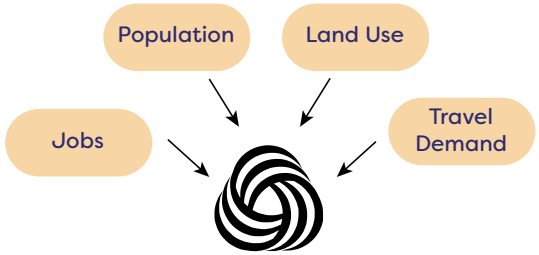
The plan is comprised of seven chapters. Each of the chapters will provide information to increase the understanding of the context in which transportation planning is conducted. Various maps, illustrations and tables are utilized to enhance the reading experience.

The glossary and acronym list will provide a helpful guide to the following chapters.

Each chapter has its own Appendix. Any additional information may be obtained through the BFCG.

State and Local Agency Consultation

1. Develop regional Goals & Objectives
2. Data collection and analysis

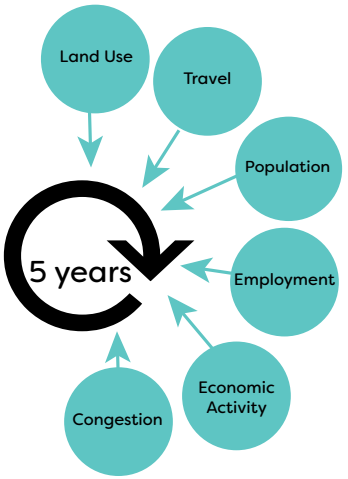


3. Regional forecast - Travel Model

4. Prepare financial plan — Future Demand

Public Review and Comment

5. Prepare regional project list
6. Draft review
7. Plan adopted



8. Plan update every 5 years

2

Regional Profile

REGIONAL GEOGRAPHIES | REGIONAL CHARACTERISTICS | ENVIRONMENT & NATURAL RESOURCES

Introduction

The purpose of the Regional Profile is to provide readers with an understanding of the region's physical layout, human characteristics, and the interaction with the natural environment. This information is important, among many things, to understand when factoring in how to plan for current and future needs.

This profile will provide current information about the BFCG region for planning and outreach efforts, and to inform policy decisions.

The regional profile can be utilized for a variety of purposes including:

- Data and resources for elected officials, businesses and residents
- Community planning and outreach
- Economic development and community visioning efforts
- Performance monitoring

The Regional Profile is broken down into three sections: Regional Geographies, Regional Characteristics, and Environment & Natural Resources.

The Mid-Columbia Basin is historically an agricultural hub and flourishing healthcare, technology and research center in Southeastern Washington. It includes Benton and Franklin counties with 15 cities and towns covering an area of almost 3,000 square miles.

As of 2015, the region is home to over 275,000 residents, and the fourth largest metropolitan area in terms of population in Washington State.

The following pages will provide information about the region that was developed by the Benton-Franklin Council of Governments and partners.

We Answered:

What are the Regional Characteristics?

275,000 People in the Metro Area

3.35 Average Household Size

63,133 Median Income

What are the Natural Resources and Environment?

240 Acres as National Natural Landmark

133 Square Miles in the Metro Area

Who and to Where are Workers Commuting?

20,000 Workers Commuting into their workplace from the Northwest

90,832 Workers 16 and Above

Regional Geographies

BFCG conducts transportation planning for a region that covers over 3,000 square miles. Providing accessibility throughout a region with rivers, mountain ridges, plateaus, and basins and valleys, requires coordinated planning efforts. While the natural geography may provide for beautiful scenery, it can create accessibility constraints for many in the community. The way in which we travel is one of the most important activities that takes place. It plays a major role in the economy, by supporting the access to healthcare, education, recreational opportunities, places of business, and homes.

Land-use and transportation planning decisions must be made in a coordinated and strategic manner. The design and construction of new roads, sidewalks, bike routes and pathways has an increasingly important impact on our community character. Improving the region's integration of land-use and transportation planning can also help to reduce the costs and burden associated with additional public infrastructure such as roadways, electricity and water facilities. This chapter helps to provide an understanding of the diverse landscape.

The BFCG region utilizes various geographic boundaries and terms for transportation planning and funding (Table 2-1). Terms specific to the FHWA and the FTA are in Table 2-2.

Table 2-1: FHWA & Census Geographic Boundaries and Terms

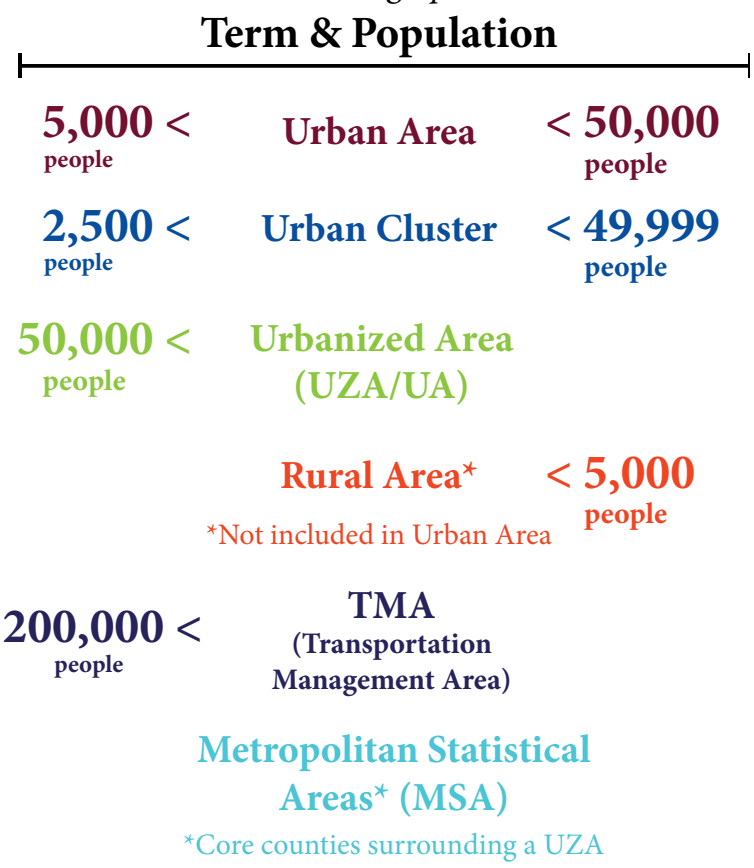


Table 2-2: FHWA and FTA Geographic Planning Terms

Metropolitan Planning Organization (MPO)	The designated local decision-making body that is responsible for carrying out the metropolitan transportation planning process. Every UZA must be represented by an MPO (23 USC 134 (b) and 49 USC 5303(c)
Transportation Management Area (TMA)	A UZA with a population over 200,000, designated by the Secretary of Transportation. (The Tri-Cities UZA was officially designated a TMA in July, 2012.)
Metropolitan Planning Area (MPA)	The boundary in which the metropolitan transportation planning process must be carried out. The MPA must encompass the UZA and the contiguous geographic area(s) likely to become urbanized within the next twenty years. In some cases, the MPA encompasses the entire Metropolitan Statistical Area or combined statistical area (CSA), as defined the OMB (23 CFR 450.104). The current MPA and Urbanized boundary for the Tri-Cities area was adopted by the BFCG Board in September, 2013

Figure 2-1: BFCG Region in Washington

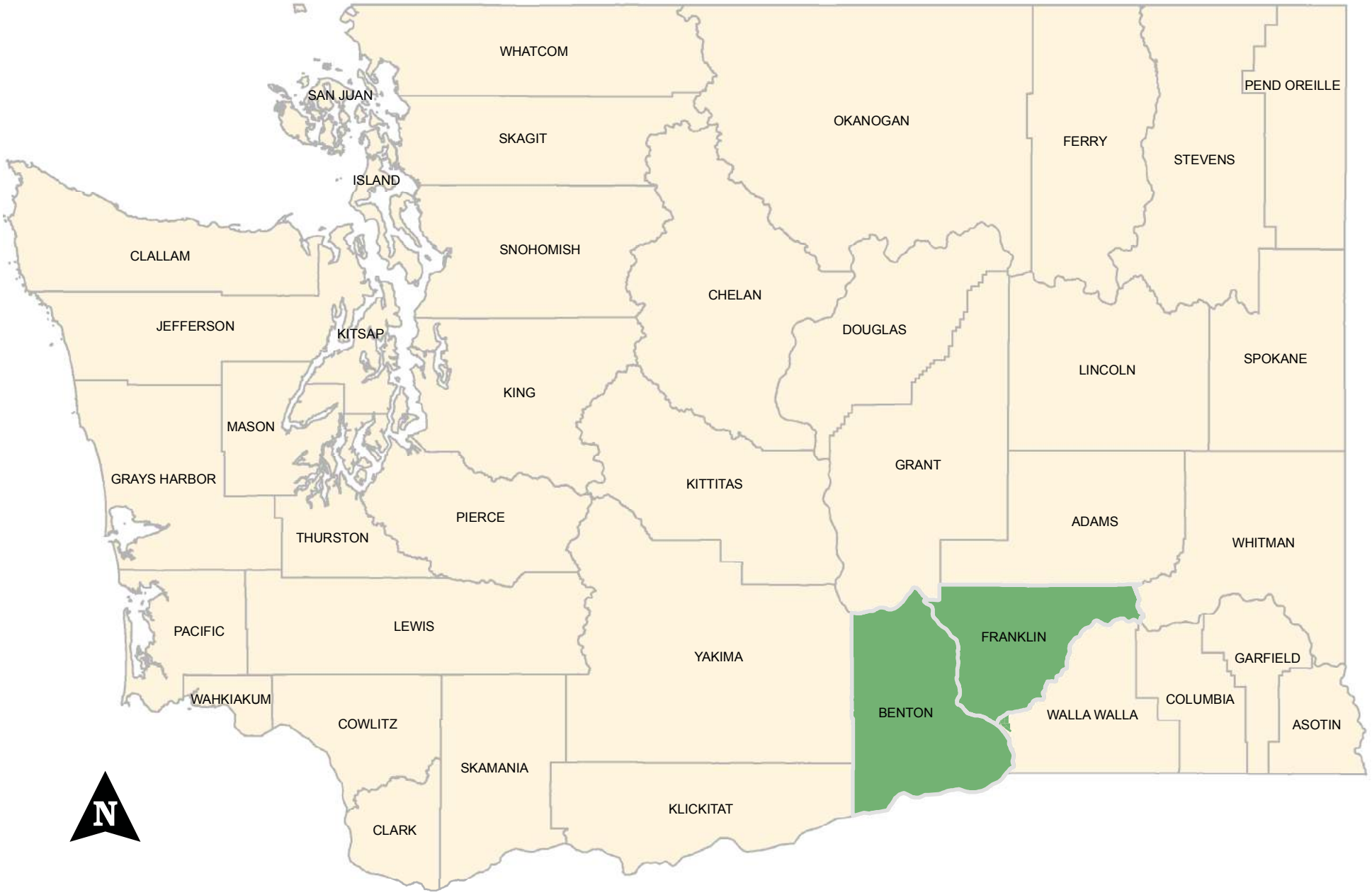


Figure 2-2: Regional Boundaries

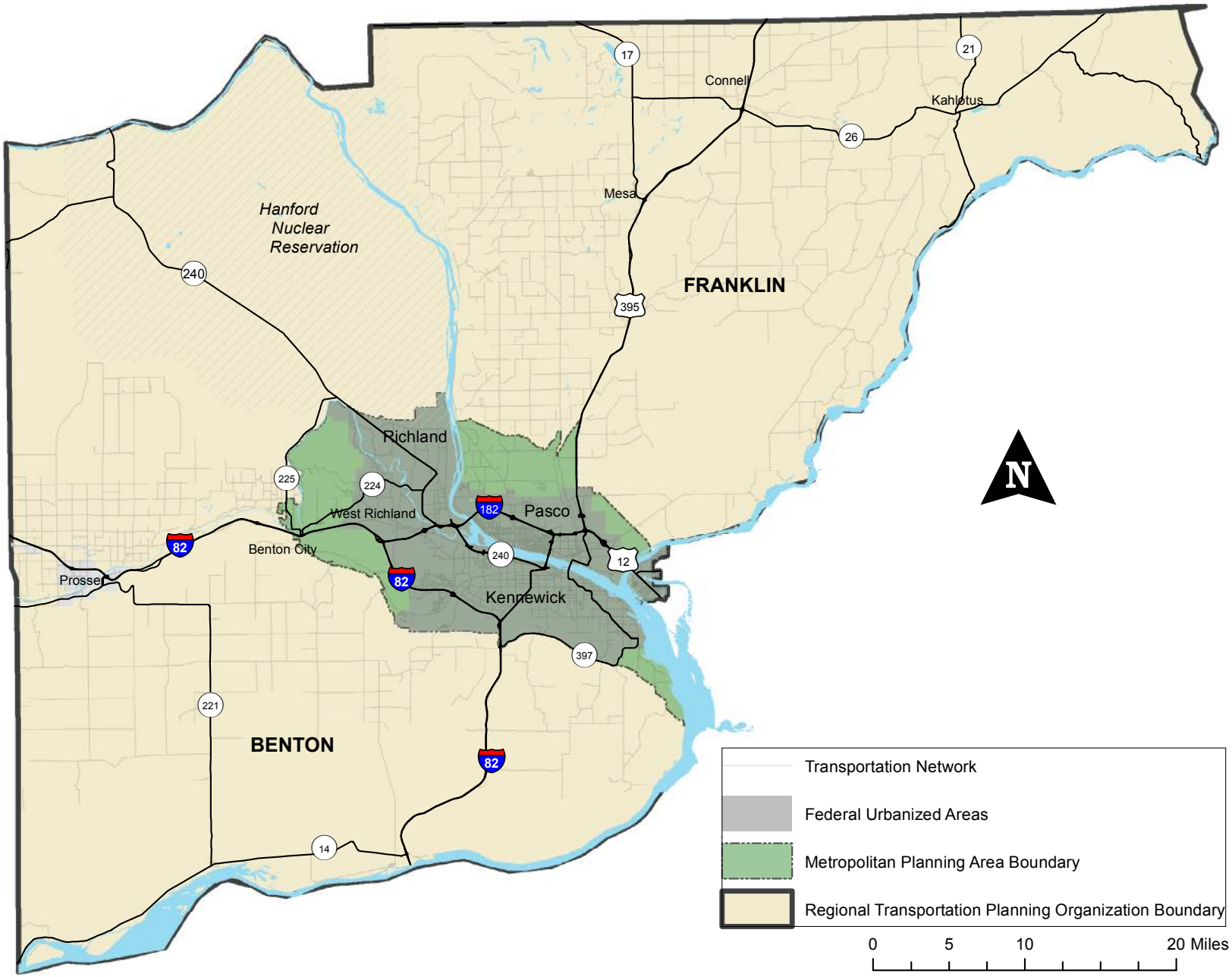
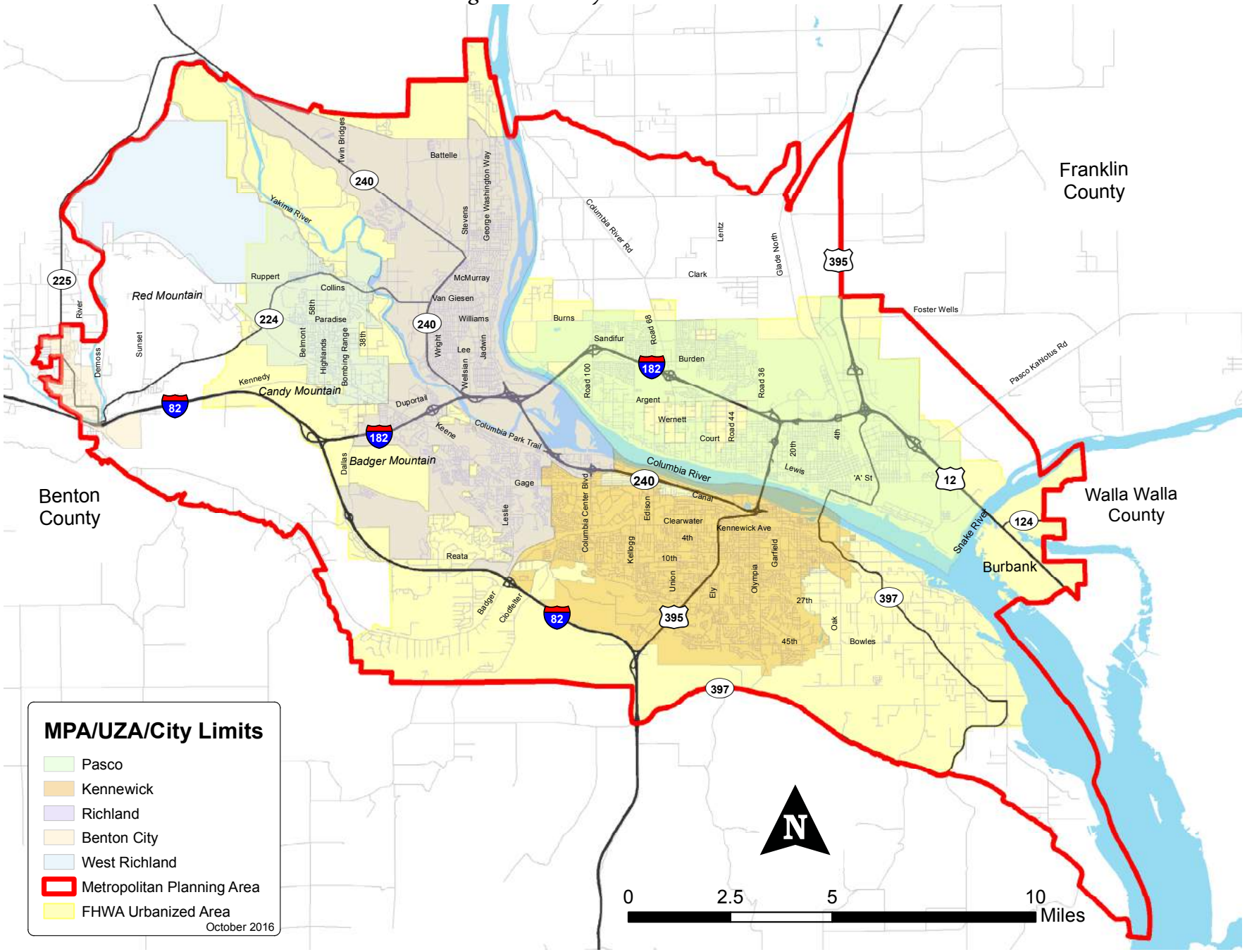


Figure 2-3: City Limits in the MPA



Metropolitan Planning Area

Five Cities, 133 Sq Miles, Population Density: 1,577 (people per sq mi)
Cities within the Metropolitan Planning Area (MPA) boundary encompass the urbanized area and the adjoining geographic areas likely to become urbanized within the next 20 years. The cities are intended to accommodate a significant portion of future regional growth. Local comprehensive plans call for the cities to accommodate 79% of the regional population growth by the year 2040. The cities contain key centers for employment, civic, cultural and recreational attractions. Major employers and higher education institutions continue to attract additional growth to the area.

Cities in the MPA

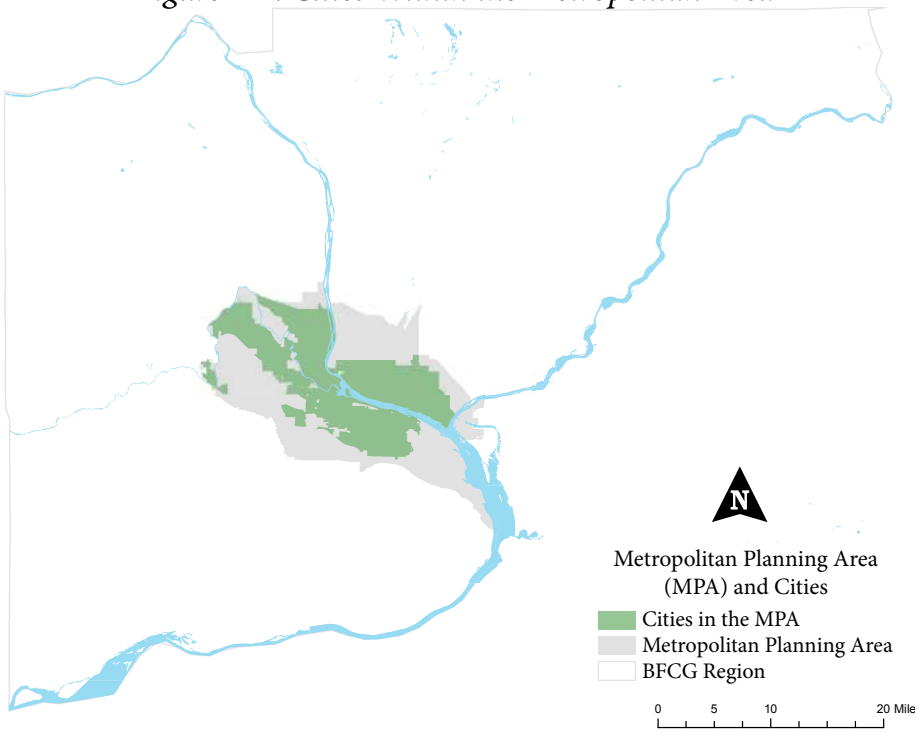
Kennewick, Pasco, Richland, West Richland
The cities within the contiguous Urbanized Area share boundaries. These cities will receive most of the region's growth due to their location within the MPA. Access to the region's transit stations, park-and-ride facilities and other transportation connections help to serve the growing residential population and employment.

Benton City, Unincorporated Walla Walla County[1]
Benton City is a small city not contiguous with the other four. Burbank, on the eastern edge of the MPA, is a small portion of unincorporated Walla Walla County within the boundary. These areas have small residential populations and are not expected to capture much of the growth. They provide access to housing choices and employment centers within the metropolitan area. Unincorporated portions within the Urbanized Area may experience small incremental growth.

Table 2-3: Population by City in the MPA, Current and Projected

City	2015 Population	2040 Population
Kennewick	78,290	117,175
Richland	53,080	85,340
West Richland	13,960	23,139
Benton City	3,285	6,584
Pasco	68,240	116,461
Burbank	3,216	3,216
Total	**220,071**	**351,915**

Figure 2-4: Cities Within the Metropolitan Area



1 A small part of unincorporated Walla Walla county, commonly known as Burbank, is part of the MPA.

Small and Rural Cities

Four Cities, 15 Square Miles, Population Density: 819 (people per sq mi)

The region's small and rural cities are located outside of the Metropolitan Planning Area and are expected to grow at a slower rate, accommodating 5% of the projected population growth by year 2040. These small and rural cities provide local access to jobs, housing, cultural and civic activities. These communities are situated away from the metropolitan area, at an average distance of over 30 miles.

Table 2-4: Population Breakdown by City Outside of the MPA, Current and Projected

City	2015 Population	2040 Population
Mesa	495	977
Connell	5,365	11,565
Kahlotus	185	488
Prosser	5,845	8,718
Total	**11,890**	**21,748**

Small Urban Areas

Connell[1], Prosser

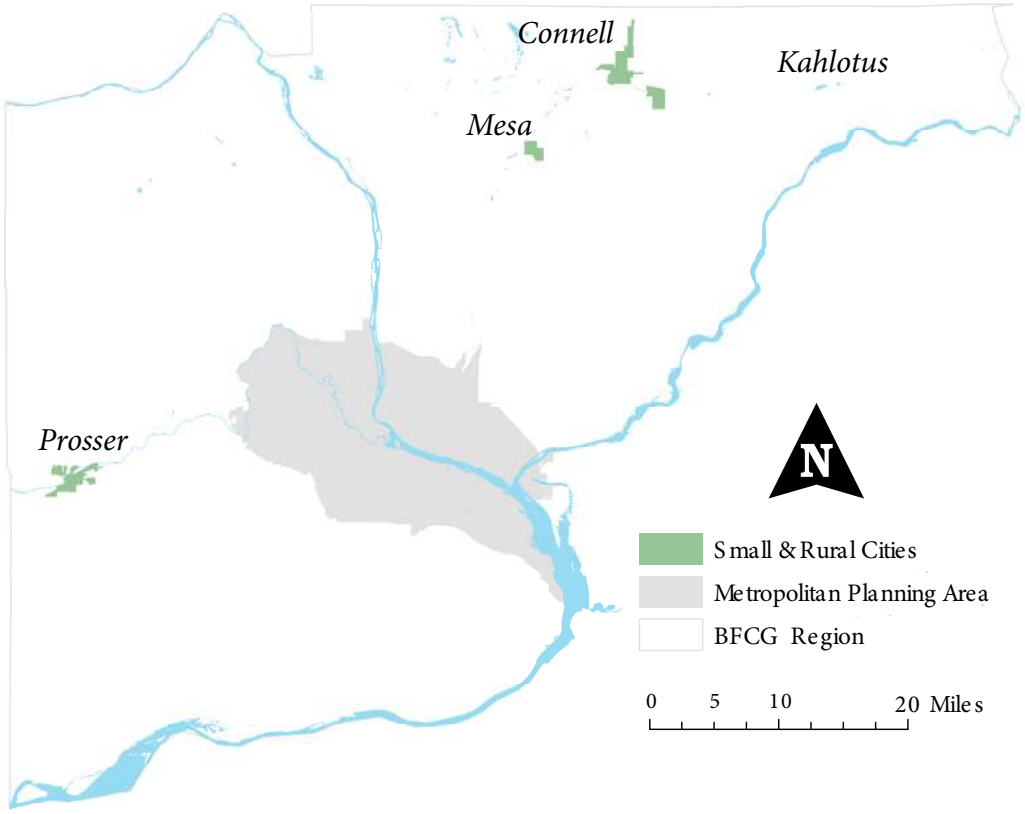
Small Urban Areas have populations over 5,000 but less than 50,000. While surrounded by rural, unincorporated and natural resource lands they serve as small hubs for housing, jobs and health services. Connell, with a 2010 population of 4,209, is expected to be designated as an Small Urban Area in the 2020 census.

Rural Areas

Kahlotus, Mesa

The rural cities have populations less than 5,000, and like small urban areas, serve as small hubs for housing, jobs and health services.

Figure 2-5: Small and Rural Cities



1 Connell is expected to be designated as an Small Urban Area in the 2020 Census due to its residential population exceeding 5,000.

Unincorporated Areas

2,870 Square Miles, Population Density: 1.049 (people per sq mi)

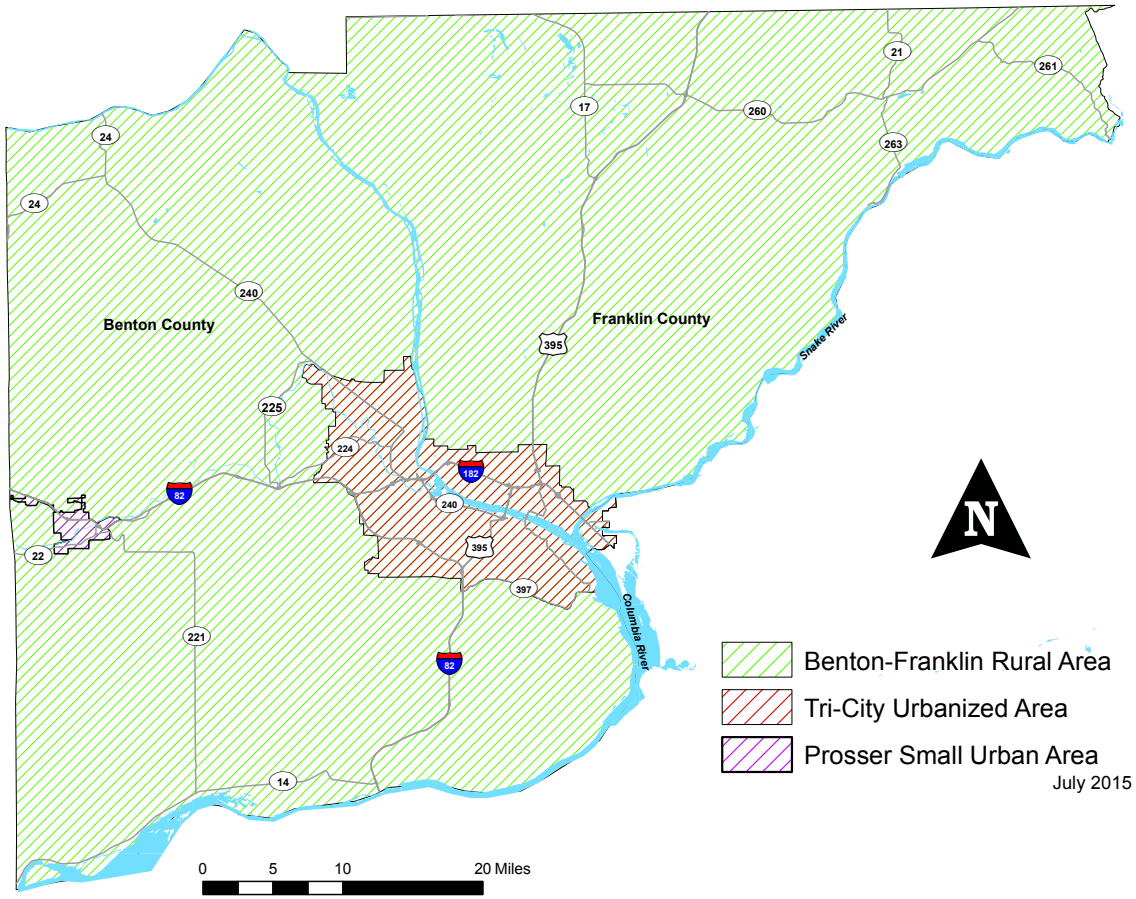
By far, the largest amount of land area is unincorporated county lands, outside of the metropolitan area, urban areas, small town and rural areas. This represents over 90% of land in the two-county area. These areas are sparsely populated and projected to attract only 16% of anticipated future growth through the year 2040.

This land will fill predominantly agricultural, farming, and recreation needs and will be supported by rural service levels. These areas are typically connected to the region's urban and metropolitan areas via county roads. They will likely retain community, cultural, economic, and rural lifestyle characteristics through the forecasted growth year of 2040.

Table 2-5: Population Breakdown by Unincorporated County, Current and Projected

	Unincorporated	
County	**2015 Population**	**2040 Population**
Benton County	34,130	55,212
Franklin County	12,065	19,548
Total	**46,195**	**74,760**

Figure 2-6: Benton and Franklin County Rural Areas



Regional Characteristics

Regional Statistics Summary

The BFCG region is composed of various city geographies and sizes. Providing exact and comparable data about a region as a whole can be difficult, however, we are able to utilize estimates from the American Community Survey (ACS) to generate an overall picture. Table 2-6 provides regional statistics for various categories.

Data Highlights:

- Region has a higher average household size than Washington State (3.35 vs 2.63)
- Region has low transit ridership levels, with more than 67% of households have access to two or more vehicles
- Median Income for the region is higher than Washington State average ($63,133 vs $53,482)
- 27% of the region's population is enrolled in a school program (Elementary – College)

Regional Employment

Regional employment is anchored in research and development, technology, manufacturing, agricultural and healthcare services (Appendix B page 26). Table 2-6 provides select worker statistics. Top employers in the region give some indication of the traffic patterns, especially during peak hours (Figure 2-7).

OnTheMap, a Census Bureau mapping tool, analyzes employment migration. Figures 2-8 & 2-9 show the inflow and outflow of workers in Benton and Franklin Counties, meaning the number of workers employed in the region but live outside (inflow), and the number of workers who live in the region but travel outside to work (outflow). The next two figures, Figures 2-10 & 2-11, show the direction and distance that workers who work in Benton and Franklin Counties travel home, from their work census block to their home census block.

Table 2-6: Selected Regional Statistics

Population	Female	49.36%
	Male	50.64%
	Under 19	24%
	62+	13%
Select Family Stats	Median Income	$63,133
	In School	27.50%
	Average HH Size	3.35
	Unemployment Rate	7.10%
Transportation	Mode Choice: Drove Alone	76.69%
	Mode Choice: Public Transit	1.32%
	Mode Choice: Car Pooled	14.35%
Housing	Owner Occupied	68.39%
	Renter Occupied	31.61%
Access to Vehicle	HH No Vehicles	5.50%
	1 Vehicle	27%
	2 or More Vehicles	67.50%

Figure 2-7: Largest Employers by Number of Employees

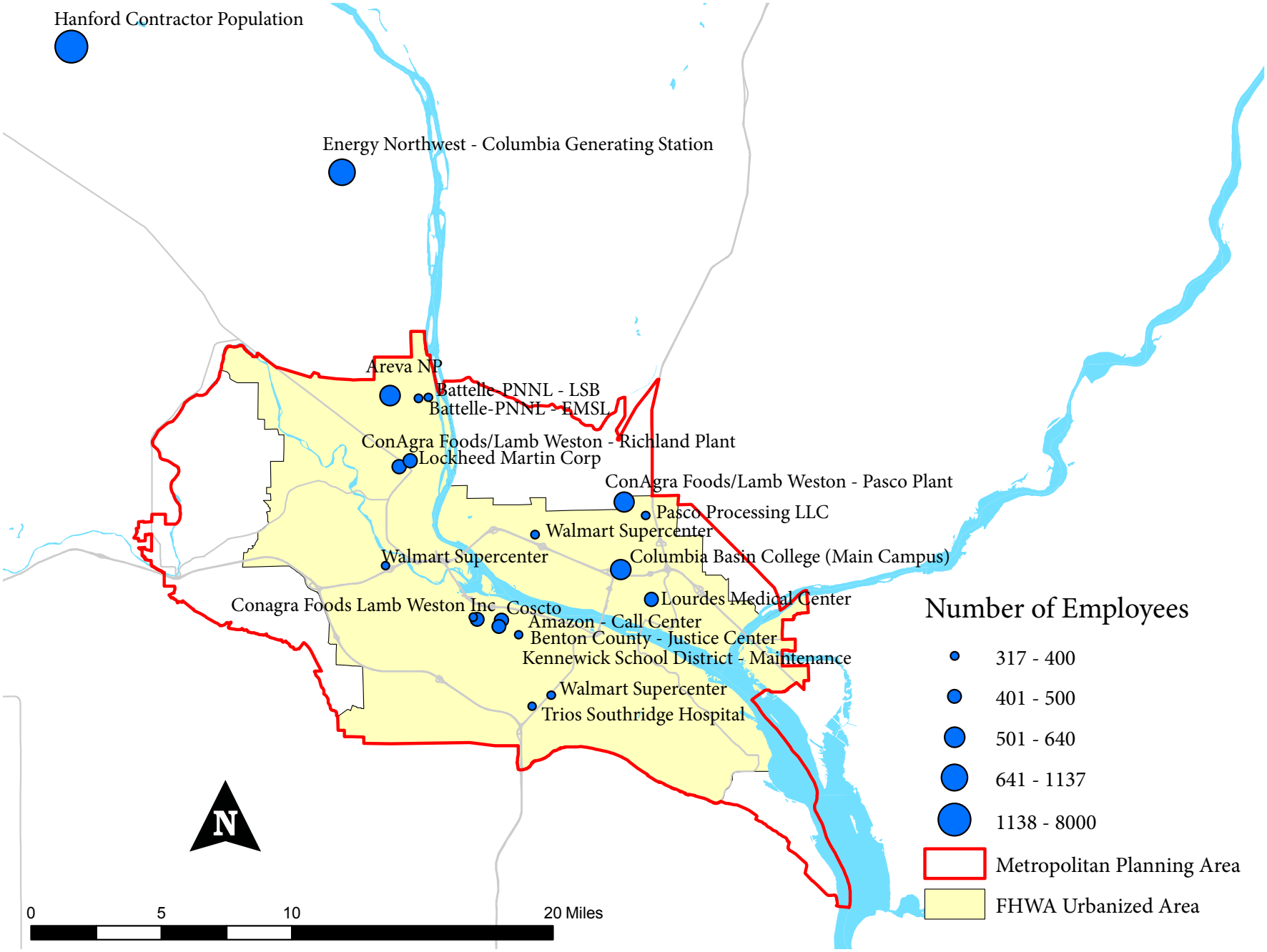
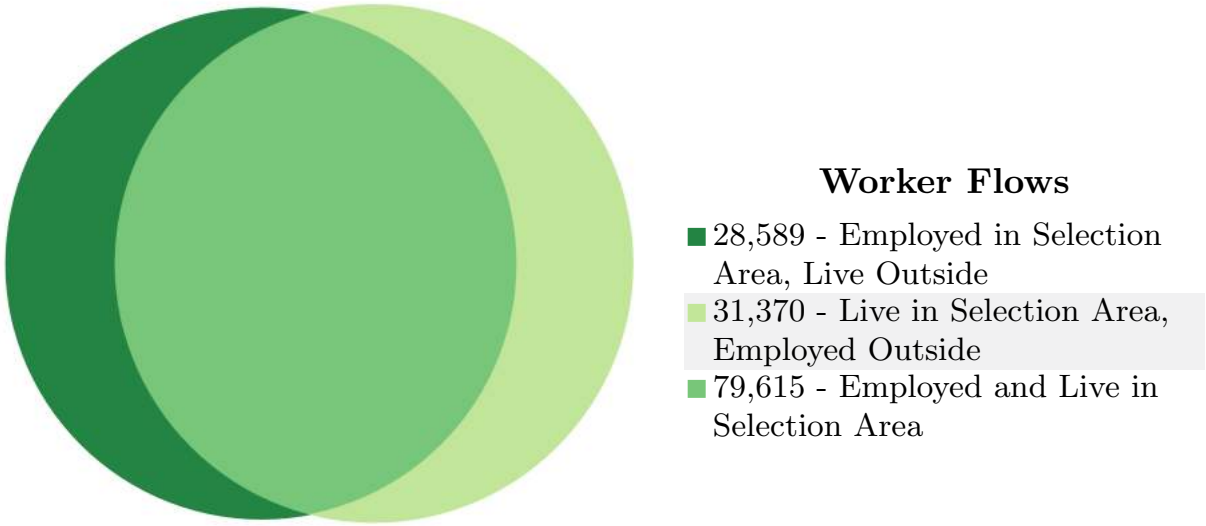


Figure 2-8: Inflow and Outflow of Workers in Benton and Franklin Counties

Figure 2-9: Inflow and Outflow of Workers in Benton and Franklin Counties, Worker Flows



Inflow/Outflow Counts of All Jobs for Selection Area in 2014

All Workers

Worker Totals and Flows	2014 Count	2014 Share
Employed in the Selection Area	108,204	100.0
Employed in the Selection Area but Living Outside	28,589	26.4
Employed and Living in the Selection Area	79,615	73.6
Living in the Selection Area	110,985	100.0
Living in the Selection Area but Employed Outside	31,370	28.3
Living and Employed in the Selection Area	79,615	71.7

Figure 2-10: Counts and Density of Home Locations for All Jobs and All Workers in the Region, 2014

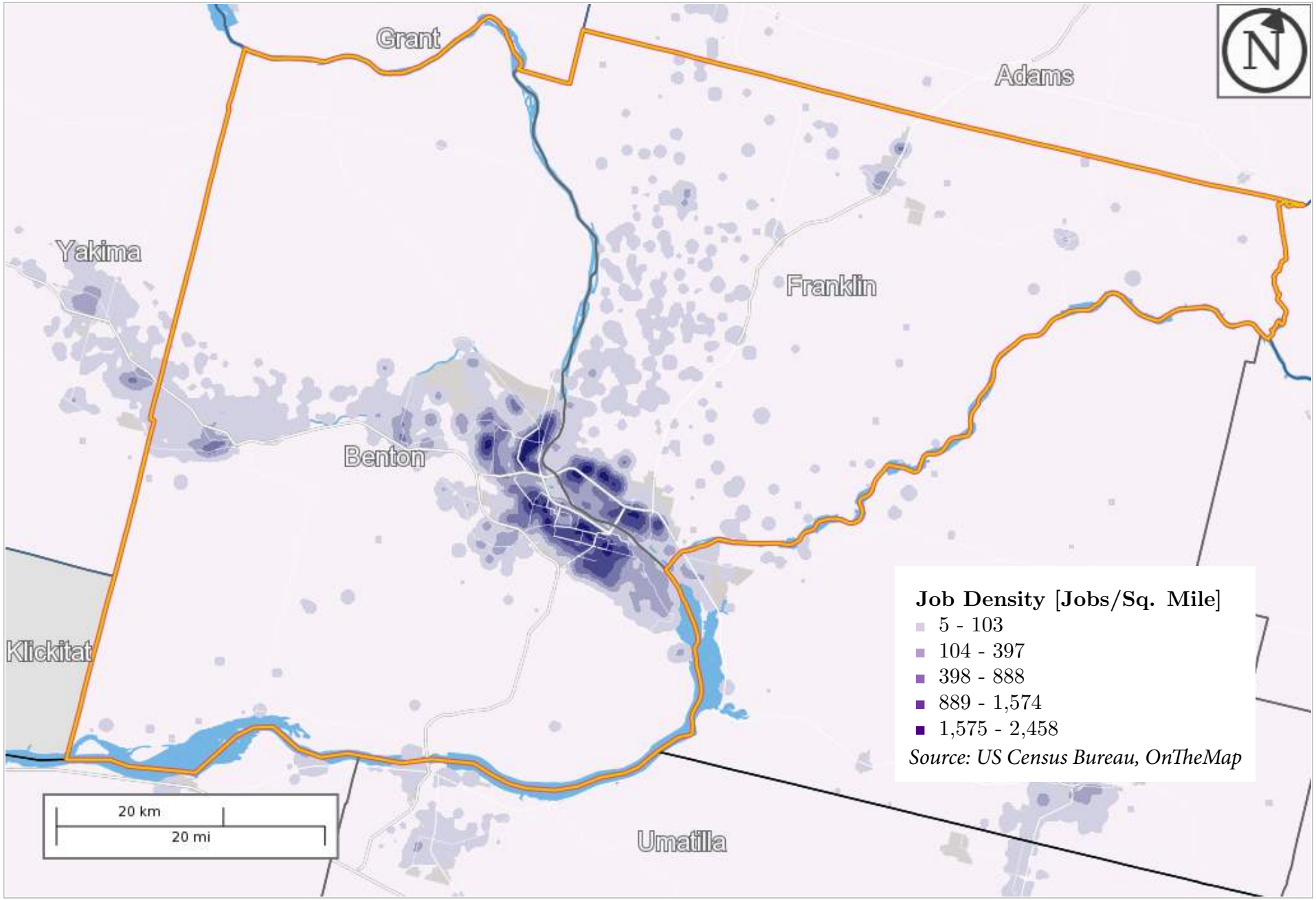
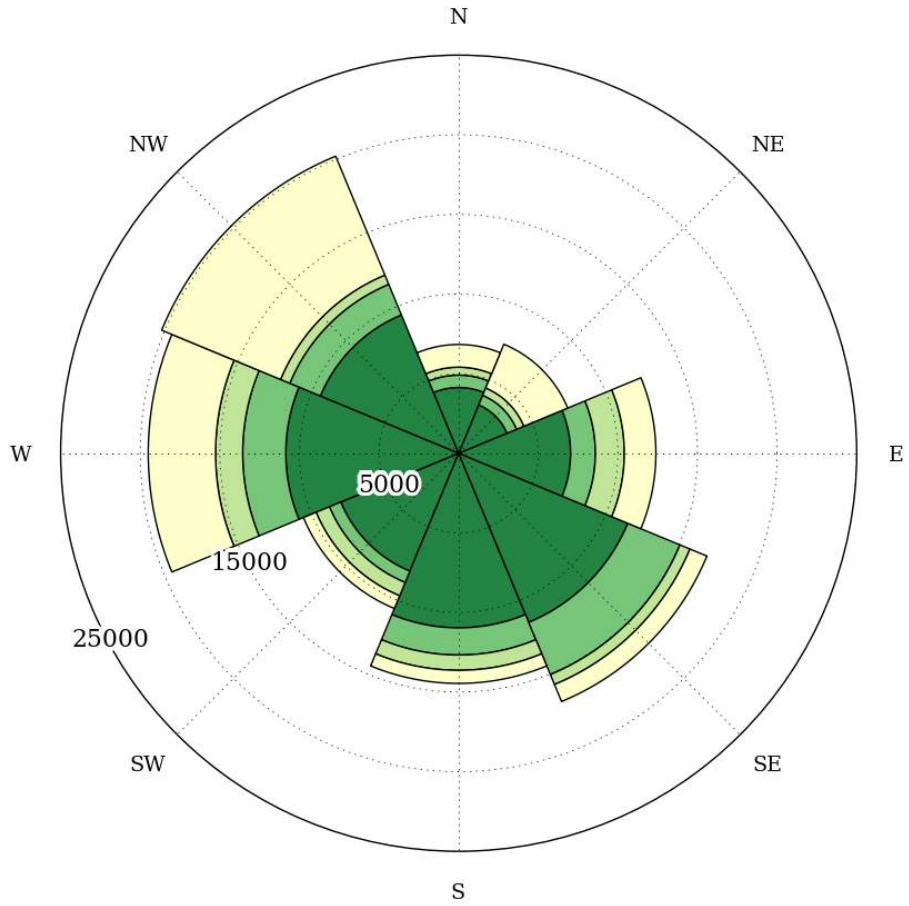
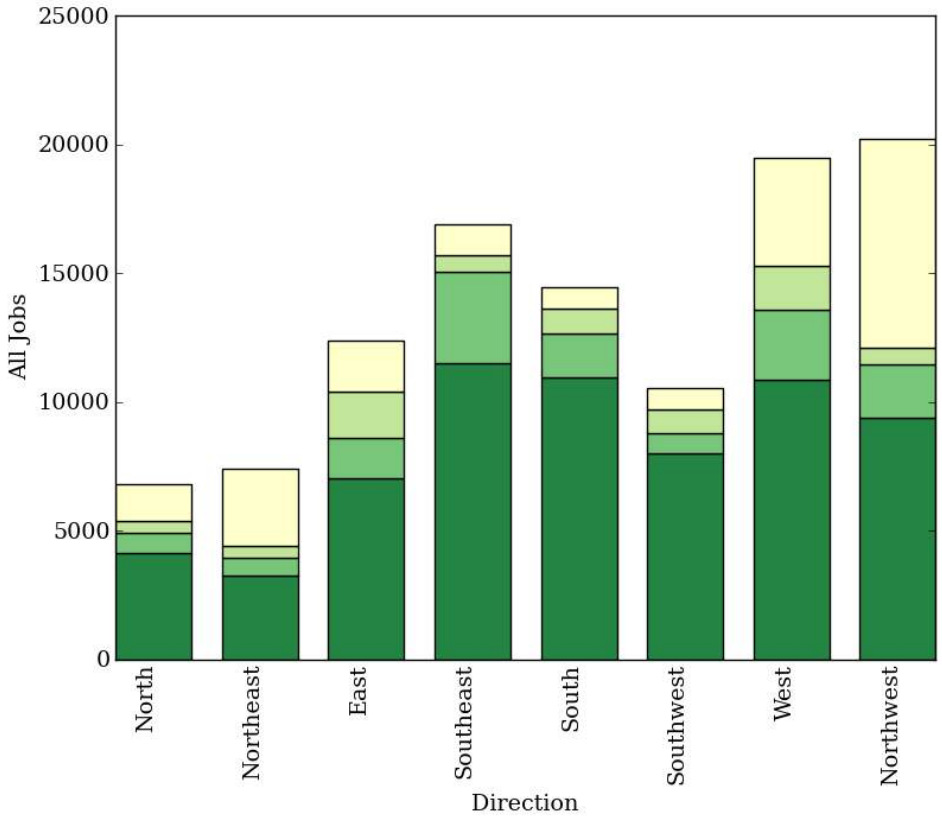


Figure 2-11: Distance and Direction from Work Census Block to Home Census Block, All Jobs for all Workers in Benton and Franklin Counties



Jobs by Distance- Work Census Block to Home Census Block

	2014 Count	2014 Share
Total All Jobs	108,204	100.0%
Less than 10 miles	65,186	60.2%
10 to 24 miles	13,791	12.7%
25 to 50 miles	7,682	7.1%
Greater than 50 miles	21,545	19.9%



Source: US Census Bureau, OnTheMap

Table 2-7: Selected Work Statistics (2014)

	Metropolitan	BFCG Region
Total Jobs	94,697	108,204
Jobs By Worker Age		
25 and Below	22,004	24,461
30 - 54	51,515	58,919
55 and Above	21,160	28,824
Jobs by Earnings		
$1,250 / Month, or less	22.90%	23.6%
$1,251 to $3,333 / Month	34.10%	35.6%
$3,333 / Month or More	43%	40.8%
Jobs by Worker Education		
Less than High School	9.6%	11.2%
High School or Equivalent	19.4%	19.6%
Some College or Associates Degree	25.2%	25.0%
Bachelors Degree or Advanced Degree	22.6%	21.6%
Education Attainment Not Available	23.2%	22.6%
Jobs by Gender		
Male	51.8%	52.3%
Female	48.2%	47.7%

Demographic Maps

Figures 2-14, 2-15, 2-20 and 2-21 are thematic maps which portray different demographic aspects of the two-county area, all based on American Community Survey data. To present the data in a clear manner, place names and boundaries were not put on the maps. Figure 2-2 Regional Profile (page 30) may be used as a base map to locate boundaries and jurisdictions.

Migration to Benton and Franklin Counties

The Washington State Department of Licensing provides yearly summary reports of the migration of licensed drivers into Washington, by county. This number captures drivers from other states and countries who were issued new Washington driver licenses.

Over 2 million new registered drivers have entered Washington State from 1999 through 2015. Figures 2-12 and 2-13 depict this migration of drivers to Washington State and Benton-Franklin Counties.

Figure 2-12: Benton-Franklin Counties In-Migration, 1999-2015

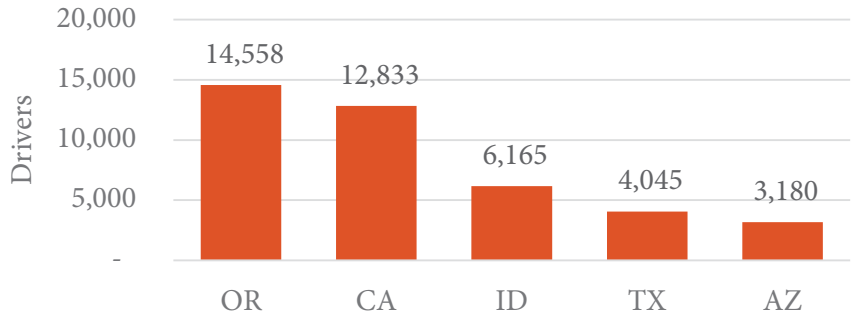


Figure 2-13: Washington In-Migration by States, 1999-2015

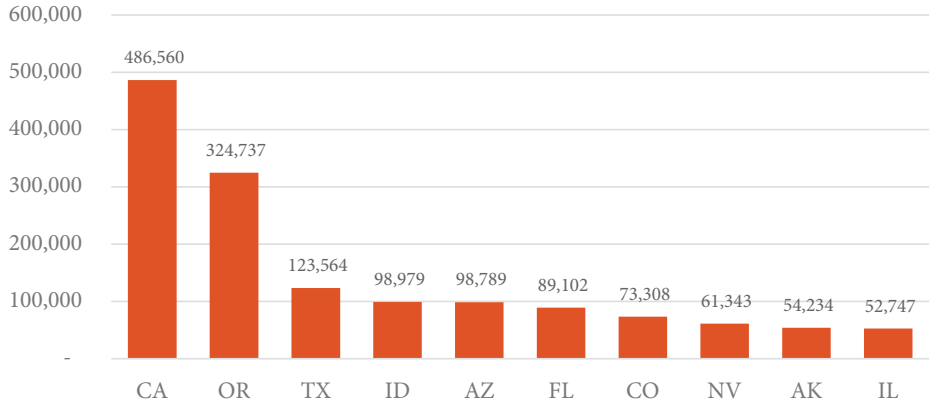
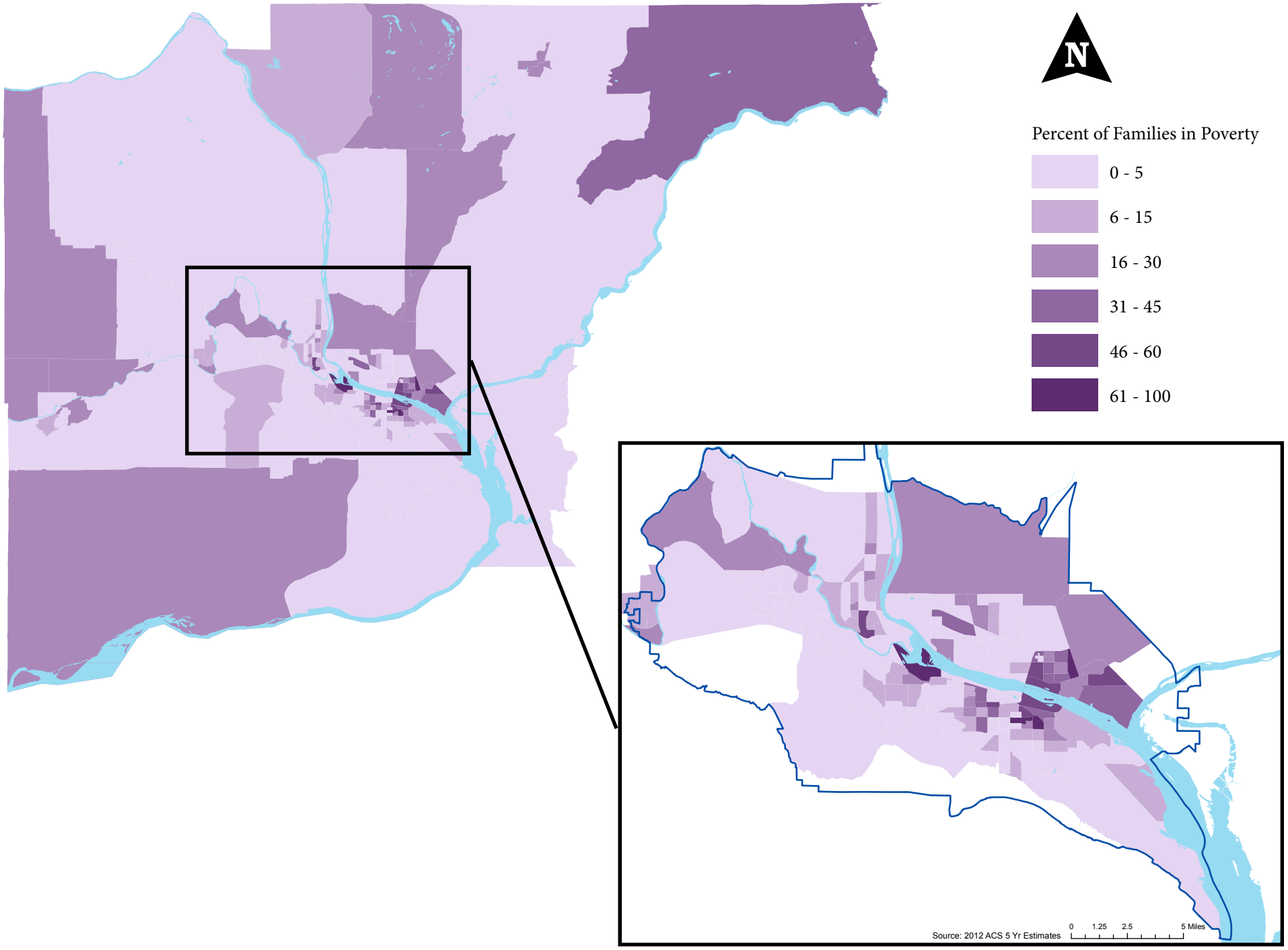
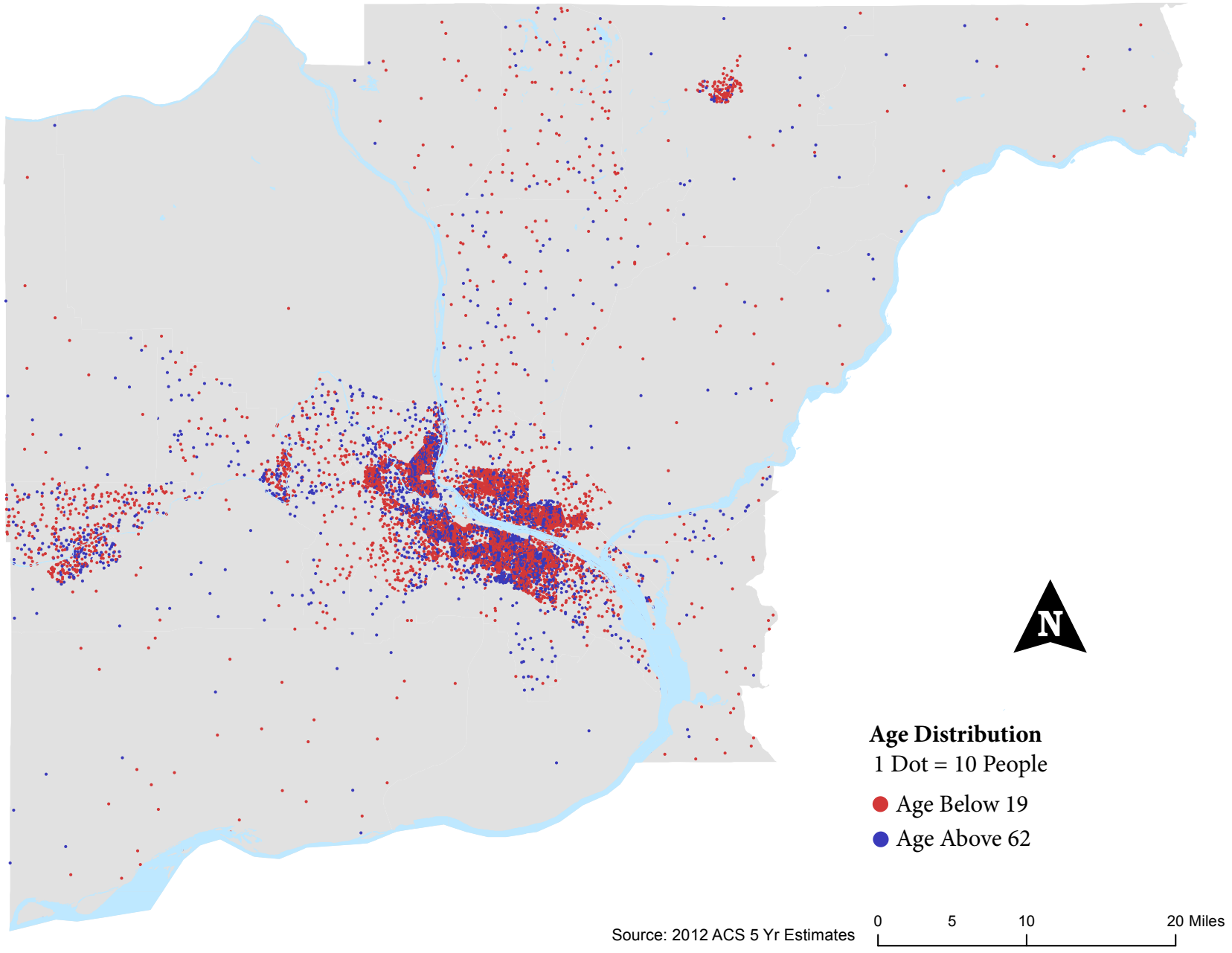


Figure 2-14: Percent of Families Under the Poverty Level, by Block Group



Age Distribution

Figure 2-15: Age Distribution of Under 19 and Above 62 Years



Population Breakdown

Figures 2-16 and 2-17 show the age distribution inside and outside of the metropolitan area, broken down by sex. Age distributions show how the population is composed by age groups and genders.

Figures 2-18 and 2-19 show something slightly different: these show the breakdown of each age group, by the percent of that age group by sex.

The population breakdown by sex shows trends. Outside of the metropolitan area, the population is skewed, with 52.5% males. This trend starts around 22-29 and older, and balances out around 70.

Less than 4% of the population outside of the metropolitan area are females aged 22-29, while males in this category, as well as males and females in the metropolitan area, are all closer to 6%.

Outside the metropolitan area, there is a larger portion of 10-21 year olds than inside the metropolitan area.

Source: US Census Bureau, 2010 Census, Sex by Age

Figure 2-16: Age Distribution by Sex Inside the Metropolitan Area

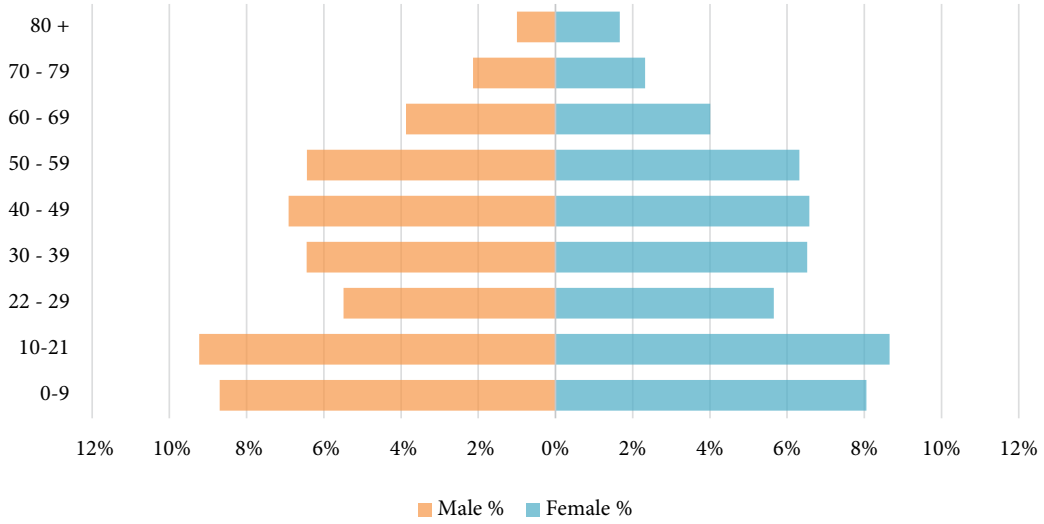


Figure 2-17: Age Distribution by Sex Outside the Metropolitan Area

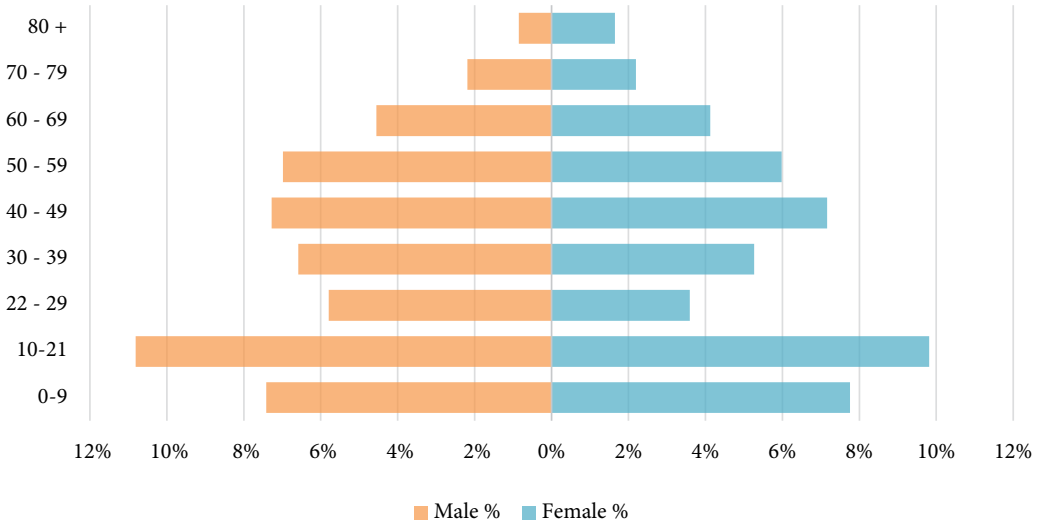


Figure 2-18: Sex And Age Distribution Inside the Metropolitan Area

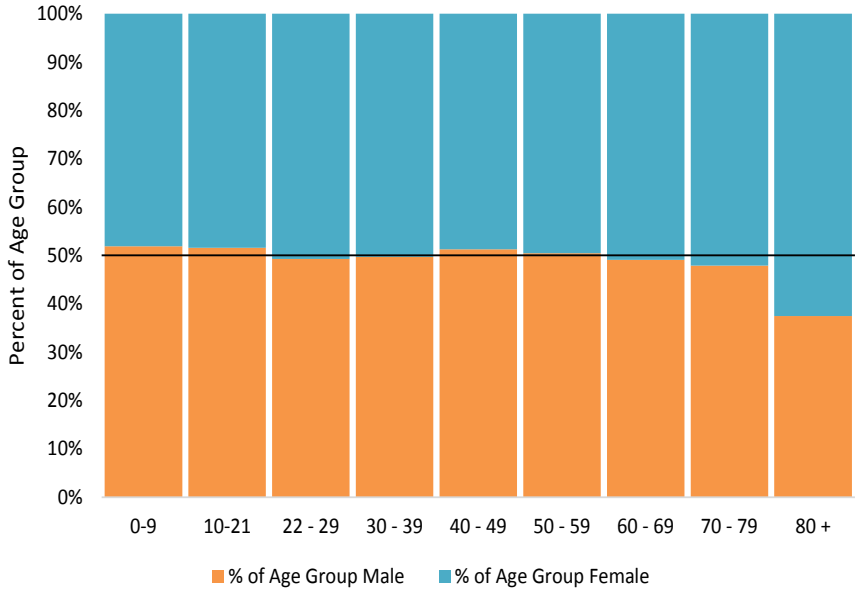
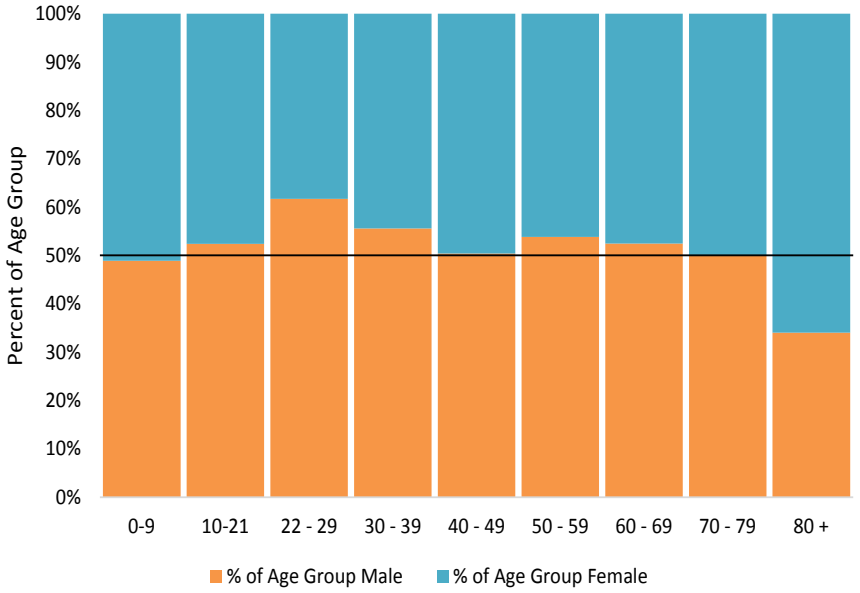


Figure 2-19: Sex and Age Distribution Outside the Metropolitan Area



Age groups by percentage are shown in Figure 2-20 and Figure 2-20, against Washington State. This shows that the RTPO has a naturally increasing population, with a high number of children and young adults.

These graphs also indicate that there is a larger portion of the younger population, who cannot operate motor vehicles.

Figure 2-20: Age Group Distribution in the RTPO & WA

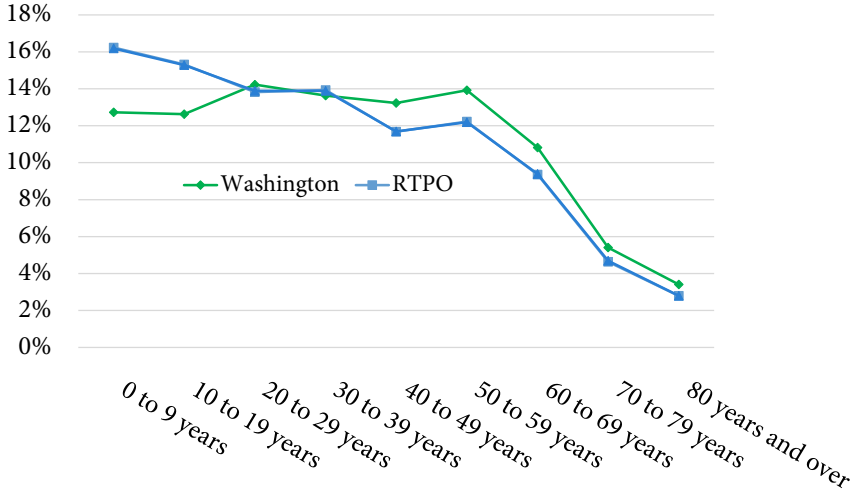
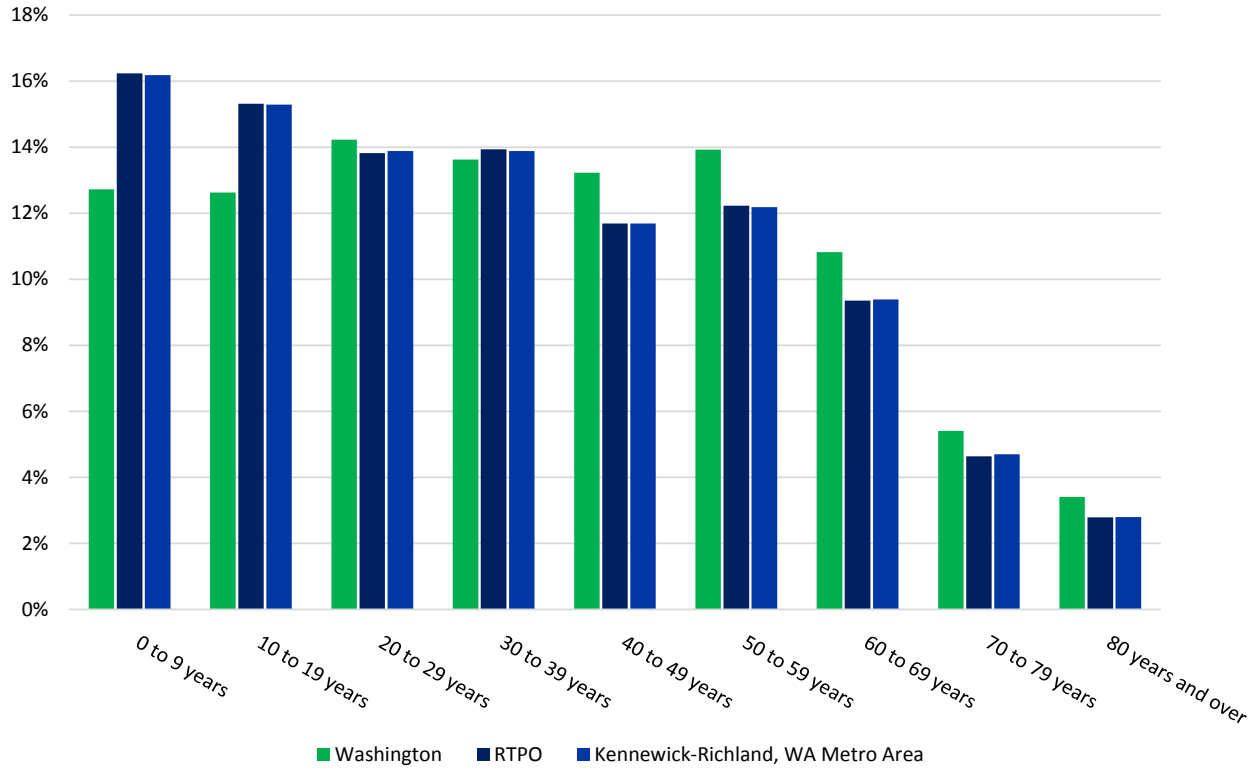
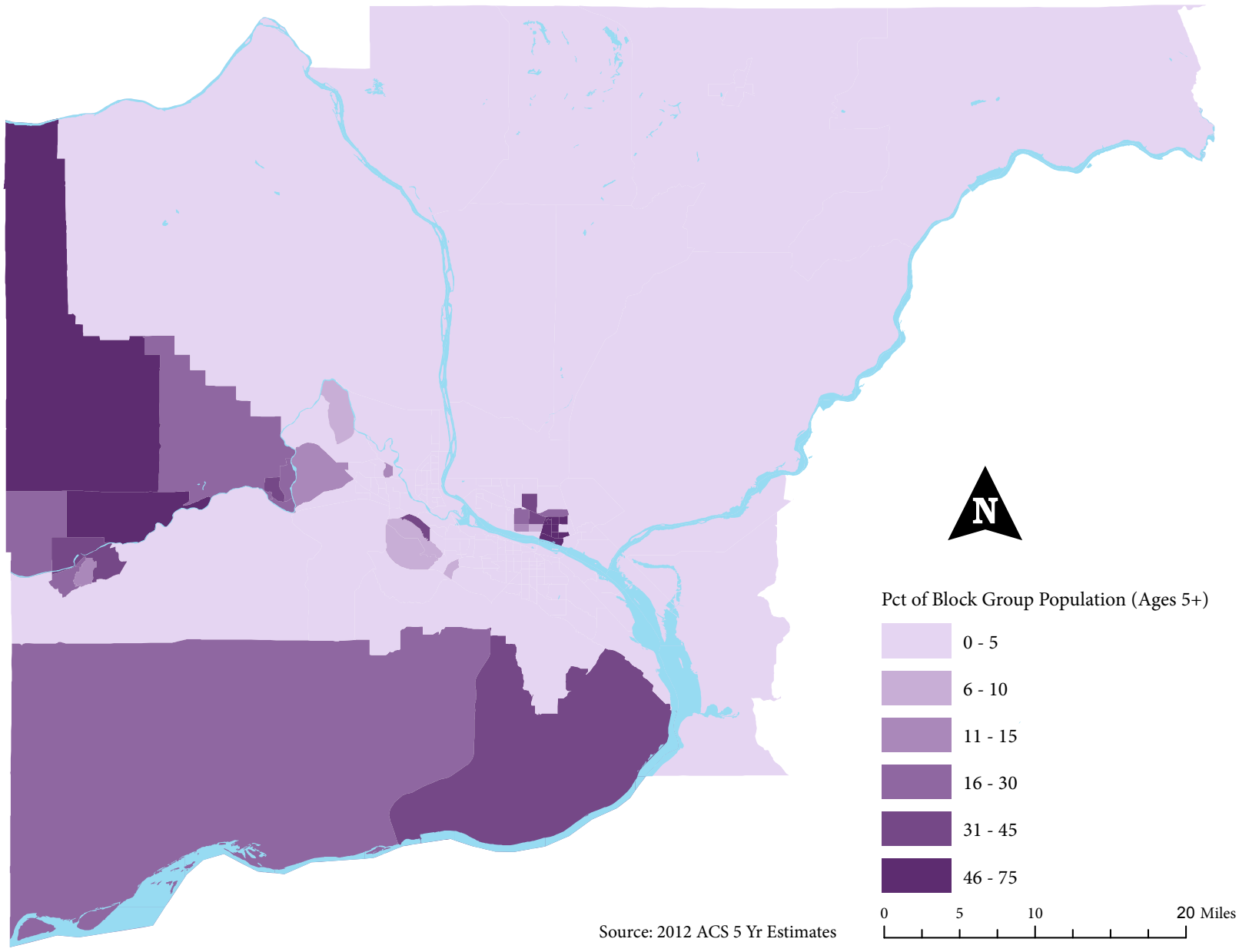


Figure 2-21: Age Group Distribution in the RTPO, Metro Area, and WA State



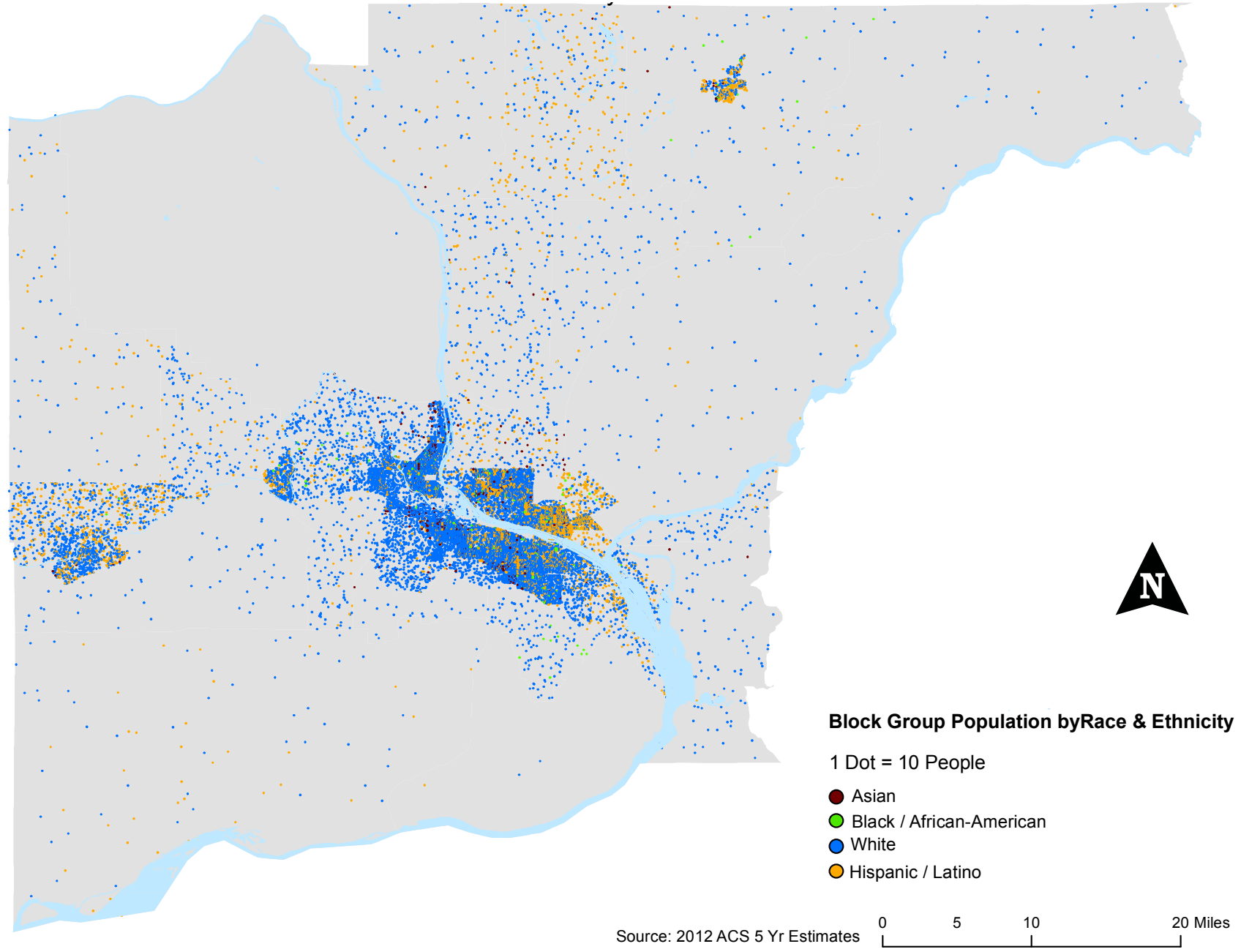
Limited English Proficiency

Figure 2-22: Percent of Households with Language Other Than English Spoken at Home



Ethnicity / Percent Minority

Figure 2-23: Race and Ethnicity



Historic and Forecasted Growth

The metropolitan area has experienced substantial growth; between 1990 and 2015, the population increased by over 125,000 residents. The region grew at a rapid pace during the early 2000's, with a population increase of 145% from 2000 to 2015.

Forecasts are from BFCG's Regional Travel Demand Model Forecasts, and historic data are from the US Decennial Census.

Chapter 6, "Future Conditions," describes the future projections in greater detail, and the BFCG Regional Travel Demand Model.

Table 2-8: Projected Population in the MPA and Non-MPA

	2015	2025	2035	2040
MPA	248,066	291,557	336,743	369,419
Non-MPA	58,385	75,564	89,398	96,508

Figure 2-24: Region Population, Historic and Projected

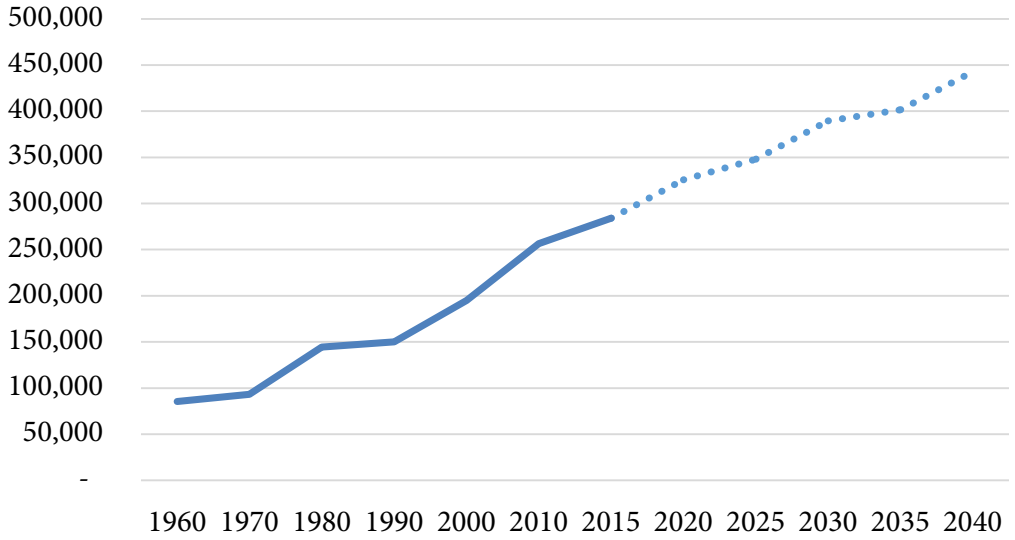


Figure 2-25: Population and Employment Forecasts for the MPA

Environment & Natural Resources

Environment

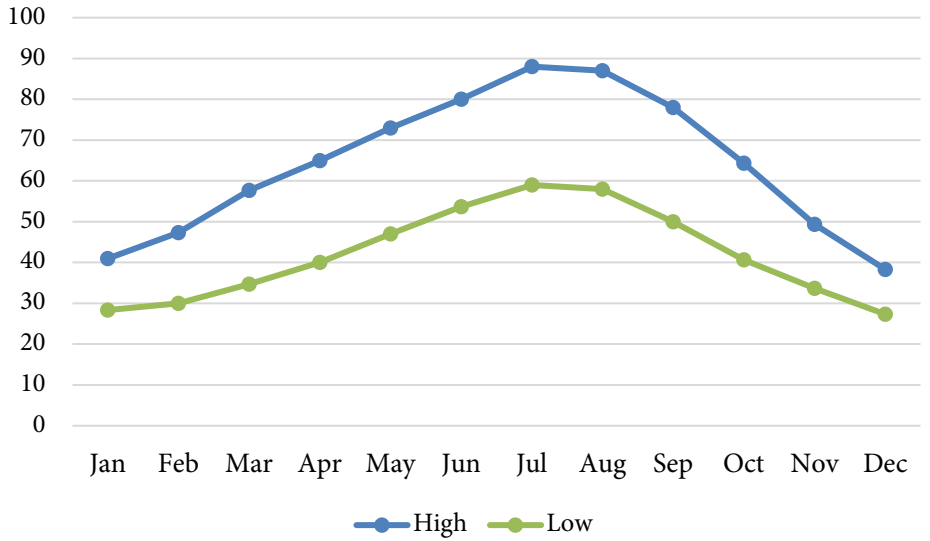
The Benton-Franklin RTPO comprises a shrub-steppe arid landscape and is part of the Columbia Basin, in which a considerable portion was formed from the Ice Age floods/Missoula Floods.

Although the average annual rainfall is approximately eight inches per year, the Benton-Franklin region is primarily agricultural land, including irrigated and dryland crops. Some of the main natural resources are the three rivers that flow through the region which provides irrigation for crops, hydroelectric power, and recreation.

With the introduction of irrigation to the region around the early 1900's (Benton County) and mid-1900's (Franklin County), many thousands of acres were transformed into some of the richest agricultural land in the United States. With the wide variety of crops grown, good transportation infrastructure is vital for the area's economy to markets around the world.

The climate is relatively mild with a prevalence of sunny days. Average temperatures in the Tri-Cities are shown in Figure 2-24.

Figure 2-26: Average Monthly Temperatures for the Tri-Cities



Sagebrush and Bunchgrass at Badger Mountain

Air Quality

The Clean Air Act of 1963, last amended in 1990, requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants that are harmful to the environment and public health.

A nonattainment area is an area that does not meet the National Ambient Air Quality Standards (NAAQS) set by the EPA. NAAQS establishes measures for six pollutants: carbon monoxide, ozone, particulate matter, lead, sulfur dioxide, and nitrous oxide. The MPO does not currently have nonattainment areas, but ozone is currently being monitored.

In 2015, the EPA tightened ozone standards from 0.075 ppm to 0.070 ppm (or 70 ppb). Ozone is toxic to the environment and human health. It can irritate the eyes, nose, throat, and respiratory system. People with chronic heart and lung disease, women who are pregnant, and the young and elderly are especially vulnerable to the effects of ozone. Ozone can be compared to household bleach in terms of health impacts.

Ozone, a highly reactive gas, is formed through chemical reactions in the atmosphere. The chemicals that cause ozone are directly emitted from vehicles, industrial plants, consumer products, and various sources. Curbing these emissions, including from transportation, will positively impact public health.

Past Nonattainment Area

The eastern portion of Tri-Cities Metropolitan Area once included part of the Wallula PM10 Nonattainment Area (NAA), the result of windborne dust registered in the late 1980's. The NAA is a consequence of the interaction of monitored air quality data with the requirements of the 1990 Amendments to the Clean Air Act.

After the EPA waived the initial attainment date, the Washington State Department of Ecology developed an attainment plan for the Wallula NAA in 2004. The EPA approved the Plan in 2005. The plan includes an exclusion from regional transportation conformity analysis.

The Department of Ecology requested the Wallula NAA be re-designated as an attainment area in April 2005. The re-designation request continues the exclusion from regional transportation conformity. The final approval from EPA became effective in September 2005.

Current Air Quality in the Tri-Cities Metropolitan Area

In summer 2015, the Tri-Cities conducted measurements for compounds such as ozone, carbon monoxide, and nitrogen oxide in the air. The measurements are part of the *Tri-Cities Ozone Study*, in partnership with the Washington Department of Ecology, the Benton Clean Air Agency contracted with the Washington State University, and RJ Lee Group Inc. Additionally, the Oregon Department of Environmental Quality is conducting a coinciding study to measure the effects on Hermiston.

The results of this study will be released around mid-2017.

Further information is pending.

Priority Habitats and Species

Priority habitats in the region consist of shrub-steppe landscape with sagebrush and various grasses. There is old growth sagebrush throughout the region that is very slow growing and important to many species of animals found in the region. Some of the many species of wildlife that inhabit shrub-steppe can only be found in these semi-arid communities. Greater sage-grouse, sage sparrows, sage thrashers, and pygmy rabbits are among an elite group of species that depend on sagebrush, and are termed "sagebrush obligates". A host of other birds, mammals, reptiles, and insects are found primarily in sagebrush-steppe or other shrub-steppe communities.

Arid Land Ecology Reserve

The 120 square mile Arid Land Ecology Reserve (ALE) in northern Benton County is the largest remaining shrub-steppe habitat in still mostly pristine condition in Washington State. Managed for the US Department of Energy by Pacific Northwest National Laboratory, a division of Battelle Memorial Institute, it is located within the boundary of the Hanford Reservation. Consisting mostly of dryland vegetation it also includes approximately 125 springs sites and two permanent stream flows. Examples of animals found on the site are elk, mule deer, coyotes, badgers, jackrabbits, golden eagles, and bald eagles.

The ALE site is a good example of what the land looked like before irrigation.

Kahlotus Ridge Natural Area Preserve

Kahlotus Ridge is a 240 acre site, designated a National Natural Landmark in 2011. This site preserves the native arid grassland, one of the few remaining sites in the once covered eastern Columbia Basin.

A population of Piper's daisy, a state listed sensitive plant species that only grows in the Columbia basin, can be found in the preserve. Another plant species that is protected is the Bluebunch wheatgrass.

Umatilla National Wildlife Refuge

The Umatilla National Wildlife Refuge managed by the US Fish & Wildlife Service is a network of lands bordering the Oregon (Morrow County) and Washington (Benton County) shore lines of the Columbia River. Comprised of five units—three in Washington and two in

ALE Reserve, Rattlesnake Hills

Oregon—the refuge contains 23,555 acres.

Natural and managed wetlands, mixed with native shrub-steppe, provide homes for an abundance of Columbia Basin species. Waterfowl, along with scores of species of water birds, passerines and mule deer, draw visitors from around the Northwest and beyond.

Yakima River Delta Wildlife Nature Area and Bateman Island

The Yakima River Delta Wildlife Nature Area and Bateman Island causeway are important areas for migrating birds and species of fish returning to spawn via the Columbia River. This area is managed by the Army Corps of Engineers and located within the Metropolitan Planning Area as well as the Tri-City Urbanized area. There are nature trails for pedestrians and bicycles, with motorized vehicle use prohibited.

Mule Deer, Umatilla National Wildlife Refuge

Sacajawea Historical State Park

Sacajawea Historical State Park is a 284-acre inland waters, day-use park at the confluence of the Snake and Columbia rivers. It features 9,100 feet of freshwater shoreline, with the park's lands being sand dunes interspersed with wetland ponds. The park features the Sacajawea Interpretive Center, where visitors can learn about the story of the Lewis and Clark expedition.

Figure 2-27: Yakima River Delta and Bateman Island Causeway

Endangered and Threatened Animals and Plants of Benton and Franklin Counties

The U.S. Department of Fish and Wildlife (FWS) catagorize protected species as:

Candidate species (candidate) A plant or animal species for which FWS or NOAA Fisheries has on file sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened.

Endangered species An animal or plant species in danger of extinction throughout all or a significant portion of its range.

Threatened species An animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Recovery The process by which the decline of an endangered or threatened species is stopped or reversed, or threats to its survival neutralized so that its long-term survival in the wild can be ensured, and it can be removed from the list of threatened and endangered species.

There are three mammals, two birds, one fish, one amphibian, and three flowering plants that are protected in Benton and Franklin Counties (Appendix B page 27).

The Gray Wolf (Canis lupus) was endangered and is now in the recovery process.

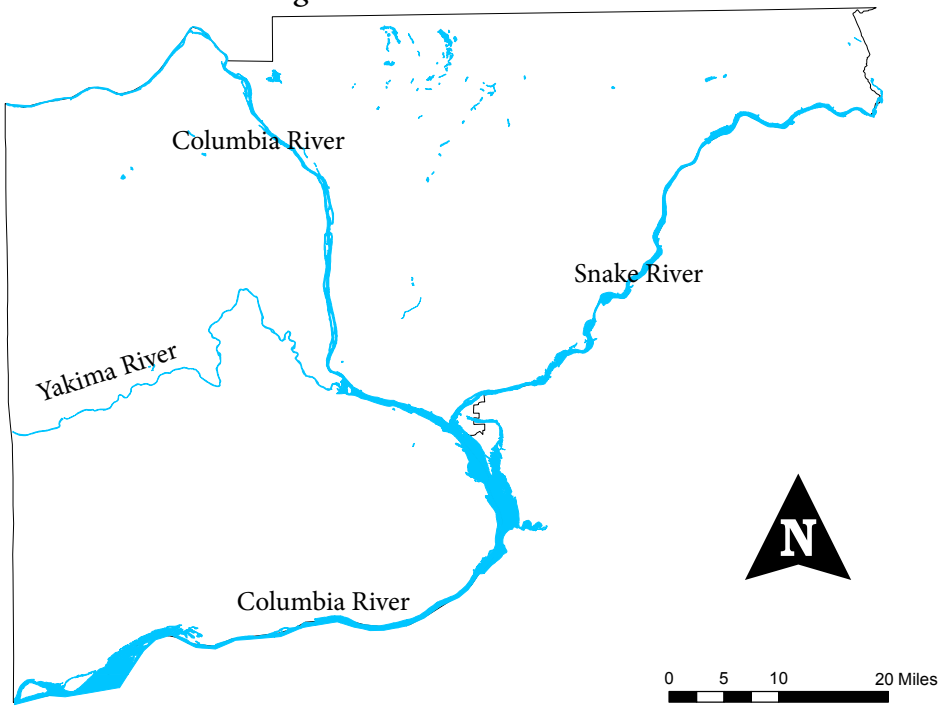
Yellow-Billied Cuckoo is threatened.

Aquatic Resources Priorities

Three main rivers (Columbia, Snake, and Yakima) converge in the MPA, which provide irrigation for the agriculture based economy of the region (Figure 2-26). Smaller rivers and streams also flow into these three larger rivers creating various watersheds and habitats. Hydroelectric power is also produced by dams on the Columbia and Snake Rivers which provides comparatively inexpensive electric power for the region.

These rivers provide a valuable resource for the economy of the region with agriculture products and petroleum being barged up and down the river system via the navigation locks located at the dams on the Columbia/Snake River System.

Figure 2-28: Rivers in the RTPO



A local levee system was built on the Columbia River between Richland, Kennewick, and Pasco in the 1950's for flood management. Much of the Tri-City area is below the Columbia River water levels, and without the levee system the Tri-City area would flood regularly. Low interior drainage locations in the Tri-City Urbanized area occasionally fill with runoff and many of these catchment areas have pump stations installed to manage interior flooding.

Ice Age Floods created the canyon through which the Palouse River flows and drops 198 feet into what is called the "amphitheater" of the Palouse Falls.

Palouse Falls, Franklin County

Wetlands

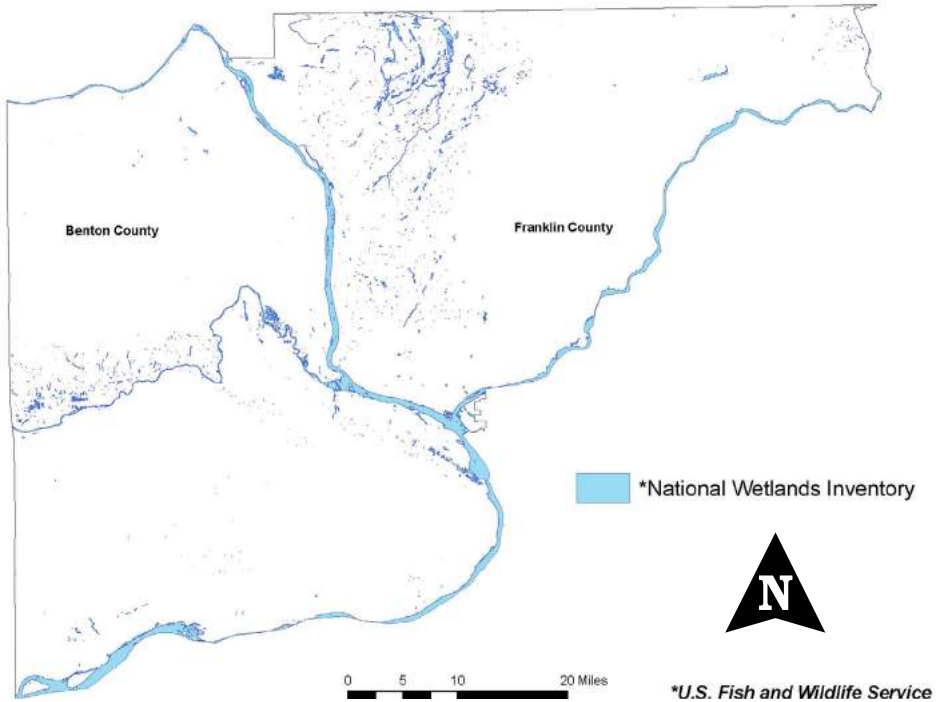
The U.S. Army Corps of Engineers (Corps) and the US Environmental Protection Agency (EPA) define a wetland(s) as: "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

The Columbia Basin is very dependent on water resources due to the low annual rainfall. Being an area where three large rivers converge, there are various wetlands which are key habitats for migratory birds. Various streams provide spawning areas for Salmon and Steelhead and other types of anadromous fish returning from the Pacific Ocean via the Columbia River.

When planning transportation-related projects, avoiding streams and wetlands is the preferred strategy. In the event of unavoidable impacts, federal mitigation rules require some sort of mitigation to help ensure no overall net loss of wetland functions; this may include wetland mitigation banking or wetland or stream corridor preservation.

If federal funds are used for a project, the agency building or maintaining the facility will be subject to FHWA or Western Federal Lands Highway Division policies regarding wetland mitigation, per Executive Order 11990, Protection of Wildlands (1977).

Figure 2-29: National Wetlands boundary

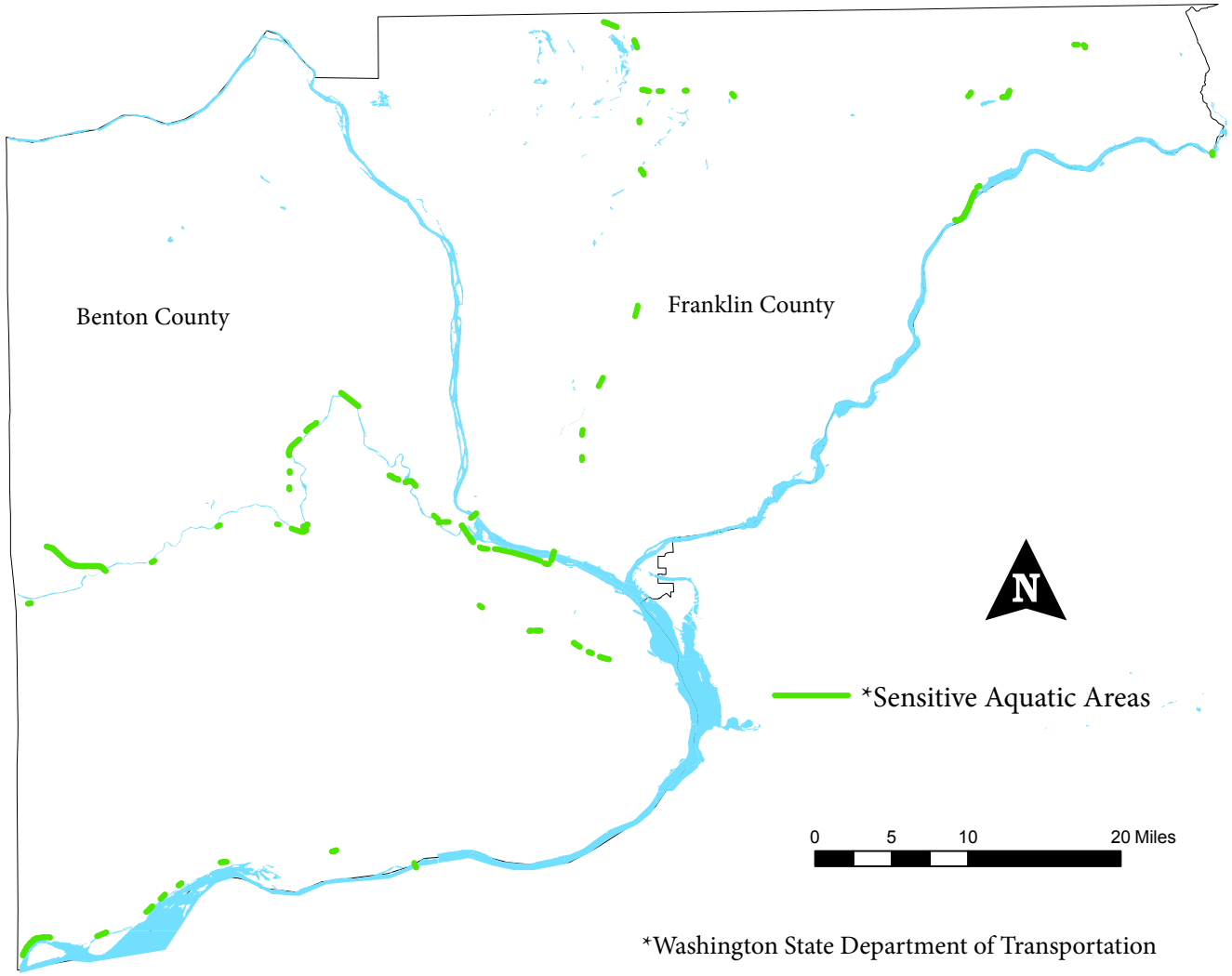


Wetlands

WSDOT Sensitive Aquatic Areas

Sensitive Aquatic Areas are environmentally sensitive areas that front state highways, including wetlands, waterbodies, streams, and channel migration zones. Roadway segments within 300 feet of a sensitive area were located using GPS. These sensitive areas are represented on the following maps by line segments which have had their beginning and ending points buffered an additional 300 feet.

Figure 2-30: Sensitive Aquatic Areas in the RTPO



*Washington State Department of Transportation

Figure 2-31: National Wetlands Inventory in the MPA

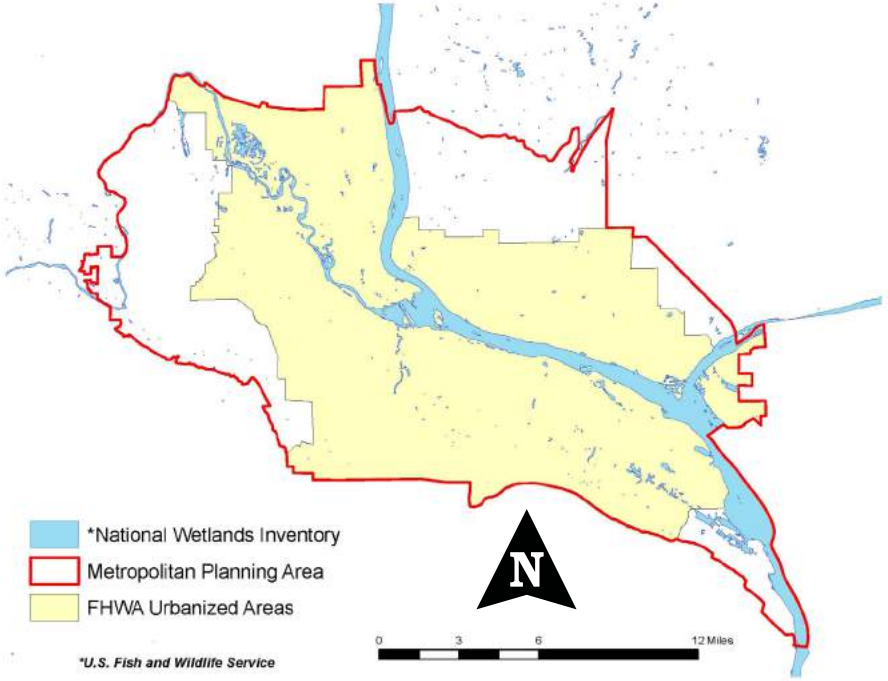


Figure 2-32: National Wetlands Inventory, Prosser

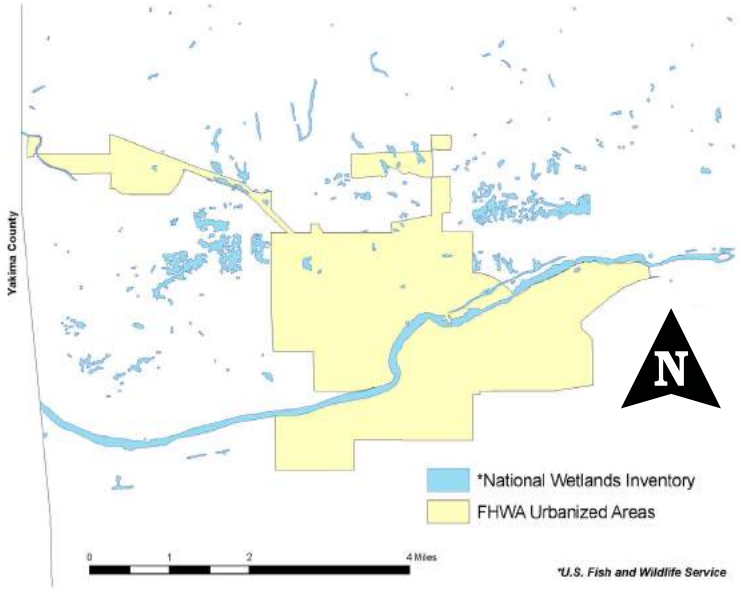


Figure 2-33: Sensitive Aquatic Areas in the MPA

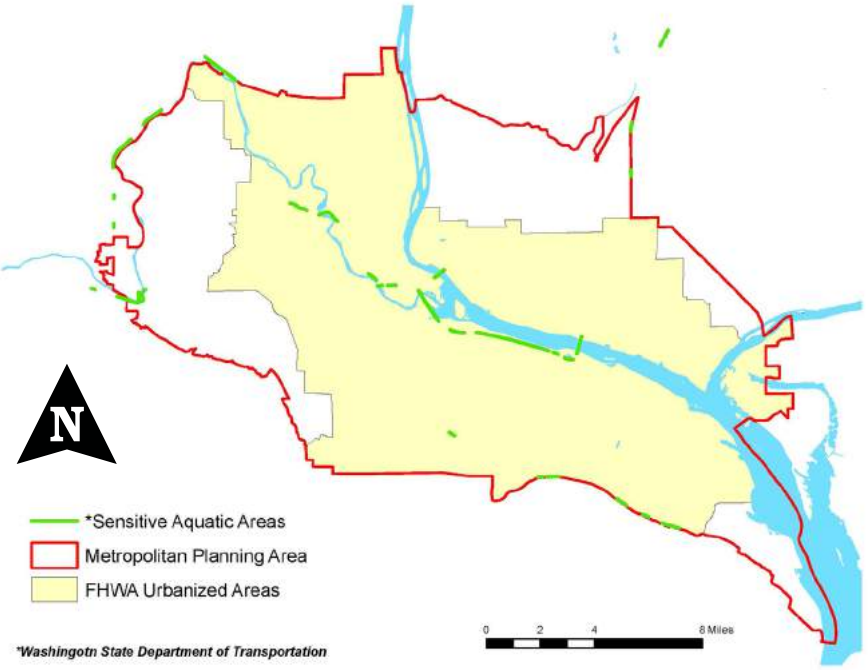
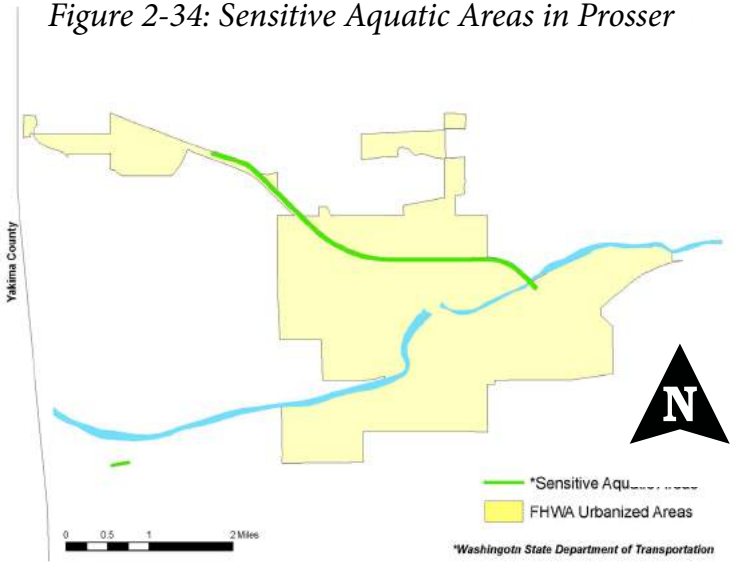


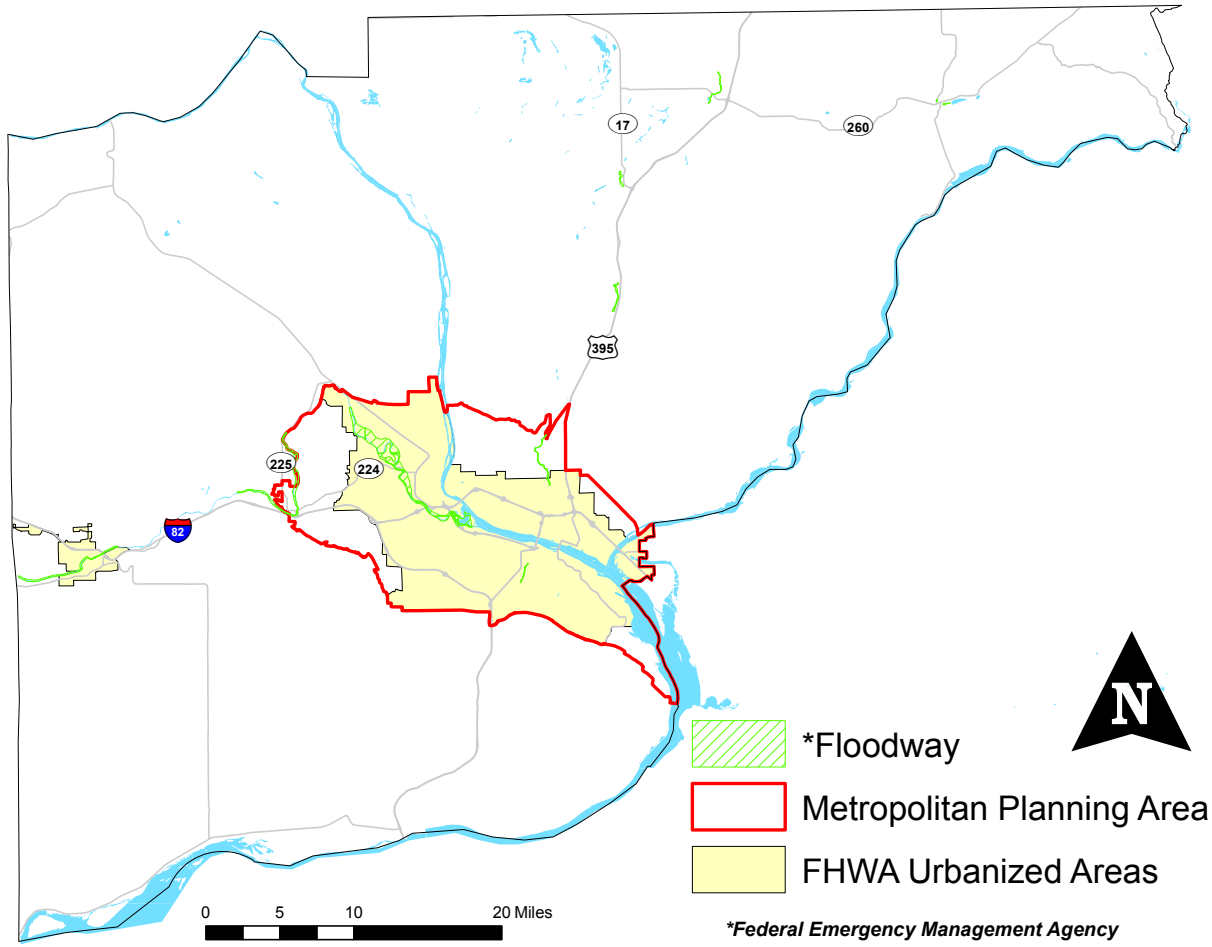
Figure 2-34: Sensitive Aquatic Areas in Prosser



Floodways

The main floodways are located along the Yakima River, which flows east into Benton County and empties into the Columbia River in Richland. Flooding occurs along the Yakima River through the Cities of Prosser, Benton City and West Richland. The largest floodway is located between the Cities of West Richland and Richland along State Route 224. Local jurisdictions and agencies are well aware of the flooding locations and is taken into consideration when projects are planned near areas that are prone to spring run-off flooding.

Figure 2-35: Prosser and Tri-Cities Urbanized Area Floodway



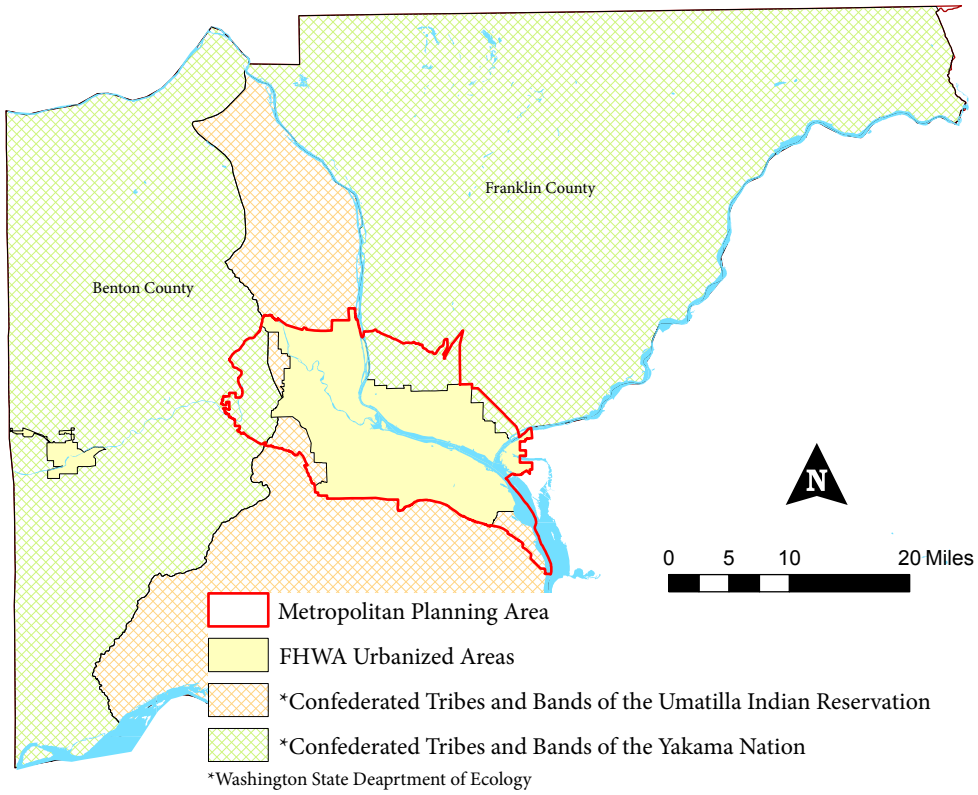
Cultural and Archaeological Areas

The Benton-Franklin RTPO area does contain Native American Ceded Areas, but no reservation land.

The Confederated Tribes and Bands of the Yakama Nation and the Confederated Tribes of the Umatilla both have ceded lands in the RTPO/MPO areas.

US Forest Service Ceded lands definition:
This term was first used in the Treaty with the Wyandot, 1789. Since that time, many treaties have referred to land cessions made by tribes to the United States. Most Federal agencies and Indian tribes prefer to use the term "ceded lands" when describing areas where a tribe acted to "cede, relinquish, and convey to the U.S. all their right, title, and interest in the lands and country occupied by them" at treaty signing or when reservations were established. Ceded land references are qualified by the legal definition of original tribal occupancy issued in 1978 by the U.S. Court of Claims. In effect: "only lands actually owned by a tribe can be ceded to the B–2 U.S." This term is used interchangeably with "treaty boundary" described elsewhere in the definitions.

Figure 2-36: Ceded Tribal Lands in the RTPO Area



B Reactor National Historic Landmark

The Hanford B-Reactor National Historic Landmark was established on November 10, 2015 as part of the Manhattan Project National Historical Park including sites in New Mexico and Tennessee.

The B-Reactor National Historic Landmark at the Hanford Site was the world's first full-scale plutonium production reactor. Created as part of the top secret Manhattan Project during World War II, B Reactor produced the plutonium used in the Trinity Test (the world's first nuclear detonation) in July 1945, as well as for the atomic bomb dropped on Nagasaki, Japan in August 1945 that contributed to the Japanese surrender and end of World War II.

The B-Reactor has been open for annual public tours since 2009, and gets more than 10,000 visitors each year. The facility has been toured by guests from all 50 states and more than 80 countries worldwide.

The Hanford Engineer Works was built to create large quantities of plutonium at a roughly 600-square-mile site along the Columbia River in Washington State. More than 51,000 workers at Hanford constructed and operated a massive industrial complex to fabricate, test, and irradiate uranium fuel and chemically separate out plutonium.

The Hanford landscape is also representative of one of the first acts of the Manhattan Project, the condemnation of private property and eviction of homeowners and Native American tribes to clear the way for the top-secret work.

The Hanford Park includes:

- The B-Reactor National Historic Landmark, which produced the material for the Trinity test and plutonium bomb
- The Hanford High School in the Town of Hanford and Hanford Construction Camp Historic District
- Bruggemann's Agricultural Warehouse Complex
- White Bluffs Bank and Hanford Irrigation District Pump House, which together provide a glimpse into the history of the Hanford area before the arrival of the Manhattan Project.

Figure 2-37: The B-Reactor in Hanford

This page left intentionally blank.

Transportation Choices

3

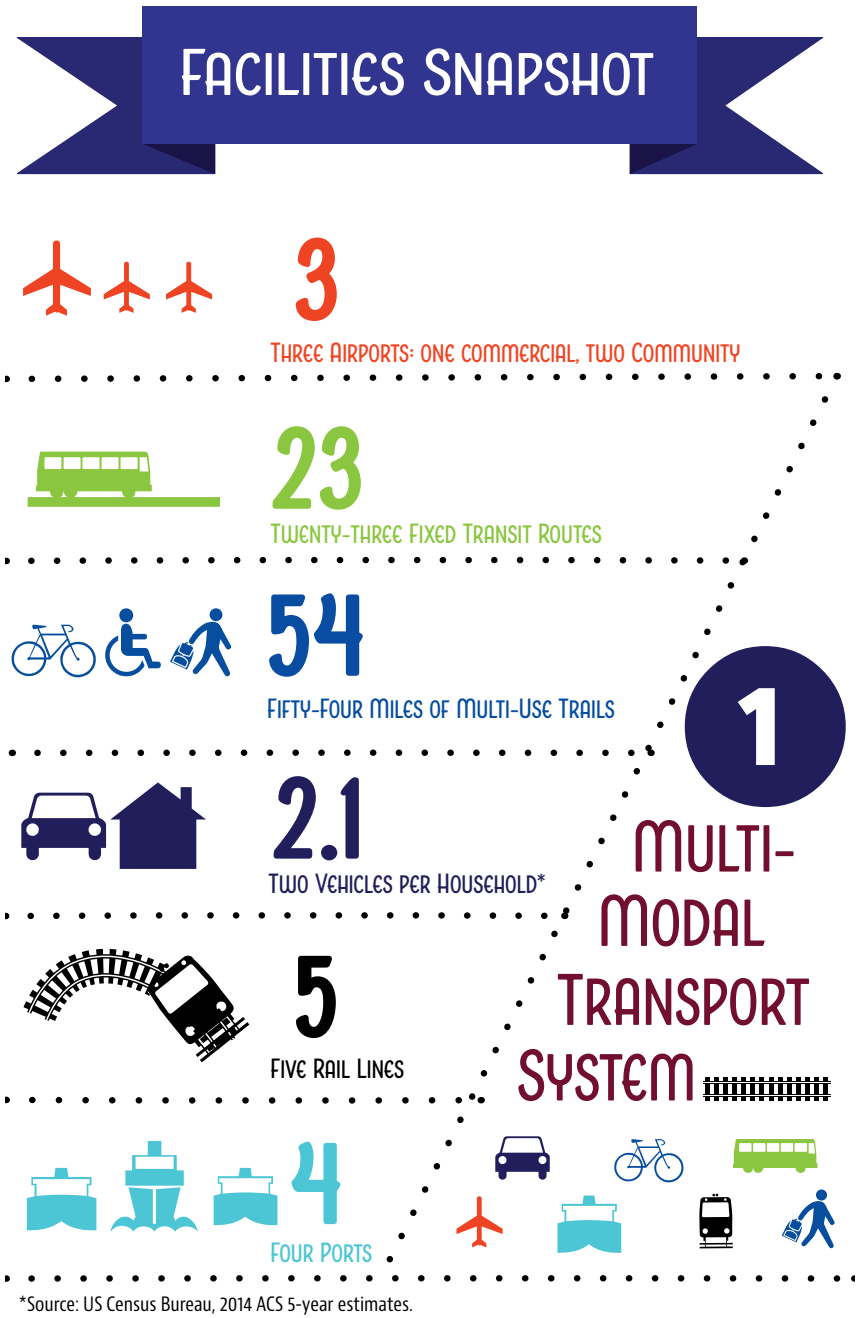
MOVEMENT OF PEOPLE | MOVEMENT OF FREIGHT AND GOODS

Introduction

This chapter organizes the transportation system into two categories: movement of people, and movement of freight and goods. Movement of people encompasses active transportation, transit, rail, air, and automobiles. Movement of freight and goods encompasses rail, marine cargo, air, vehicles, and pipelines.

Consistent with federal legislation (23 CFR 450.306) and Washington State Legislation (RCW 47.80.030), the regional transportation system includes:

- All state-owned transportation facilities and services (highways, park-and-ride lots, etc);
- All local principal arterials and selected minor arterials the RTPO considers necessary to the plan;
- Any other transportation facilities and services, existing and proposed, including airports, transit facilities and services, roadways, rail facilities, marine transportation facilities, pedestrian/bicycle facilities, etc., that the RTPO considers necessary to complete the regional plan; and
- Any transportation facility or service that fulfills a regional need or impacts places in the plan, as determined by the RTPO.



Movement of People

People commute for a variety of reasons, and likewise, a variety of ways. This section includes active transportation, transit, passenger rail, passenger air, and passenger vehicles. While commuting to work is just one facet of the transportation of people, it does provide an overview of how people travel.

Journey to Work

Journey to Work is data from the US Census, which provides commuting characteristics for workers 16 years and over in the RTPO. Approximately 80% of commuters drove alone according to the 2014 5-year estimates, and over 12% carpooled (Figure 3-1). Over 15% of workers have a 10 minute or less commute (Appendix C page 34), and approximately 23% of workers commute for more than 30 minutes.

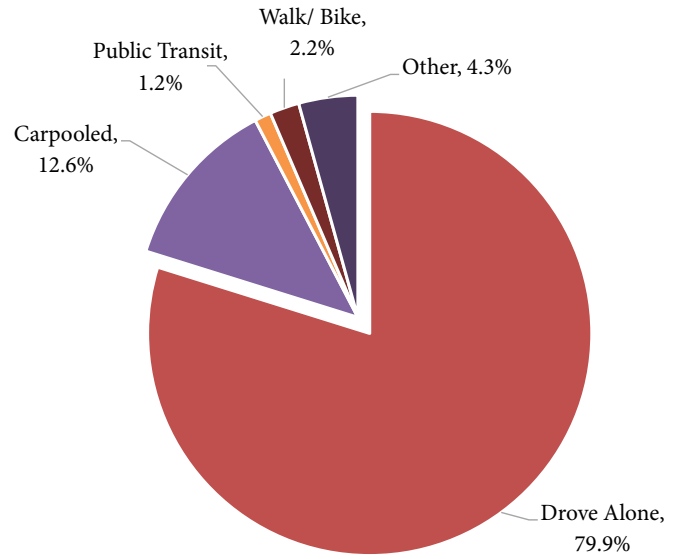
Household Vehicle Access

In the two counties, the number of vehicles per household is around 2.1, according to 2014 ACS 5-year estimates. However, approximately 5% (5% in Benton, 6% in Franklin) of households have no vehicles available (Figure 3-2). This equates to approximately 4,600 households.

Sidewalks and ADA Accessibility

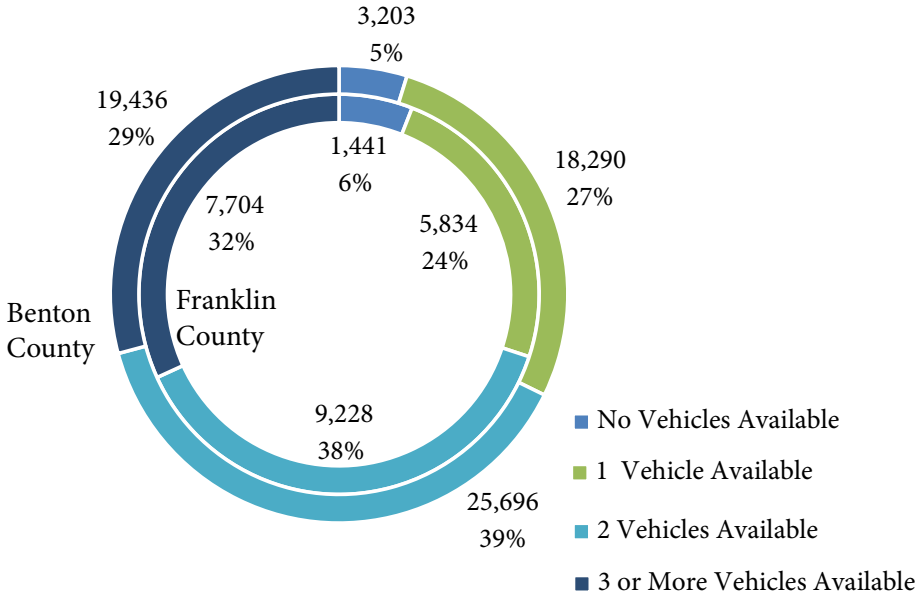
There is no regional sidewalk inventory, so the BFCG cannot accurately assess walking issues. Prioritizing sidewalk construction or repairs near schools, areas with low car ownership, and lower income is best practice when addressing ADA accessibility and environmental justice.

Figure 3-1: Journey to Work Mode Choice in the RTPO, 2014



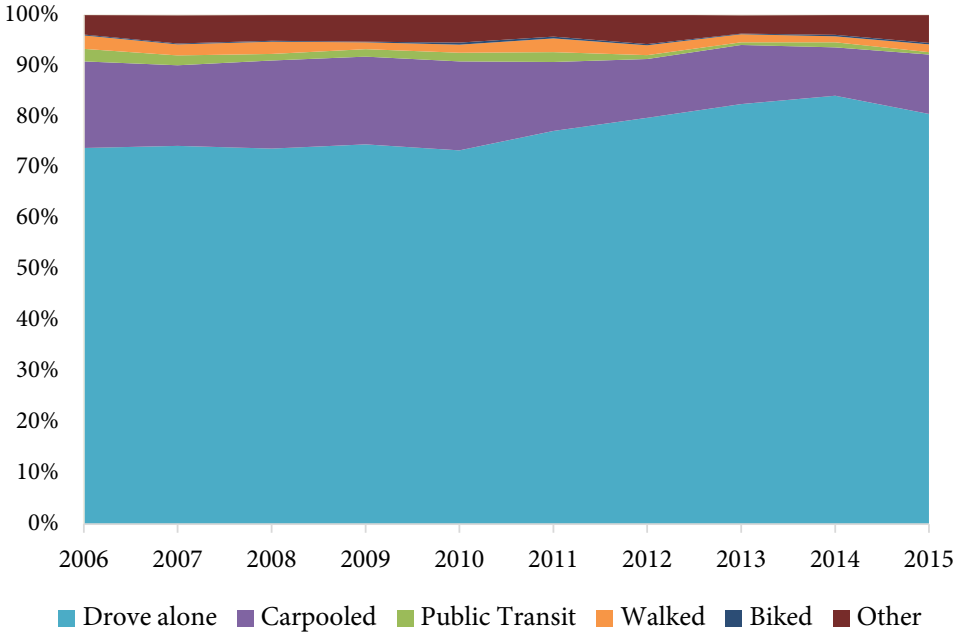
Source: US Census Bureau, 2014 ACS 5-year estimates.

Figure 3-2: Household Vehicle Access



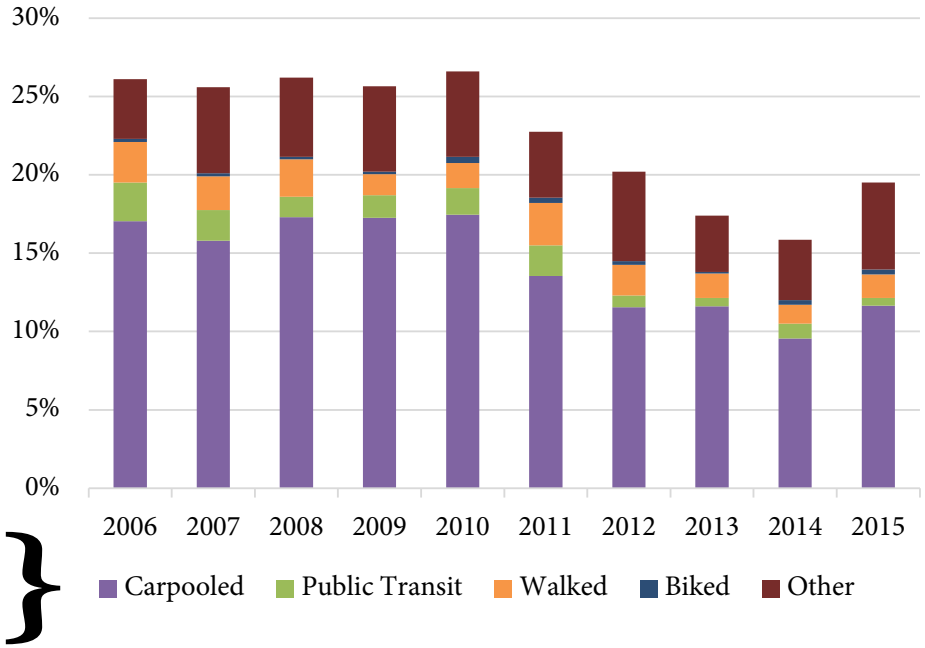
Historic Rates of Travel, Journey to Work Data

Figure 3-3: Journey to Work - Historic Mode Choice in the RTPO



Source: US Census Bureau, 1-year Estimates, 2006-2015

Figure 3-4: Journey to Work - Historic Non-SOV Mode Choice



Source: US Census Bureau, 1-year Estimates, 2006-2015

Active Transportation

Active transportation is an umbrella term that refers to any human powered transportation mode, for example walking, biking, skateboarding, using a wheelchair, etc, and public transportation. The term is sometimes used to describe only walking and biking, but it is important to consider the other components of active transportation.

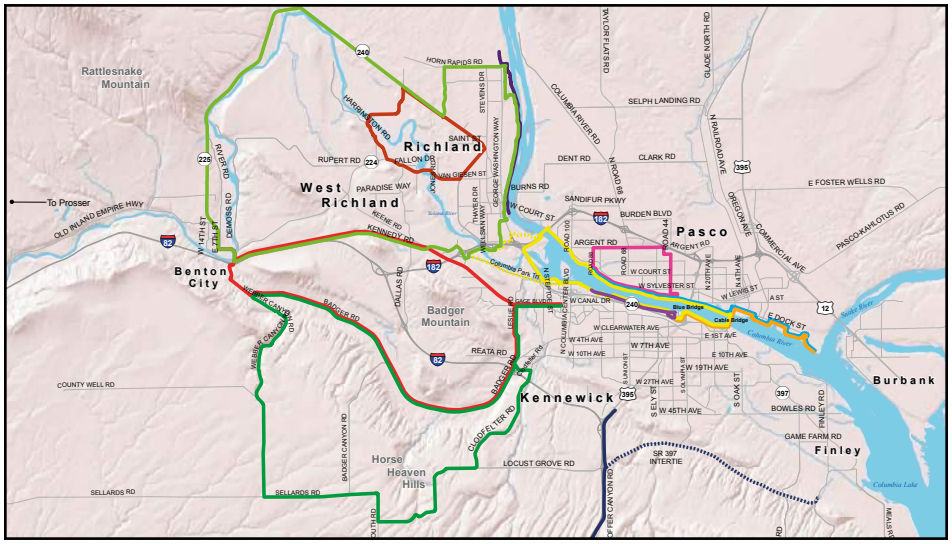
The region has over 54 miles of shared use pathways. Figure 3-7 shows the multi-use paths, and a list with the pathway facilities by jurisdiction can be found in Appendix C page 39.

The Sacagawea Heritage Trail is a 23 mile, asphalt bicycle and pedestrian trail which parallels the Columbia River shore for approximately 10 miles, extending from the 1-182 bridge to Sacajawea State Park, lying at the confluence of the Columbia and Snake Rivers. Most of the Sacagawea Heritage Trail is striped to divide travel lanes. There are periodic entry/exit access points connecting the pathway to local access roads in residential, commercial and industrial areas. The pathway leads users to several municipal parks including Chiawana, Wade, Riverview, and also Sacajawea State Park at the eastern terminus.

The Tapteal Greenway is a 30-mile corridor along and including the Yakima River, extending from Kiona Bend at Benton City to the mouth of the Yakima River at Bateman Island in Richland. The Greenway trail system includes both water and pedestrian trails. This corridor includes a variety of habitats ranging from arid shrub-steppe to lush emergent marshlands.

The Badger Mountain Trail System is part of the The Badger Mountain Centennial Preserve. The Preserve is a 650-acre park located in southern Richland, which is owned and managed by Benton County for conservation and non-motorized recreation. Badger Mountain is open to hiking, mountain biking, and equestrian uses facilitated by over eight miles of soft-surface trails anchored at two separate trailheads.

Other trails, pathways, and bicycle friendly streets, as well as cycling tips, can be found in the 2014 Cycling Tri-Cities map produced by the BFCG. Cycling Tri-Cities bike map is available to be downloaded onto mobile devices through a commercial website known as Maplet for a small fee. It is also available as a free PDF. Access to both of these can be found at the BFCG website, or by clicking on the picture below.



Journey to work data reveals the percent of non-motorized (walking and biking) travel in the RTPO, compared to Washington and the United States (Figure 3-5). Historic active transportation rates use ACS 1-year estimates beginning in 2006 (Figure 3-6).

Regional Active Transportation Plan

In the MPO and RTPO active transportation is addressed in the *2016 Regional Active Transportation Plan for Benton and Franklin Counties and Tri-Cities Urban Area* by the BFCG, adopted in June 2016. The Plan covers multiple aspects of bicycle and pedestrian travel in the Tri-Cities as well as the two counties.

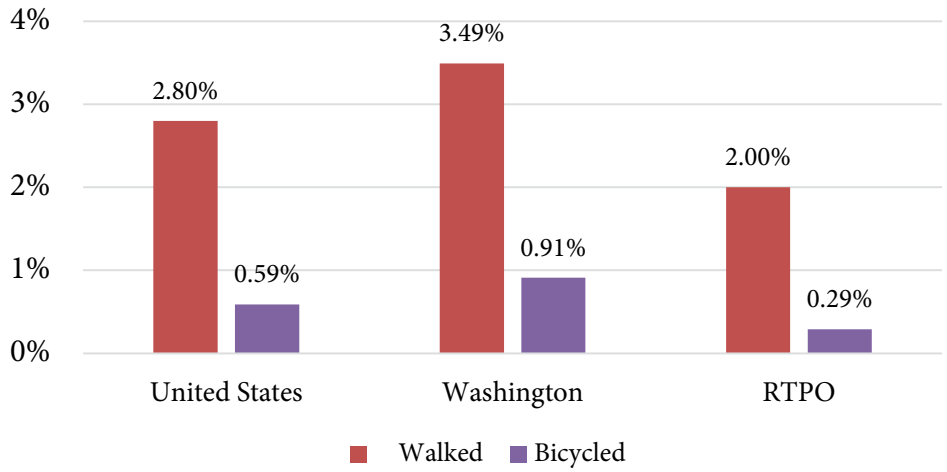
A keystone of plan development was a bike system workshop which identified and prioritized critical metropolitan-area bicycle issues. The workshop, held in April 2015, was attended by over 80 cyclists.

The format allowed attendees to write directly on large maps, identifying issues and areas of concern. From these maps, the BFCG was able to transfer these issues into a list, identifying issues by jurisdiction (Appendix C page 36).

Top issues include: bike lane and signage, and missing connections and links.

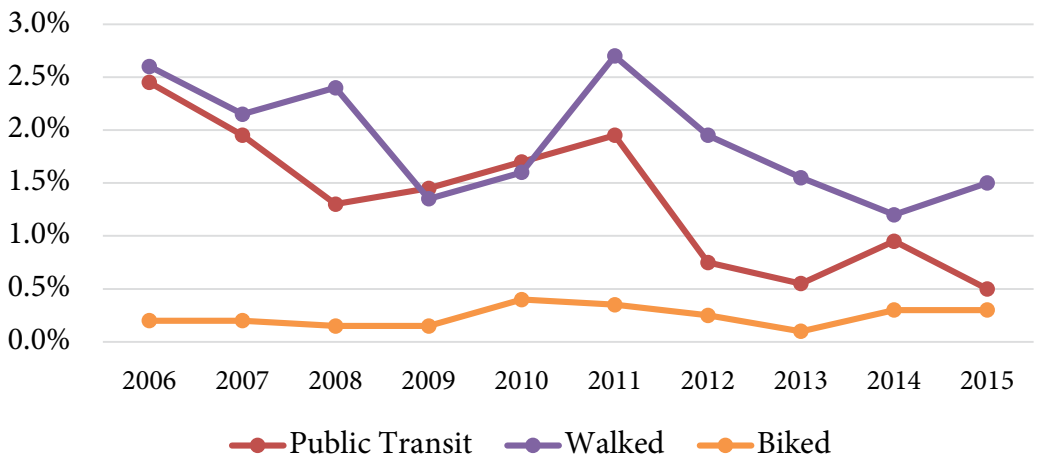
The plan can be found at the BFCG website.

Figure 3-5: Journey to Work, Percent of Non-Motorized Trips, 2014



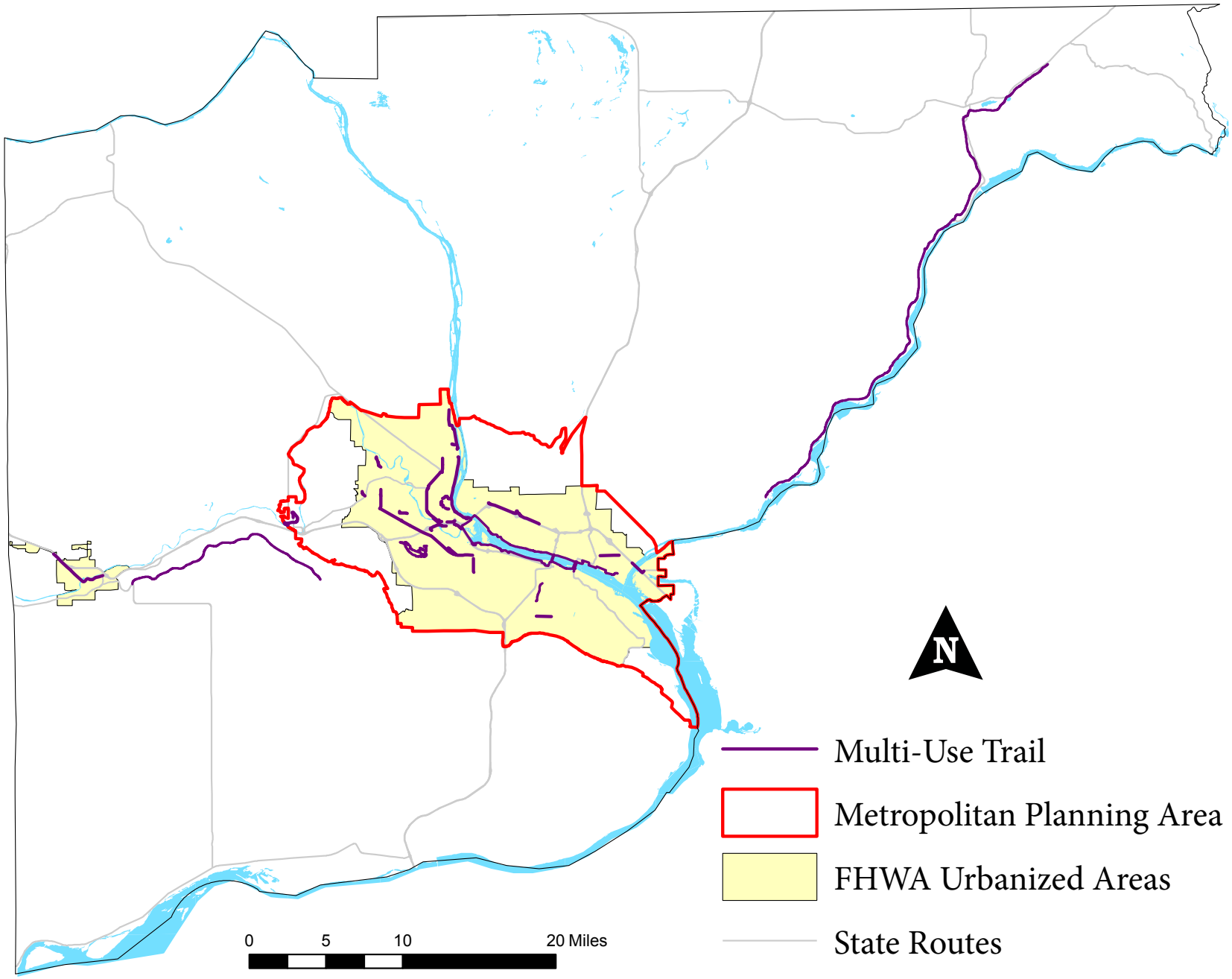
Source: U.S. Census Bureau, 2010-2014 American Community Survey Five-Year Estimates

Figure 3-6: Journey to Work - Active Transportation in the RTPO



Source: US Census Bureau, ACS 1-year Estimates

Figure 3-7: Multi-Use Trails in the RTPO



Transit

Ben Franklin Transit (BFT)

BFT provides public transportation in Benton and Franklin Counties, providing fixed routes, Dial-A-Ride service, Taxi services, and more. BFT has 21 routes serving Kennewick, Pasco, Richland, West Richland, Prosser, and Benton City: six are Inter City routes and 15 are local routes (which do not leave their designated city).

Transit service is defined by the Public Transportation Benefit Area (PTBA). A PTBA is a defined area of tax collection for the purposes of developing and funding a public transit agency (RCW 36.57A). The Ben Franklin PTBA is shown in Figure 3-9 and Figure 3-10.

In 2016, BFT adopted a study to improve transit in the region, called *Ben Franklin Transit 2016 Comprehensive Service Planning Study,* which can be found on their website. It included longer hours of service and altered routes.

Weekday and Saturday Fixed Route Bus Service

BFT operates Monday through Friday, 6am to 6pm, and on Saturday from 8am to 6pm.

Taxi Feeder Service

BFT serves designated areas of the PTBA with Taxi Feeder Service. Customers contact Tri-City Taxi to schedule trips, and taxis pick them up at designated locations and drop them off at the closest bus stop.

Dial-A-Ride (DAR) Paratransit Service

DAR is specialized, door-to-door transportation for people with disabilities, operating the same hours as fixed route services.

Trans+Plus Night and Sunday Service

Trans+Plus Night Service is available in the evening Monday-Sunday from 6:30pm until 2am, and the Sunday Service is available from 7:30am until 6:00pm.

Demand Response Service

Demand response service provides point-to-point trips as requested, in Prosser and Benton City. Reservations are made the day prior to travel. There are designated pick up points within the cities.

Vanpool

A Vanpool is a group of 5 to 15 commuters using BFT's 7-, 12-, or 15-passenger vans. Riders share the cost of fuel, maintenance, and insurance through a monthly fare. Further analysis of the Vanpool program is located in Chapter 4.

BFT Fleet, left to right: Vanpool, Dial-A-Ride, and bus.

Other Public Transportation Services

The three routes mentioned below fill critical transportation gaps in the Mid-Columbia. They are the only source of public transportation between the listed destinations.

People for People Yakima County Community Connector

Provides public transportation along Interstate 82 between Yakima and Prosser, with stops in Wapato, Toppenish, Zillah, Granger, Sunnyside, and Grandview, and connections with Benton-Franklin Transit, Pahto Public Passage, and Yakima Transit.

People for People Adams, Benton & Franklin Community Connector

Public Transportation is provided on the Highway 17 corridor between Othello in Adams County and Kennewick, with stops in Connell, Basin City, and Mesa, and connects to the Tri-Cities.

Travel Washington Grape Line

The Grape Line is administered by WSDOT. It provides service between Walla Walla and Pasco with stops in Touchet, Wallula and Burbank in Walla Walla County.

Additional Services

Park and Ride Lots

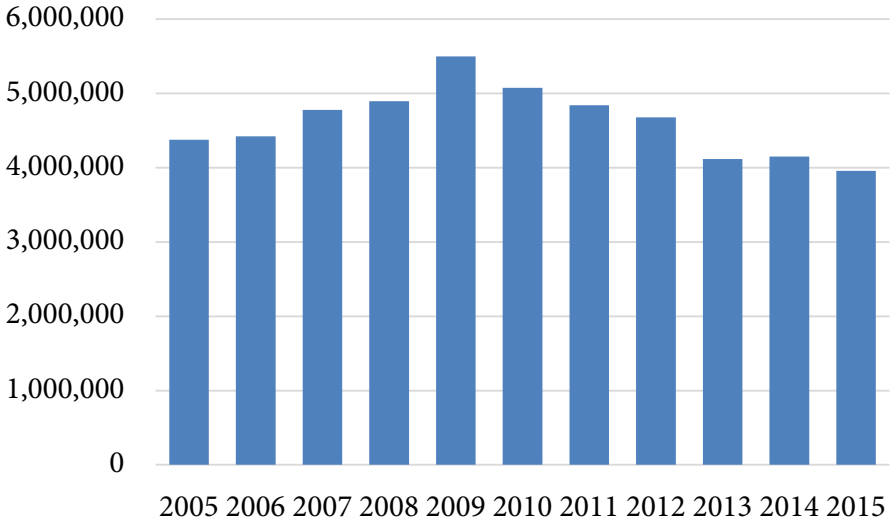
There are 16 formally identified park and ride lots in the region, owned by BFT and WSDOT. More information can be found in Chapter 4.

Greyhound

Greyhound in Pasco connects to destinations throughout the United States.

The BFT buses can take up to two bikes on the front.

Figure 3-8: BFT Transit Annual System Ridership, 2005-2015



Source: Federal Transit Administration National Transit Database

Figure 3-9: Public Transportation Benefit Area (PTBA) and Ben Franklin Transit (BFT) Routes in the Region

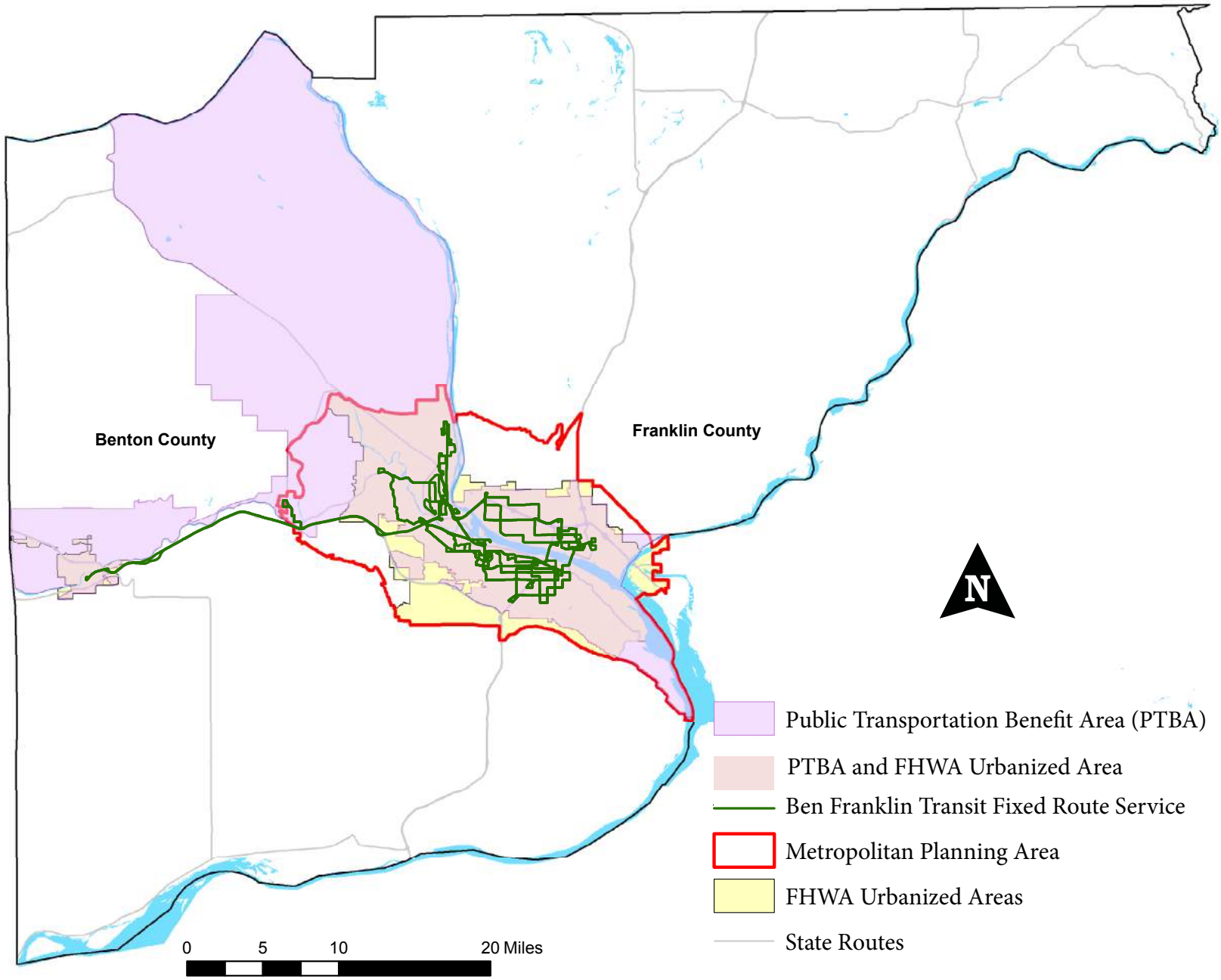
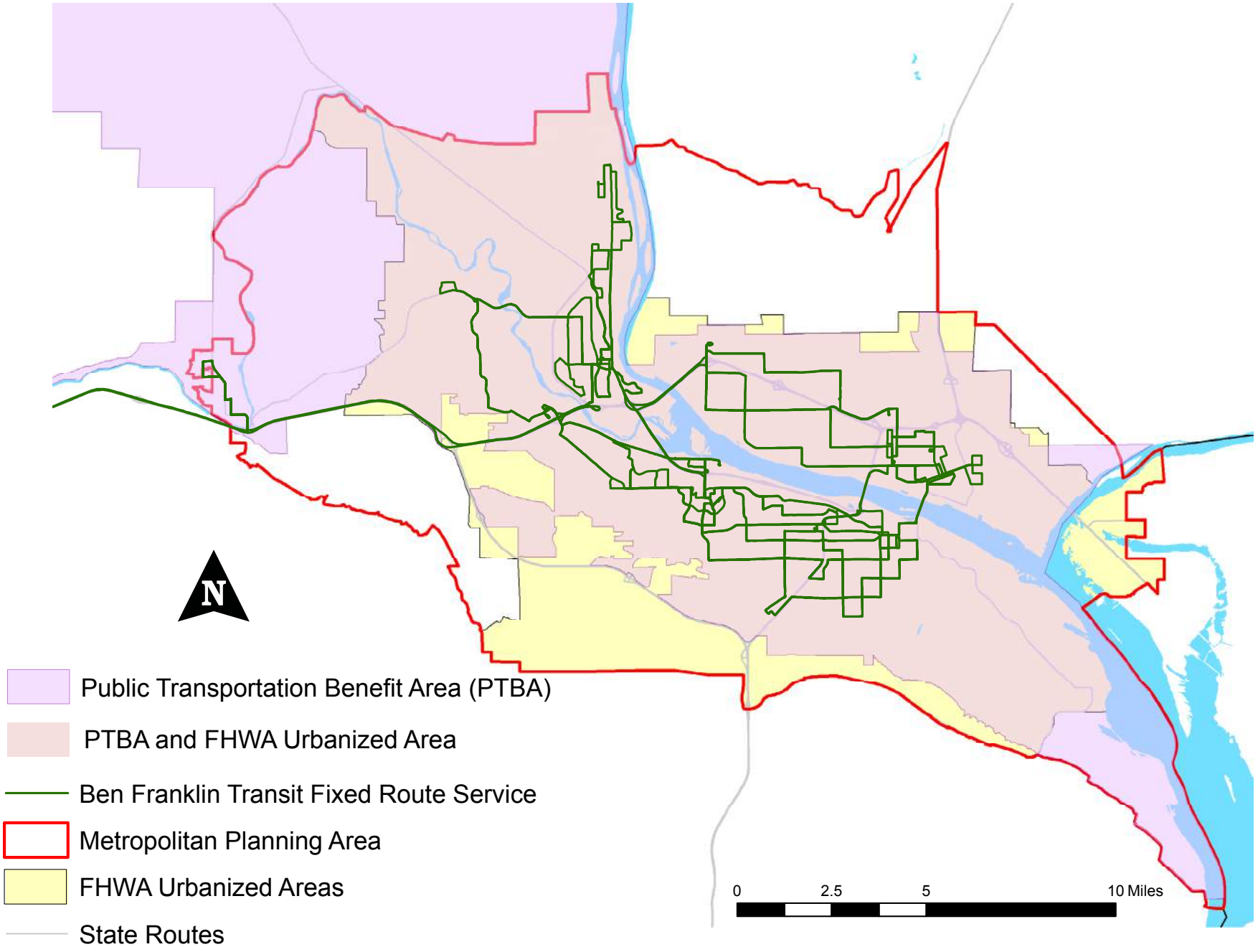


Figure 3-10: Public Transportation Benefit Area (PTBA) and Ben Franklin Transit (BFT) Routes in the MPA



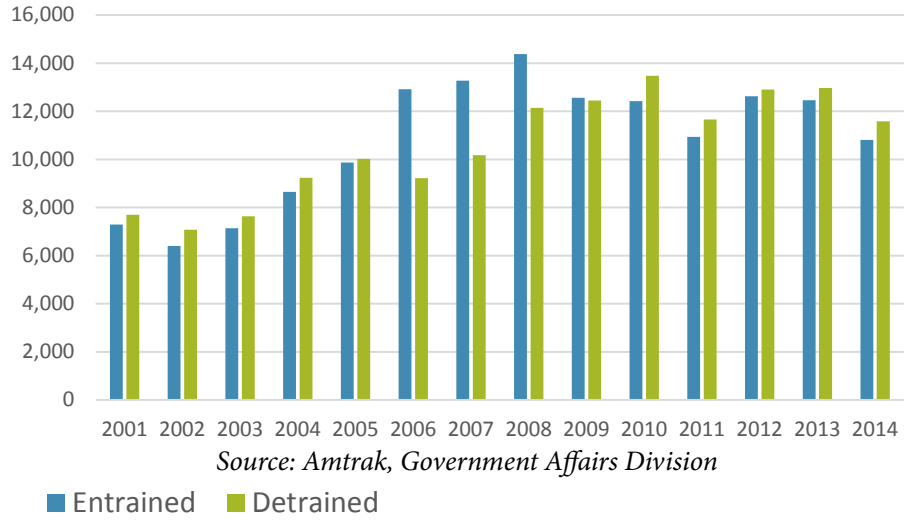
2016 BFT Contest Second Place Winner - Daniel from Kamiakin High School

Passenger Rail

The Amtrak passenger rail service, the "Empire Builder," operates daily on the BNSF track from Seattle to Vancouver, through Pasco to Spokane. A companion route operates on the BNSF track between Seattle and Spokane, where the two trains link up to continue toward Chicago. Chicago is Amtrak's east-west gateway.

Westbound passenger service stops at the Pasco Intermodal Train Station in the early morning. Eastbound service is scheduled for late evening. Arrival times vary due to heavy freight traffic on the line.

Figure 3-11: Amtrak Ridership in Pasco, 2001-2014



Source: Amtrak, Government Affairs Division

Pasco Intermodal Train Station

The Pasco Intermodal Train Station is a terminal for BNSF's passenger rail line, as well as Greyhound buses, the Grape Line, and BFT. It is owned by the City of Pasco, and includes a waiting room and a parking lot.

Reopening Stampede Pass to Passenger Service

Northern Pacific opened the Stampede Pass Tunnel in 1888 and for nearly a century the track and tunnel were utilized for passenger and freight traffic. Ownership of the tracks changed hands over time. In the 1980's, then owner Burlington Northern, later to become BNSF, thought the line redundant and closed the pass to save on maintenance costs. After over a decade of dormancy, the Stampede Pass Line and Tunnel were revived twenty years ago in 1997 by BNSF, which utilizes the route as a direct main line through the Cascades, as a carrier for tonnage between the Port of Seattle and Spokane.

All Aboard Washington, a passenger rail advocacy group, is actively engaged in an effort to reactivate Stampede Pass passenger service, though the corridor carried its last passenger train forty years ago. The group has been a member of successful passenger rail advocacy partnerships in the past. With funding from All Aboard Washington, a study is underway to gauge public interest in opening Stampede pass. If this service is restored, it would link communities like Pasco, Prosser, Toppenish, Yakima, Ellensburg, Cle Elum and Auburn. In Auburn, the line would connect with trains north to Seattle and south to Tacoma and Olympia. In Pasco, the line would connect with the existing Amtrak service between Portland and Chicago.

Stampede Pass. Source: All Aboard Washington

Passenger Air

The region has three airports, falling into two Federal Aviation Administration (FAA) classifications (Figure 3-13): a primary service level airport provides scheduled passenger service and has more than 10,000 annual enplanements, and a General Aviation airport is all aviation other than scheduled commercial and military aviation.

The Tri-Cities Airport

Operated by the Port of Pasco, the Tri-Cities Airport (PSC) in Pasco is the largest airport in the region and the only one offering commercial service. PSC connects with eight major hubs: Seattle, Portland, San Francisco, Minneapolis/St. Paul, Denver, Salt Lake City, Los Angeles, Las Vegas and Mesa, Arizona. It is served by Delta, Alaska Air/Horizon Air, United and Allegiant, and is the fourth largest air carrier airport in Washington. Aircraft services include major and minor repair, navigational radio repair and sales, flight training, aircraft rental, charter, aircraft storage and aircraft sales. The Terminal Expansion Project began September 2014 and was completed in early 2017. The project doubled the size of the current terminal, and added a new boarding concourse and restaurant, expanded the security screening area, and modernized the ticketing and baggage areas.

The completed Terminal Expansion Project

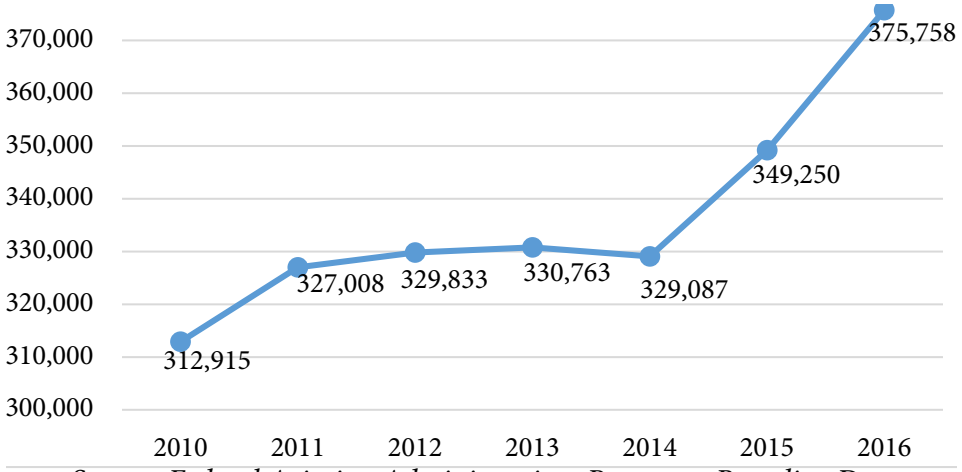
The Richland Airport

The Richland Airport, operated by the Port of Benton, has two 4,000 feet runways, and 165 based aircraft. Sundance Aviation is the acting FBO (Fixed Based Operator) and provides flight instruction, fueling, aircraft maintenance services and aircraft tie-down rentals.

The Prosser Airport

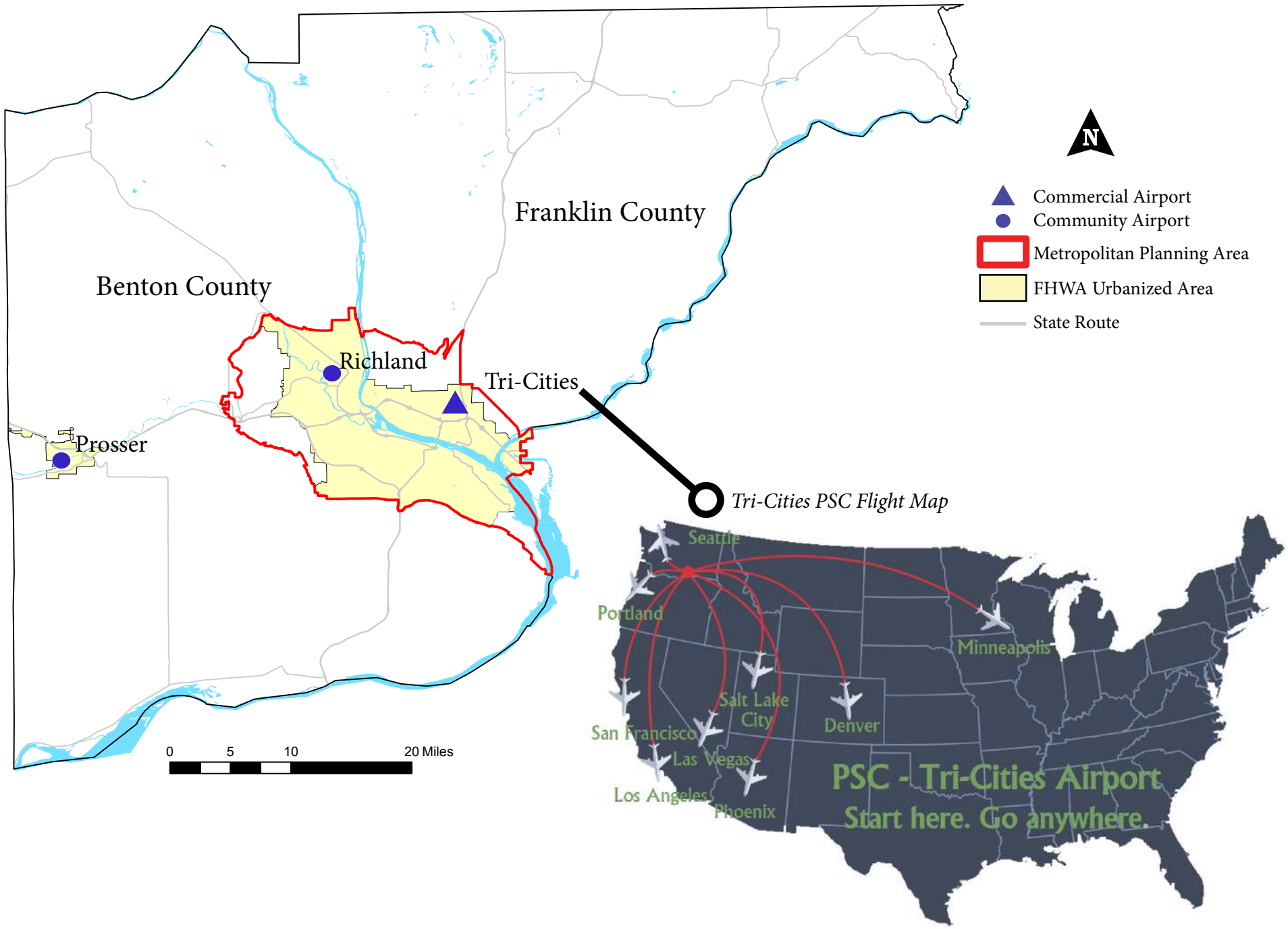
The Prosser Airport, operated by the Port of Benton, serves light single and twin engine propeller driven aircraft. There is one 3,450 foot paved runway and no instrumentation, with about 15 based small aircraft.

Figure 3-12: Tri-Cities Airport (PSC) Passenger Enplanements



Source: Federal Aviation Administration, Passenger Boarding Data

Figure 3-13: Airports in Benton and Franklin Counties



Passenger Vehicle

Roadways are a major element of the regional transportation system. The State and National Highway System (NHS) includes interstates, other freeways and expressways, select principal arterials, and major access routes. The State Highway System is comprised of both federal and state highways.

State Highway System

There are four interstate and federal routes, which carry the vast majority of passenger traffic throughout the region:

- **Interstate - 82** is a freeway extending from I-90 near Ellensburg, Washington, to I-84 near Hermiston, Oregon.
- **Interstate -182** is a 16-mile interstate spur route from I-82 west of the Tri-Cities to US 395, SR 397 and US 12 in Pasco.
- **US 12** is a cross-state route extending from the Washington Coast to Lewiston, Idaho.
- **US 395** extends from Mexico to Canada via eastern Washington. Within the RTPO, the route extends from Umatilla, Oregon to the Adams County Line. Daily traffic volumes contain 30-35 percent trucks through this region.

Additionally, there are various state routes serving the region (Figure 3-16).

Interstates, state roads, and local roads are classified to group functions and capacities. There are four basic road types in the hierarchy: freeway, arterial, collector, and local. Figure 3-15 shows the general hierarchy of roads, and Figures 3-17 and 3-18 shows the classifications in the metropolitan area.

Journey to Work data reveals the percentage of SOV commute trips (Figure 3-14). From 2010-2014, the number of SOV commute trips increased at a steady rate, and in 2015 there was a slight decline.

Figure 3-14: Journey to Work - SOV in the RTPO

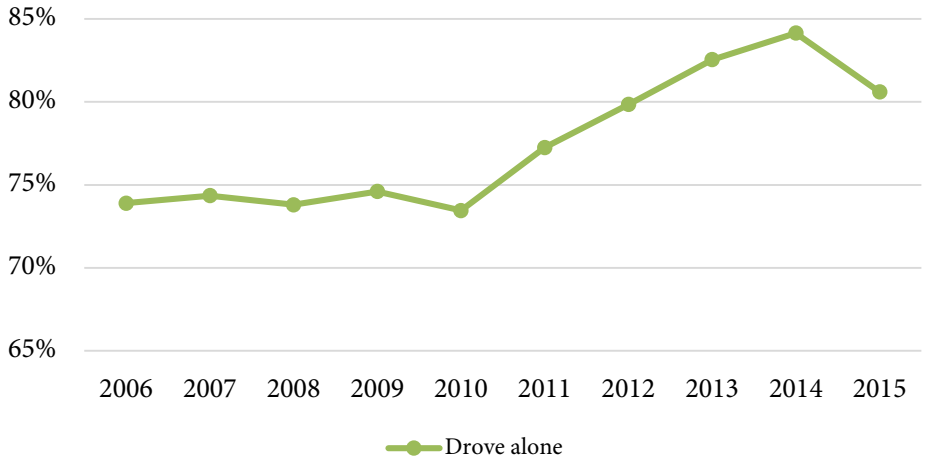
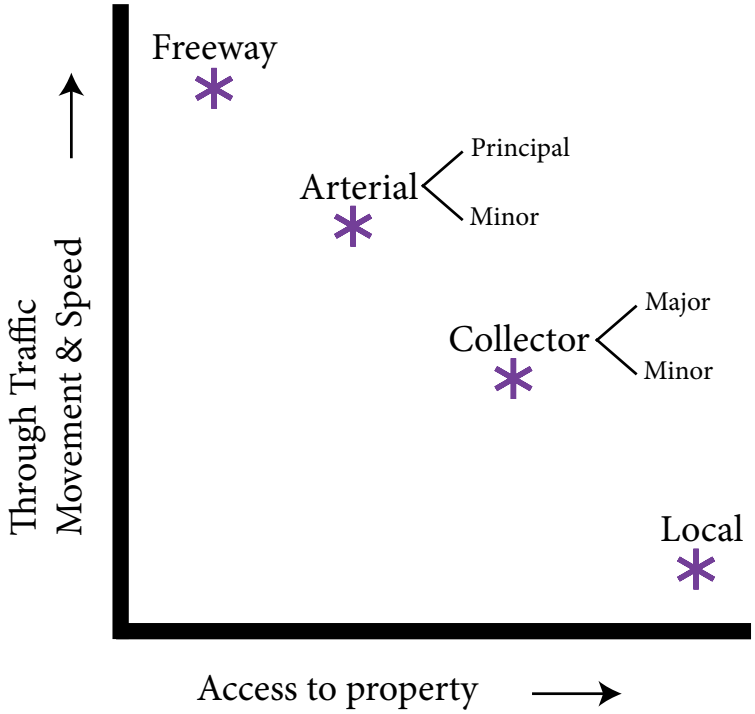


Figure 3-15: Road Hierarchy Diagram



Scenic and Recreational Highway System

Scenic and Recreational Highways are sections of Washington State Highway that are identified in State law (RCW 47.39 and 47.42). They are designated due to the need to develop management plans that will protect and preserve the scenic and recreational resources from loss through inappropriate development. In 1967, Washington enacted a State Scenic and Recreational Highway Act, amended in 1990. WSDOT published the *State Scenic and Recreational Highway Plan* in 2010. During the creation of the plan, WSDOT coordinated with a number of partners supporting Scenic and Recreational Highways. RTPO's are listed as a partner, however many RTPO's do not consider Scenic and Recreational Highways in their transportation plans. WSDOT is working towards the inclusion of Scenic and Recreational Highways into RTPO plans.

In our RTPO, there are State Scenic and Recreational Highways and State Scenic Byways. The Lewis and Clark Trail Scenic Byway runs through the Tri-Cities along parts of the Columbia River. There are no nationally designated scenic byways in the RTPO.

The State Scenic and Recreational Highway System and State Scenic Byways maps are located in Appendix C, and the WSDOT website for an interactive map of Scenic Highways.

Figure 3-16: Federal and State Routes

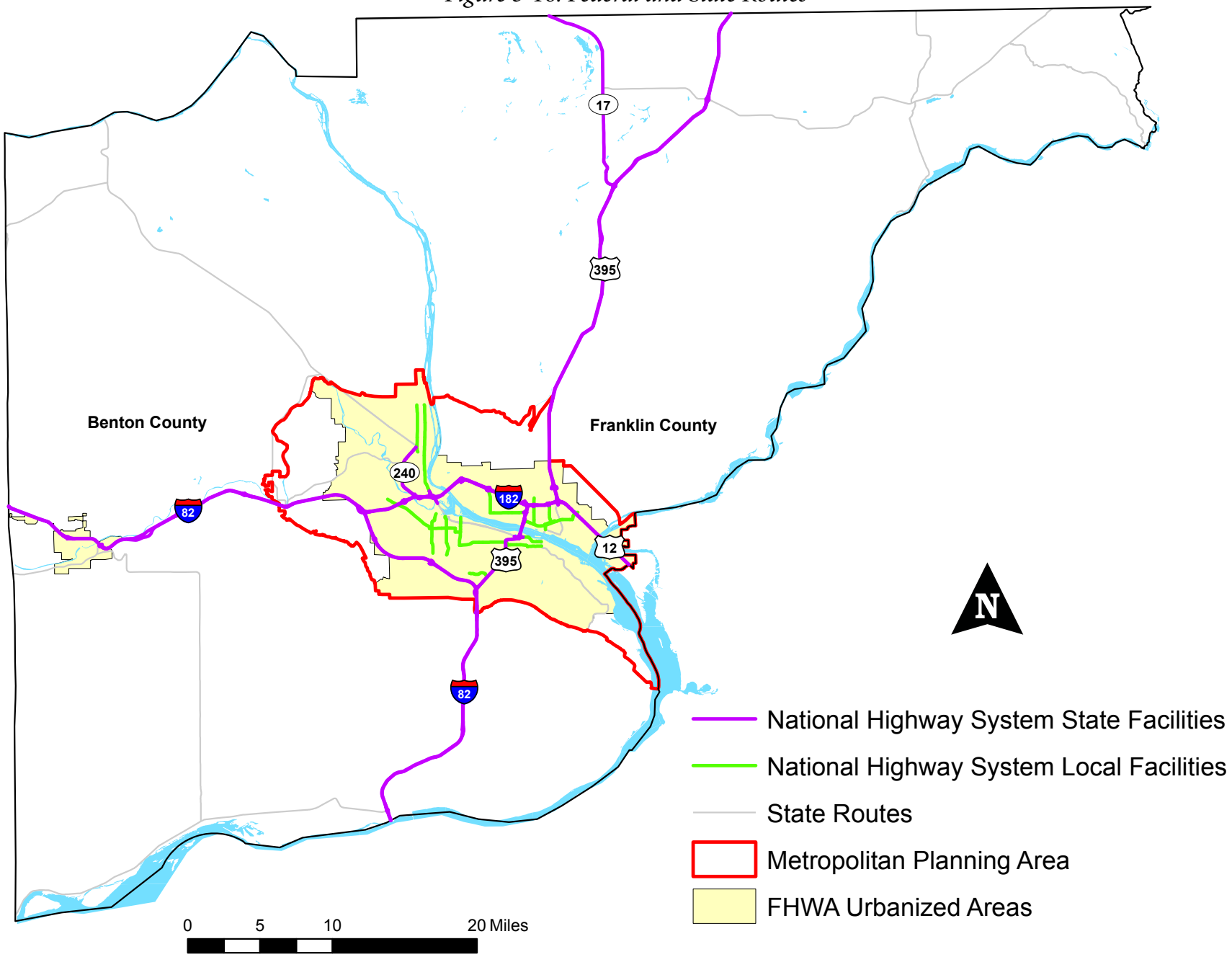


Figure 3-17: Federal Classifications in the MPO

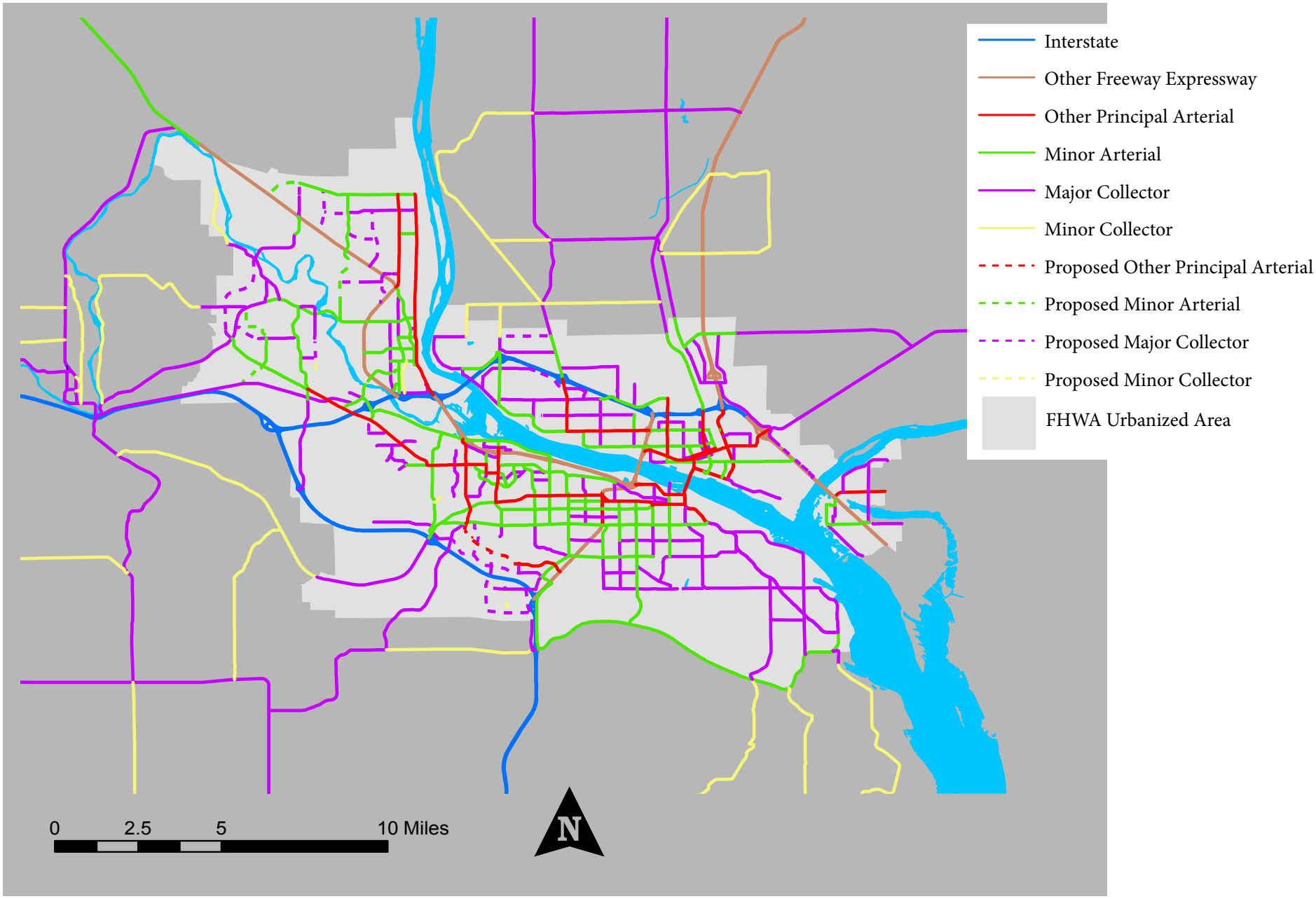
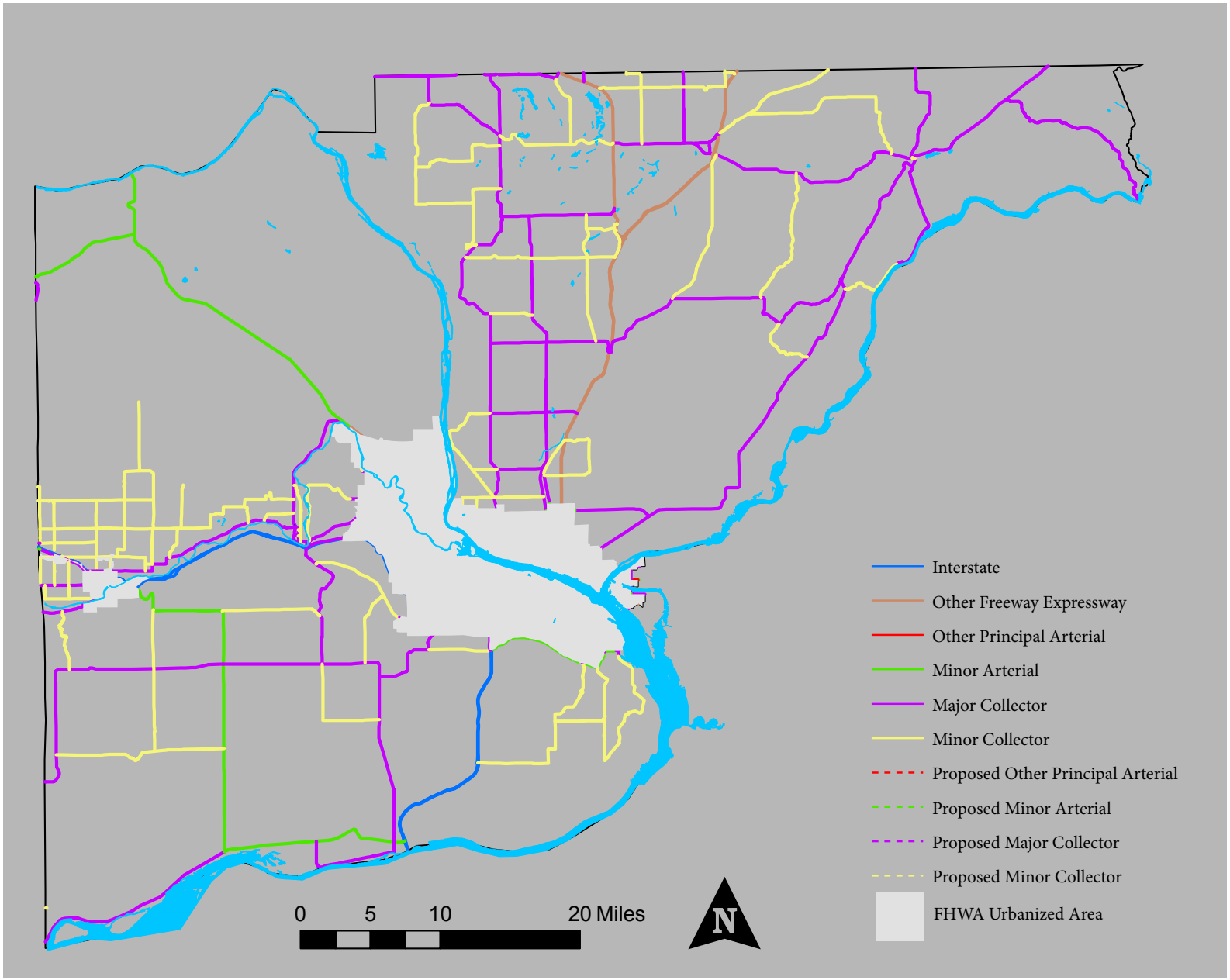


Figure 3-18: Federal Classifications in the RTPO



Electric Vehicle Infrastructure

From June 2016 through June 2017 electric vehicle registrations in Benton and Franklin Counties increased from 241 to 355, or 47%[1]. October 2017 data from the US Department of Energy Alternative Fuels Data Center shows that there are eight public charging sites with a total of nineteen stations within the metropolitan area. Of that total, eleven are Level 2 stations and eight are fast charging. Four of the Level 2 and all of the fast charging stations are owned by Tesla, and proprietary. All sites are open to the public, but with different hours. Two Tesla Level 2 charging stations near Benton City (the Red Mountain Viticultural Area) are the only sites in Benton and Franklin Counties outside of the metropolitan area.

A major obstacle to siting charging stations is that outlets are not universal, much like cell phone chargers, and they can be cost prohibitive; cost for installation of a networked DC Fast Charger ranges from $30,000 to $70,000.

Locally, the Electric Vehicle Infrastructure Transportation Alliance (EVITA), was created in April 2016. EVITA is a Richland-based consortium comprised of Energy Northwest, a joint operating agency and four not-for-profit electric utilities. One of EVITA's missions focuses on the expansion of publicly available EV charging infrastructure in the Tri-Cities and surrounding area.

In 2015, WSDOT announced the Electric Vehicle Infrastructure pilot program, a grant program to encourage private investment in EV fast charging stations along highway corridors. WSDOT issued a call for projects in March 2017 and announced the funded proposals in September 2017. The publicly-accessible DC fast-charging stations will accommodate most makes and models of EVs.

There are **four levels of charging stations** for EVs: Level 1, a standard AC 120 volt household outlet, can take up to 18 hours to charge a PEV; Level 2 refers to 240 volt charging equipment that can take up to seven hours per charge; Level 3, a DC fast charging station, can take about 20 minutes for an 80% recharge. Level 4 chargers, proprietary technology owned by Tesla and intended for Tesla EVs, can recharge a vehicle in 10 minutes.

Charging Station in Kennewick, near a grocery store on 27th Ave

1 Source: Washington Department of Licensing

EVITA submitted two successful proposals. One proposal will bridge the charging gap between the Tri-Cities and Interstate-90 with the installation of five new fast charging stations in the RTPO along I-82, I-182 and US 395, and a sixth in Union Gap/Yakima. Charging sites in Benton and Franklin Counties will be located in Richland, Kennewick, Pasco, Connell and Prosser. EVITA's second successful grant addresses the charging gap on I-90 east of Snoqualmie Pass, with chargers in Vantage, Ellensburg and Cle Elum.

There are twenty-four Fast Charge sites on the east side of the state at eight different locations. Three locations are Tesla sites with a total of seventeen sites, the remaining five locations have seven outlets. After the EVITA sites are constructed, public access Fast Charge sites in Eastern Washington will more than double. In Figure 3-19, the "Planned CCS/CHAdeMO" locations indicate where the pilot program fast charging grant sites are located. Figure 3-20 shows the existing network of fast charging stations in the region.

Figure 3-19: Electric Vehicle Infrastructure Grant Program Sites, Planned and Existing

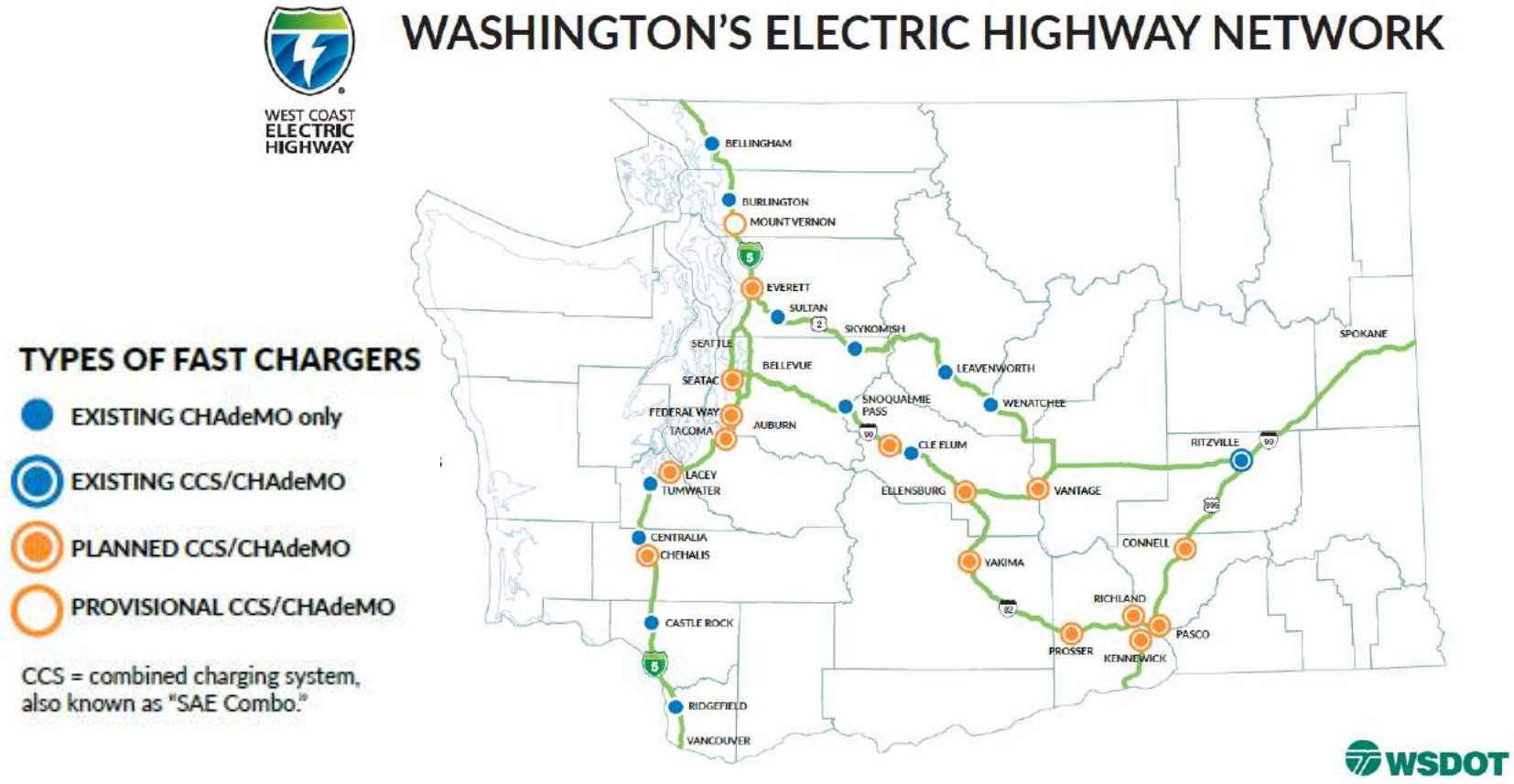
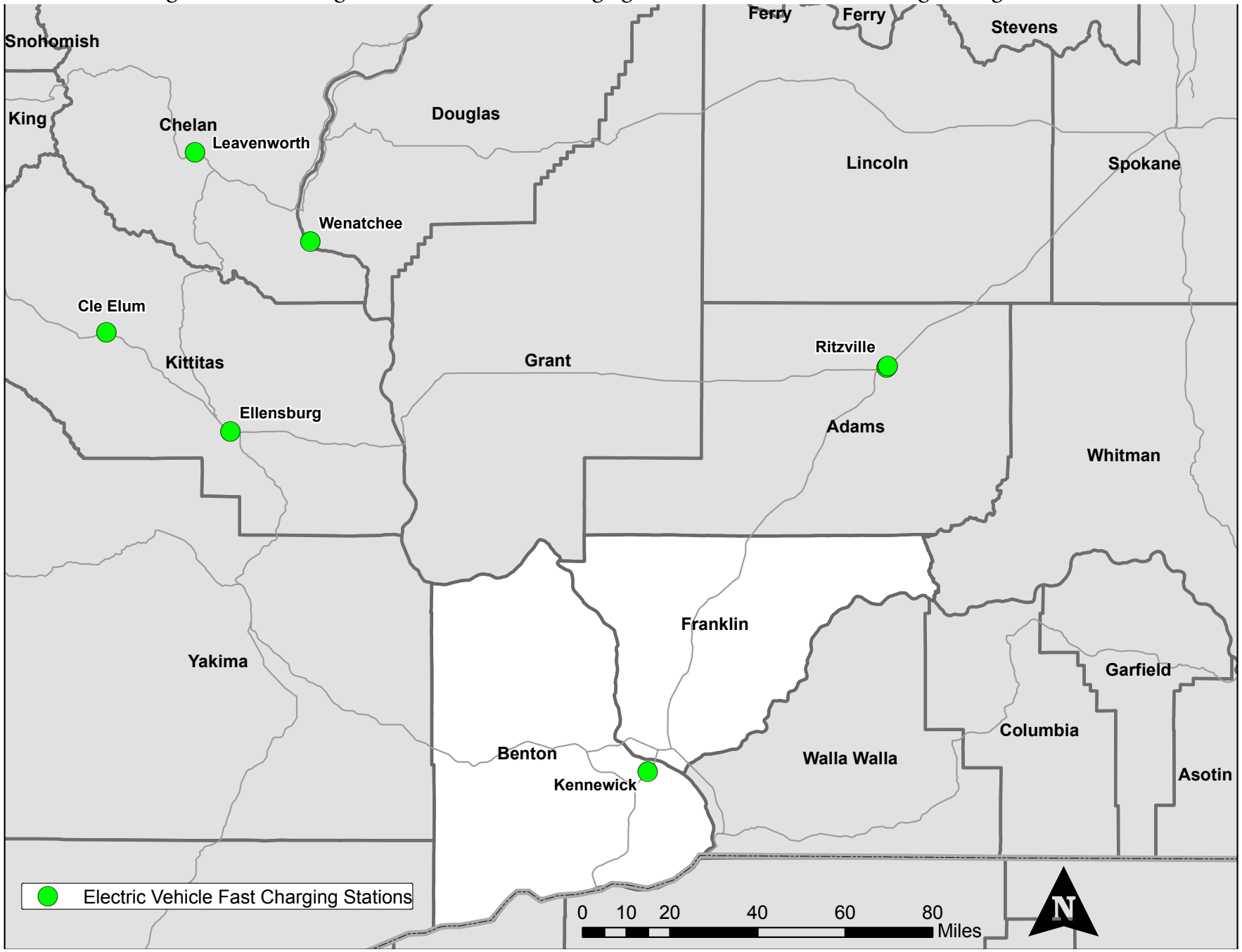


Figure 3-20: Existing Electric Vehicle Fast Charging Stations in the RTPO and Neighboring Counties



Technology Developments

With increasingly fast technological developments, the future of transportation will be vastly impacted, but the challenge lies in accurately planning for tomorrow's infrastructure needs with the digital disruption of technology. The smartphone is heralded as the biggest advance in transportation in the recent past.

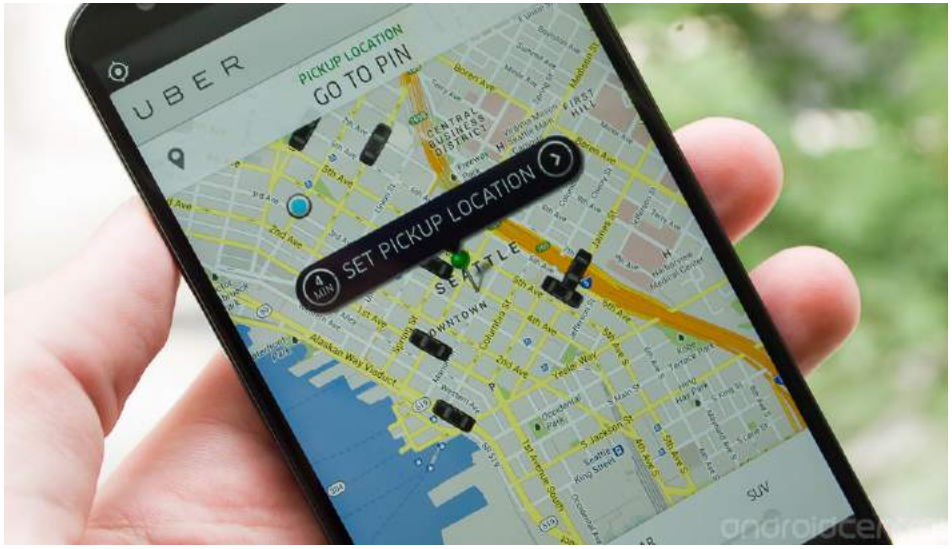
With apps for navigation, ridesharing, ride-hailing, driverless cars, bike and pedestrian infrastructure, and bus routes, people can utilize the transportation system in different ways. However, all these modes shape traffic congestion, mobility, and land use.

Like all technology changes, there comes positive effects, like increased accessibility and better information, but also negative effects, like increased traffic through residential areas and distracted driving. With car sharing apps, and better information about transit, walking, and biking facilities, the demand for infrastructure is changing. How it is changing precisely is all speculation, but there are some common trends.

The trends are based around changing individual behavior. Millennials are driving differently, and as baby boomers begin to retire, the mode share is expected to change. Millennials buy and ride single occupancy vehicle (SOV) less than baby boomers, so commuting is expected to bring out more demand for carpooling, transit, and other modes.

Additionally, the urban auto commuting delays are rising, and paired with high car ownership costs, commuting SOV time and costs can be significant. Finally, as E-commerce continues to grow, an individual has a minimized need to drive to a physical store.

Uber, a popular smartphone based Taxi company, debuted in Kennewick in late 2016, and Richland in 2017. Service is also available in West Richland, and unincorporated parts of Benton and Franklin Counties.



A popular ride-hailing app, UBER, allows a user to call a car and track the car's path in live time

Automated Vehicles

The DOT/ NHTSA has published a policy statement and a set of guidelines concerning automated vehicles, also known as self-driving and autonomous cars (AV's). With the potential for increased safety, the NHTSA will work with the industry, government partners, and other stakeholders to develop new technology.

> **Automated vehicles a**re those in which at least some aspects of a safety-critical control function (e.g., steering, acceleration, or braking) occur without direct driver input.
>
> National Highway Traffic Safety Administration (NHTSA)

AV development aims to increase the overall safety of the road by using technology to abate human error, are more fuel efficient, and may offer increased accessibility. Several companies have been testing AV's in controlled facilities as well as on the road.

There are ethical and legal challenges to AV's, from the programming to the insurance. For example, whose fault is it when an AV gets in an accident?

There's also a question of increased use of the roads. Will AV's drop off a passenger, then drive by themselves, increasing the miles traveled, with no one in the car? Or will ride-sharing reduce the need for many cars on the road, opening up spaces in cities for other purposes?

The National League of Cities in "City of the Future" predicts one future, although not without controversy:

> *Rather than patrolling high traffic areas for passengers, these cars can work together to distribute themselves efficiently throughout a city and loiter in less congested areas when they are not in use. Such a network has the potential to almost eliminate the need for on-street parking, and would significantly reduce the need for off-street parking.*[1]

"The City of the Future" is describing the best case scenario. It represents what could be possible with a coordinated effort with AV development. Since there are so many unknowns that correspond with rapid technology development, transportation planners will need to carefully monitor trends in order to adjust their planning techniques.

1 DuPuis, Nicole, Cooper Martin, and Brooks Rainwater. "City of the Future." National League of Cities, 2015.

Movement of Freight and Goods

The FAST Act established a new National Highway Freight Network (NHFN), consisting of four components: the Primary Highway Freight System (PHFS), the remainder of the Interstate system not part of the PHFS, Critical Rural Freight Corridors, and Critical Urban Freight Corridors. These components direct federal funding.

Freight Economic Corridors

The Washington State Freight and Goods Transportation System (FGTS) is a classification system for Freight Economic Corridors (roadways, railways, and waterways important for the movement of commerce) based on freight volume. The FGTS is used to establish funding eligibility for Freight Mobility Strategic Investment Board grants, fulfill federal reporting requirements, support transportation planning, and plan for pavement needs and upgrades. WSDOT has used the FGTS to designate both Strategic Freight Corridors and State Freight Economic Corridors. WSDOT completed an update to the FGTS in March 2016. The 2015 FGTS report, detailed maps, and classification tables are published online.

FMSIB Strategic Freight Corridors

FMSIB, the Freight Mobility Strategic Investment Board, is required to update the list of designated strategic freight corridors not less than every two years. "Strategic Freight Corridors" (RCW 47.06A.010) means a transportation corridor of great economic importance within an integrated freight system that carries freight tonnages of at least:

- Four million gross tons annually on state highways, city streets, and county roads;
- Five million gross tons annually on rail roads; and
- Two and one-half million net tons on waterways.

Washington State Freight Mobility Plan

The *Washington State Freight Mobility Plan* has three main objectives. First, it aims to develop an urban goods movement system that supports jobs, the economy, and clean air, while providing goods delivery to businesses and residents. Second, the plan aims to maintain the state's competitive position as a global gateway with the intermodal freight corridors. Finally, the plan aims to support rural economies' farm-to-market, manufacturing, and resource industry sectors. With input from MPO's and RTPO's, the plan identified and mapped the Freight Economic Corridors.

Figure 3-21: Freight and Goods Transportation System (FGTS) Road Classifications in the RTPO

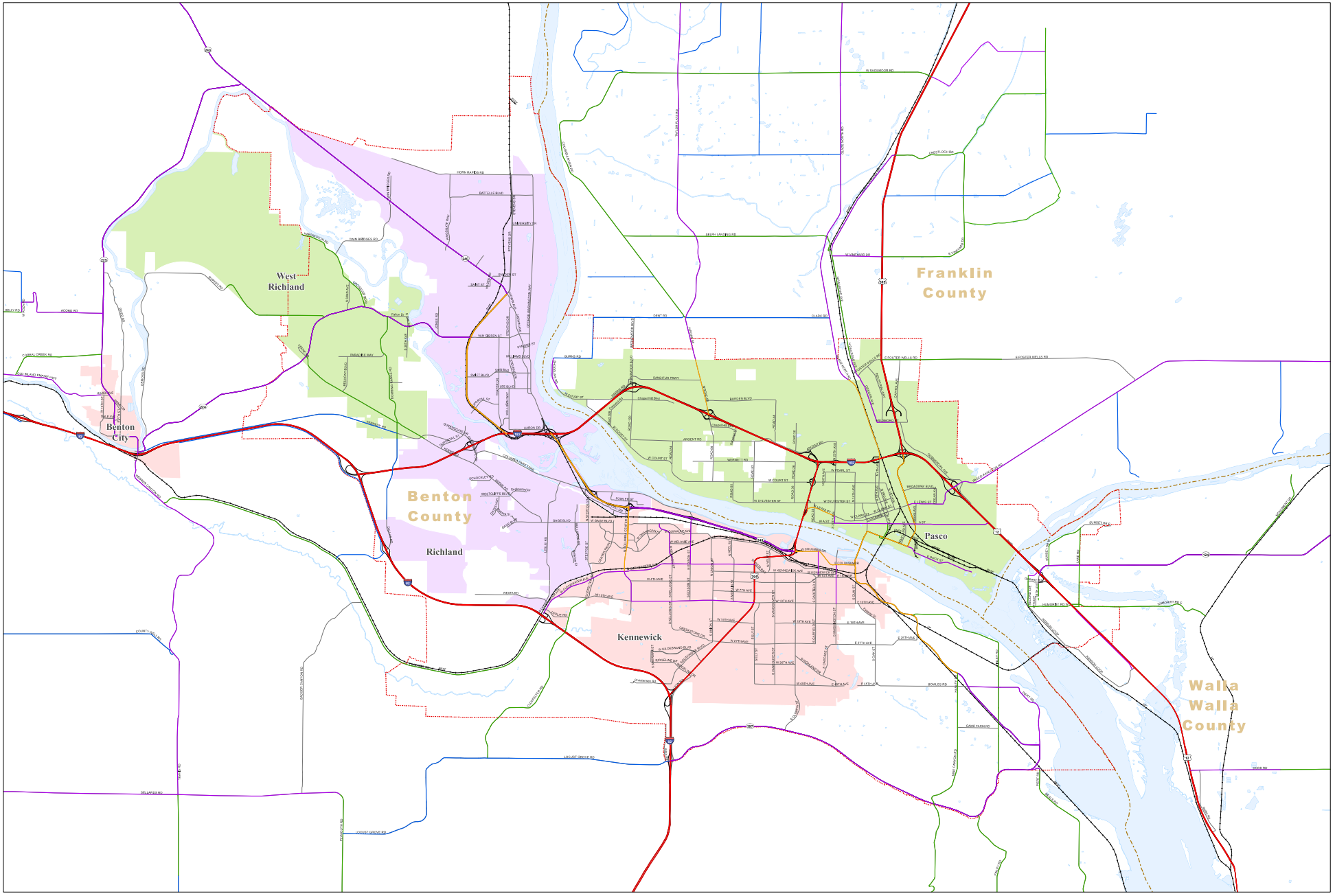
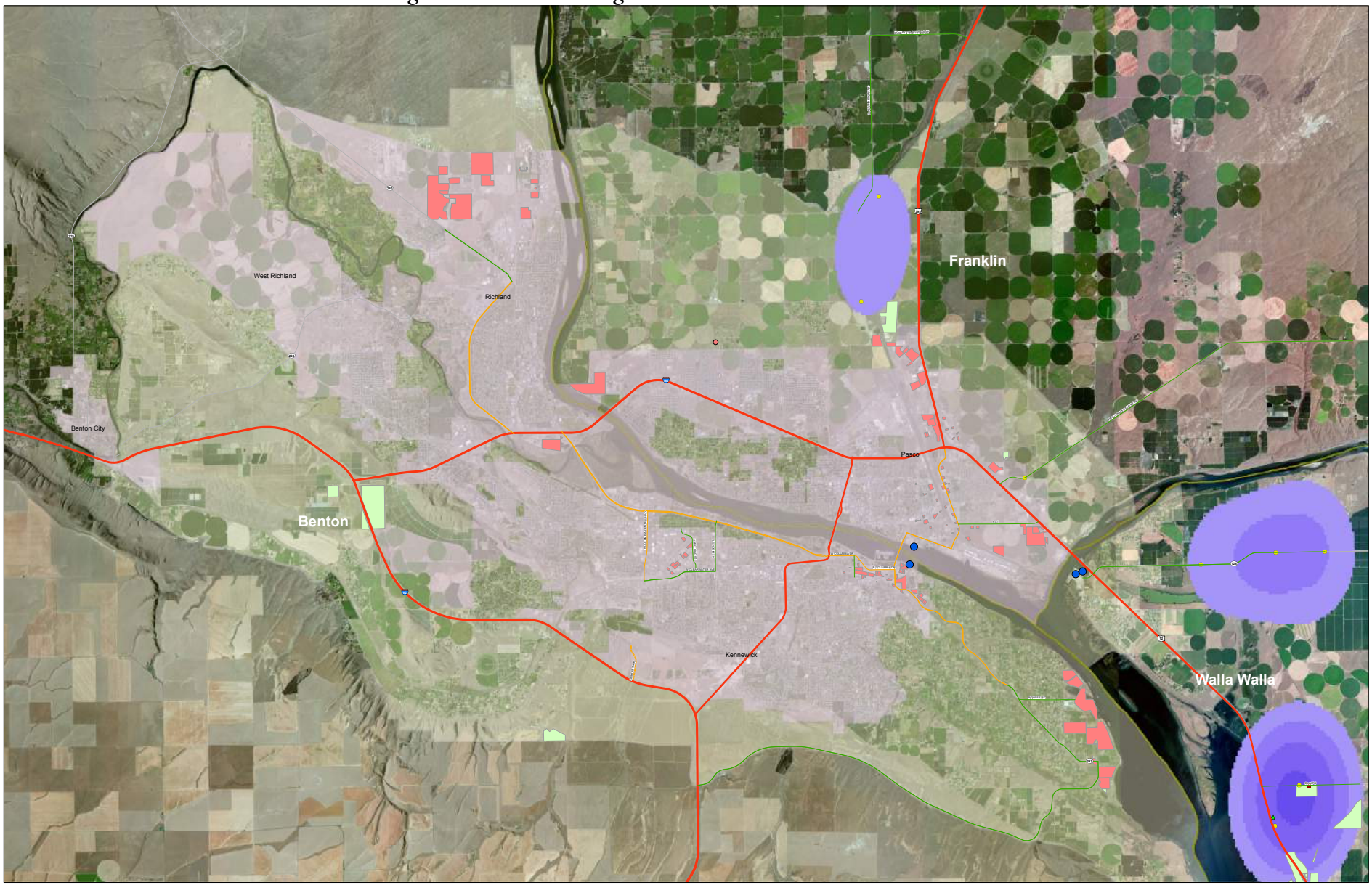


Figure 3-22: Truck Freight Economic Corridors in the RTPO



Legend

Intermodal Facilities
- Major Air Cargo Airports
- Rail Intermodal Terminals
- Barge Loading Facilities
- Marine Port Terminals

Freight Economic Corridors
- T1 Corridors
- T2 Corridors
- Missing Links in T-1/T-2 network
- Alternative Freight Routes
- First/Last Mile Connector Routes to T1/T2 Corridors

Agricultural Processing Facilities of WA's top 4 agricultural products by value
- Apple Packing Plant
- Beef Plant
- Dairy Plant
- Potato Processing Facility

Industrial/Comemrical Zoned Land
- Industrial Zoned Land in Urban Area
- Commerical Zoned Land within 5 miles of T1 and T2 highways in Rural Area
- Industrial Zoned Land within 5 miles of T1 and T2 highways in Urban Area

Agricultural Processing Facility Clusters
- 0
- 0-1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- 6-7
- 7-8

Note: Agricultural processing facility cluster shows facility density and value indicates number of facilities within 2-mile radius.

- Military Installations
- City Limits
- County Boundary
- MPO/RTPO Boundary
- Indian Reservations

Produced by WSDOT. Visit http://www.wsdot.wa.gov/Freight/EconCorridors.htm

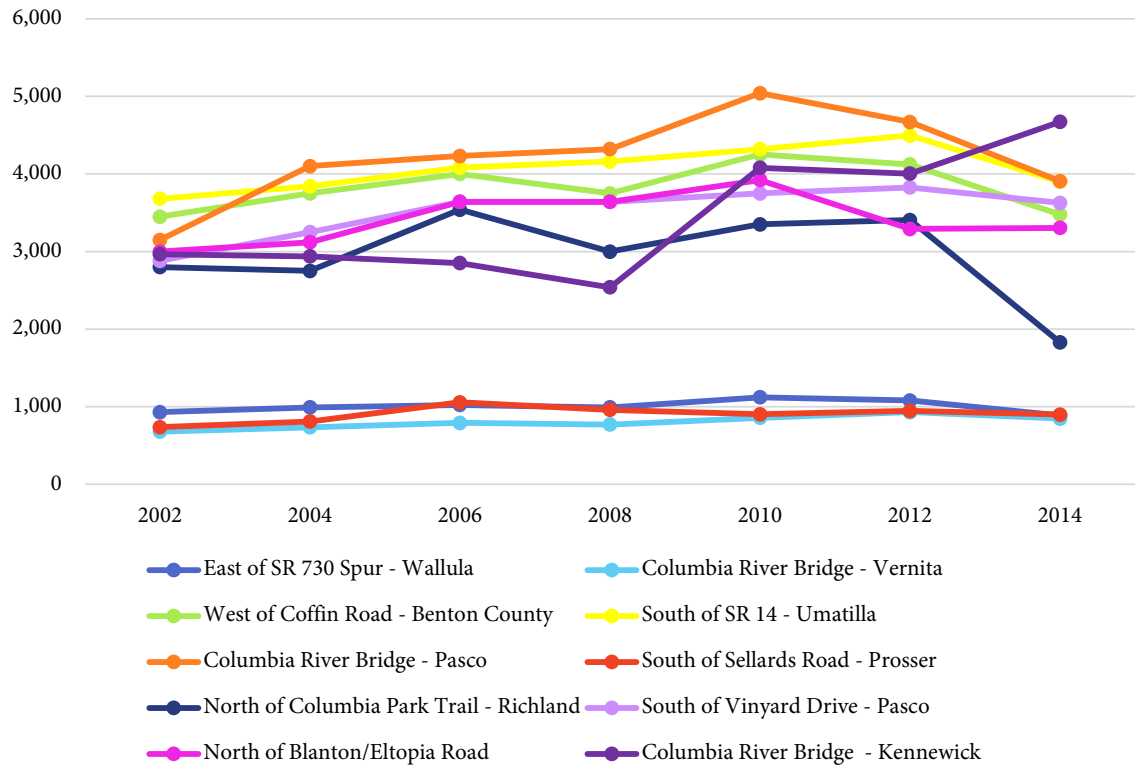
Commercial Vehicle

The FGTS Classification for roadways in the RTPO can be found in Appendix C page 45. FGTS classification for roadways:

T-1*: more than 10 million tons per year
T-2*: 4 million to 10 million tons per year
T-3: 300,000 to 4 million tons per year
T-4: 100,000 to 300,000 tons per year
T-5: at least 20,000 tons in 60 days and less than 100,000 tons per year

*Facilities classified as T-1 and T-2 are identified as Strategic Freight Roadways.

Figure 3-23: Average Daily Highway Truck Traffic in the RTPO



Truck Volumes on State Routes

WSDOT manages multiple permanent traffic recorders in the RTPO and releases this data as part of their state highway system *Annual Traffic Report*, including Average Daily Highway Truck Traffic (by segment in Figure 3-23, averaged in Figure 3-24) and percent of the average daily highway traffic that is trucks (Figure 3-24). A list of the NHS facilities in the RTPO can be found in Appendix C page 43.

Table 3-1: Strategic Freight Roadways in the MPO, 2015

City	Route Name	Start	End	2015	Truck ADT	Annual Truck Tonnage
Kennewick	Columbia Drive	SR 240	SR 397	T-2		
Kennewick	N Columbia Center Blvd	West Clearwater Ave	Richland C/L	T-2		
Richland	N Columbia Center Blvd	Kennewick C/L	SR 240	T-2		
Pasco	Road 68 N	I-182/US 12/US 395	North City Limits	T-2	12,776	27,789,000
Pasco	N 4th Ave	I-182/US 12/US 395	North City Limits	T-2	2,895	6,081,250
Pasco	W Lewis Street	US 395	N 20th Ave	T-2	3,567	6,537,250

Source: Washington State Freight and Goods Transportation System 2015 Update

Figure 3-24: Average Daily Highway Truck Traffic in the RTPO

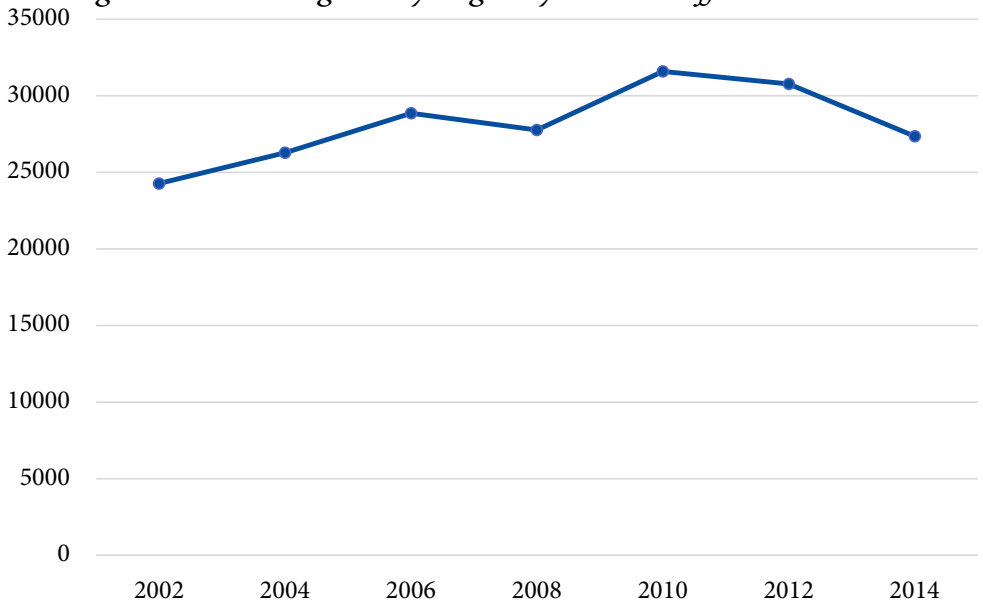
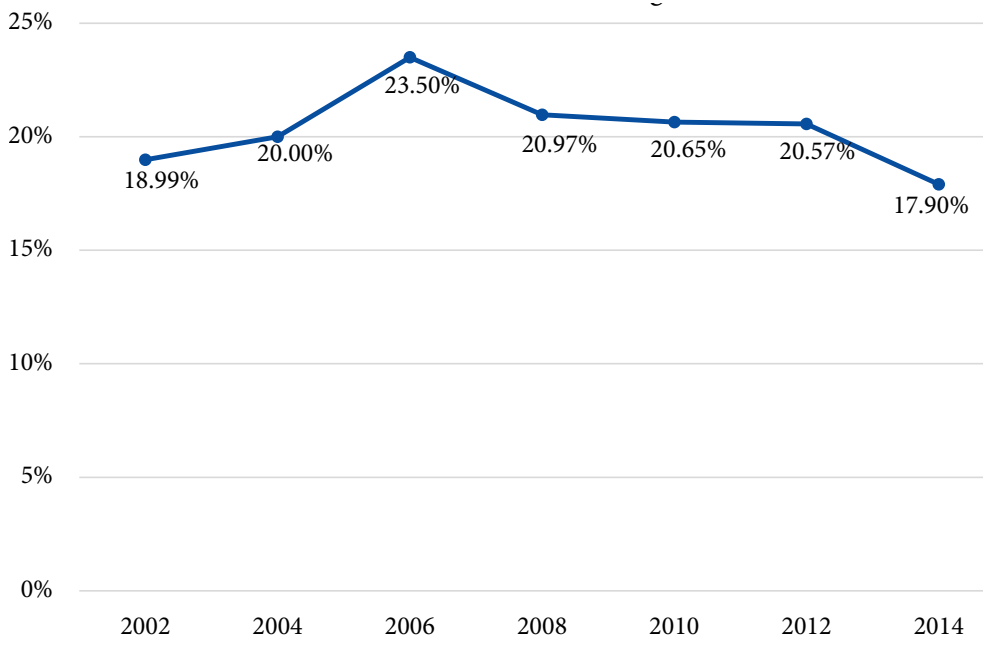


Figure 3-25: Average Truck Traffic as a Percent of AADT in the RTPO



Freight Rail

In the RTPO, there are five railroads that provide freight rail service. They are classified by the FGTS for economic corridors, and by revenue class determined by the Surface Transportation Board of the United States.

FGTS Economic Corridors

Below are FGTS classifications for Rail Freight Economic Corridors:

R-1*: more than 5 million tons per year
R-2: 1 million to 5 million tons per year
R-3: 500,000 to 1 million tons per year
R-4 100,000 to 500,000 tons per year
R-5 less than 100, 000 tons per year

*Facilities classified as R-1 are identified as Strategic Freight Railway Corridors.

A map of Washington's Rail Freight Economic Corridors is located in Appendix C page 52.

Table 3-2: Strategic Freight Rail Corridors in the RTPO, 2015

Railroad Operator	Rail Segment	Classification
BNSF	Roosevelt to Pasco	R-1
BNSF	Yakima to Gibbon	R-1
BNSF	Gibbon to Pasco	R-1
BNSF	Pasco to Connell	R-1
BNSF	Connell to Spokane	R-1

Source: Washington State Freight and Goods Transportation System 2015 Update: March 2016

Railroad Classification

Railroad classification is determined by the Surface Transportation Board of the United States, with revenue the determining factor. The Board has defined revenue-based characteristics for Class I (the largest), Class II and Class III railroads.

Table 3-3: Freight Rail Service Providers in the RTPO

Name	Class
BNSF	I
Union Pacific Railroad	I
Central Washington Railroad	III
Columbia Basin Railroad	III
Tri-City & Olympia Railroad	III

Source: Washington State Transportation Commission Statewide Rail Capacity and System Needs Study

Figure 3-26 shows the active rail lines in the RTPO, and Appendix C page 51 contains a map of the Washington Rail System.

Class I Railroads: BNSF and Union Pacific (UP)

BNSF Railway

BNSF is one of the four largest U.S. railroads. The Benton-Franklin RTPO is traversed by three BNSF major corridors and no low-density corridors. BNSF major corridors through the RTPO are summarized below.

Portland-Pasco Main Line

The 233-mile BNSF Fallbridge Subdivision connects Portland,

Oregon, with Pasco, Washington, a junction with main lines to Seattle and Spokane and the location of an important classification yard. The line closely follows the Columbia River for its entire length, connecting with the Oregon Trunk Subdivision at Wishram.

Freight traffic consists of intermodal, forest and agricultural products, refuse, coal, chemicals and finished automobiles.

Auburn-Pasco Main Line

BNSF's 227-mile main line across central Washington consists of the Stampede Subdivision between Auburn and Ellensburg, and the Yakima Valley Subdivision connecting Yakima and Pasco. The Stampede Subdivision crosses the Cascade Mountains at Stampede Pass, entering the Stampede Tunnel at the summit. The Yakima Valley Subdivision traverses the twisting Yakima River Canyon. Freight traffic includes forest, agricultural and chemical products.

Pasco-Spokane Main Line

The 149-mile BNSF Lakeside Subdivision is a vital line connecting Pasco and Spokane. The Portland section of Amtrak's Empire Builder runs once each way per day. Freight traffic consists of intermodal, forest and agricultural products, coal, chemicals and finished automobiles.

Union Pacific Railroad

The Union Pacific Railroad (UP) operates over 558 route miles in Washington State. The major corridors provide the primary conduits to the nationwide rail network, while the low-density corridors offer collection/distribution services.

The 19-mile Wallula-Kennewick branch line extends from Wallula to the connection with the Tri-City & Olympia Railroad at Richland Junction.

Class III Railroads

Central Washington Railroad

The Central Washington Railroad (CWA) serves a series of former BNSF and UP branch lines in central Washington, predominantly in Yakima County. The CWA handles various agricultural and chemical products on these lines, interchanging with BNSF at Yakima, Toppenish, and Gibbon. In the RTPO, this includes a portion of a thirty mile length of rail from Gibbon (just east of Prosser) to Granger, in Yakima County.

Columbia Basin Railroad Company

The Columbia Basin Railroad (CBRW) is a short line railroad serving Central Washington. The rail line is primarily an agricultural based railroad handling grain, sugar beets, fresh and frozen potatoes, fertilizers, chemicals and paper products, performing interchange with BNSF on its Pasco-Spokane line at Connell. The rail line within the RTPO is a section of a 40 mile long segment which passes between Connell in north central Franklin County and Wheeler in southeastern Grant County.

Tri-City Railroad

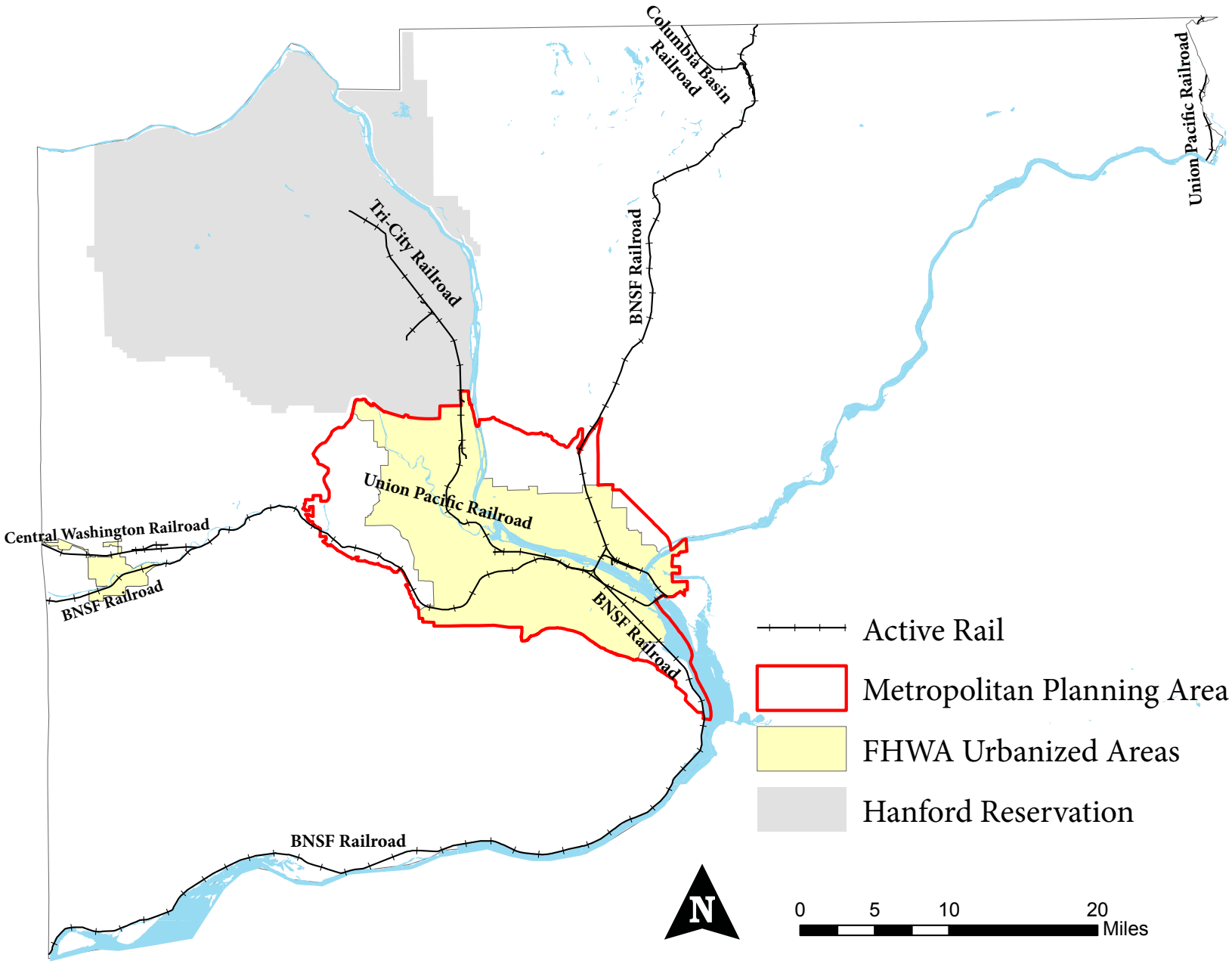
The Tri-City Railroad (TCRY) is the UP handling carrier railroad,

operating between Richland and the south border of the Hanford Site. TCRY operates and maintains a railroad line owned by the Port of Benton under a long term lease agreement. The initial lease agreement was in 2000, the Port having acquired the track from the United States Department of Energy in 1998. As the UP agent and handling carrier in Richland, the line originates and terminates rail freight daily to and from destinations across the United States, Canada, and Mexico for UP customers.

Freight rail services also include the Port of Benton and the Port of Pasco, described in the Marine Cargo section.

Pasco Rail Yard

Figure 3-26: Active Rail Lines in the RTPO



Marine Cargo and Intermodal Freight

The Columbia-Snake River System offers 465 miles of water transportation (Figure 3-27). In Washington, there are 17 barge intermodal facilities on the Columbia-Snake River, five of which have land in the RTPO, each served by truck and/or rail.

Waterway Freight Economic Corridor Classification Structure

Below are FGTS classifications for Waterway Freight Economic Corridors:

W-1*: more than 25 million tons per year
W-2*: 10 million to 25 million tons per year
W-3*: 5 million to 10 million tons per year
W-4*: 2.5 million to 5 million tons per year
W-5: 0.9 million to 2.5 million tons per year

*Waterways classified as W-1 through W-4 are identified as Strategic Freight Waterway Corridors.

A statewide map of Waterway Freight Economic Corridors is located in Appendix C page 53.

Snake River/Columbia River Dam and Lock System

There are eight dams and navigational locks on the Columbia and Snake Rivers that facilitate movement of barge related commerce. The Columbia Snake River System includes, from west to east: Bonneville, The Dalles, John Day, McNary, Ice Harbor, Lower Monumental, Little Goose and Lower Granite lock and dams. The first four, from Bonneville to McNary are

Table 3-4: Strategic Freight Waterways in the RTPO, 2015

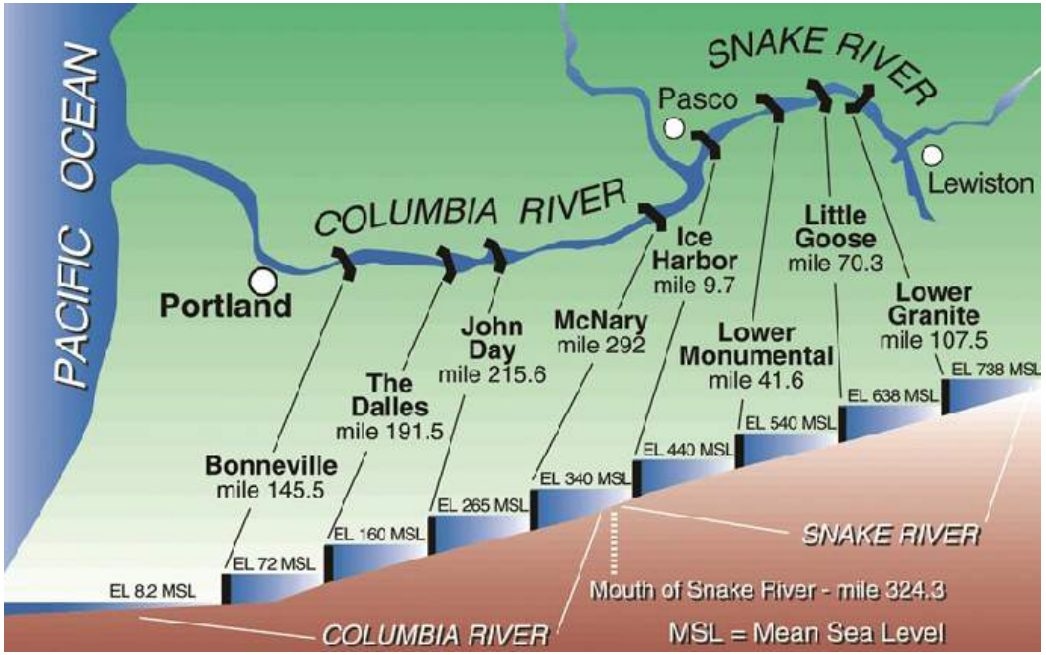
Waterway Segment	Annual Tonnage	Classification
Columbia River above Dalles Dam to McNary Lock and Dam	7,993,292	W-3
Columbia River above McNary Lock and Dam to Kennewick	5,761,352	W-3
Snake River from Kennewick to Clarkston	3,661,686	W-4

Source: Washington State Freight and Goods Transportation System 2015 Update: March 2016

Table 3-5: Barge Tonnage, 2010-2015

Lock	Tonnage 2010	Tonnage 2015	% Change
McNary	6,240,000	4,823,000	-23%
Ice Harbor	2,881,000	2,297,000	-20%
Lower Monumental	2,554,000	1,994,000	-22%

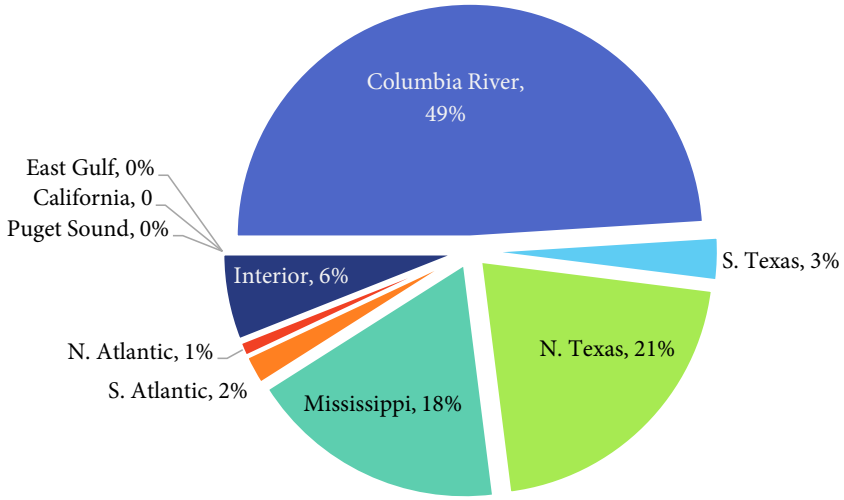
Figure 3-27: The Columbia Snake River Inland Waterways



on the Columbia River, the latter four, from Ice Harbor to Lower Granite, are on the Snake River.

The Columbia-Snake River System is the #1 Wheat export gateway in the United States (Figure 3-28). According to the Pacific Northwest Waterways Association, the Columbia River accounted for 49% of U.S. wheat exports in 2014. Fuel and fertilizer are shipped upriver on return trips.

Figure 3-28: 2014 U.S. Wheat Exports



Source: Pacific Northwest Waterways Association

The Walla Walla District of the Army Corps of Engineers (COE) is responsible for the maintenance and development the five eastern-most lock and dams, three of which are in the Benton-Franklin RTPO.

The Army Corps of Engineers operate three facilities in the RTPO:

- Lower Monumental Lock and Dam near Kahlotus;
- Ice Harbor Lock and Dam near the Tri-Cities on the Snake River; and
- McNary Lock and Dam between south Benton County and Umatilla, Oregon on the Columbia River.

Table 3-6 shows changes in tonnage by lock on five Columbia-Snake River System locks, including the three in the RTPO and the lock immediately downriver and upriver.

Although Table Table 3-6 shows a decrease in tonnage at all five locks over the five year period, it also shows a notable increase in tonnage after the Snake River flows into the Columbia River.

Table 3-6: Tonnage by Lock, 2012 & 2016

(1,000 tons)	John Day	McNary	Ice Harbor	Lower Monumental	Little Goose
2012 Lock Total	7,259	6,187	3,174	2,776	2,593
2016 Lock Total	6,396	5,437	2,650	2,314	2,115
% Decrease 2012 to 2016	12%	12%	17%	17%	18%

Port of Pasco

The Port of Pasco owns and manages the Big Pasco Industrial Center, which has nearly two miles of waterfront on the north side of the Columbia River upstream from the mouth of the Snake River. The Container Terminal is a multi-modal rail/barge facility on the Columbia River. The terminal provides docking, loading and unloading for grain and bulk commodity barges.

The facility has a fully operational container-handling terminal for loading and unloading containerized cargo. Rail facilities include 3000 feet of industrial track rail on two tracks and rail service to Seattle and Tacoma. The dock and yard area are served by a Port-owned rail spur connecting to the Burlington Northern Santa Fe. BNSF does all railcar switching.

Port of Benton

The Port has over 6,000 feet of Columbia River frontage zoned for heavy industrial use at their Richland Technology and Business Campus located on the west bank of the Columbia River in North Richland. Their dock facilities near the north end of the site are used to unload construction materials and heavy equipment, much of which is destined for Hanford, and other cargoes bound for North Richland. The Port has developed the 7,000 square foot Intermodal Transload Center to handle increased demand for shipping products by rail.

Port of Kennewick

The Port owns property zoned Heavy Industrial[1] in Eastern Benton County, and in southeast of Kennewick. Several private dock facilities are maintained and operated by industries located in the area. The port is current focused on Urban Renewal and Waterfront Restoration, and fostering economic development.

Port of Kahlotus

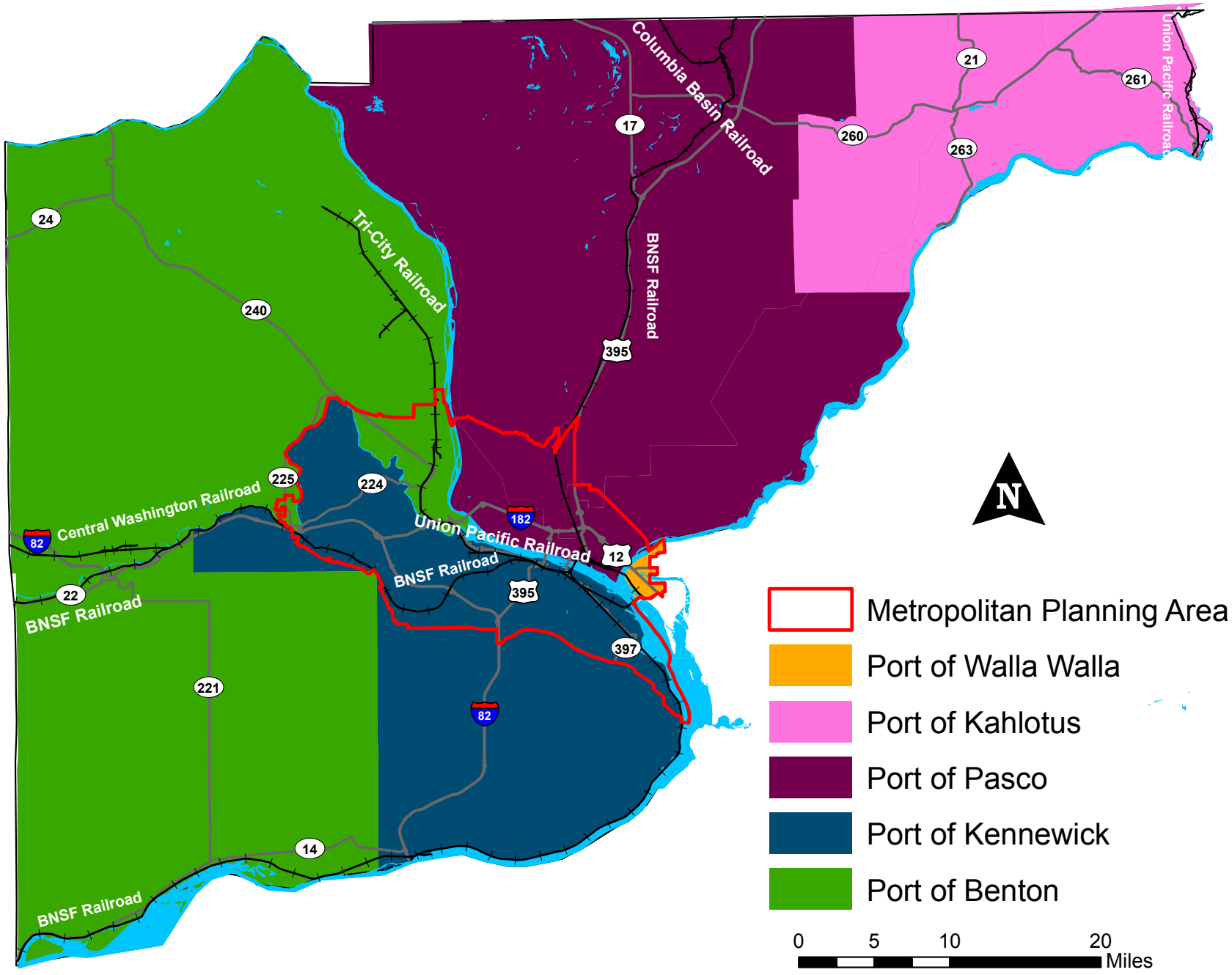
The Port, established in 1961, is one of the smallest port districts in the state. It has no port manager or employees, and its revenue is derived from two leased grain facilities on the Snake River.

Port of Walla Walla

The Port of Walla Walla owns and operates a industrial and business park in the Tri-Cities UZA, located in Burbank. The Burbank Industrial Park encompasses 111 acres zoned Heavy Industrial, with a cargo dock, two barge slips, and rail access. The Burbank Business Park encompasses 146 acres and is adjacent to the Burbank Industrial Park.

1The City of Kennewick defines a Heavy Industrial Zone as: "The purpose of the IH [Heavy Industrial] district is to provide areas for general industrial processing and manufacturing subject only to the protection of nearby uses and the required quality of the air and water."

Figure 3-29: Port Districts and Rail in the RTPO



Air Freight

The Tri-Cities airport, in addition to moving people, is an integral link in freight transportation. It supports air cargo, and has commercial and industrial property on site.

Three cargo services operate out of the Tri-Cities airport: Federal Express (FedEx) operates a cargo facility and flies daily to Spokane, and Airpac and Ameriflight fly to Seattle and Portland.

The Tri-Cities airport saw a decrease in air cargo tonnage from 2009 to 2014, by -15%, and in 2014 held around half a percent of the market share in Washington airports (Table 3-7).

Table 3-7: Air Cargo Tonnage in Washington Airports, 2009 and 2014

Airport	2009 Tonnage	2014 Tonnage	% Change	2014 Market Share
Seattle-Tacoma International	270,216	327,239	21.1%	63.1%
King County International	104,302	109,653	5.1%	21.1%
Spokane	67,129	59,567	-11.3%	11.5%
Snohomish County	3,914	13,639	248.5%	2.6%
Tri Cities	**3,351**	**2,855**	**-14.8%**	**0.6%**
Yakima Air Terminal	1,816	1,917	5.6%	0.4%
Bellingham International	995	1,095	10.1%	0.2%
Pangborn Memorial	638	711	11.4%	0.1%
William R. Fairchild International	534	627	17.4%	0.1%
Orcus Island Airport	243	444	82.7%	0.1%
Grant County International	406	365	-10.1%	0.1%
Skagit Regional	247	363	47.0%	0.1%
Friday Harbor Airport	109	196	79.8%	0.0%

Source: WSDOT Aviation Division

Pipelines

There are oil and natural gas pipelines in the RTPO. Benton and Franklin Counties are crossed by Williams Northwest Pipeline Company an interstate natural gas supply line, as well as a Tesoro Logistics pipeline, common carrier pipeline that transports refined petroleum products.

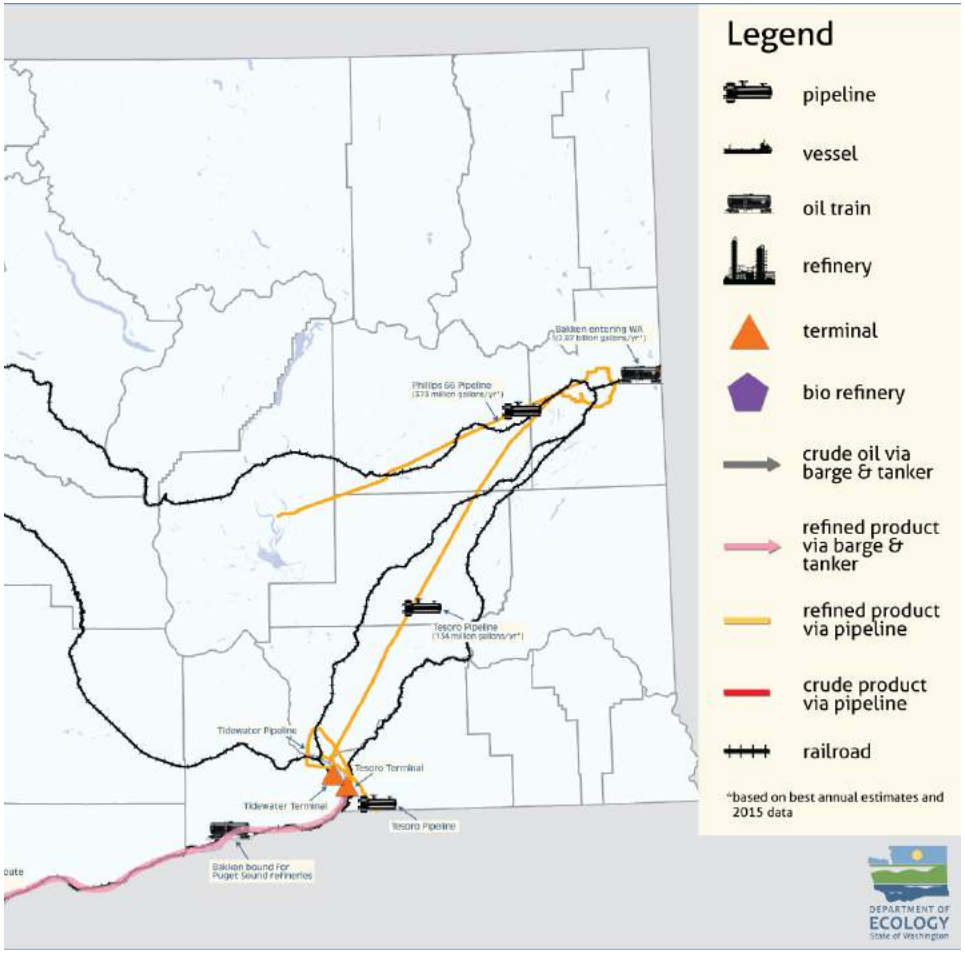
The Williams Northwest Pipeline Company pipeline runs from Vancouver, B.C. to Vancouver, Washington, and up the Columbia River Gorge to Plymouth. There it branches into two lines. One serves the Tri-Cities and Spokane; the second serves the Yakima Valley and Wenatchee. This system distributes natural gas to Washington's utility companies for further distribution to customers.

The Tesoro Logistics pipeline is a common carrier pipeline that transports refined petroleum products such as diesel and gasoline from Salt Lake City to Pasco and Spokane. Chevron's pipeline consists of two, parallel, 6-inch lines up to Pasco, then an 8-inch line to Spokane. The line to Spokane carries 134 million gallons per year, based on annual estimates and 2015 data.

The Washington Utilities and Transportation Commission, responsible for developing and enforcing safety standards for natural gas and hazardous liquid pipelines, lists the pipelines by county.

The exact location of pipelines are protected in accordance with the National Pipeline Mapping System security policy. Oil pipelines in and out of eastern Washington are displayed in Figure 3-23, with a larger map of the state in Appendix C page 54.

Figure 3-30: Oil Movement In and Out of Eastern Washington



This page left intentionally blank.

Transportation System Management and Operations

4

CONGESTION MANAGEMENT PROCESS | TRANSPORTATION DEMAND MANAGEMENT | TRANSPORTATION SYSTEM MANAGEMENT | TRANSPORTATION SYSTEM SAFETY AND SECURITY

Introduction

This chapter will discuss various programs and plans for Transportation System Management and Operation (TSM&O) at BFCG. It draws on federal and state guidance for required and non-required transportation management and operations objectives.

> **The FHWA defines TSM&O as:** "an integrated program to optimize the performance of existing multi-modal infrastructure though implementation of systems, services, and projects to preserve capacity and improve the safety, security, and reliability of our transportation system."

Improving the regional transportation systems is critical. At BFCG, TSM&O techniques are designed to improve traffic flow, and the movement of people and goods as well as enhancing system accessibility and safety.

BFCG's current TSM&O Programs and tools are:

- Congestion Management Process
- Regional Traffic Count Program
- Transportation Demand Management
- SOV/HOV Survey
- Regional Intelligent Transportation System

The chapter will provide information on ongoing and potential TSM&O activities at BFCG and how they support the regional transportation goals.

Congestion Management Process

The impacts of congestion are varied and substantial, from wasted fuel, lost hours, and other costs to the economy. As the Tri-City metropolitan area continues to grow, traffic congestion will need to be evaluated and appropriately managed. One of the ways this is done is through a Congestion Management Process (CMP).

The purpose of the CMP is to identify congested areas, develop strategies, and track the progress of congestion mitigation. According to Title 23 Part 450 C Section 450.322, a CMP must:

- Measure multi-modal transportation system performance;
- Identify the causes of congestion;
- Assess alternative actions;
- Implement cost-effective actions; and
- Evaluate the effectiveness of implemented actions.

As a TMA, BFCG is required to develop a CMP under title 23 U.S.C. section 450.322. To fulfill this requirement, the BFCG adopted the initial CMP, *The Tri-City Metropolitan Area Congestion Management Process*, in December 2013.

Advisory Committee

An advisory committee to help develop the CMP was established in spring 2013. As of the adoption of *Transition2040*, the committee is comprised of:

- City of Kennewick
- City of Richland
- City of Pasco
- WSDOT South Central Region
- Ben Franklin Transit
- Benton-Franklin Community Health Alliance
- 3 Rivers Bicycle Coalition

West Richland opted out of CMP development, stating it had no congested corridors.

Tri-Cities Metropolitan Area Congested Corridors

Twelve corridors, shown in Figure 4-1 and Table 4-1, were identified by the advisory committee as the initial set of congested corridors. By mutual agreement, WSDOT is responsible for gathering data and analysis on the corridors in their system.

Data Framework

Four measurement programs were established in the CMP to evaluate the location and level of congestion. These are programs designed to measure and evaluate travel time, traffic volumes, transit system data and collision data.

Travel Time Program

The travel time program measures peak commuting times. Peak periods and duration are unique to each congested corridor, so each jurisdiction determines the length and time for the corridors. Certain corridors are tracked during the mid-day as well as morning and evening. To measure travel time, a GPS unit is placed in the vehicle, which captures the vehicle's location and speed. Currently, travel time data is collected annually. BFCG has data for 2014, 2015, and 2016.

Regional Traffic Count Program

Collection and analysis of traffic volumes on the congested corridors, as part of the regional traffic count program, is a second new program for the TMA. Typically, jurisdictions in the metropolitan area collected traffic counts in three or four year cycles. Under the program, counts are recorded every other year, and at the same locations on each corridor. BFCG has data for 2016.

Public Transit System Data

Two components of the transportation system in the metropolitan area are relevant to the CMP process. Those are the Ben Franklin Transit (BFT) Vanpool Program and the metropolitan area park and ride system. Data on these are discussed later in this chapter.

Metropolitan Area Collision Trends

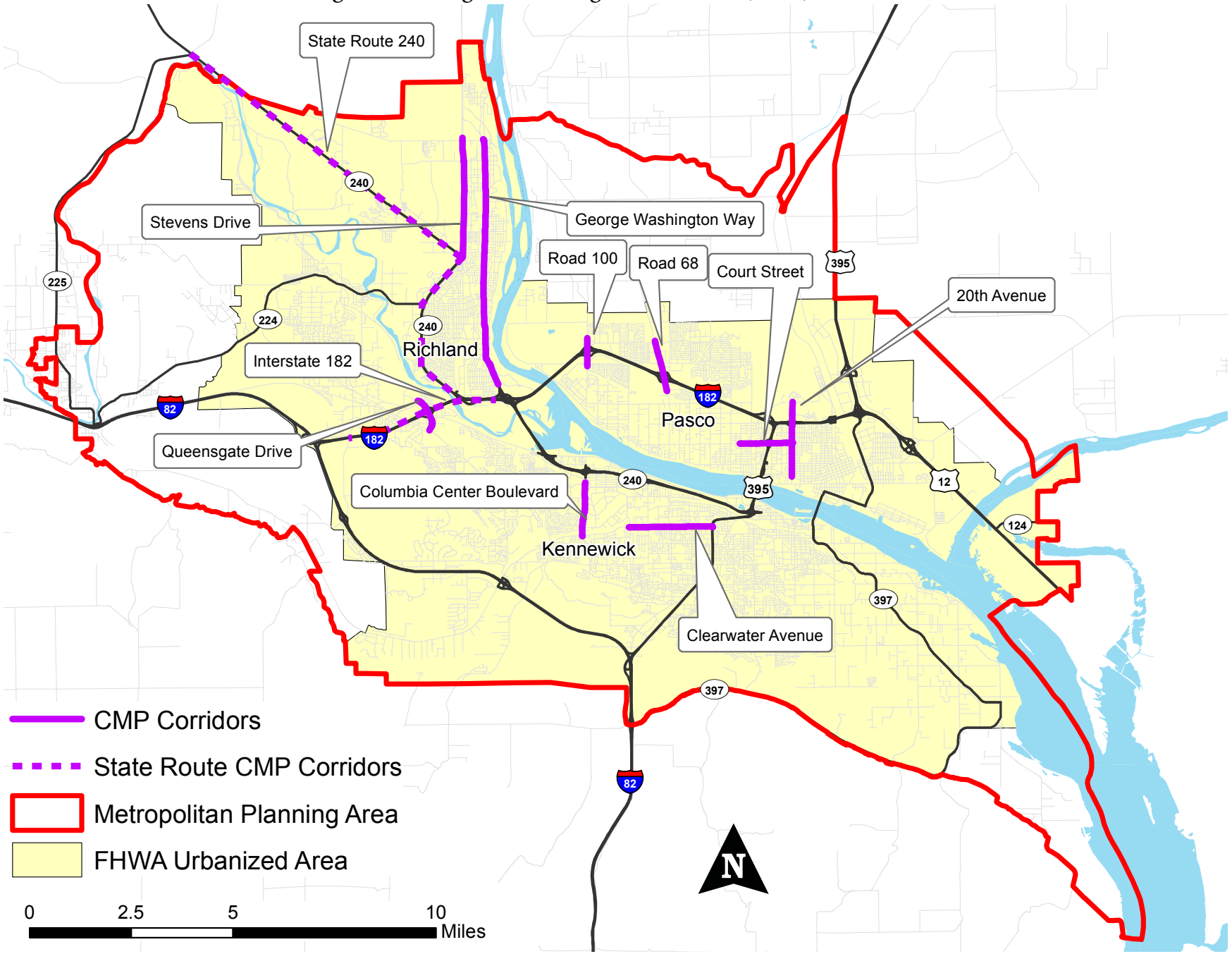
Collisions, whether resulting in injuries or property damage, are a leading cause of non-recurrent congestion. Information regarding collisions on metropolitan area streets and roads is collected by the WSDOT Statewide Travel and Collision Data Office. Examining the data for collisions along a corridor before and after a project has been installed will help determine how effective the project has been in meeting its safety goals.

Individual corridor analysis reports in the CMP present collision data for 2010–2012, and will be updated. That data is depicted on a map to help identify whether any locations on the corridor experience a disproportionate number of crashes and, if so, to potentially devise programs and projects that will address those locations.

Table 4-1: Congested Corridors in the MPA

Jurisdiction - Corridor	Segment
Richland	
Queensgate Drive	Keene Road to Duportail Street
George Washington Way	Columbia Point Drive to Horn Rapids
Stevens Drive	SR 240 to Horn Rapids Road
Kennewick	
Columbia Center Boulevard	Clearwater Avenue to Willamette Avenue
Clearwater Avenue	US 395 to Kellogg Street
Pasco	
Road 68	Chapel Hill Boulevard to Sandifur
Road 100	Chapel Hill Boulevard to Sandifur
Court Street	Road 40 to 20th Avenue
20th Avenue	Lewis Street to Argent Road
WSDOT	
SR 240	Milepost 20.48 (Route 10) to Milepost 28.84 (Stevens Drive)
SR 240	Milepost 30.63 (Jadwin Avenue) to Milepost 34.57 (SR 182 off ramp)
SR 182	Milepost .87 (Dallas Road) to Milepost 4.40 (I-182 westbound on ramp from George Washington Way southbound)

Figure 4-1: Congestion Management Process (CMP) Corridors



Transportation Demand Management

Transportation Demand Management (TDM) is a term applied to a broad range of strategies and policies that aim to reduce and reshape demand (use) on our transportation system. TDM shapes a more efficient transportation system, specifically by reducing the demand for roadway travel by single occupancy vehicles (SOV).

TDM arose as an important concept in the 1970's, in response to the oil crisis. Since then, TDM strategies have expanded and evolved to face the current challenges in the transportation sector.

TDM Strategies

The FHWA groups TDM efforts into eight strategies[1], and WSDOT has a similar but distinctly different list of eight Tools to Manage Demand[2]. The TDM strategies presented in this chapter come from the FHWA.

These strategies reduce the demand through either mandatory or voluntary measures. Mandatory programs discourage driving through generally increasing the cost of driving as measured in time, money, or other costs. In addition to discouraging SOV driving, TDM also includes strategies to encourage HOV driving, as well as alternative modes of transportation. Finally, some strategies may reduce the need for mobility, for example, an employer may incentivize telecommuting.

FHWA TDM Strategies

- Road Pricing
- Parking Management And Parking Pricing
- Car Sharing
- Pay-As-You-Drive Insurance
- Ridesharing And HOV Lanes
- Transit Incentives
- Transit Improvements
- Telework

WSDOT TDM Strategies

- Commute Trip Reduction
- Rideshare Programs
- Vanpool Programs
- Transit Direct Access And HOV Enhancement
- Park And Ride
- Active Traffic Management
- Bicycle And Pedestrian Facilities
- Telework And Flexible Work Scheduling

1 FHWA, "Reference Sourcebook for Reducing Greenhouse Gas Emissions from Transportation Sources." Chapter 5: Transportation Demand Management Strategies. https://www.fhwa.dot.gov/environment/climate_change/mitigation/publications/reference_sourcebook/page05.cfm

2 WSDOT, Demand Management: http://www.wsdot.wa.gov/choices/demand

FHWA TDM Strategies

Road Pricing

Road pricing is a market-based strategy, and includes mechanisms like toll roads, distance based pricing, and congestion pricing. This approach seeks to charge drivers for the external costs of driving; external costs are those which are not accounted for by that driver in the current economic structure, such as wear and tear on the roads, greenhouse gas emissions, contribution to congestion, etc.

Parking Management and Parking Pricing

Parking management and parking pricing strategies aim to discourage the development and use of readily available parking. Pricing strategies charge users for the parking, while parking management deals with the amount of available parking. Parking management strategies typically involve zoning changes. For example, when a new development is built, some cities have minimum parking requirements, so that new development has to fulfill that requirement by building the number of parking spaces. This places the burden of parking costs on the developer. Zoning changes to get rid of minimum parking requirements, make exemptions, or to lower the parking requirement, help put the real cost of parking on the driver, as well as discourage an overabundance of parking.

Car Sharing

Car sharing seeks to promote individuals renting vehicles on a need basis, and encouraging some to forgo car ownership. Since SOV drivers have "sunk costs" – fixed costs a driver must pay no matter how much the car is driven, like insurance, registration, etc. – it can be economically attractive for commuters to share these costs with a car sharing program. Car sharing organizations can be commercial or non-profit, public or private.

Pay-As-you-Drive Insurance

Pay-as-you-drive (PAYD) insurance implementation includes mileage-based discounts, policies based on mileage instead of a time based period, and a per-mile premium. Mileage-based discounts reward drivers who put less mileage on their car by lowering their premium. Less driving means less risk for the insurance company, and some programs allow this reduction of risk rewards to go back to the driver. Insurance policies are typically set up through a certain time period, for example one year, but this strategy would set up the policy by a number of miles. PAYD is a relatively new strategy that is not currently widespread. New technology, like GPS and odometer readings, can be utilized by PAYD strategies.

Ride Sharing and HOV lanes

Ride sharing and HOV (high occupancy vehicle) lanes aim to discourage SOV, in order to reduce congestion and environmental impact. HOV lanes enable ride shares to avoid congestion or tolls. Ridesharing strategies include outreach programs and services to increase carpooling and vanpooling.

Transit Incentives

For some, transit prices can be a discouraging barrier to access, and for others, the inconvenience of transit outweigh the costs of driving. To combat these obstacles that inhibit transit ridership, there are several

sources and potential sources of incentives that make transit more affordable or attractive. First, federal law contains tax incentives for employers that reduces employees' transit costs. Second, transit agencies have programs they develop to decrease riders' costs, like a senior citizen discount. Schools have programs that provide transit passes.

Transit Improvements

Public transit is often seen as an unsuitable replacement for driving; many barriers exist, ranging from the price, infrequent service, mismatching needs, negative public perceptions, and more. To encourage transit ridership, transit improvements include creating new routes, increasing frequency and hours, or increasing the comfort of transit.

Telework

Commuting accounts for about one-third of all miles driven in the U.S. Telework means working from home. Technological development makes telework more feasible, and reduces the amount of workers on the road, especially during peak hours.

TDM in the Tri-Cities

Two major TDM strategies in the Tri-Cities are BFT's Vanpool service, and Park and Ride lots. Vanpool can be considered a ride sharing strategy, and Park and Ride lots can be considered a ride sharing strategy as well as a transit incentive. These two strategies will be discussed later in this chapter.

"SR 167 HOT Lanes." The left traffic lane is a HOV or toll lane.

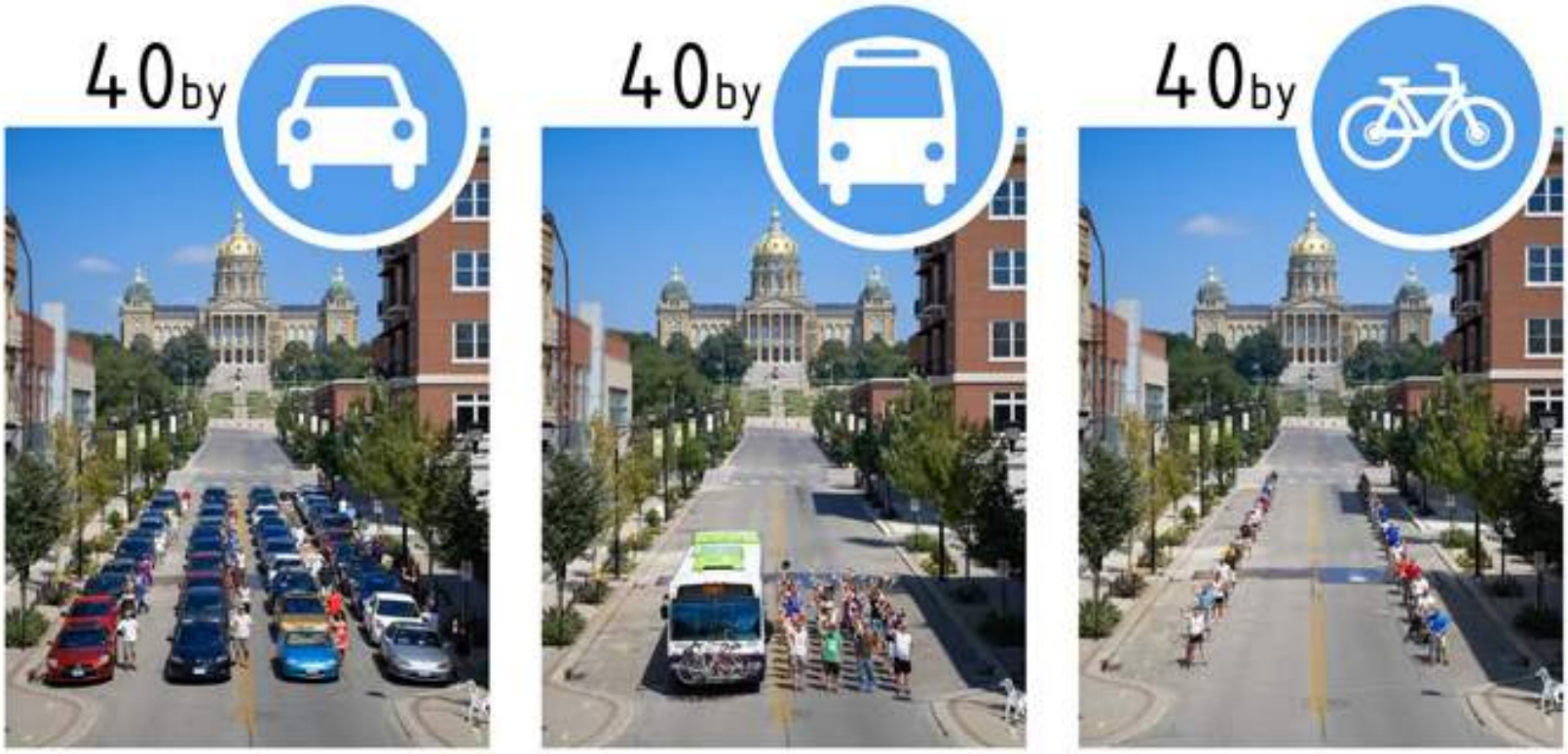
WSDOT TDM Strategies

While there is much overlap between the Federal and the Washington State TDM strategies, Washington includes two strategies that are not included in the Federal list: Active Traffic Management, and Bicycle and Pedestrian Facilities.

Bicycle and Pedestrian Facilities

Bicycle and Pedestrian Facilities, along with transit, provide users an alternative to driving and SOV commuting. Without alternatives to SOV commuting, vulnerable groups could be priced out of the transportation system. Biking and walking require much less space to operate, as seen in Figure 4-2, and can help mitigate automobile congestion.

Figure 4-2: Space Required for Cars, Buses, and Bikes



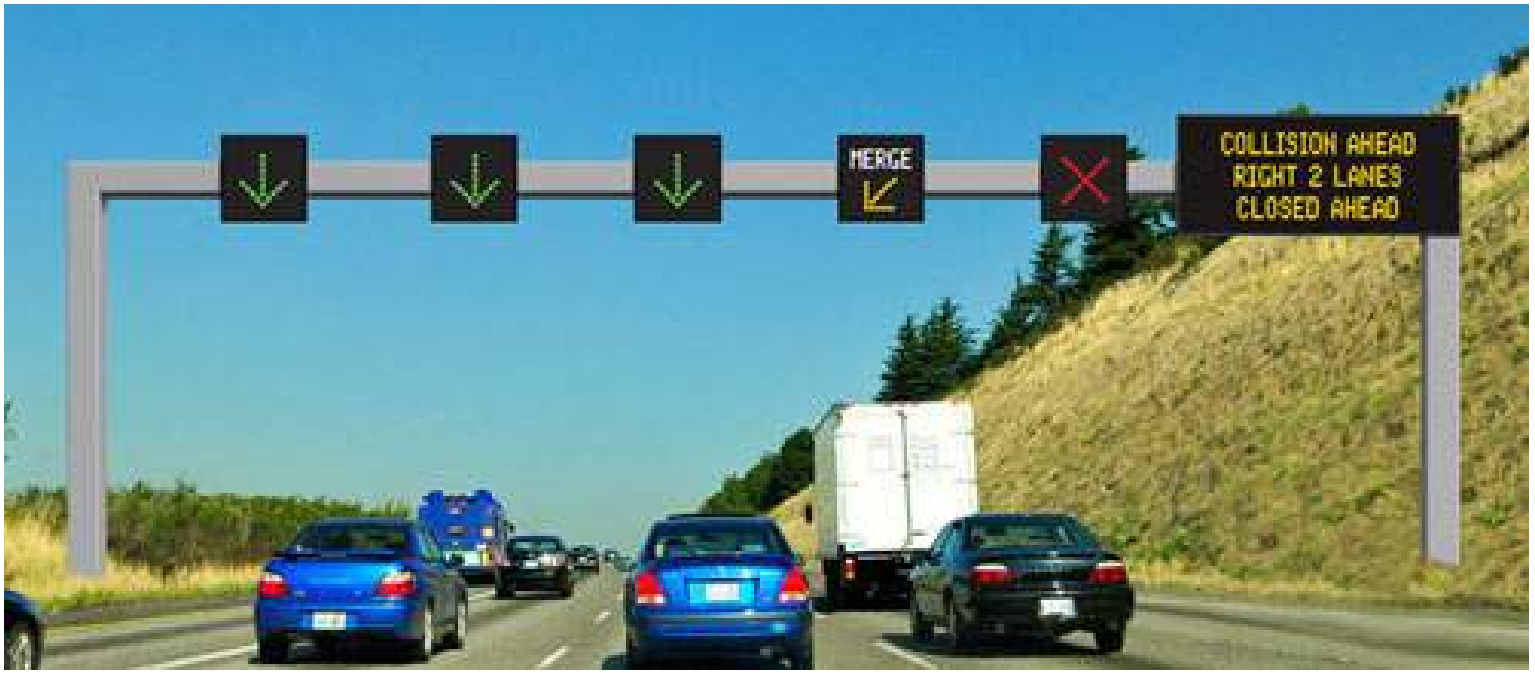
Amount of space required to transport the same number of passengers by car, bus, or bicycle. Source: ecofluence

Active Traffic Management (Intelligent Traffic Management)

Active Traffic Management is a WSDOT system launched in 2010, one of the first of its kind. It uses overhead lane signs to provide advance notice of traffic conditions. The overhead signs show variable speed limits, symbol a blocked lane, and show overhead message signs to warn of slowdowns, backups, and collisions that are ahead. The system aims to decrease last minute avoidance maneuvers and panic breaking.

Currently, in Washington State, there are four Active Traffic and Demand Management Corridors, all in western Washington:

- Interstate 5
- Interstate 90 Seattle/Bellevue
- Interstate 90 Snoqualmie Pass
- State Route 520 Seattle/ Bellevue



WSDOT Active Traffic and Demand Management

Commute Trip Reduction

Commute Trip Reduction (CTR) in Washington State[1]

Enacted in 1991, the Commute Trip Reduction Law required all counties with a population of over 150,000, and each city or town within those counties containing a major employer[2], to adopt and implement a commute trip reduction (CTR) plan. Aiming to address traffic congestion, pollution, and gasoline fuel consumption, CTR encourages the use of non SOV travel through employer-based programs.

In 2006, legislators passed the CTR Efficiency Act, targeting urban areas with traffic congestion. The CTR Efficiency Act requires those urban areas to develop programs to reduce SOV trips and vehicle miles traveled (VMT) per capita.

CTR encourages a more efficient transportation system by encouraging people to utilize transit, participate in vanpools or carpools, walk, bike, or telecommute. CTR is a collaborative development of transportation solutions between state and local governments, transit agencies, RTPOs, and employers.

Employers develop and manage their own programs based on local and state transportation goals, funded in part by taxpayer dollars but mostly from the business. WSDOT provides technical assistance, collects and analyzes data, and co-staffs a CTR Board.

CTR in the Tri-Cities Urbanized Area

Benton County exceeded the population threshold in 2002, but exemptions and an amendment to the law has delayed CTR.

The CTR law was amended in 2006 to adopt a new metric: person delay per hour. Additionally, the amended text added Franklin County to any CTR efforts required of Benton County.

One Tri-City road segment met this criterion, but WSDOT granted an exception because this segment was already in process to address relevant issues (U.S. 395 to SR 240 Interchange Project). In 2011, the CTR Board adopted two policies, which exempted the Tri-Cities Urbanized Area from CTR requirements.

The policy stated that additional funding is required for new cities and counties entering the CTR program. Additionally, existing funds will not be diverted and additional funding from the legislature would be necessary to support new areas.

The Tri-Cities Urbanized Area exemption will remain in effect until the CTR law is changed or if the program is further funded. Any new legislation will need to be reviewed to determine if and what the affects would be on the Tri-Cities UA.

Car Traffic, WSDOT Commute Trip Reduction Board

1 For more information on CTR in Washington State, visit http://www.wsdot.wa.gov/Transit/CTR/overview.htm

2 A major employer is defined as having more than 100 full-time employees

Ben Franklin Transit Vanpool Program

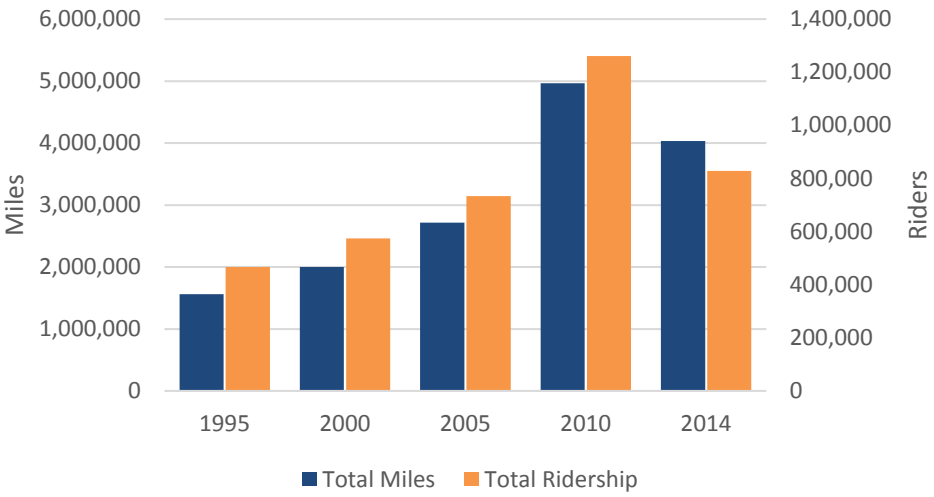
In 1982, Ben Franklin Transit (BFT), along with the now defunct Washington State Energy Office, began sponsoring a pilot ride-share program in the Tri-Cities. Prior to that date, no publicly organized ridesharing activities were available in the area.

At that time, the Federal Department of Energy (DOE) maintained a bus system to transport employees to select work sites on the Hanford Reservation. Because of the Hanford Reservation's relatively distant location, many Hanford employees utilized car pools and Vanpools for travel to work. Ridesharing activities increased throughout the Tri-Cities due to BFT promotion of its Vanpool program during the 1980s.

In the mid 1990's the DOE discontinued their commuter bus service and BFT was able to fill the gap with a Vanpool program.

BFT Vanpool Fleet

Figure 4-4: BFT Vanpool Total Mileage and Ridership, 1995-2014



Source: Federal Transit Administration National Transit Database

Figure 4-3: BFT Vanpool Operations Data, 1995-2014

Year	Average Operated	Total Miles	Total Ridership	Ridership Change	Mileage Change
1995	92	1,563,423	466,862	N/A	N/A
2000	141	1,998,723	574,055	23%	28%
2005	188	2,716,309	733,443	28%	36%
2010	312	4,962,773	1,261,396	72%	83%
2014	279	4,033,627	828,189	-34%	-19%

Source: Federal Transit Administration National Transit Database

Park and Ride Lots

Development of the metropolitan area park and ride system began in the early 1980's. It is currently comprised of 16 formal park and ride lots in Benton and Franklin Counties.

Occupancy data presented in this section have been collected by the BFCG staff in an ongoing quarterly park and ride lot survey. Data are collected mid-month, mid-week, and from around 8am to 12pm.

The two-county area inventory of park and ride lots includes both park and ride and park and pool facilities, while ownership of most lots is either WSDOT or BFT. BFT also leases a few park and ride sites.

Distinguishing between the two, WSDOT facilities are primarily park and pool lots adjacent to major roadway intersections such as SR 240/ SR 224 or I-182/Queensgate and are sited to capture the Vanpool and carpool participant. Development of the WSDOT facilities generally preceded that of the BFT lots.

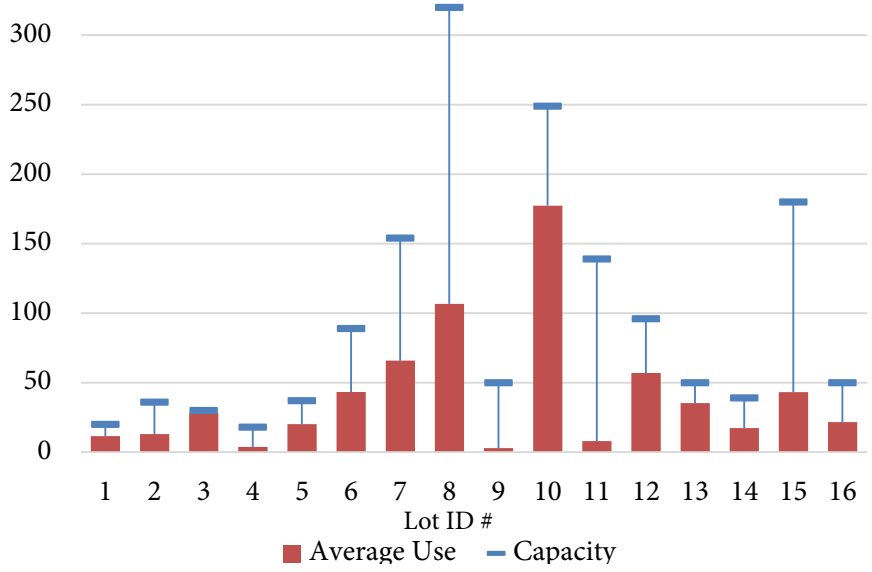
BFT- owned facilities are located at transit centers in their respective communities. The focus of these facilities is primarily on the transit user, though commuters may use them.

Figure 4-5 shows the average usage of all lots, from 2012-2015, compared to the capacity, in number of parking spots. From 2012-2015, park and ride lots started at 36% capacity, and went down to 32% capacity (Figure 4-7). The number of spots has remained constant. Appendix D page 57 shows the quarterly average usage broken down by lot.

Table 4-2: Park and Ride Lots- ID and Location

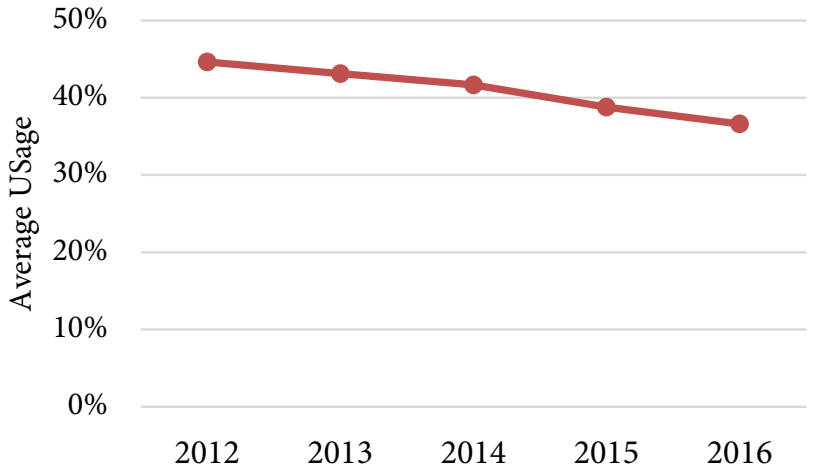
ID #	Lot Name	Location
1	Stacy St Transit Center	Prosser Stacy St
2	Rest Area at Exit 80	Prosser Rest Area
3	Kiona Interchange	Benton City Kiona IC
4	Horn Road off SR 240	Benton Co. Horn Rd
5	Benton City Transit	Benton City Transit
6	SR 240 & SR 224	Richland SR 240 SR 224
7	SR 224 Flattop Park	West Richland Flat Top
8	Stevens Dr & Spengler	Richland Stevens Spengler
9	Knight & Goethals	Richland Knight Goethals
10	Columbia Park Trail - WSDOT	Richland Col Park Trail
11	Columbia Park Trail & Tulip Ln	Richland Tulip Ln
12	Huntington Transit	Kennewick Huntington
13	Union & 27th	Kennewick Union 27th
14	SR 395/Yelm IS	Kennewick Sr 395 Yelm
15	The TRAC	Pasco TRAC
16	Pasco N 22nd Transit	Pasco 22nd Transit

Figure 4-5: Park and Ride Lots Avg Use and Capacity 2012-2015



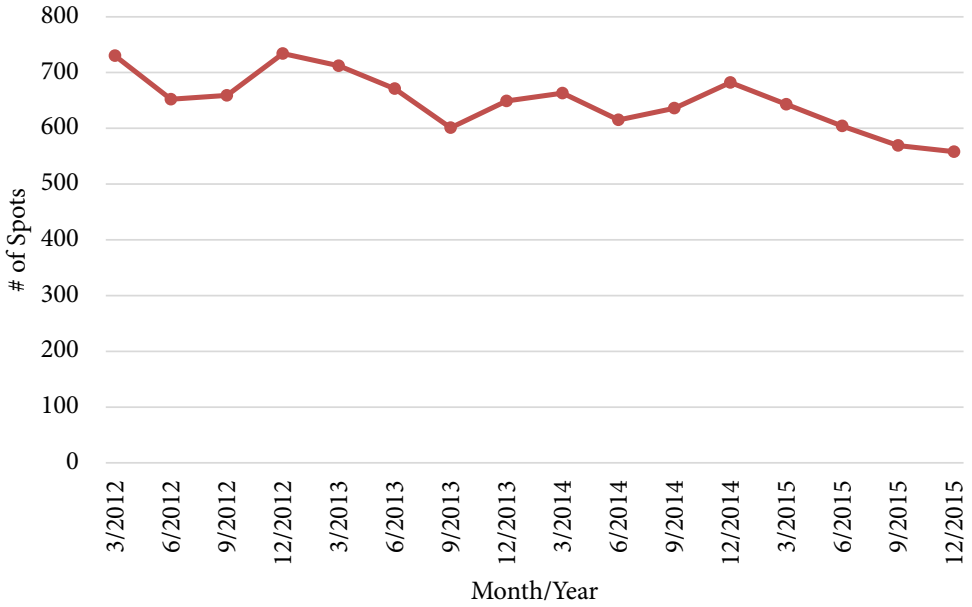
BFT Tulip Lane Park and Ride

Figure 4-6: Park and Ride Lots Yearly Average Percent Use, 2012-2015



**Kiona Interchange and Tulip Ln were under construction in 2015-2016.*

Figure 4-7: Park and Ride Lots Total Usage, Quarterly 2012-2015



Single Occupancy Vehicle (SOV) & High Occupancy Vehicle (HOV) Windshield Survey

BFCG coordinates a windshield survey aimed at providing Single Occupancy Vehicle (SOV) and High Occupancy Vehicle (HOV) rates throughout the Tri-City Area. The survey is conducted every two years with data available at various locations dating back to 1996. Surveys were completed at select spots along major commute corridors, and at primary access points to the Hanford Site. BFCG, with staff help from WSDOT, Hanford Contractor Mission Support Alliance (MSA), and the cities of Kennewick, Pasco, Richland, and West Richland, surveyors are able to collect SOV/HOV occupancy rates at twenty-three locations in the region (Figure 4-9).

Data are collected in fifteen minute increments between 5:30am -7:30am in mid-May with surveyors tallying single-occupant vehicles, high-occupant vehicles (2, or more persons), and Vanpools.

The SOV/HOV data are an important for indicating occupancy travel patterns for the area's TDM program, as well as calibrating the local Travel Model.

2016 HOV/SOV Observations

WSDOT State Routes

In August 2014, all Hanford area employees switched to a 6:00 a.m. to 4:30 p.m. shift. There was a considerable drop in HOV at the SR 240 locations at Van Giesen (7.6% in 2012, 4.5% in 2016) and Robertson Road (10.6% in 2012, 3.9% in 2016). The SR 240 bypass south of Duportail and south of Van Giesen also had their peak time shifted

2016 SOV/HOV Survey Locations

Hanford Area

1. Route 4S north bound, north of Horn Rapids Rd
2. Route 4S north bound, south of Energy Northwest Rd
3. Route 4S north bound, south of Wye Barricade
4. Route 10 north bound, north of State Route 240
5. Route 11A east bound, east of Yakima Barricade
6. Rattlesnake Barricade north bound, north of State Route 240

City of Richland

7. George Washington Way Extension north bound, north of Horn Rapids Rd
8. George Washington Way north bound, at Columbia Point Dr
9. Stevens Dr north bound, south of Snyder Rd
10. George Washington Way north bound, north of Spengler St

City of Kennewick

11. Columbia Center Boulevard north bound, south of Arrowhead Ave
12. Edison St north bound, north of Canal Dr
13. 27th west bound, east of US 395

City of Pasco

14. US 12 west bound, west of 'A' St
15. Court St east bound, west of 20th Ave

BFCG

16. State Route 240 west bound, south of Duportail St
17. State Route 224 (Van Giesen) east bound, east of Jones Rd
18. State Route 240 west bound, south of Robertson Rd

WSDOT

19. I – 182 west bound at Columbia River Bridge, west of Road 100
20. State route 240 (causeway) west bound, at Yakima River Bridge
21. State route 240 west bound, south of State Route 224 (Van Giesen)

West Richland

22. Keene Rd east bound, east of Kennedy Rd
23. Harrington Rd north bound, at Twin Bridges Rd

one half hour earlier to 5:30 a.m. – 6:30 a.m. in 2016.

Hanford Area
The 2016 Vanpool counts were lower (143 less) at the Route 4S locations (Horn Rapids Road and Energy Northwest Road) than in 2012.

West Richland
Keene Road EB East of Kennedy Road dropped in 2016 HOV percentage by 3.6% from 2014.

Richland
Richland's survey locations rose in HOV percentage over 2014 by 4.8%.

Pasco
The City of Pasco's SOV/HOV survey location at Court Street east bound west of 20th Avenue SOV was down 1.5% from 2014.

Kennewick
The City of Kennewick's 27th Avenue (east of US 395 eastbound) location increased in SOV by 5.1% in 2016. The other two locations (Edison Street and Columbia Center Boulevard) had an increase of 0.25% combined from 2014.

WSDOT
The State Routes in the survey area changed very little, averaging 92.3% SOV in 2016 and 91.3% in 2014.

Vanpools
Vanpools saw a decrease. With the closure of the Umatilla Weapons Depot in 2012 and lower gas prices there has been a drop in ridership in 2014 and 2016 during the data collection time period.

Figure 4-8: Average HOV Percentage, All Survey Locations by Year

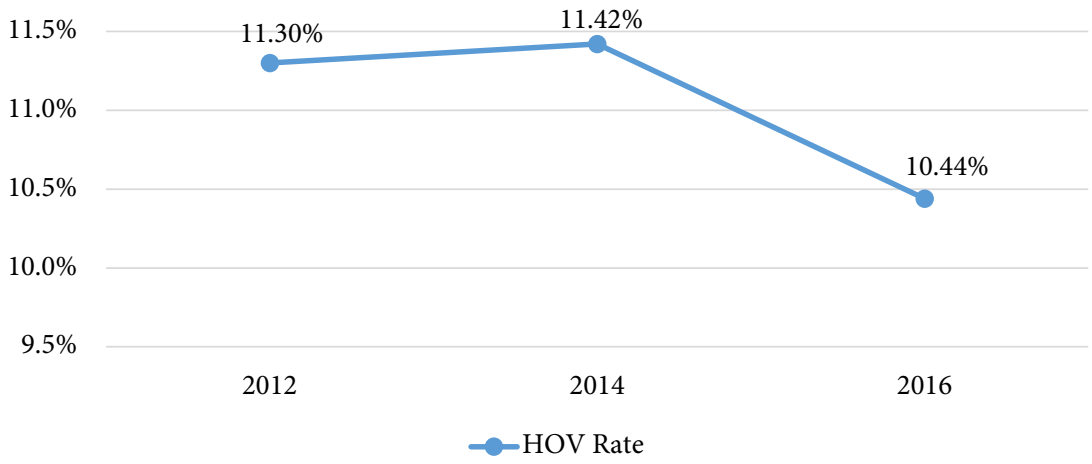
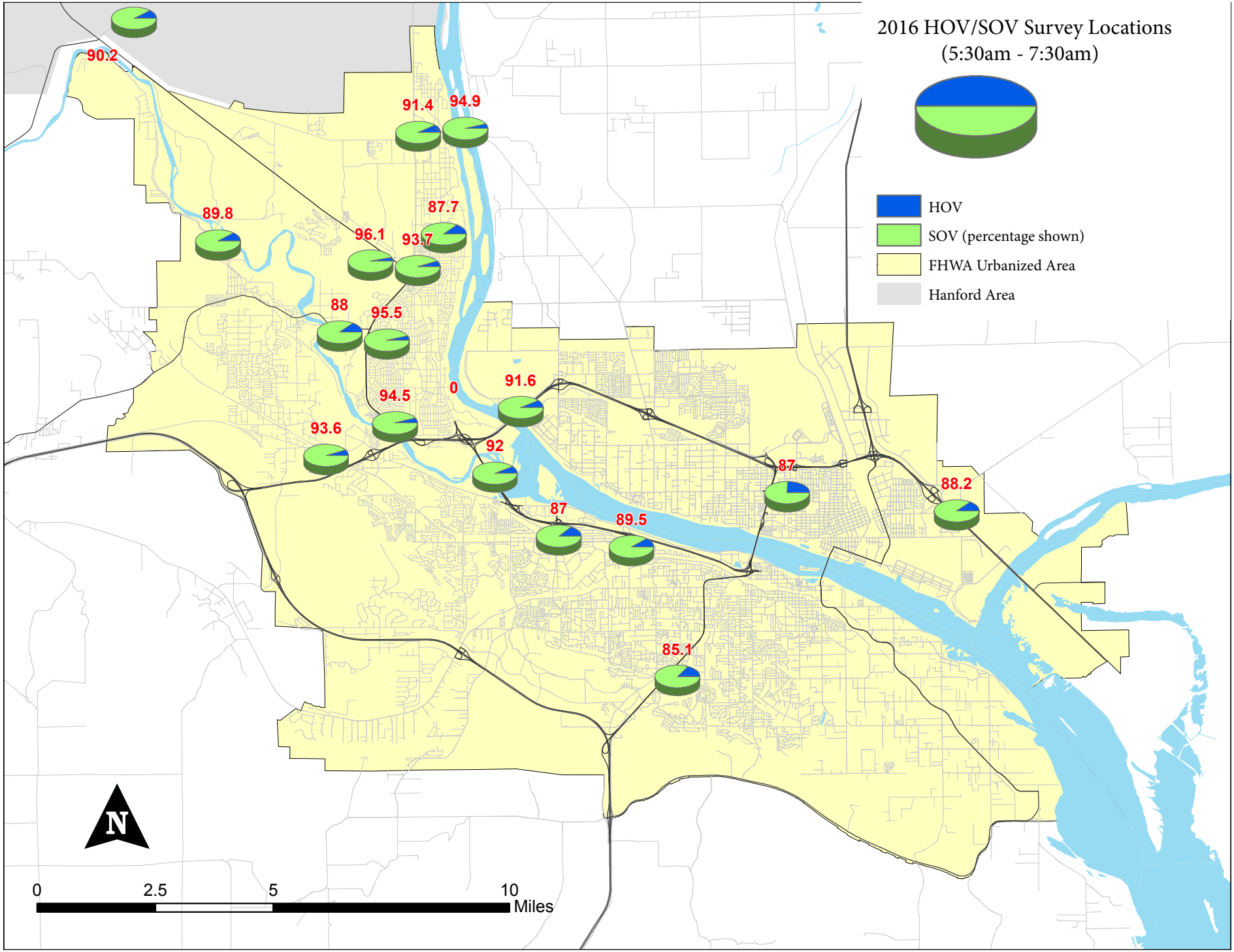


Figure 4-9: Single Occupancy Vehicles (SOV) and High Occupancy Vehicles (HOV) Windshield Survey



Transportation System Management

Benton-Franklin Regional ITS Architecture

Intelligent Transportation Systems (ITS)

You can think of a region's ITS services like the applications (apps) on a smartphone. So in a broader context, the region is like a smartphone and the region's ITS services are like the apps. You would like the apps to work together to provide helpful and important information. For example, you are using the app for your favorite coffee shop on your smartphone and want to know the location of the nearest location. The coffee shop app can open the phone's native Mapping app to determine the nearest location.

Similarly at the regional level, ITS architecture focuses on how different agencies could share their information/capabilities with one another. For example, a transit agency could provide real time transit travel information via smartphones. Other ITS elements in the region currently include Dynamic Message Signs (DMS) providing travel warnings on State Routes and signal preemption for emergency vehicles on the local road network.

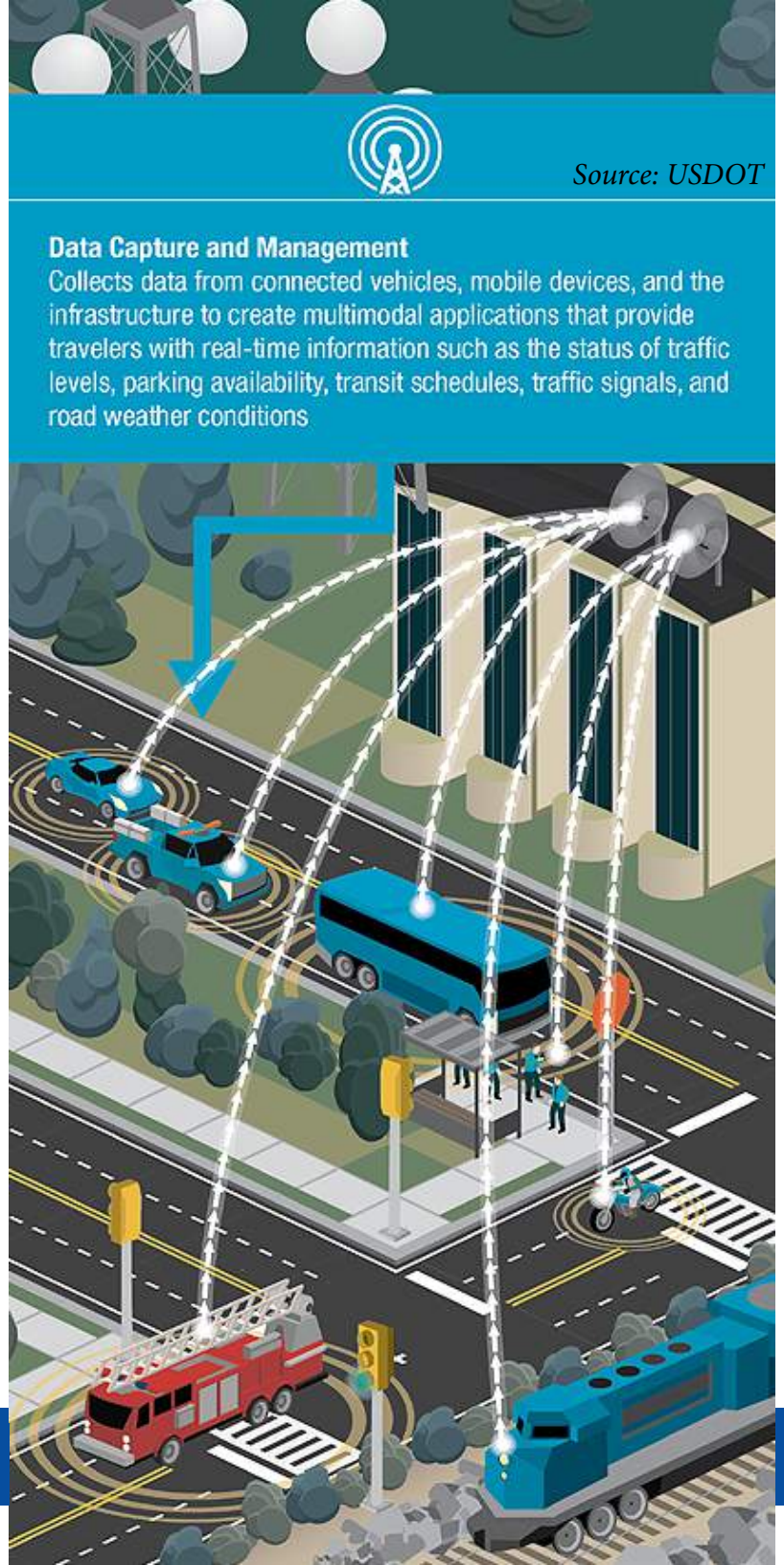
You can think of ITS Architecture in some of the same ways as a long range transportation planning document. Instead of traditional infrastructure projects included long range planning documents, like roadways, bridges, utilities etc., ITS Architectures would include more technology based projects like Dynamic Message Signs (DMS), Traffic Management Centers (TMC), Automatic Vehicle location (AVL) and more recently, Connected Vehicles.

> "ITS technologies improve transportation safety and mobility, reduce environmental impacts, and enhance productivity through the integration of advanced communications-based information and electronic technologies into the transportation infrastructure and vehicles."
>
> ITS Strategic Plan 2015-2019 (USDOT)

National ITS Architecture

The National ITS Architecture provides a common framework for planning, defining, and integrating intelligent transportation systems. It is a mature product that reflects the contributions of a broad cross-section of the ITS community (transportation practitioners, systems engineers, system developers, technology specialists, consultants, etc.).

It was developed to support ITS implementations over a 20-year time period in urban, interurban, and rural environments across the country. Accordingly, general names were given to the physical transportation system components and locations in order to accommodate a variety of local design choices and changes in technology or institutional arrangements over time. This allows the general structure of the National ITS Architecture to remain stable while still allowing flexibility and tailoring at the local implementation level.



Source: USDOT

Data Capture and Management
Collects data from connected vehicles, mobile devices, and the infrastructure to create multimodal applications that provide travelers with real-time information such as the status of traffic levels, parking availability, transit schedules, traffic signals, and road weather conditions

Federal Requirements

FHWA Rule 940 and an equivalent FTA policy specifies the requirements for regional ITS architecture development, use, and maintenance. Section 940.5 of the rule defines the underlying policy for architecture use, specifying that all ITS projects must adhere to the regional ITS architecture. It also specifies that the architecture should be developed consistent with the transportation planning process.

The intent of this requirement is to promote the following:

- Use of the architectures;
- Maintenance of stakeholder dialogue and understanding;
- Support for seeking funding;
- Support for project implementation;
- Progression of regional integration;
- Support for updates to the documentation.

Why ITS Architecture is Important

The purpose of developing, using, and maintaining a regional ITS architecture is to illustrate and document regional integration of ITS projects so that planning and deployment can progress in an organized and coordinated fashion. Architectures can also be a cost benefit to jurisdictions and agencies by utilizing the same technologies.

The regional transportation system is itself composed of many different systems that are planned, implemented, and operated by multiple jurisdictions and agencies. Each of these agencies must be able to effectively use the regional ITS architecture for optimal benefits.

To achieve the anticipated benefits, the following objectives must be met:

- The architecture is easy to understand and easy to navigate;
- The architecture content is accurate and current;
- The architecture supports development of the long range transportation plan and programming documents;
- The architecture includes enough detail to support project scoping and implementation;
- Clear guidance is available to support each prospective user;
- Users find it easy to document and report needed architecture changes.

Stakeholders & Projects

As the initial local ITS architecture for the region, all the RTPO member jurisdictions were invited to be involved in the architecture as well as many federal, State and local agency stakeholders. Two all day Regional ITS Architecture workshops (December 2015 and April 2016) were held at Ben Franklin Transit with stakeholders, representatives from FTA, FHWA and the consulting firm Iteris.

Stakeholders were invited to learn and ask questions about development of ITS Architectures and how they play in to the local transportation system. The second workshop presented the Draft Benton-Franklin Regional ITS Architecture containing local planned projects within the local architecture and how those ITS elements can eventually be connected in the region.

Currently, BFT and the City of Pasco have planned projects included in the architecture (Table 4-3). The projects can be found by clicking on their link, or by visiting the BFCG website.

Table 4-3: Planned Projects - ITS

Project	Status	Timeframe	Description
BFT Automated (ADA) Stop Announcements	Planned	Near-Term	Add automated stop announcemnts on fixed route transit vehicles.
BFT Automatic Vehicle Location (AVL)	Planned	Near-Term	AVL (GPS) on fixed route transit vehicles for "real time" tracking.
BFT Passenger Counting Project	Planned	Near-Term	Add automated passenger counting to the BFT fleet of fixed-route transit vehicles.
City of Pasco Traffic Signal Upgrade	Planned	Near-Term	Upgrade the traffic signals in Pasco.

Maintaining the local Architecture

The architecture will be reviewed and updated as part of the Long Range Transportation Plan development that occurs every five years. Goals and objectives that are developed for the long range transportation plan that are related to operations will also be included in the architecture and the relevant objectives will be mapped to service packages. The complete list of ITS service packages will be reviewed by agency planners as operational strategies are identified and prioritized. The prioritized strategies that are included in the long range transportation plan will be mapped to the architecture.

There are several factors or events that influence the need and decision to update an ITS architecture, and as part of Benton - Franklin ITS Architecture Maintenance Plan, these are considered:

- Changes in statewide ITS priorities or objectives;
- Changes in Federal or State Policy or Legislation;
- Coordination with Statewide ITS architectures of Washington State;
- Updates to the National ITS Architecture;
- New Stakeholders;
- ITS Deployment and Integration.

Updates to the Benton - Franklin Regional ITS Architecture will occur on a regular basis to maintain the architecture as a useful planning tool. Between complete plan updates, smaller modifications will likely be required to accommodate ITS projects in the Region.

Table 4-4: ITS Modifications and Updates

	Modifications	Complete Updates
Time Frame for update	As Needed	Every 5 years
Lead Agency	BFCG	BFCG
Participants	Stakeholders impacted by the modification	Entire Stakeholders Group
Scope of Update	Sections of the Architecture needing update	Entire Architecture

Safety and Security

Safety is one of the primary goals of transportation professionals. It is the responsibility and policy of the BFCG to provide transportation planning that maintains and improves safety and security in all aspects of the transportation network for all road users, including but not limited to: automobiles, pedestrians, bicyclists, freight, and transit users. Safety and security should be high priorities in the planning, design, construction, and maintenance of the transportation system.

Washington State's Strategic Highway Safety Plan

Adopted in 2013, Washington State's Strategic Highway Safety Plan (SHSP) *Target Zero* has been developed to identify traffic safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on all public roads. SHSP sets the vision to eliminate traffic fatalities and serious injuries by 2030. This plan was formulated after federal legislation Map-21 was adopted, requiring each state to have a strategic highway safety plan.

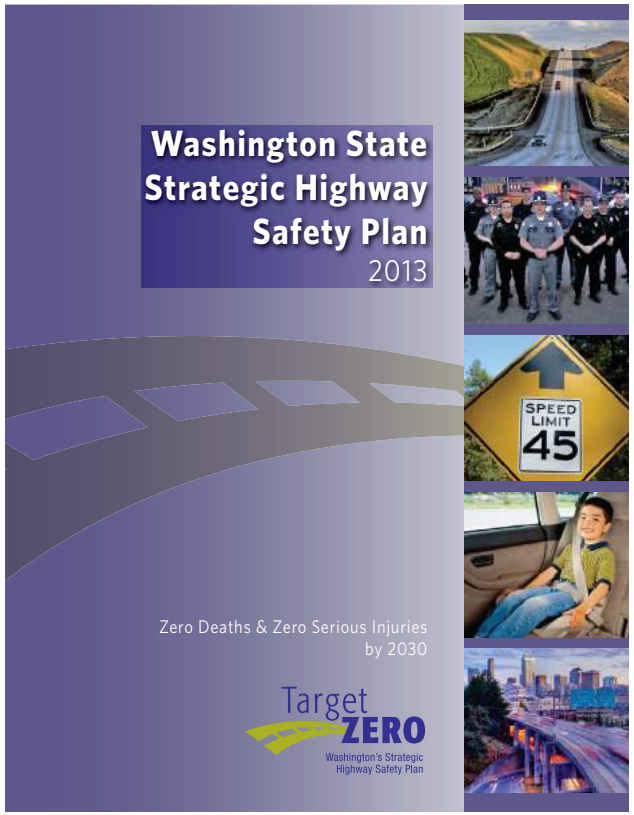
With the intention of being incorporated into plans and programs, SHSP aims to align priorities and strategies, and coordinate traffic safety programs. The plan outlines three priority levels to focus efforts, grouping the primary factors in fatal and serious traffic collisions:

Priority Level One includes the traffic factors that are associated with the largest number of fatalities and serious injuries. These factors account for at least 30% of fatalities and serious injuries between 2009 and 2011, and include impaired drivers, speeding, and intersection related.

Priority Level Two factors were not seen as often as Priority Level One, accounting for at least 10% of traffic fatalities and serious injuries. Examples from this level are: pedestrians, and unrestrained driver involved.

Priority Level Three factors account for less than 10% of fatalities and serious injuries. Bicyclists, work zone, and older driver (75+) involved are some factors in this level.

A table of the Priority Level Factors and Associated Fatalities and Injuries can be found in Appendix D page 58.



Federal Planning Factors

In addition to state requirements, federal legislation also emphasizes safety and security. Fixing America's Surface Transportation (FAST) Act, which replaced MAP-21, continues MAP-21's focus on safety. Of the ten Federal Planning Factors issued by Congress (23 USC 134), three relate to safety and security:

- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users; and
- Improve the Resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.

Emergency & Disaster Planning

The Benton-Franklin MPO holds the traditional role in system operations and security and disaster planning. The Association of Metropolitan Planning Organizations (AMPO) outlines this traditional role as: the MPO incorporates system management and operations into its ongoing planning activities[1]. The focus, for the BFCG, is on specific projects relating to system management and operations that arise as part of the transportation planning process.

This section will examine three local emergency plans: Benton County, Franklin County, and Hanford. Then, outline three emergency situations: earthquakes (Cascadia), flooding, and climate change.

1 "The Role of the Metropolitan Planning Organization In Preparing for Security Incidents and Transportation System Response" by Michael D. Meyer. www.planning.dot.gov/Documents/Securitypaper.htm

The BFCG project listings for *Transition2040* are prioritized with consideration of safety and security issues. Emergency response services are provided through other organizations: The Benton County Hazard Mitigation Plan and the Franklin County Comprehensive Emergency Management Plan. Many security measures are already in place in the planning area, including the Hanford Site and Energy Northwest's Columbia Generating Station.

Franklin County Emergency Management Plan

Franklin County Emergency Management is responsible for carrying out emergency management for the county, including the cities of Pasco, Connell, Kahlotus, and Mesa, and coordinating disaster mitigation, preparedness, and response and recovery efforts.

The *Franklin County Emergency Management Plan (CEMP)*, adopted in January 2016 by Franklin County Emergency Management, outlines the responsibilities and plans for emergency response.

Primary local support agencies include:

- Franklin County Sheriff's Office, Pasco Police Department and Connell Police Department;
- Pasco Fire Department, Connell Fire Department, and Five Rural Fire Protection Districts 1 through 5;
- Franklin County Public Hospital District #1;
- Tri-County Hazardous Materials Response Team;
- Benton-Franklin Health District; and
- Benton-Franklin Chapter of the American Red Cross.

Additionally, there are key state and federal agencies who participate in the planning and response aspects and may assume significant response roles.

Benton County Comprehensive Emergency Management Plan

The *Benton County Comprehensive Emergency Management Plan*, adopted in 2015, is a framework for the preparation for and response to natural, man-made and/or technological related emergencies or disasters. The plan outlines the roles and responsibilities of Benton County, its municipalities, State and Federal agencies, and volunteer organizations.

The primary agencies responsible for transportation in the event of an emergency or disaster are:

- Ben Franklin Transit (Lead for transport of people)
- Kennewick School District
- Richland School District
- Prosser School District
- Kiona-Benton School District
- Benton County Public Works
- Washington State Department of Transportation

Washington State Fixed Nuclear Facility Protection Plan

The *Washington State Fixed Nuclear Facility Protection Plan* (2014) establishes authoritative policies for five facilities in Washington, including two in the region: Energy Northwest's Columbia Generating Station, and Department of Energy (DOE) Hanford Site. The plan was developed with the WSDOT, and outlines the Benton County Emergency Services and the Franklin County Emergency Management as principal responders.

Benton County Emergency Services and Franklin County Emergency Management are in charge of managing safe and efficient evacuation processes, including traffic capacity projections of emergency routes, maintenance of evacuation route maps, and traffic control.

Hanford Emergency Management Plan

The *Hanford Emergency Management Plan* (published June 2010) describes the overall emergency organization, authorities, and responsibilities for response and mitigation of the Hanford Site in the case of emergency events, following the Department of Energy's (DOE) Orders.

Additionally, the plan provides guidance on activities such as training, drills, exercises, and evaluation, to ensure emergency preparedness. The plan includes emergency preparedness programs for transportation incidents (onsite and offsite), maintenance of the transportation system under their purview, and evacuation routes and plans.

If needed, Ben Franklin Transit will provide drivers for transportation support, and the school district may be asked to provide buses. Rail, air, and water transportation systems will be the secondary system.

Climate Change

Climate change is an ongoing discussion due to the potential impacts to the region's economy and transportation system. To reduce harmful and/or costly impacts to our communities, mitigaion strategies will be required. The transportation sector is the second largest producer of greenhouse gas (GHG) emissions, and changes can be implemented by increasing land use developments that are compatible with transportation, and that can provide alternative trip choices.

Alternative fuels, public transportation, and active transportation will likely become more appealing. Future government legislation may aim to increase these options, and decrease single-occupancy vehicle miles traveled.

WSDOT sustainable transportation activities focus on promoting multi-modal investment, policies and planning to clearly support transportation efficiencies and multi-modal travel, and supporting transportation efficiency.

WSDOT has been advancing sustainable transportation for some time now through greenhouse gas reduction, alternative fuel usage, vehicle miles traveled reduction strategies, statewide transportation system efficiency strategies and development support for the electric vehicle highway.

Climate change will impact agriculture. As a major economic activity and transportation user, farming may place a different demand on the transportation infrastructure.

Flooding

Flooding occurs on rivers and streams when excessive water discharge causes river or stream channels to overflow. The Columbia River, Snake River, Yakima River, and Esquatzel Coulee are all susceptible to flooding.

Although the region's dams can fluctuate Columbia and Yakima River water levels, they were not built for flood control and cannot control water flow during high runoff. A local levee system was built on the Columbia River between Richland, Kennewick, and Pasco in the 1950's for flood management. Much of the Tri-City area is below the Columbia River water levels and without the levee system the Tri-City area would flood regularly. Low interior drainage locations in the Tri-City Urbanized area occasionally fill with runoff and many of these catchment areas have pump stations installed to manage interior flooding.

The Esquatzel Coulee is located in the central portion of Franklin County. It starts in Connell at the confluence of the Washtucna Coulee from the northeast via Kahlotus, the Providence Coulee from the north in Adams County and the Othello Channels from the northwest. Additionally, the Old Maid and Dunnigan Coulees join from the east. The Esquatzel Coulee runs south from Connell following the general path of US 395, through Mesa and Eltopia, and ends just north of Pasco. The Esquatzel Coulee will fill with winter runoff although rarely floods surrounding areas unless major damming occurs in the coulee. Prior to the winter 2017 flooding, the area last saw a flood was in 1997.

Cascadia Subduction Zone

The Cascadia subduction zone lies offshore from southwestern British

Columbia to northern California, where two tectonic plates -- the North America plate and the Juan de Fuca plate -- come together to form an 800-mile long earthquake fault.

Geological evidence indicates that 13 great earthquakes have occurred in the last 6000 years. These earthquakes occur, on average, every 500 to 600 years. However, the years between these events have been as few as 100 to 300 years.

Figure 4-10 shows the shaking intensity for Washington, from the U.S. Geological Survey Cascadia forecasts.The MMI score, short for Modified Mercalli Intensity scale, rates a specific site based on how the earthquake is felt by people, and how much observed structural damage occurs. Most of Benton County is labeled as moderate shaking (MMI 5), and most of Franklin County is labeled as light shaking (MMI 4). A full table of MMI descriptions is in Appendix D page 56.

Cascadia's Effect on Eastern Washington

Ports and shipping channels, including sections of the Columbia River, are vulnerable to damage. Sections of the Columbia may be closed to shipping.

While most of eastern Washington will likely experience minimal shaking and damage, the RTPO will likely be indirectly impacted by the event.

Eastern Washington cities will likely become major conveyors of recovery supplies and building materials These cities should expect to see an inflow of people. Hospitals, large companies, and government agencies may have to temporarily house the displaced, and airports may become staging areas for emergency resources.

Economically, the impacts could be far reaching. The RTPO is a significant exporter of agricultural goods; however, damage to western roads, bridges, ports, and the Columbia River will likely disrupt the flow of goods throughout the area.

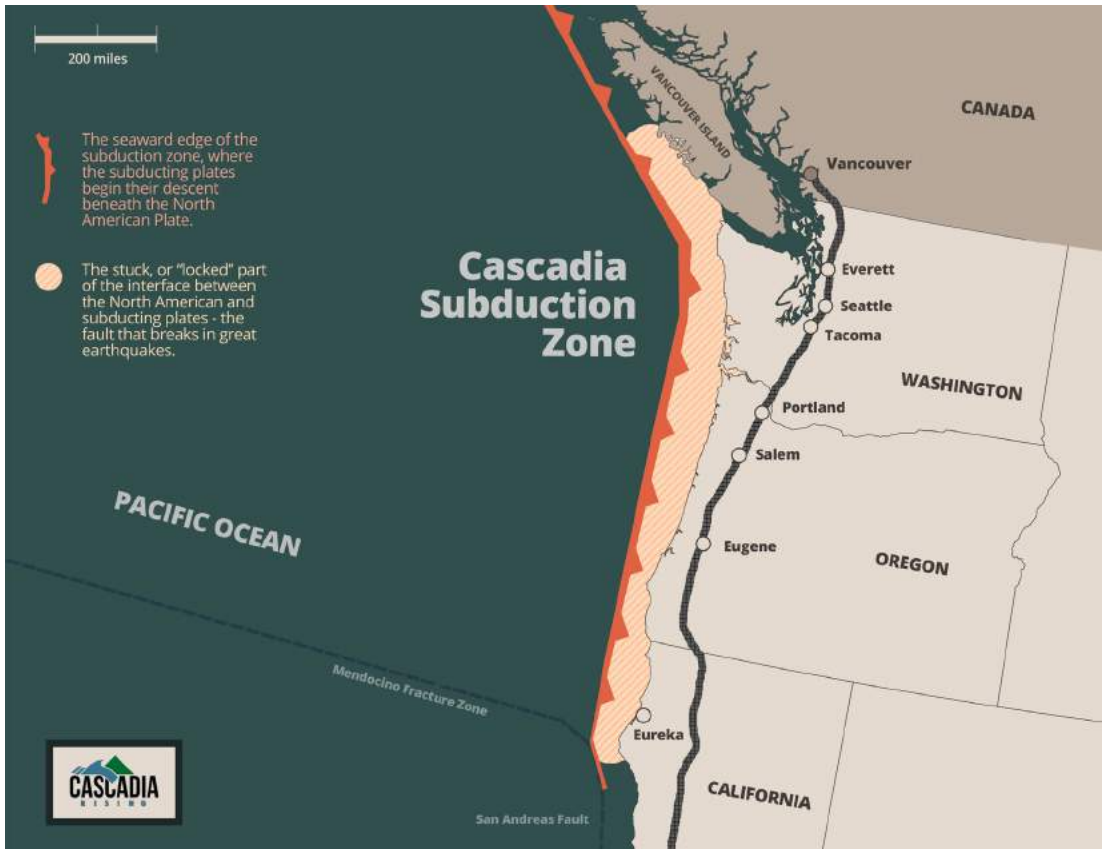


Figure 4-10: Washington State Shaking Intensity for the Cascadia Subduction

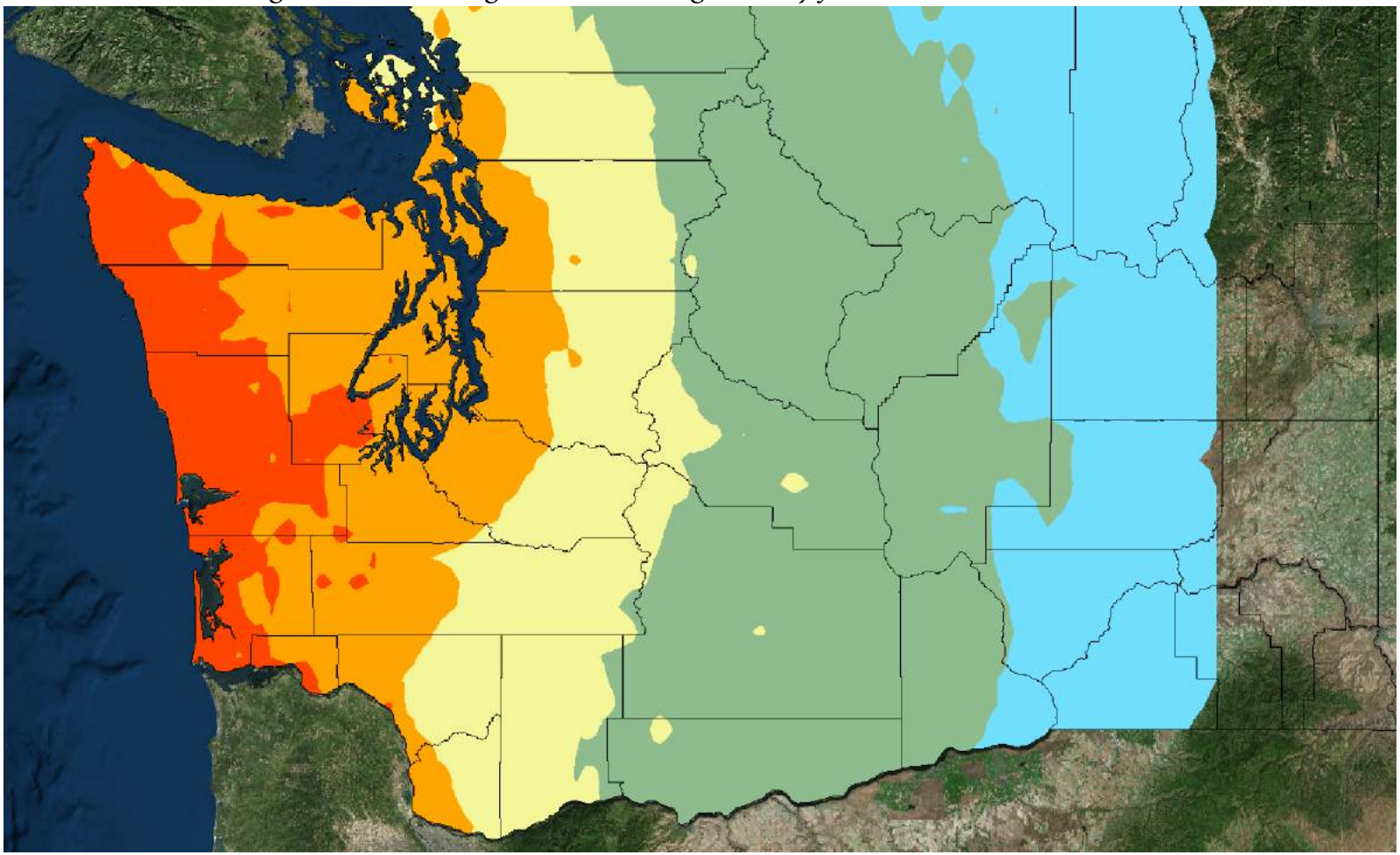


Table 4-5: Earthquake MMI Scale in the RTPO

Intensity	Shaking	Description/ Damage
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.

*Source: U.S. Geological Survey

This page left intentionally blank.

5 Financial Plan

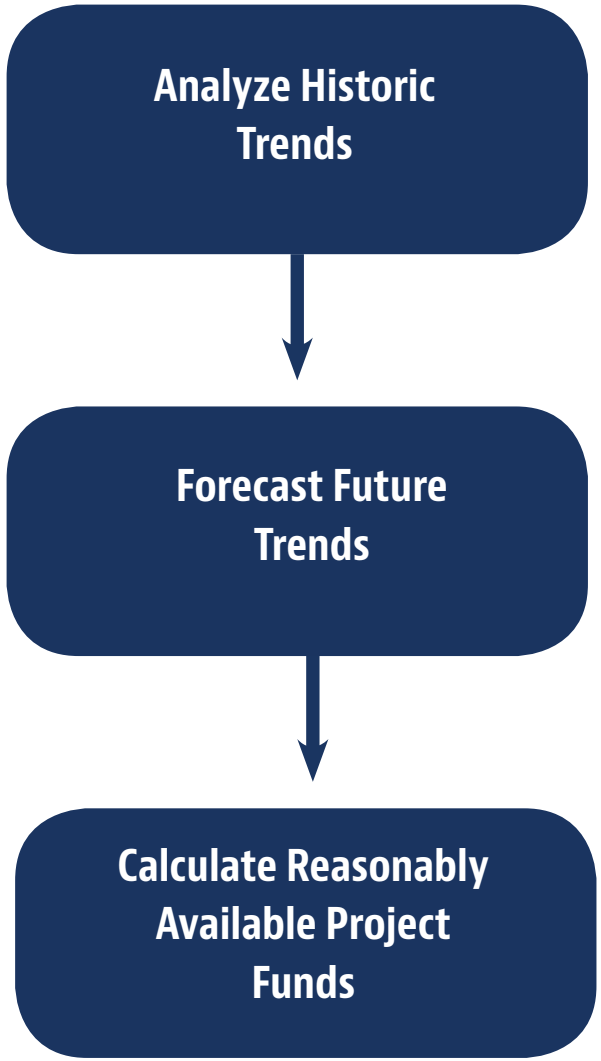
Introduction

The purpose of the financial analysis is to identify what funding may be reasonably available during the planning horizon[1]. With this analysis, BFCG can demonstrate how maintenance and operations of the existing and future system improvements can be implemented within the identified fiscal constraint (CFR 23 §450.325 11 (i)(ii)).

This analysis should not be considered an actual forecast of individual programs or projects, but rather an analysis of funds that could be reasonably available for transportation investments during the planning horizon. Several approaches were explored to develop revenue and expenditure forecasts for *Transition2040*.

A review of past trends, using ten years (2005-2014) of data, provided a general overview of historic revenues and expenditures. Other information reviewed were from sources such as, the Washington State Auditor's Office (SAO) Local Government Finance Reporting System[2], County Road and City Street Revenues and Expenditures Reports[3], and the Washington State Department of Transportation (WSDOT) Economic Analysis team[4].

The Transition2040 Financial Plan Process



1 Planning horizon: the length of time into the future that is accounted for in a particular plan.
2 http://portal.sao.wa.gov/LGCS/Reports/Default.aspx
3 http://www.wsdot.wa.gov/Finance/forecasting.htm
4 http://www.wsdot.wa.gov/Finance/default.htm

Revenue and Expenditure Overview

BFCG worked in coordination with WSDOT and BFT to develop the financial forecasts for local, state and federal revenue sources. The types of funding that were tracked for local forecasts included, but not limited to: local property taxes, gas tax, special levies, and State and Federal program funding. The WSDOT provided BFCG revenue growth rates assuming investment levels extending through the planning horizon. BFT also provided forecasts for Section 5307 funding, local fares, and sales tax revenues.

BFCG prepared two scenarios for the *Transition2040* long range forecasts. Scenario #1 presented projections based on ten years of historic data (2005-2014) provided by WSDOT's *County Road and City Street Revenue and Expenditure Report*, and scenario #2 applied growth rates provided by WSDOT's Economic Analysis Unit. Both revenues and expenditures were prepared in the two scenarios.

After review and discussion of both scenarios, the decision to use a historic scenario came from The Technical Advisory Committee (TAC) Financial Workgroup, which included metropolitan finance directors. The Workgroup believed the projected historic trend more aligned with the Benton-Franklin region. The final analysis was prepared by BFCG staff with guidance from the Financial Workgroup and then presented to the Technical Advisory Committee (TAC), the Policy Advisory Committee (PAC) and the BFCG Board.

Growth Rate Calculations

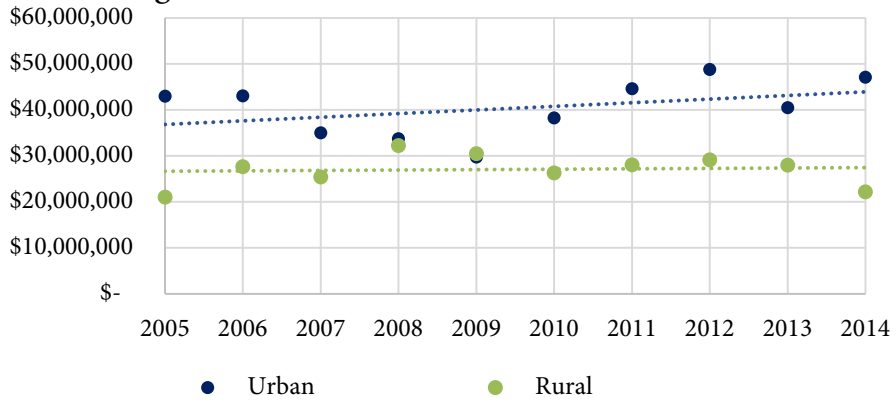
Growth rates were calculated for both Urban and Rural revenues and expenditures using data from years 2005-2014[5].

Historic Revenue Trends

Transportation revenue is the amount of funding that jurisdictions realize through local, state and federal sources and may come from a combination of general account funds, receipts, bonds, loans and grants. Revenue categories are:

- Property Tax
- Special Assessments
- General Fund Appropriation
- Other Local Receipts
- State Fuel Tax Distribution
- Other State Funds
- Federal Revenues

Figure 5-1: Historic Revenue Trends, 2005-2014



5 http://www.wsdot.wa.gov/Finance/forecasting.htm

The urban revenues annualized growth rate over the period 2005-2014 was 0.97%, while the rural was 0.53%. Using the historic revenues from 2005-2014, revenues were calculated for 2017-2040 in band years (2017-2025, 2026-2035, & 2036-2040).

Historic Expenditure Trends

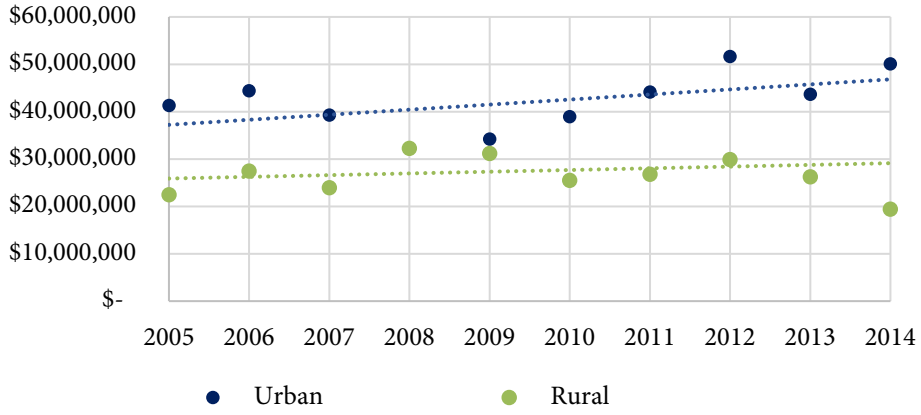
Expenditure is the amount of money spent on the transportation system such as maintaining, operating and preserving the system, construction, and other related expenses.

For the purpose of this Plan's calculations, expenditures were combined into three groups: M&O, Construction, and All Other. The categories were combined together to identify the relationship each group has to the whole of expenditures from years 2005-2014. The examination of each groups relationship provided assumptions of future expenditures by group component. The three groups were derived from the seven categories listed in the *County Road and City Street Revenue and Expenditure Report*[6]. The three groups, and their composition are:

1. "M & O," made up of:
   - Maintenance
   - Preservation
   - Administration & Operations
2. "Construction"
3. "All Other," made up of:
   - Plant Maintenance & Construction
   - Debt Service
   - Traffic Policing

6 http://www.wsdot.wa.gov/Finance/forecasting.htm

Figure 5-2: Historic Expenditure Trends, 2005-2014



The urban expenditures annualized growth rate was 2.13%. The rural annualized growth rate was 1.88%.

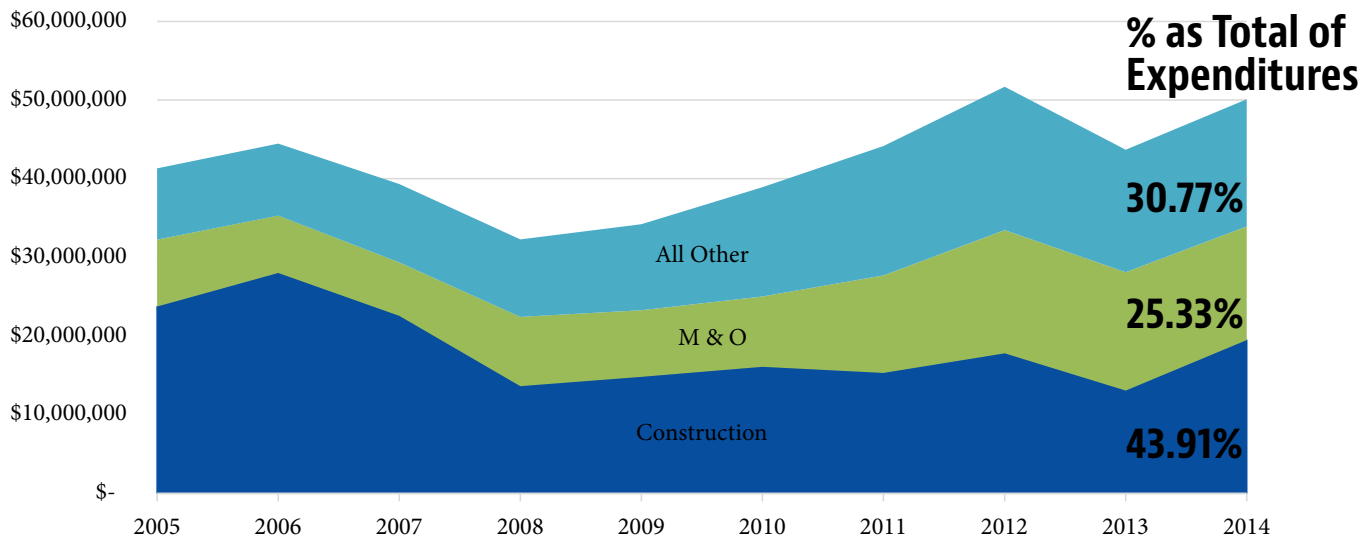
Figures 5-3 and 5-4 show the historic expenditures for the urban and rural areas, respectively, and break down the expenditures into the three categories. The graphs also show the category percent of the total expenditure, from 2005-2014.

Table 5-1: Percent of Expenditure Group of Expenditure Total, 2005-2014

	% M&O	% Construction	% Other
Urban	25.370%	43.908%	30.765%
Rural	42.965%	30.026%	27.009%

Urban

Figure 5-3: Historic Expenditures by Category for Urban Areas, 2005-2014



Rural

Figure 5-4: Historic Expenditures by Category for Rural Areas, 2005-2014

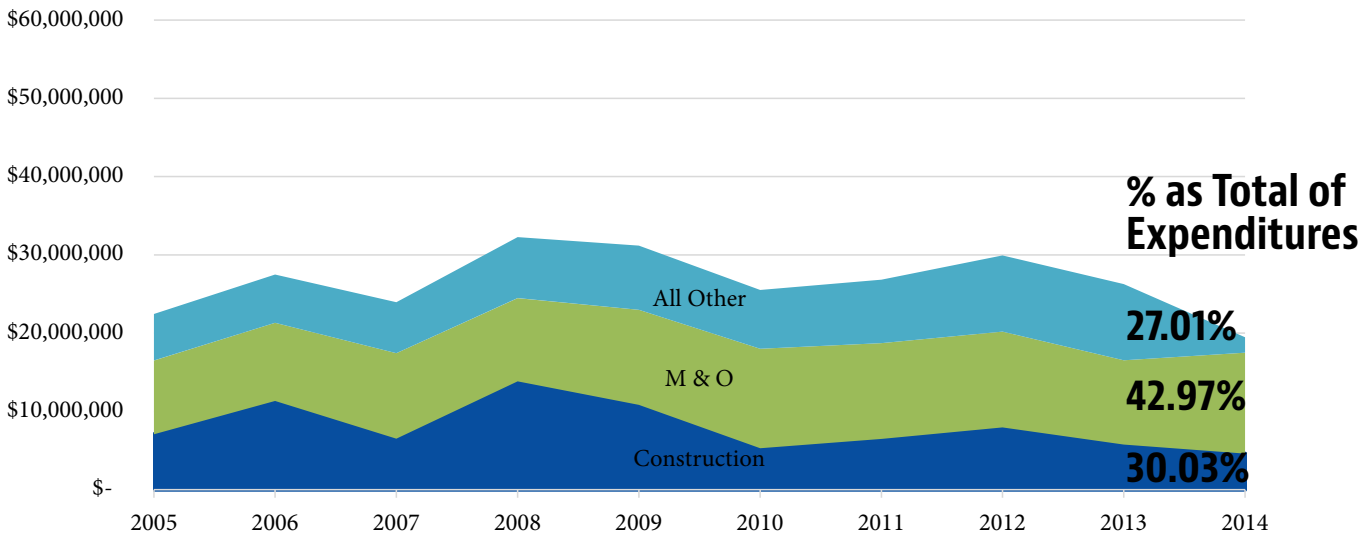


Table 5-2: Historic Growth Rates, 2005-2014

	Revenues	Expenditures
Urban	0.97%	2.13%
Rural	0.53%	1.88%

Forecasted Revenues and Expenditures

The expenditure percentages were applied to forecasted revenues to calculate revenue that would be reasonably available to preserve, maintain and operate the existing system and what revenue would be reasonably available for future transportation improvements (Table 5-3).

Since construction accounted for, on average 44% and 30% of the expenditures for urban and rural, respectively, over the past 10 years, the Workgroup agreed that it is reasonable to assume that future year expenditures will follow a similar format.

The Benton-Franklin region, as many other regions across the State of Washington, are challenged with a backlog of maintenance and preservation costs. Funding levels have not been sufficient to keep up with maintaining the existing system and adding new facilities that are demanded by a growing population and a vigorous economy. Local options may need to be explored and implemented in an effort to avoid further backlog.

Table 5-3: Forecasted Revenues, 2017-2040

	2017-2025	2026-2035	2036-2040	**Total 2017-2040**
Urban	$453,986,148	$552,819,888	$297,037,014	**$1,303,843,049**
Rural	$251,448,904	$293,827,903	$152,860,584	**$698,137,391**
Total	$705,435,052	$846,647,790	$449,897,014	**$2,001,980,440**

**Includes State and Federal funds that are directly distributed to the region and local jurisdictions.*

Forecasted Project Funds

Below is the reasonably available project funds for the Benton-Franklin Region. This amount is broken down into three band years (2017-2025, 2026-2035, & 2036-2040).

Available revenues are calculated by subtracting the "M&O" and "All Other" expenditures from the forecasted revenues, leaving the amount of money that is forecasted to be available for construction.

Table 5-4: Forecasted Project Funds Available, 2017-2040

	Forecasted Revenues	Forecasted Expenditures	Available Project Funding
Urban	$ 1,303,843,049	$ 731,351,643	**$ 572,491,406**
Rural	$ 698,137,391	$ 488,514,658	**$ 209,622,733**
Total	$ 2,001,980,440	$ 1,219,866,301	**$ 782,114,139**

Table 5-5: Forecasted Revenues, Expenditures, and Available Project Funding Urban Areas

	2017-2025	2026-2035	2036-2040	Total
Forecasted Revenues	$ 453,986,148	$ 552,819,888	$ 297,037,014	$ 1,303,843,050
Forecasted Expenditures	$ 453,986,148	$ 552,819,888	$ 297,037,014	$ 1,303,843,050
Forecasted Preservation, Maintenance & Operations	$ 114,981,072	$ 140,012,693	$ 75,230,565	$ 330,224,329
Forecasted All Other Expenditures	$ 139,668,838	$ 170,075,039	$ 91,383,437	$ 401,127,314
Reasonably Available Project Funds	**$ 199,336,238**	**$ 242,732,156**	**$ 130,423,012**	**$ 572,491,406**

Table 5-6: Forecasted Revenues, Expenditures, and Available Project Funding, Rural Areas

	2017-2025	2026-2035	2036-2040	Total
Forecasted Revenues	$ 251,448,904	$ 293,827,903	$ 152,860,584	$ 698,137,391
Forecasted Expenditures	$ 251,448,904	$ 293,827,903	$ 152,860,584	$ 698,137,391
Forecasted Preservation, Maintenance & Operations	$ 108,035,022	$ 126,243,158	$ 65,676,550	$ 299,954,730
Forecasted All Other Expenditures	$ 67,913,835	$ 79,359,978	$ 41,286,115	$ 188,559,928
Reasonably Available Project Funds	**$ 75,500,048**	**$ 88,224,766**	**$ 45,897,919**	**$ 209,622,733**

Submitted Projects

Table 5-7 shows the available project funds compared to the submitted project lists. From 2017-2040, a deficit of $217,711,649 appears. This depicts a greater transportation need than the funds provide for.

Table 5-7: Forecasted Project Funding, Projects Submitted & Unfunded Need, 2017-2040

	Urban Project Funding Available	Urban Projects Submitted	Urban Unfunded Need
2017-2025	$199,336,238	$291,354,581	-$92,018,343
2026-2035	$242,732,156	$279,596,435	-$36,864,279
2036-2040	$130,423,012	$206,652,423	-$76,229,411
	$572,491,406	$777,603,439	-$205,112,033

	Rural Project Funding Available	Rural Projects Submitted	Rural Unfunded Need
2017-2025	$75,500,048	$77,106,689	-$1,606,641
2026-2035	$88,224,766	$ -	$ -
2036-2040	$45,897,919	$ -	$ -
	$209,622,733	$ -	$ -

Ben Franklin Transit

Financial Capacity

Ben Franklin Transit has the financial capacity to meet future annual operating, maintenance, and capital costs in the short term. Financial capability is based on the projections from the BFT Financial Forecast Model (2014-2040).

In developing the financial analysis for *Transition2040* Ben Franklin Transit assumed an annual 2.5% increase in sales tax and fares. Grant revenues (state/federal) were assumed to increase annually by 1.5% and expenditures assumed a 2.0% annual increase. The assumptions were applied for the entire planning horizon 2017-2040.

Table 5-8 provides reasonably available revenue and forecasted expenditures for Ben Franklin Transit 2017-2040

Table 5-8: Ben Franklin Transit Financials, 2017-2040

	2017-2025	2026-2035	2036-2040	Total
Reasonably Available Revenues				
Total Operating	$ 406,431,471	$ 606,136,594	$ 382,560,005	$ 1,395,128,070
Total Capital	$ 34,973,098	$ 46,957,711	$ 26,398,656	$ 108,329,465
	$ 441,404,569	$ 653,094,305	$ 408,958,661	$ 1,503,457,535
Forecasted Expenditures				
Total Operating Expense	$ 406,431,471	$ 606,136,594	$ 382,560,005	$ 1,395,128,070
Total Capital Expense	$ 34,973,098	$ 46,957,711	$ 26,398,656	$ 108,329,465
	$ 441,404,569	$ 653,094,305	$ 408,958,661	$ 1,503,457,535

Washington State Department of Transportation

There is no forecasted new revenue for WSDOT-SCR.

Maintenance and Operations are forecast to be flat for the planning horizon of *Transition2040*.

Table 5-9: WSDOT Financials, 2017-2040

	2017-2025	2026-2035	2036-2040	Total
Forecasted Revenues	$ 147,300,000	$ -	$ -	$ 147,300,000
Forecasted Expenditures				
Forecasted M&O Expenditures	$ 27,900,000			
Connecting Washington Account	$ 119,400,000			
	$ 147,300,000			

Table 5-10: Connecting Washington Account

Connecting Washington Account (CWA)
Connell Rail Interchange
I-82 West Richland - Red Mountain Interchange
US 395/Ridgeline Intersection
Duportail Bridge
US 395/Safety Corridor Improvements
Lewis Street Overpass
SR 240/Richland Corridor Improvements

** Local funding is accounted for in the urban funding analysis.*

Submitted Projects

BFCG asked the jurisdictions to submit projects in Year of Expenditure dollars, or YOE dollars, meaning what the project will cost in the year that is planned to start. YOE dollars better reflects the time-based value of money.

2017-2025

Kennewick

Title	Description	Estimated Cost
2017 Pavement Preservation	Resurfacing of arterials and collectors	$ 800,000
Metaline Avenue - Kellogg to Edison	Widening, add bike lanes, curb, gutter, sidewalk	$ 1,252,000
Clearwater Avenue/Union Street Intersection Improvements	Widening, signal modifications, rechannelization, storage lanes	$ 1,400,000
Southridge Boulevard - Ridgeline to Chrisiansen	Reconstruction (3 lanes)- sidewalks, curbs, streetlights	$ 1,200,000
Metaline Avenue/Edison Street Storage lane	Construct left turn storage lane	$ 50,000
Grandridge Boulevard/Columbia Center Boulevard and Colorado Street Intersection Improvements	Widening, signal modifications, rechannelization, storage lanes	$ 500,000
Bob Olson Parkway - 5 Corners to Grant	New construction (5 lanes)- sidewalks, curbs, streetlights,	$ 7,000,000
Sherman Road - Ridgeline to Hildebrand	Reconstruction (5 lanes)- sidewalks, curbs, streetlights, roundabout @ Ridgeline	$ 1,400,000
Ridgeline - Sherman to Southridge	Reconstruction (5 lanes)- sidewalks, curbs, streetlights, roundabout @ Sherman	$ 1,601,000
2018 Pavement Preservation	Resurfacing of arterials and collectors	$ 1,600,000
10th Avenue - CCB to Montana	Street Improvements & widening	$ 5,470,000
Kennewick & Yelm Signal Upgrade	New Poles and Equipment	$ 250,000
Vista Entertainment District	Phase 1 Transportation Network	$ 5,500,000
US 395/Ridgeline & Hildebrand Intersection Improvements CWA	Grade separation to provide full access	$ 8,650,000
2019 Pavement Preservation	Resurfacing of arterials and collectors	$ 1,801,000
10th Avenue - Clearwater to 5corners	Reconstruction, roadway widening, illumination, sidewalks	$ 1,690,000
Clearwater & 10th Avenue	New signal or roundabout	$ 591,000
Vista Entertainment District	Phase 2 Transportation Network	$ 5,630,000
45th Avenue - Ely to Olympia	Reconstruction, roadway widening, illumination, sidewalks	$ 4,035,000

Kennewick 2017-2025 (Continued)

Title	Description	Estimated Cost
Deschutes Avenue/Young Street Intersection Improvements	Construct roundabout, rechannelization, storage lanes	$ 850,000
Clearwater Avenue/Kellogg Street Intersection Improvements	Widening, signal modifications, rechannelization, storage lanes	$ 1,025,000
Montana Street Extension - Bob Olson Parkway to Ridgeline Drive	New construction (3 lanes)- sidewalks, curbs, streetlights, roundabout @ Ridgeline	$ 3,410,000
2020 Pavement Preservation	Resurfacing of arterials and collectors	$ 1,854,000
Vista Entertainment District	Phase 3 Transportation Network	$ 5,800,000
Columbia Center Boulevard/Deschutes Avenue Intersection Improvements	Widening, signal modifications, rechannelization, storage lanes	$ 600,000
Gage Boulevard/Steptoe Street Intersection Improvements	Widening, signal modifications, rechannelization, storage lanes	$ 2,000,000
45th Avenue -Olympia to Washington	Reconstruction, roadway widening, illumination, sidewalks	$ 4,160,000
Zintel Way/Ridgeline Drive/Bofer Canyon Road	New construction (5 lanes)- sidewalks, curbs, streetlights, roundabout @ Ridgeline	$ 2,405,000

Richland 2017-2025

Title	Description	Estimated Cost
Duportail Bridge CWA	2017 TIP - New bridge and roadway over Yakima River	$ 35,000,000
Center Parkway Extension	2017 TIP - Extending Center Parkway from Tapteal Drive to Gage Boulevard	$ 1,334,120
I-182/Queensgate Drive Ramp Terminal Improvements	2017 TIP - Construct roundabout at EB I-182 ramp terminals	$ 2,715,000
Queensgate Drive/Columbia Park Trail Improvements	2017 TIP - Add lanes to Queensgate Drive between Keene Road and I-182. Construct roundabout at Queensgate/CPT.	$ 1,700,000
Swift Boulevard Improvements	2017 TIP - Pavement rehab, widen sidewalks, reduce lanes, streetscaping	$ 1,365,000
Vantage Highway Pathway - Phase 2	2017 TIP - Separated multi-use pathway between Robertson Drive and Stevens Drive	$ 670,000
S. George Washington Way Intersection Improvements	2017 TIP - Reconfigure GWW/Col. Point Drive intersection and modify I-182/SR 240 ramps	$ 9,890,000
Columbia Park Trail - East	2017 TIP - Reconstruct roadway to provide 3 lanes, curb and gutter, sidewalks, bike lanes and streetscaping	$ 1,300,000
Steptoe Street/Tapteal Drive Intersection Improvements	2017 TIP - Realign Tapteal Drive to construct a new intersection with Steptoe Street including modifications to the at-grade rail crossing	$ 1,380,000
Rachel Road Improvements	2017 TIP -Construct a collector street between Bellerive Drive and Leslie Road	$ 2,200,000
Queensgate Drive Extension	2017 TIP Construct a 3-lane roadway between Shockley Road and Keene Road	$ 1,100,000
Gage Boulevard Improvements	2017 TIP - Add bike lanes, shoulders, sidewalks, street lights, and storm drainage between Penny Royal and Morency	$ 825,000
Bellerive Drive Extension	2017 TIP - Construct a 2 lane collector street between Wenatchee Lane and Rachel Road	$ 70,000

Richland 2017-2025 (Continued)

Title	Description	Estimated Cost
Marcus Whitman Elementary - SRTS	2017 TIP - Construct sidewalks and frontage improvements and overlay on Snow Avenue between Duportail Street and Hoffman Street, and Gray Street between Snow Avenue and Winslow Avenue	$ 491,200
Stevens Drive Pathway	2017 TIP - Construct a separated multi-use pathway on the east side of Stevens Drive between Spengler Street and Horn Rapids Road	$ 950,000
Queensgate Drive - Phase II	2017 TIP - Construct a 2 lane collector street between Bermuda Road and Alla Vista Road, including frontage improvements	$ 3,400,000
Vantage Highway Pathway - Phase 3	2017 TIP - Construct a separated multi-use pathway on the north side of SR 240 between Twin Bridges Road and Kingsgate Way	$ 600,000
Kennedy Road - Duportail to West C/L	Minor Arterial, Two Lane w/left Turn, Sidewalk, Bike Lanes	$ 1,489,800
University Drive - Kingsgate Way to Stevens	Minor Arterial, Two Lane w/turn Lane, Sidewalks, Bike Lanes	$ 1,914,000

Pasco 2017-2025

Title	Description	Estimated Cost
Argent Road Sidewalks (Rd 72 to Rd 68)	This project will add pedestrian facilities to Argent Road from Road 72 to Road 68, providing an essential link for pedestrian connectivity.	$ 220,000
Argent Road Improvements (Rd 40 to 20th Ave)	This project will widen Argent Road to 5 lanes from Road 36 to 20th Avenue. In addition, intersection improvements are planned for Road 36 and Argent Road. The widening of Argent Road will accommodate future traffic needs, including Columbia Basin College traffic and commercial development for the Port of Pasco. As part of this project, an updated traffic corridor study will determine future traffic impacts, allowing staff to confirm or modify the proposed design.	$ 6,100,000
Traffic Signal Improvements - Citywide Phase 2	Replace all of the City's obsolete signal equipment with updated signal controllers, signal equipment, signal interconnect equipment, optimized corridor timing plans, vehicle detection system and emergency vehicle priority system. Pedestrian access will be upgraded to meet current ADA right of way accessibility design guidelines for the signalized intersections.	$ 4,200,000
Dual Right Southbound Rd 68	This project will add a second right-turn lane from southbound Road 68 onto westbound I-182.	$ 1,300,000
East B Circle Roadway Improvements	This project will address poor roadway surface conditions along East B Circle. There have been a number of developments along the road with half street improvements leaving a few frontages as unimproved.	$ 200,000
Road 68 Triple Right Westbound	This project will add a triple right turn at Road 68 and interchange for westbound I-182 to northbound Road 68.	$ 1,300,000
Wrigley Drive Extension	This project will extend Wrigley Drive from Clemente Lane to Convention Drive.	$ 375,000
Lewis Street Overpass CWA	This project will construct a new overpass between 2nd Ave and Oregon Ave. A new overpass will replace the existing underpass which is deteriorating. State funds have been assigned to the project and federal funds have been allocated. Land acquisition is complete.	$ 40,000,000
Road 100 & Argent Road Traffic Signal	This project will install a new traffic signal at Argent Road and Road 100 to meet the demand in traffic flow when the traffic signal is warranted.	$ 250,000
Lewis Street & Heritage Ave Traffic Signal	This project will install a new traffic signal to meet the demand in traffic growth and to better serve the industrial area for growth and economic development.	$ 220,000
Road 84 & Chapel Hill Traffic Signal	Install a new signal at the intersection of Road 84 & Chapel Hill to increase traffic flow in the area.	$ 340,000
Traffic Signal Improvements - City Wide - Phase 1	Upgrade traffic signals for better coordination and Fire EMS preemption. Create capacity through corridor signal and ADA improvements.	$ 1,656,861
N. 20th Ave. Safety Improvements	Roadway, ADA, and signal improvements to address pedestrian safety and intersection improvements at 20th and Lewis, 20th and Sylvester, 20th and Henry, 20th and Pearl, 20th and I-182 on/off ramps, and 20th and Sunwillows. Address access management at 20th and Lewis, 20th and Court, and 20th and Sun Willows. Addition of two pedestrian hybrid beacons along safe walking routes.	$ 2,450,100

West Richland 2017-2025

Title	Description	Estimated Cost
Paradise Way Extension - Phase 4	and bicycle facilities, storm draingage and illumination.	$ 1,390,000
Bombing Range Road - Phase 8	bicycle facilities, storm drainage and illumination.	$ 430,000
S. 38th Ave & Mt. Adams View Drive	Construct rural two lane roadway.	$ 1,243,000
S. 38th Ave & SR 224 Traffic Signal	Signalize intersection.	$ 577,000
Bombing Range Road / Mt. Adams View Drive Intersection Modifications	Signalize intersection or construct round-a-bout	$ 500,000
Grosscup Blvd. Pavement Preservation	Pavement restoration.	$ 253,100
N. 62nd Ave Pavement Preservation	Pavement restoration.	$ 907,000
Harrington Drive Pavement Preservation	Pavement restoration.	$ 230,600
Kennedy Road Pavement Preservation	Pavement restoration.	$ 143,700
Paradise Way Pavement Preservation	Pavement restoration.	$ 492,000
Ruppert Road Pavement Preservation	Pavement restoration.	$ 298,300
Belmont Blvd - Phase 2	facilities, storm drainage and illumination.	$ 3,410,000
Bombing Range Road Bridge Replacement	Bridge Replacement - eliminate existing posted load limit	$ 1,400,000

Franklin County 2017-2025

Title	Description	Estimated Cost
Juniper Dunes Recreation Area Access	Construct new access road into Juniper Dunes Widerness Area managed by USBLM. The federal portion of the funding includes both a federal Lands Access Program grant and agrant form the Bureau of Land Management.	$2,147,083
Pasco-Kahlotus Road Reconstruction/Overlay II	The project will upgrade an existing two-lane radway to provide safety, mobility and approach improvements. The Improvements will consist of reconstructing a portion of the roadway to correct for verticla sight distance issues, pavement widening and overlay for the total length of the project, roadway-related storm water facilities and address clear zone issues.	$ 1,900,000
Taylor Flats Bridge Widening	This project consists of wideinig a functionally obsolete bridge to meet current standards	$ 702,803
Smith Canyon Bridge Replacement	Replace existing bridge	$ 15,000
Glade North Overlay III	Widen and Overlay existing road and upgrade to an All-weather standard	$ 3,175,000
Basin City Alternative Transportation Route Improvments II	Replace pedestrian ramps, install new sidewalks, improve adjunct facilities and improve site drainage	$ 300,000

Franklin County 2017-2025 (Continued)

Title	Description	Estimated Cost
Dent Road and Burns Corridor Study	A study for trnasporation needs along the Dent Road and Burns Road corridor	$ 75,000
Bridge Approach Adjustment	Correct approaches on bridges countywide that are either higher or lower than the bridge deck	$ 150,000
Illuimination LED retrofit Countywide	Convert existing high-pressure sodium lights to energy-efficient LED lights	$ 50,000
Elm Road and Everett Road Intersection	Reconstruct intersection to address drainage issues	$ 150,000
Roadway Approach Improvement	Improve roadway approaches to BST roads from gravel roads	$ 200,000
Scooteney Road Drainage Correction	Roadway repair and drainage redirection	$ 200,000
Rural Freight Mobility Plan Study	This study will include performing an analysis of existing classified and non-classified routes in selected areas of the county	$ 75,000
Dent Road Widening	Widen existing county road to accommodate additional traffic form recent development	$ 150,000
Selph Landing Bridge Replacement	Replace existing bridge	$ 225,000
Dent Road/Road 68/Taylor Flats/Clark Road Intersection	Re-design/construct a new intersectionall five (5) legs	$ 1,000,000
Hollingsworth Road All-Weather	Reconstruct and resurface to an all-weather standard	$ 2,500,000
Coyan Road (Warehouse Road to Muse Road)	Construct road over existing gravel roadway	$ 2,500,000
Pasco-Kahlotus Road V	Reconstruct and Resuface Road	$ 2,000,000
N Cherry Bridge Replacement	Replace existing, structurally-deficient bridge	$ 1,000,000

Connell 2017-2025

Title	Description	Estimated Cost
Connell Rail Interchange		$ 10,000,000

Benton County 2017-2025

Title	Description	Estimated Cost
NINE CANYON ROAD Ph III: Coffin to Beck	Reconstruct a segment of gravel road to an all weather road (Coffin Road to Beck Road)	$ 3,356,000
TYRELL RD Ph II: Travis Road to 2 miles West of Plymouth Road	Total roadway reconstruction with HMA surfacing and a roadway structure rebuilt to an all weather standard	$ 1,000,000
SELLARDS RD Ph II: 2 miles east of SR 221 to 1/2 mile east of Tyacke	Surface and roadside rehabilitation	$ 1,400,000
BERT JAMES RD: Williamson to SR 221	Reconstruct a 2 lane road segment	$ 1,960,000
BERT JAMES RD: Sellards to Williamson	Reconstruct 2.15 miles of roadway to an all-weather road	$ 2,100,000
limits)	New construction; approximately 0.7 mi of new county road between W Richland city limits	$ 1,283,000
WILLAMETTE HEIGHTS - Mt Adams View (S 38th Ave to W Richland limits)	New construction; approximately 0.1 mil of new county road	$ 200,000
HANKS RD I: Crosby to 1/2 mile east of McDonald	Reconstruction of vertical and horizontal alignment to an all weather standard	$ 1,800,000
HANKS RD II: 1/2 mile east of McDonald to Aller	Reconstruction of vertical and horizontal alignment to an all weather standard	$ 1,800,000
CASE RD: Old Inland Empire Highway to Hanks	Reconstruct a segment of road to an all weather standard	$ 2,000,000
COUNTY WELL RD Ph I: SR221 to McBee	Reconstruct current road to an all weather road. Existing alignment will remain the same, but the profile will be improved. New subgrade will have one foot of surfacing with 0.30' of HMA. Other items of work include guardrail and drainage.	$ 2,250,000
COUNTY WELL RD PH II: McBee to Clodius	Reconstruct current road to an all weather road. Existing alignment will remain the same, but the profile will be improved. New subgrade will have one foot of surfacing with 0.30' of HMA. Other items of work include guardrail and drainage.	$ 1,500,000
COUNTY WELL RD Ph III: Clodius to County Pit	Reconstruct current road to an all weather road. Existing alignment will remain the same, but the profile will be improved. New subgrade will have one foot of surfacing with 0.30' of HMA. Other items of work include guardrail and drainage.	$ 1,350,000
FINLEY RD: MP 5.2 to end of pavement	Reconstruct a segment of gravel road to an all weather road	$ 1,750,000
JOHNSON RD: CR12 to Griffin	Reconstruct to widen roadway for safety; approximately 2.2 mi.	$ 1,470,000
DAGUE RD: Terril to Game Farm	Proposed new roadway to be built to an all weather standard. Approx. 0.5 mi	$ 250,000
SELLARDS RD Ph III: 1/2 mile east to Tyacke to Travis	Surface and roadside rehabilitation	$ 1,475,000
JOHNSON RD/GRIFFIN RD: Intersection Improvements	Intersections improvements	$ 1,000,000
OBSOLETE BRIDGE REMOVAL	Removing short span bridges over filled irrigation canals	$ 300,000
ROADSIDE WATERWAY PIPING AND SAFETY MITIGATION	Safety improvements of roadways next to waterways	$ 300,000
PATHS AND TRAILS	Emergent path projects; construct paths and trails	$ 60,000
EMERGENT PROJECTS	Construct emergent projects	$ 1,500,000
RAILROAD CROSSINGS	Upgrade railroad crossings, when approved for funding	$ 60,000

Kennewick 2026-2035

Title	Description	Estimated Cost
Canal Drive	US 395 to Kent Street Improvements	$ 4,032,000
UGA - Christiansen/Adair	New construction/reconstruction	$ 16,530,000
Colorado Street	Bob Olson Parkway to Ridgeline Drive	$ 3,360,000
2026 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,214,000
Center Parkway Bridge	New Overcrossing of I-82	$ 18,825,000
Vancouver Street	45th Avenue to 36th Avenue - Street Improvements	$ 1,405,000
Ridgeline Drive	Clodfelter to Center Parkway	$ 9,000,000
2027 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,282,000
2028 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,350,000
Hood & Neel Roundabout	Mini roundabout	$ 368,000
Citywide Traffic Signal System Upgrade/Retiming	New signal system software, communications equipment and retiming	$ 5,970,000
2029 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,421,000
Canal Drive	Quinault to Yost Street Improvements	$ 3,820,000
Ridgeline Drive	Center Parkway to Sherman	$ 8,445,000
2030 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,494,000
Miscellaneous Streetscape	Citywide	$ 5,295,000

Richland 2026-2035

Title	Description	Estimated Cost
Queensgate North Extention	New arterial route from the existing west end of Queensgate to SR224 (Van Giesen)(Portions of the route will likely be on Jones Road right of way)	$ 60,000,000

Pasco 2026-2035

Title	Description	Estimated Cost
Road 100 Widening	This project will improve traffic conditions by widening the road from Court Street to Chapel Hill Boulevar	$ 1,220,000
Sandifur Parkway (Rd 52 - Rd 60)	Currently there is a half street between Rd 52 and 60. This project will finish Sandifur Parkway from Road	$ 448,000
Annual Pavement Preservation Program	This program includes all pavement preservation activities such as Crack seal, Overlays and Micro-surfacin	$ 4,500,000
Annual Alley Hard Surface Maintenance & Preservation	The alleyway hard surface maintenance and preservation program is expected to improve accessibility in a	$ 680,000
Annual ADA Access Handicap Ramp Retrofit	Ongoing effort to bring the City's pedestrian facilities into compliance with federal ADA regulations and st	$ 300,000
Sandifur (Convention to Road 68)	This project will widen the existing roadway to the equivalent of a five lane section to accommodate futur	$ 335,000
Burden & Road 60 (Signal)	This project will upgrade the intersection at Burden & Road 60 to a signalized intersection.	$ 30,000
Sacagawea Heritage Trail	This project will lower the levee and install pathways for pedestrians, thus providing access along the river	$ 915,000
Road 68 and Court Street Signal	Intersection improvements at the intersection of Road 68 and Court Street will consist of a traffic signal to	$ 340,000
Road 76 Overpass - Argent Road to Burden Blvd	Extend Road 76 north from Argent Road to Burden Blvd. Extending Road 76 between Argent Rd and Burde	$ 10,880,000
Road 44 & Burden Traffic Signal	This project will install a traffic signal to improve traffic flow and level of service requirements.	$ 190,000
Heritage Ave & A Street Traffic Signal	This project will upgrade the intersection at Heritage Ave and A Street to a signalized intersection.	$ 220,000
Foster Wells / US 395 Interchange	Install interchange at Foster Wells Road and US-395.	$ 500,000
A St & US 12 Interchange	New Interchange at US-12 between "A" Street and Sacajawea Road. WSDOT will be the lead on this proje	$ 3,000,000
Madison Avenue & Burden Blvd Signal (Design and Construction)	Intersection of Road 44 and Burden Blvd - Install traffic signal at the intersection of Madison Ave and Burd	$ 190,000
Road 44 and Argent Signal	Install signals	$ 241,400

West Richland 2026-2035

Title	Description	Estimated Cost
S. 38th Ave Downtown Redevelopment Project	Construct two lane urban collector roadway with storm drainage, pedestrain facilities and illumination.	$ 4,707,000
Bombing Range Road Widening	Widen existing roadway to include additional south bound lane. Scope includes Storm drainage, bicycle ar	$ 3,729,000
Keene Road - Phase 6	Construct two lane roadway with center turn lane. Scope includes seperated 12' wide pathway, storm dra	$ 3,313,000
Bombing Range Road / Austin Drive Intersection Improvements	Relocate intersection location and safety improvements.	$ 96,000
S. 38th Ave - Phase 2	Construct 2 lane roadway with center turn lane and existing bridge widening. Scope includes storm draina	$ 2,068,000
Watkins Way Extension	Contruct 2 lane collector roadway. Scope includes storm drainage facilities, pedestrain facilities and illumi	$ 346,000

Kennewick 2036-2040

Title	Description	Estimated Cost
Canal Drive	US 395 to Kent Street Improvements	$ 4,032,000
UGA - Christiansen/Adair	New construction/reconstruction	$ 16,530,000
Colorado Street	Bob Olson Parkway to Ridgeline Drive	$ 3,360,000
2026 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,214,000
Center Parkway Bridge	New Overcrossing of I-82	$ 18,825,000
Vancouver Street	45th Avenue to 36th Avenue - Street Improvements	$ 1,405,000
Ridgeline Drive	Clodfelter to Center Parkway	$ 9,000,000
2027 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,282,000
2028 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,350,000
Hood & Neel Roundabout	Mini roundabout	$ 368,000
Citywide Traffic Signal System Upgrade/Retiming	New signal system software, communications equipment and retiming	$ 5,970,000
2029 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,421,000
Canal Drive	Quinault to Yost Street Improvements	$ 3,820,000
Ridgeline Drive	Center Parkway to Sherman	$ 8,445,000
2030 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,494,000
Miscellaneous Streetscape	Citywide	$ 5,295,000

Richland 2036-2040

Title	Description	Estimated Cost
I-182 / SR240 / Aaron Drive Interchange Improvements	Interchange improvements to grade-separate key movements	$ 40,000,000
SR240 / Twin Bridge Road Improvements	Twin Bridge Extension to Horn Rapids Road and Signal at SR240	$ 1,425,000
SR240 Widening	Add travel lanes between Kingsgate and Stevens Drive	$ 1,700,000
Van Giesen, Swift Blvd. Duportail Street / SR240 Intersection Improvements	Add lanes	$ 1,700,000

Pasco 2036-2040

Title	Description	Estimated Cost
Pedestrian Walkway on Road 68 Overpass	This project will widen the existing Road 68 overpass to accommodate a pedestrian walkway.	$ 1,025,000
Road 68 Widening - South	Widening Road 68 from Argent to I-182; increasing to two travel lanes in each direction, center turning movement with total of 5 lanes. Sidewalks will be installed on both sides, street lights and landscaping.	$ 740,000
Burns Road (Road 52 to Pasco City Limits)	Extension of Burns Road from Road 52 to City Limits	$ 250,000
Downtown Street Circulation	This project will improve the street networking to provide multi-modal access and downtown revitalization.	$ 2,500,000
Pedestrian Walkway on Sylvester Street Overpass	Provide a pedestrian walkway at the Sylvester Street overpass at US 395 to allow for safe pedestrian crossing.	$ 1,500,000
Argent Road Widening	The project consists of widening the existing 3 lane roadway to 5 lanes as part of mobility improvement for this corridor, which will accommodate future traffic needs including Columbia Basin College traffic and commercial development for Port of Pasco. The project also includes installation of a new traffic signal at 36th Avenue and Argent Road, as well as modifications/upgrades to existing traffic signals at Varney Lane/Saraceno Way and 20th Avenue intersections.	$ 4,884,723
Cresent Road	Road 108 to FCID Canal	$ 170,700
Annual Pavement Preservation Program	This program includes all pavement preservation activities such as Crack seal, Overlays and Micro-surfacing throughout the city	$ 4,500,000
Annual Alley Hard Surface Maintenance & Preservation	The alleyway hard surface maintenance and preservation program is expected to improve accessibility in alleyways by providing maintenance to existing alleyways. The program consists in the application some hard surface treatment to existing alleyways to prolong their life. The areas subject to this program will rotate to assure all alleyways are preserved.	$ 680,000
Annual ADA Access Handicap Ramp Retrofit	Ongoing effort to bring the City's pedestrian facilities into compliance with federal ADA regulations and standards.	$ 300,000

West Richland 2036-2040

Title	Description	Estimated Cost
Alderman Ave & SR 224 Traffic Signal	Signalize intersection.	$ 400,000
Red Mountain Way	Construct 2 lane roadway with center turn lane. Scope includes storm drainage facilities, bicycle and pedestrain facil	$ 1,400,000
Alderman Avenue	Construct 2 lane roadway with center turn lane. Scope includes storm drainage facilities, bicycle and pedestrain facil	$ 1,600,000
Fallon Drive Downtown Redevelopment Project	Construct two lane urban collector roadway with storm drainage, pedestrain facilities and illumination.	$ 2,053,000
Paradise Way Extension - Phase 5	Construct 2 lane roadway with center turn lane. Scope includes storm drainage facilities, bicycle and pedestrain facil	$ 3,259,000

Unfunded Need

2017-2025

Kennewick Unfunded Need 2017-2025

Title	Description	Estimated Cost
2021 Pavement Preservation	Resurfacing of arterials and collectors	$ 1,910,000
Tri-City Gateway Landscaping	Along US-395 in Southridge Area	$ 643,000
Colorado Street - Bob Olson Parkway to Ridgeline Drive	New construction (3 lanes)- sidewalks, curbs, streetlights, roundabout @ Ridgeline	$ 3,191,000
Morain Street Extension - 10th Avenue to 19th Avenue	New construction (3 lanes)- sidewalks, curbs, streetlights, roundabout @ Ridgeline	$ 2,425,000
Deschutes Avenue/Kellogg Street Traffic Signal	New Signal & turn-lanes	$ 400,000
Canal Drive/Edison Street Intersection Improvements	Widening, signal modifications, rechannelization, storage lanes	$ 2,800,000
2022 Pavement Preservation	Resurfacing of arterials and collectors	$ 1,968,000
Citywide Traffic Signal System Upgrade/Retiming	New signal system software, communications equipment and retiming	$ 5,000,000
2023 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,030,000
Canal Drive Sidewalks	Sidewalks North side of roadway	$ 160,000
Center Parkway - Bob Olson Parkway to Interstate 82	New construction (5 lanes)- sidewalks, curbs, streetlights, roundabout @ Hildebrand, roundabout @ Ridgeline	$ 6,335,000
Kennewick Avenue - Morain to Union	Reconstruction & widening, curb, gutter and sidewalk	$ 1,071,000
Metaline Avenue/Kellogg Street Traffic Signal	New Signal & turn-lanes	$ 400,000
10th Avenue/Morain Street Traffic Signal	New Signal & turn-lanes	$ 400,000
2024 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,088,000
Cascade Street - 27th to 45th	Reconstruction	$ 4,567,000
27th Avenue & Washington Street Signal	Signal or Roundabout	$ 720,000
2025 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,150,000
Center Parkway Extension - Gage to Tapteal	Joint project with Richland - New roadway, curb & gutter, sidewalk, illumination	$ 3,225,000
Columbia Overlook Phase 2	Sidewalk, northside landscaping, rock wall , streetscape, park & ride	$ 4,032,000
Clearwater Avenue/Arthur Street Signal	New Signal	$ 470,000
Quinault Avenue/Kellogg Street Signal	New Signal	$ 470,000
Deschutes & Center Parkway Roundabout	Mini roundabout	$ 105,000
Columbia Center Blvd.- Deschutes to Quinault	Widening	$ 10,750,000

Richland Unfunded Need 2017-2025

Title	Description	Estimated Cost
Logston Blvd. Extension - Robertson to Railroad Spur (University Dr)	Collector, Two Lane w/turn Lane, Rural Street Section w/Street Lights & Shoulders	$ 2,358,900
Comstock Street - GWW to Wellsian	Collector, Two Lane w/left Turn Pockets, Sidewalks, Bike Lanes	$ 1,572,600
Stevens Drive, Knight Street Traffic Signal	New Signalized Intersection	$ 242,100
Battelle Blvd. - Kingsgate Way to Blanchard Blvd.	Collector, Two Lane w/left Turn Lane, Rural Street Section w/Street Lights & Bike Lanes	$ 1,241,550
Unnamed Street No. 3 - Heritage Hills to Columbia Park Trail	Collector, Two Lane w/left Turn Lane, Sidewalks, Bike Lanes	$ 1,655,400

Pasco Unfunded Need 2017-2025

Title	Description	Estimated Cost
Oregon Avenue (SR397) Corridor Project - Phase 1	The project will upgrade the existing Oregon Avenue corridor between the I-182/US 12 Interchange and "A" Street	$ 8,009,000
Transportation Master Plan	There has been significant growth experienced in the past 15 to 20 years. In the recent years, the City has complete	$ 300,000
Annual Alley Hard Surface Maintenance & Preservation	The alleyway hard surface maintenance and preservation program is expected to improve accessibility in alleyways	$ 680,000
Annual ADA Access Handicap Ramp Retrofit	Ongoing effort to bring the City's pedestrian facilities into compliance with federal ADA regulations and standards.	$ 300,000
Chapel Hill Extension	Extension of Chapel Hill Blvd. from Road 68 to Road 84. The road section will match the existing Chapel Hill Blvd wi	$ 1,663,000
Wrigley Drive Extension	This project will extend Wrigley Drive from Clemente Lane to Convention Drive.	$ 250,000
Annual Pavement Preservation Program	This program includes all pavement preservation activities such as Crack seal, Overlays and Micro-surfacing throug	$ 4,500,000
Burns Road (Road 68 to Convention Dr)	Extension of Burns Rd from Rd 68 to Convention Dr.	$ 200,000
Harris Road Realignment	Broadmoor to Sandifur	$ 267,250

Kennewick Unfunded Need 2026-2035

Title	Description	Estimated Cost
Downtown Revitalization - Canal Drive	Enhancement work, ornamental street lighting, pedestrian facilities, downtown revitalization project	$ 2,270,000
10th Avenue/SR 397	Install signal or roundabout (railroad intertie)	$ 700,000
2031 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,570,000
Center Parkway @ Interstate 82	New Construction. On/off ramps to I-82.	$ 13,570,000
2032 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,646,000
2033 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,724,000
UGA - 58th Avenue/Center Parkway	New construction	$ 10,415,000
2034 Pavement Preservation	Resurfacing of arterials and collectors	$ 2,806,000

Richland Unfunded Need 2026-2035

Title	Description	Estimated Cost
Kingsgate South Extension	New arterial route from south end of Kingsate @ SR 240 to SR 224 (Van Giesen). Portions of the route will likely be on the Jones Road right of way.	$ 4,280,000
I-182 / Eastbound Onramp	New eastbound onramp at Queensgate / I-182 Interchange	$ 15,000,000
Gage Boulevard Improvements	Extension from Morency to Queensgate	$ 1,250,000
Dallas Road Improvements	Urban Street Improvements between I-82 and Keene Road	$ 2,904,300
Shockley Road	New Route Extension from Keene Road to Columbia Park Trail	$ 360,000
Reata Road Improvements	Urban Street Improvements between KID Canal and Leslie Road with signal at Leslie	$ 3,045,735

West Richland Unfunded Need 2026-2035

Title	Description	Estimated Cost
Preakness Blvd	Construct 2 lane roadway with center turn lane. Scope includes storm drainage facilities, bicycle and pedestrain facilities, and illumination.	$ 2,800,000
Keene Road & SR 224 Traffic Signal	Signalize intersection.	$ 500,000
S. 38th Ave Bridge Replacement	Bridge Replacement - eliminate existing posted load limit	$ 900,000
Bombing Range Road & Keene Road Round-about Modifications	Modify round-a-bout to increase capacity	$ 1,000,000
Paradise Way & SR 224 Traffic Signal	Signalize intersection.	$ 420,000
Ruppert Road / Belmont Blvd & SR 224 Traffic Signal	Signalize intersection.	$ 500,000
Keene Road - Phase 7	Construct rural two lane roadway.	$ 4,206,000
Keene Road Widening	Widen roadway from two lane roadway to four lane roadway with 12' acp pathway. Scope includes storm drainage, bicycle and pedestrain facilities, and illumination.	$ 7,180,000

2036-2040

Kennewick Unfunded Need 2036-2040

Title	Description	Estimated Cost
8th Avenue	Gum to 10th Ave Street Improvements	$ 3,160,000
2038 Pavement Preservation	Resurfacing of arterials and collectors	$ 3,160,000
2039 Pavement Preservation	Resurfacing of arterials and collectors	$ 3,254,000
27th Avenue - Garfield Street to Washington Street	Reconstruction, curb and gutter, sidewalks, illumination, signal or roundabout	$ 5,100,000
Rainier Street	7th Ave to 27th Ave Street Improvements	$ 3,665,000
2040 Pavement Preservation	Resurfacing of arterials and collectors	$ 3,350,000
Citywide Traffic Signal System Upgrade/Retiming	New signal system software, communications equipment and retiming	$ 8,500,000
Edison Street/BNSF Grade Separation	Grade separation structures, roadway realignments	$ 57,600,000

Richland Unfunded Need 2036-2040

Title	Description	Estimated Cost
I-182 / SR240 / Aaron Drive Interchange Improvements	Interchange improvements to grade-separate key movements	$ 40,000,000
SR240 / Twin Bridge Road Improvements	Twin Bridge Extension to Horn Rapids Road and Signal at SR240	$ 1,425,000
SR240 Widening	Add travel lanes between Kingsgate and Stevens Drive	$ 1,700,000
Van Giesen, Swift Blvd. Duportail Street / SR240 Intersection Improvement	Add lanes	$ 1,700,000

West Richland Unfunded Need 2036-2040

Title	Description	Estimated Cost
Paradise Way Extension - Phase 5	Construct 2 lane roadway with center turn lane. Scope includes storm drainage facilities, bicycle and pedestrain facilities, and illumination.	$ 3,259,000

Franklin County Unfunded Need 2036-2040

Title	Description	Estimated Cost
Coyan Road (Muse Road to Hatton Road)	Reconstruct and pave road. This project includes R/R overpass	$ 5,000,000
Taylor Flats Overlay and Widening I	Reconstruct and resurface to an all-weather standard	$ 4,427,803
R-170 Road (Klamath Road to Ringold Road) All Weather	Reconstruct and resurface to an all-weather standard	$ 2,500,000
Ringold Road (Taylor Flats to R-170) Reconstruction	Reconstruct to All Weather road, add truck climbing lane, address intersection of Ringold Road and Taylor Flats	$ 5,000,000
Pepiot Road All Weather	Reconstruct and resurface to an all-weather standard. The route will need to be classified	$ 1,500,000

This page left intentionally blank.

Future Conditions 6

REGIONAL TRAVEL DEMAND MODELING | FORECAST RESULTS | ANALYSIS

Introduction

This chapter will describe where the expected growth will occur and analysis of the transportation system through the use of the Regional Travel Demand Model.

The region is expected to add over 150,000 new residents and 40,000 jobs by the year 2040. The majority of new homes and jobs will be located within the Tri-Cities metropolitan area. That growth will impact the current transportation conditions and future needs.

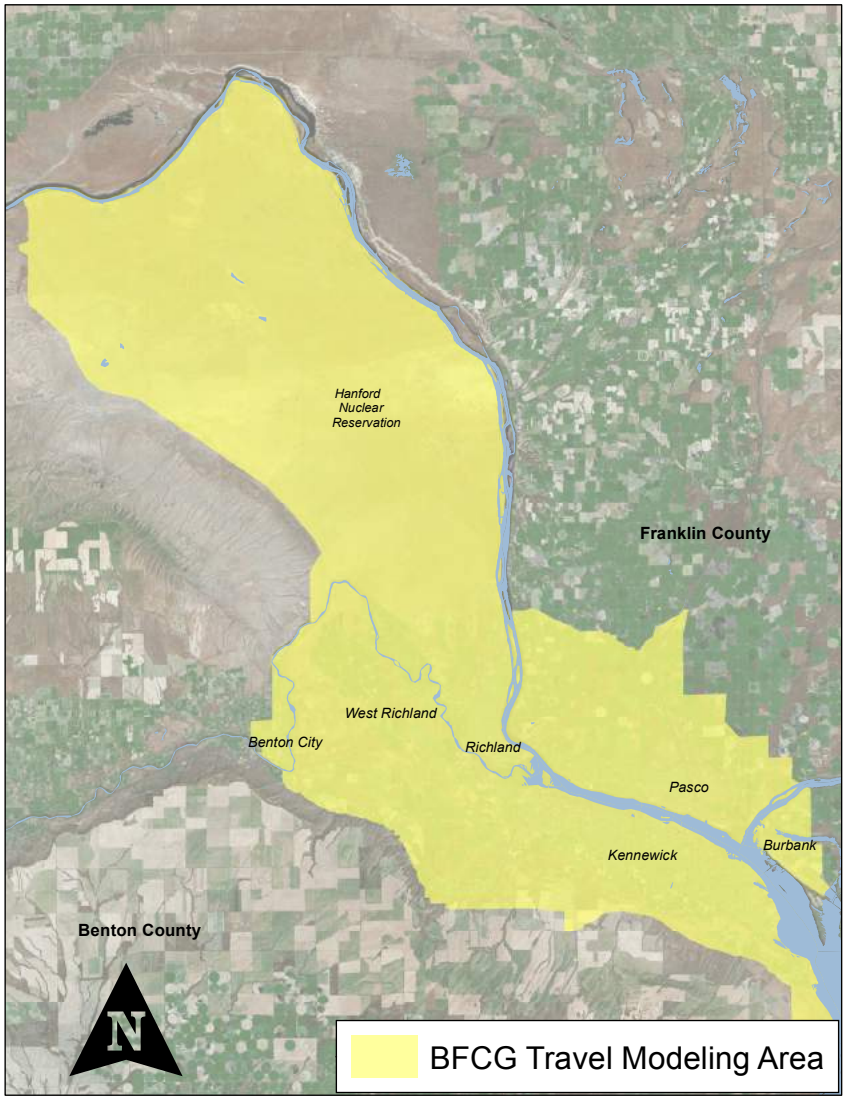
Table 6-1 shows estimated growth in the metropolitan planning area and transportation characteristics. The modeling area is the same as the BFCG Metropolitan Planning Area boundary, Figure 6-1.

Table 6-1: MPA Growth Forecast

	2015	2040*
Population	246,054	369,700
Housing Units	92,885	124,845
Employment	91,823	137,776
Vehicles Miles Traveled	6,119,755	7,960,450
Vehicle Hours Traveled	222,401	370,415

*Reflects 2040 growth and forecast with projects in the "2040 Build Scenario" as identified in *Transition2040*.

Figure 6-1: BFCG Modeling Area



Regional Travel Demand Modeling

The Regional Travel Demand Model (model) is a strategic planning tool that is the outcome of a coordinated planning effort conducted by BFCG. Through a collaborative process, BFCG engages with local planners, transportation engineers, and economic development staff to develop population, employment, and transportation forecasts, as well as a list of transportation projects for the Metropolitan Planning Area.

How Do We Use This Model?

BFCG has developed and operated a travel model since the early 1990's. The agency began using the TModel/TModel before transitioning to TransCAD (Caliper) in 2005. MPO's, like BFCG, use models to estimate future travel demand and to evaluate the impacts of regionally significant projects on the transportation system. Federal Law requires MPO's to consider in their planning process how projects and strategies will affect a wide variety of policy concerns. This includes estimating motor vehicle emissions and new travel generated by increased roadway capacity, and evaluating alternative land-use patterns, freight movement, and non-motorized trips.

Transition2040 takes a look at three different scenario years, 2025, 2035, and 2040, and compares projects and results with the current conditions. This is in accordance with requirements that the plan has at least a 20-year horizon period[1].

1 23 CFR §450.324 Development and content of the metropolitan transportation plan

Model Inputs

As with any planning effort, a large amount of data collection and resources is necessary to finalize and complete a reasonably acceptable travel model. BFCG worked with local and regional agencies, jurisdictions and state departments to collect and develop the data required.

In general, the model requires information about population, households, and employment characteristics. This includes income levels, household size, and job types. For instance, a single family neighborhood with 100 homes on large lots produces different travel patterns than a multi-family housing development in a denser area. The model also uses the current transportation network and public transportation route system.

BFCG modeled all functionally classed roadways, transit routes and other segments considered to be regionally significant as determined by the BFCG Technical Advisory Committee.

Regional characteristics, which would be provided by a household travel survey, are currently not available for use, however BFCG staff worked with a some of the large employers and higher education institutions to collect detailed travel habits in their specific zones.

How Does the Model Work?

The BFCG model is a standard "Four--Step" which is utilized across the country by both small and large MPO's. There are four major steps to the model:

1. Trip Generation – How many trips are made?
2. Trip Distribution – Where do trips go?
3. Mode Choice – How are trips made (vehicle/bus)?
4. Trip Assignment – What route did each trip travel?

Travel forecasting is a process of prediction by analyzing past and present data trends, and relies heavily on the data available. What is needed for the transportation planning process is an acceptable "level of comfort," with the inputs, methods, and calibration (verification) used to estimate future travel volumes and characteristics.

The BFCG model is intended to be used at the regional (macro) level. While the model can provide information about specific corridor volumes and patterns, it is not operation specific, meaning a micro-model would be the correct tool to use for analyzing travel at the intersection level.

The following sections will provide information about how the demographic (population and employment) forecasts were developed.

Demographic Forecasting

Population

Base year population estimates were collected by using the Small Area Estimate Program (SAEP), produced by the Washington State Office of Financial Management (OFM). The SAEP provided the total population, housing units for each model TAZ area. BFCG worked with local planning staff from cities and counties to develop the population forecasts for each of the scenario years (2025, 2035, and 2040). The Washington State OFM provides growth forecasts for each county. Each county is required to select a control growth target for population. For the purposes of the model, Benton County selected the "High" series and Franklin County selected the "Medium" series growth projections.

Population Targets & Washington State Growth Management Act

In accordance with RCW 43.62.035, the Washington State Office of Financial Management (OFM) shall determine the percentage increase in population for each county over the preceding ten-year period.

Development of population projections for the Washington State Growth Management Act (GMA) is a shared responsibility. As directed by state statute, OFM prepares a reasonable range of possible population growth for Washington counties participating in the GMA.

County officials are responsible for selecting a 20- year GMA population target within the range of low-medium-high as prepared by OFM. County officials select the population target, then within each county, targets for cities, towns and unincorporated areas are developed by local jurisdictions.

The BFCG metropolitan planning area also includes a portion of unincorporated Walla Walla County within the model area (known as Burbank). With guidance from the Walla Walla Valley Metropolitan Planning Organization, based on available trend data, it was decided to not increase the population for that area.

Total population, household population and housing units were also forecasted for use in the model.

Employment

Estimating employment for the region can be challenging due to how employment data are reported to various agencies. The model requires employment numbers and type to be collected at a very small geography, the TAZ level, to properly represent travel patterns. BFCG worked closely with the Washington State Employment Securities Department (ESD) to verify current employment and to assist with forecasts.

BFCG utilized the OnTheMap tool, a US Census Bureau's Center for Economic Studies application. It incorporates LEHD Origin-Destination Employment Statistics (LODES) that allowed BFCG to more accurately collect where the relationship between where workers are employed and where they live.

In 2014, BFCG conducted a Major Employers Report, which provides a snapshot of regional employment within Benton and Franklin Counties for those job sites with 100 or more employees. This effort allowed BFCG to collect specific site information necessary to reflect travel patterns in the commercial and industrial job areas.

Using growth rates provided by local planning staffs, BFCG with the help of ESD forecasted employment growth for the metropolitan area. Final forecasts were reviewed by local planning staffs to ensure agreement on the methods and results.

For the purposes of the model, BFCG preserved job type ratios from the base year throughout the forecasted scenarios, unless specified otherwise by local jurisdictions.

School Enrollment

With the rapid growth in the region, capturing school enrollment in K-12 and higher education institutions was important for use in the model. In 2015, BFCG captured staff and faculty employment as well as students in K-12. BFCG reached out directly to local school districts to collect this data.

The region is also home to Colombia Basin College and Washington State University – Tri-Cities. Both campuses have grown over the years and have recently added student housing. While enrollment and staff information was collected, an ongoing effort to update this information given the fluctuating trends in higher education is required.

Regional Travel Characteristics & Surveys

Identifying where people live and where they work is a key component to travel model development. Additionally, understanding how people in the community travel to non-work activities is an important part of the model development. For example, the area is home to 40 elementary schools (with more planned). How students arrive to their

school may differ than how they return back home. Students may take the bus in the morning then be picked up by a parent, but before returning home may visit a grocery store or a doctor. These travel characteristics are executed in various ways across the region.

Currently, the region does not have a large-scale travel survey (for example, a household travel survey), however BFCG was able to obtain certain data from a couple of sources: Pacific Northwest National Laboratory (PNNL), one of the metropolitan areas largest employers, Colombia Basin College, and Washington State University – Tri-Cities. This data assisted with calibrating their specific zones within the model with regards to how students and employees arrived to and from their location.

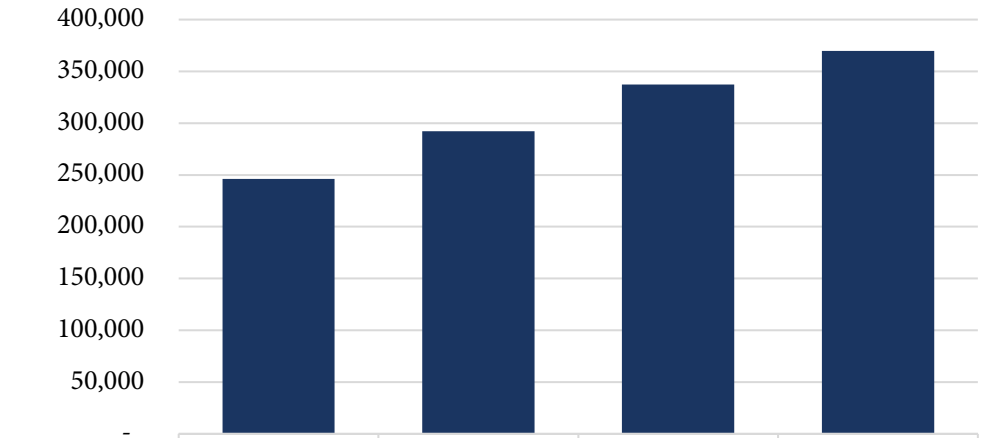
In addition to these surveys, the model relies heavily on the use of the Census Transportation Planning Products (CTPP) data that contains information on average commute times and vehicle ownership, along with a travel survey results from within the State of Washington.

The remaining portion of the chapter will focus on results from the forecasts and travel demand model results. These results are for the BFCG Metropolitan Planning Area (MPA) only. For information on the MPA, please refer to Chapter 2: Regional Profile.

Forecast Results

Population

Figure 6-2: Population Forecast MPA



	Base Year	2025	2035	2040
Population	246,054	292,052	337,174	369,700

Figure 6-3: Base Year Percent of Population by County

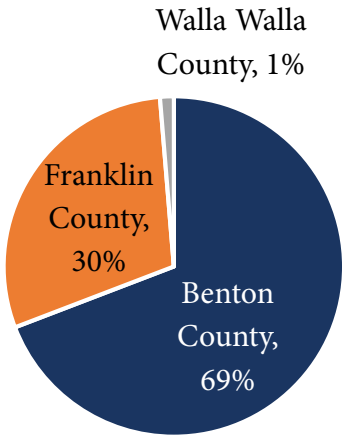


Figure 6-4: 2040 Percent of Population by County

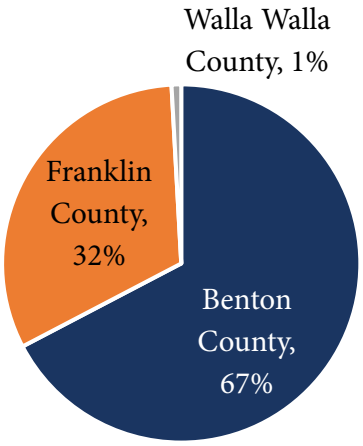
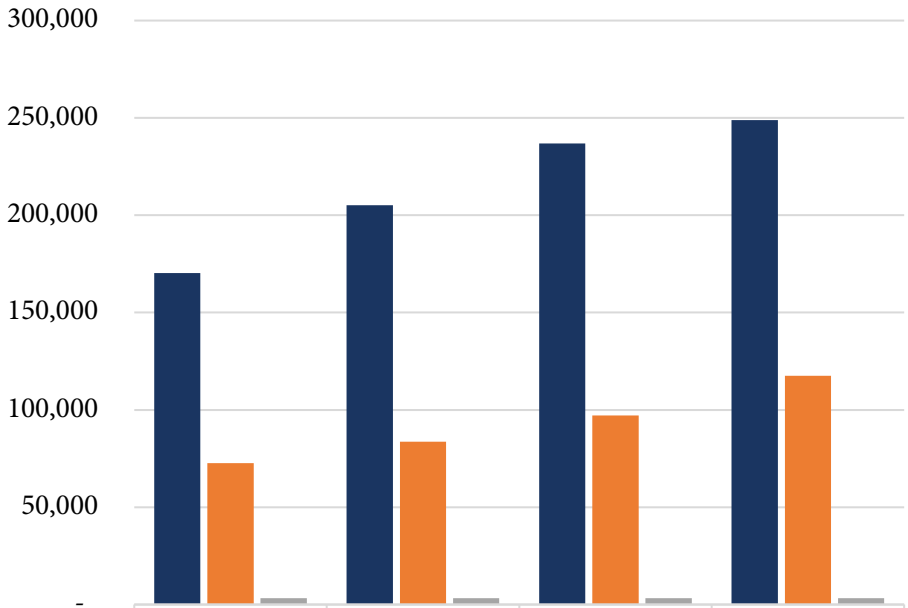


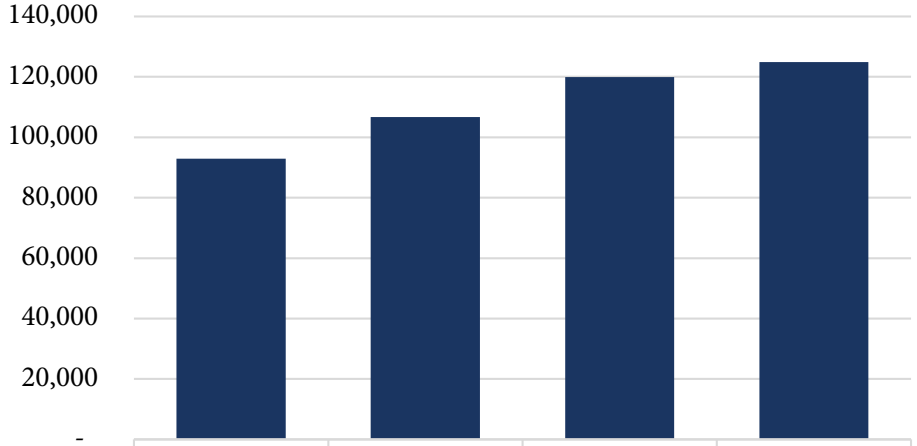
Figure 6-5: Population Forecasts by County



	Base Year	2025	2035	2040
Benton County	170,224	205,146	236,829	248,936
Franklin County	72,614	83,690	97,129	117,548
Walla Walla County	3,216	3,216	3,216	3,216

Housing Units

Figure 6-8: Housing Units Forecast MPA



	Base Year	2025	2035	2040
Housing Units	92,885	106,705	119,992	124,845

Figure 6-6: Base Year Percent Housing Units by County

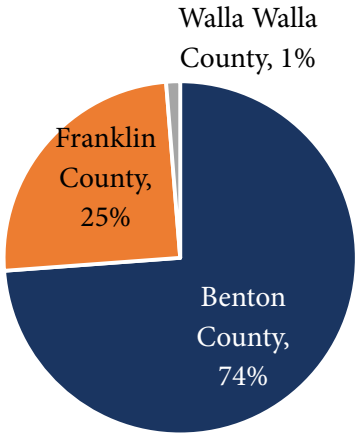


Figure 6-7: 2040 Percent Housing Units by County

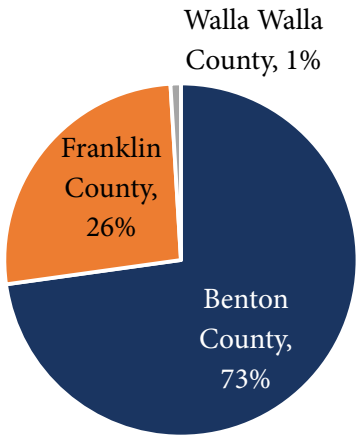
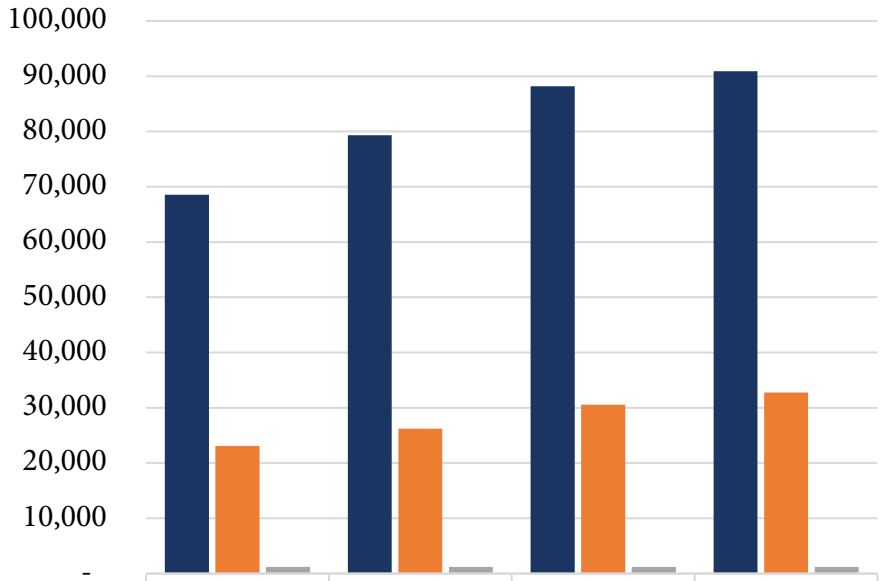


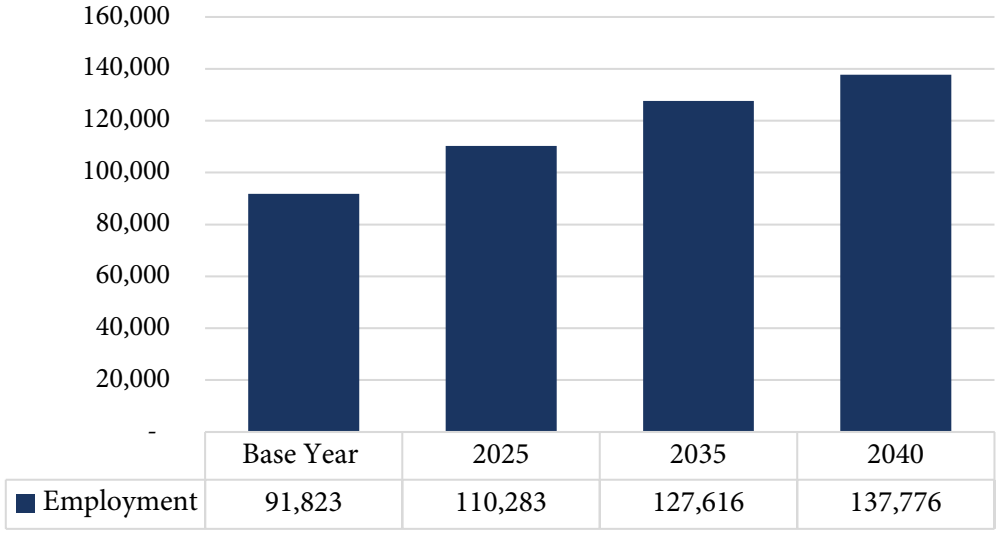
Figure 6-9: Housing Units Forecasts by County



	Base Year	2025	2035	2040
Benton County	68,577	79,316	88,212	90,882
Franklin County	23,121	26,202	30,593	32,776
Walla Walla County	1,187	1,187	1,187	1,187

Employment (Jobs)

Figure 6-10: Employment Forecast MPA



	Base Year	2025	2035	2040
Employment	91,823	110,283	127,616	137,776

Figure 6-11: Base Year Percent of Employment by County

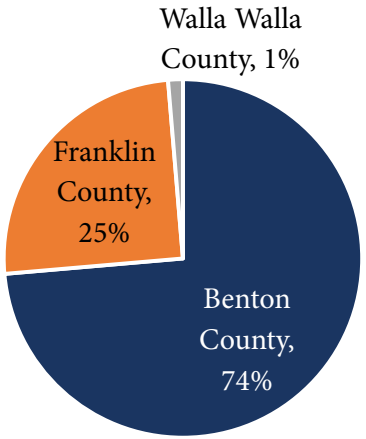


Figure 6-12: 2040 Percent of Employment by County

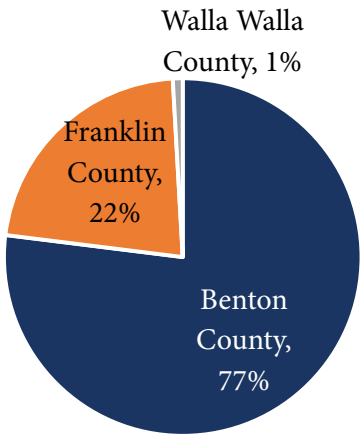
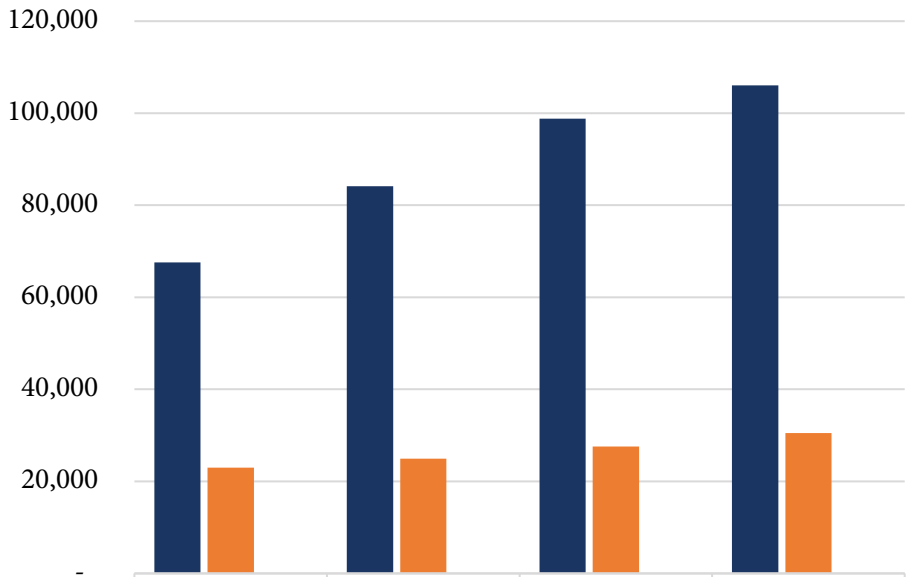


Figure 6-13: Employment Forecasts by County



	Base Year	2025	2035	2040
Benton County	67,601	84,120	98,792	106,045
Franklin County	22,997	24,955	27,604	30,508
Walla Walla County	1.33%	1.11%	0.96%	0.89%

Summary of Forecast Results

As the charts (Figure 6-2 through Figure 6-13) show, the region is growing, and it is not expected to stop or decline soon. By the year 2040, the metropolitan area will be home to almost 370,000 residents, and would need over 31,000 new housing units (homes, apartments, etc.). The job forecasts a compound annual growth rate of 1.65% from now until 2040.

Forecasting jobs is always a complex task. By using previous growth trends and input from various stakeholders in the region, baring significant changes in the economy, BFCG is confident in using the results in the model.

Comparing the growth to other regional and metropolitan planning organizations in the Northwest gives BFCG a different perspective about how fast this part of the county is growing.

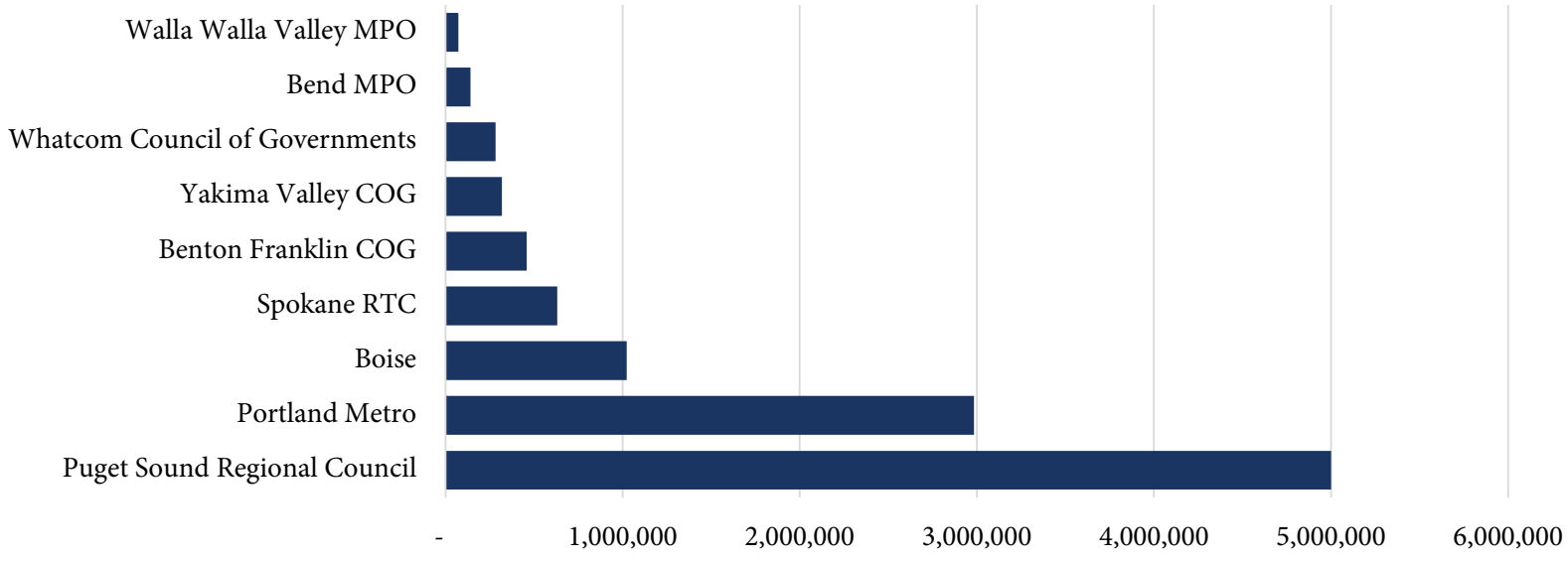
Stats - From now until 2040

+14 People Per Day

+150 Jobs Per Month

+1,400 Housing Units Per Year

Figure 6-14: 2040 Population Forecasts by Nearby Regional and Metropolitan Planning Organizations



Population Growth 2015-2040

Current undeveloped or sparsely populated areas are expected to experience the majority of added residential growth in the region (Figure 6-15). Specifically, these areas are located near the fringes of the metropolitan cities away from the central downtowns and business districts.

Table 6-2 highlights some of the areas within the region and their population forecasts. These areas below represent almost a quarter of the actual total population in year 2040.

Table 6-2: Population Growth Areas

Area (Jurisdiction)	2015 Population	2040 Population
Southridge (Kennewick)	1,195	16,303
Vista Field (Kennewick)	200	3,520
South Badger (Richland)	1,454	10,606
Horn Rapids (Richland)	2,024	12,753
Broadmoor (Pasco)	2,835	17,266
Road 68 (Pasco)	2,103	22,536
Keene / SR 224 (West Richland)	1,520	5,140

Employment Growth 2015-2040

Although the Hanford area to the north of the metropolitan area continues to contain a large portion of regional employment, other neighborhoods and areas of the metropolitan area have and are expected to experience a significant increase in job growth (Table 6-3). While the forecasted population growth will occur near the outlying areas of the cities, job growth will occur both within centralized areas and towards the periphery.

Table 6-3 below highlights the areas of the region where job growth is projected to occur. This table alone represents over 35% of the regions total employment forecast for year 2040.

Table 6-3: Employment Growth Areas

Area (Jurisdiction)	2015 Employment	2040 Employment
Southridge/Canyon Lakes (Kennewick)	1,535	15,595
SR 240 / Stevens (Richland)	7,014	10,755
US 395 Corridor (Pasco/Franklin County)	4,400	5,997
Central Richland	4,276	6,554
US 12 Corridor (Pasco)	1,817	2,352
Red Mountain Area (West Richland/Benton County)	716	3,059
Queensgate (Richland)	2,261	3,465

Figure 6-15: Population Growth 2015-2040 in MPA TAZ

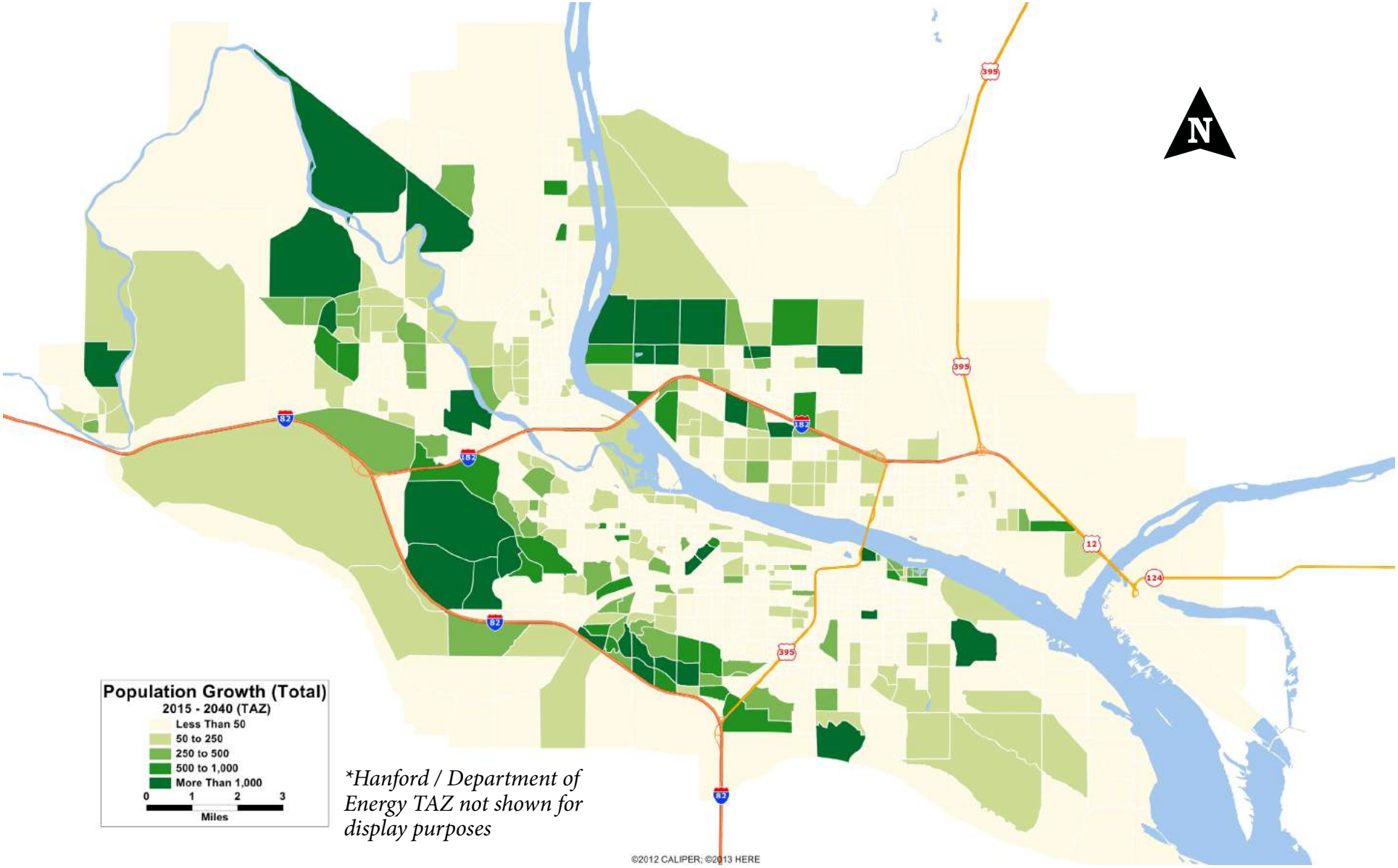
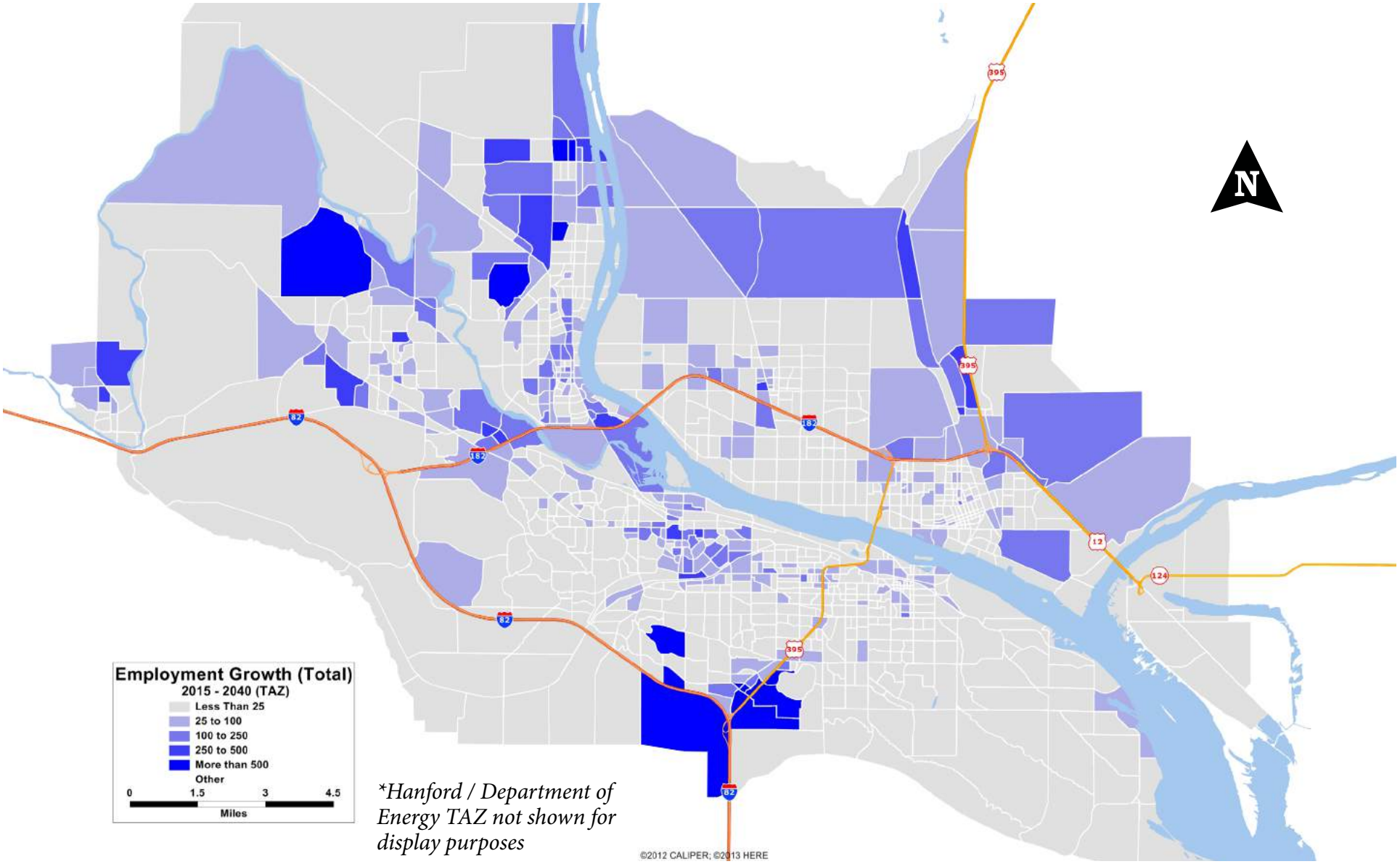


Figure 6-16: Employment Growth 2015-2040 in MPA TAZ



Travel Demand Model Analysis

After analyzing regional growth, such as where new homes are built and jobs are located, BFCG analyzed the impacts on the transportation system of future projects submitted for *Transition2040*. The following pages and graphics will reveal how the increase in population, job growth and developments impact could impact the local transportation system.

Calibration

There are a few notes to consider while viewing the results. The model was calibrated using 2016 traffic counts conducted throughout the region. The calibration effort entails matching what the model predicts (for the base year) with the actual ground counts that took place.

In general, industry standards are to emphasize matches on higher capacity roadways (interstates, highways, principal arterials) over lower capacity segments of the system.

Table 6-4 shows the calibration results for the Base Year Scenario. The model estimated a total vehicle flow of 5,023,268, which is off by 1.2% from the actual counts that took place.

Scenarios

The 2015 – 2040 Regional Travel Demand Model was built with forecasted Build and No-Build Scenarios. Table 6-5 displays what each scenario illustrates. Transportation projects were submitted for *Transition2040* and categorized based on their anticipated build year:

Project Build Year: Current – 2025 = Scenario 2025 Build
Project Build Year: 2026 – 2035 = Scenario 2035 Build
Project Build Year: 2036 – 2040 = Scenario 2040 Build

Table 6-4: Base Year Calibration Results

Class	RMSE	% RMSE	Total Flow	Total Count	% Difference
All	2,508.81	43.92	5,023,268	5,084,064	-1.20%
Interstate	5,119.11	28.52	125,748	107,706	16.75%
Ramps	2,174.70	46.16.	380,749	372,179	2.30%
Other Highways	5,459.13	31.13	791,023	683,875	16.67%
Principal Arterials	3,142.27	47.74	1,514,656	1,494,234	1.37%
Minor Arterials	1,762.05	39.02	2,209,708	2,424,682	-8.87%

**RMSE is the Root Mean Square Error, both the RMSE and Percent RMSE are common calculations performed in the calibration process to determine if the modeled volumes match traffic counts.*
**Total Flow = Results from the model*
**Total Count = Results from actual count data*

Table 6-5: Scenario Comparison

Scenario	Transportation Network	Forecasted Land Use
Base Year	Base Year (Current)	Base Year (Current)
2025 – Build	2025	2025
2025 – No Build	Base Year (Current)	2025
2035 – Build	2035	2035
2035 – No Build	Base Year (Current)	2035
2040 - Build	2040	2040
2040 – No Build	Base Year (Current)	2040

The model includes over 60 transportation projects that total over $215 million through the year 2040. These projects range from increased capacity to re-alignments, connectivity and speed changes.

For the purposes of this report, only graphics from the Base Year and 2040 Build/No-Build Scenarios will be shown.

Modeled projects in their category year can be found in Figure 6-17, and the number of projects per jurisdiction in Table 6-4. The list of projects modeled can be found in Appendix F on page 174.

Table 6-6: Number of Modeled Projects by Jurisdiction

Jurisdiction	Projects Submitted (Modeled)
Washington State Department of Transportation	4
City of Kennewick	19
City of Pasco	8
City of Richland	17
City of West Richland	13

Transit

As stated earlier in Chapter 6, transit was factored into the travel demand model results. The public transportation provider, Ben Franklin Transit recently underwent a route system change (Fall 2017). The new routes and headways were not included during the model development. Transit routes and stops in the current model represent Monday-Friday service up to the recent changes.

The 2040 Build Scenario forecasts an increased daily ridership of 40%. The No Build Scenario still forecasts a big increase of 26%. Transit ridership increases of this amount will have an impact on lowering congestion on the regional transportation system.

These results only take into account the population and job growth along with proposed projects in the region.

Future model develop includes incorporating the recent system changes implemented by Ben Franklin Transit.

In the future, the model can be used analyze future transit route alignments, park and ride lot locations, ridership levels and usage, and calculate transit accessibility within the metropolitan planning area.

Figure 6-17: Forecasted Daily Transit Ridership by Scenario

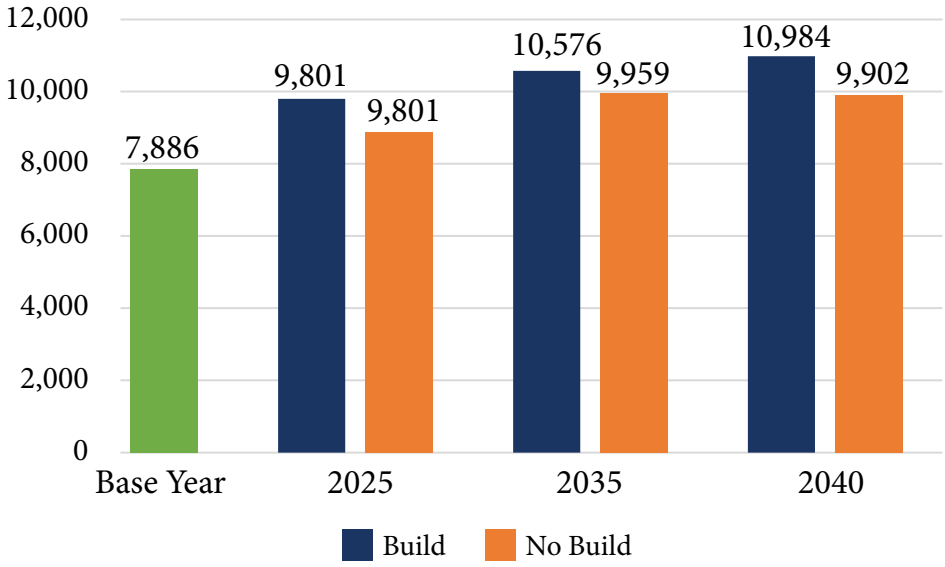
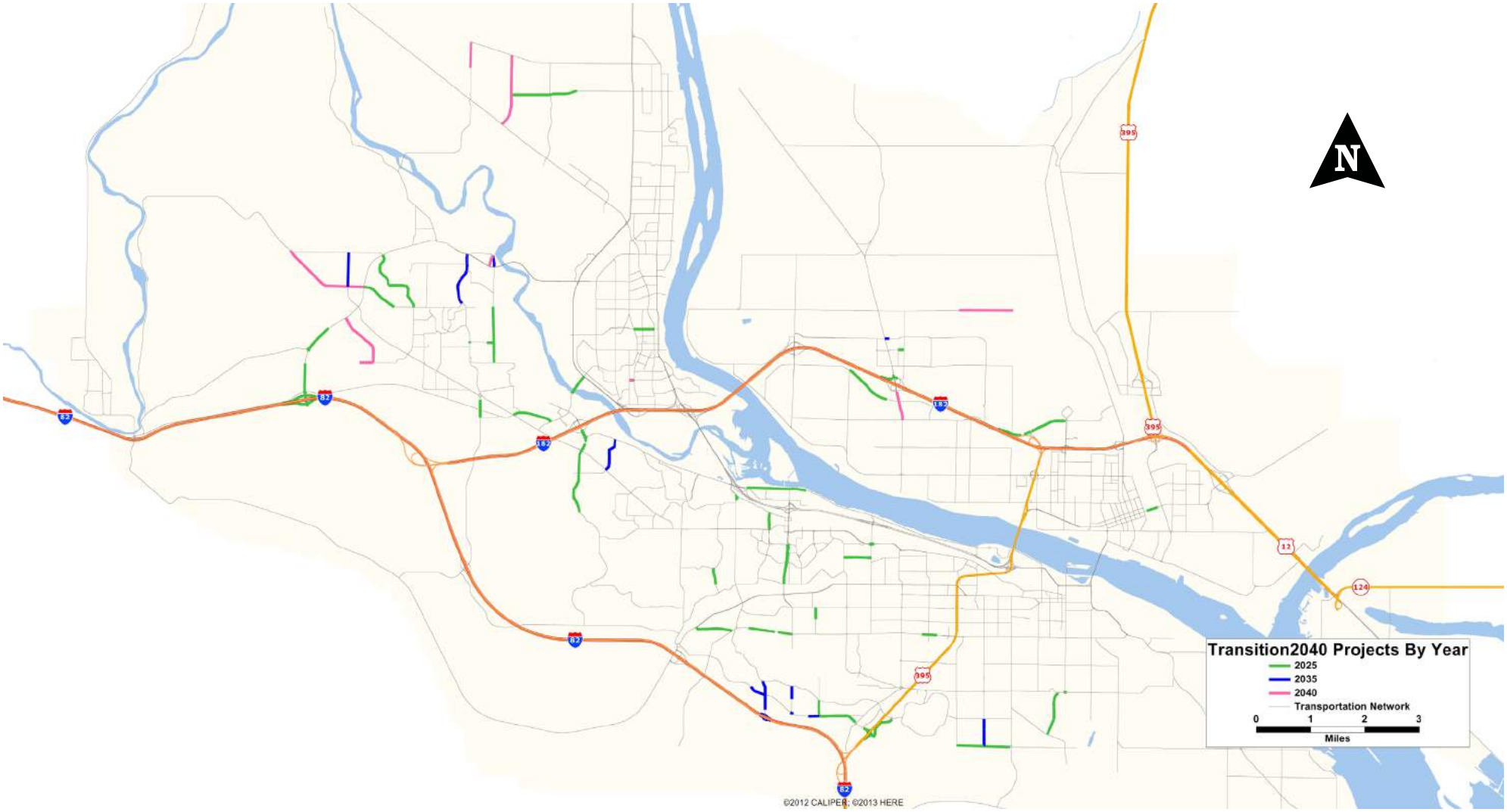


Figure 6-18: Modeled Projects by Year



Model Outputs

The following set of maps (Figure 6-19 through Figure 6-24) will display the results of the travel model for the following:

- Base Year AM Peak
- Base Year PM Peak
- 2040 Build PM Peak
- 2040 Build PM Peak
- 2040 No Build AM Peak
- 2040 No Build PM Peak

Peak periods are defined as the following:

AM Peak: 7 AM – 9 AM
PM Peak: 4 PM – 6 PM

Figure 6-19: Base Year AM Peak

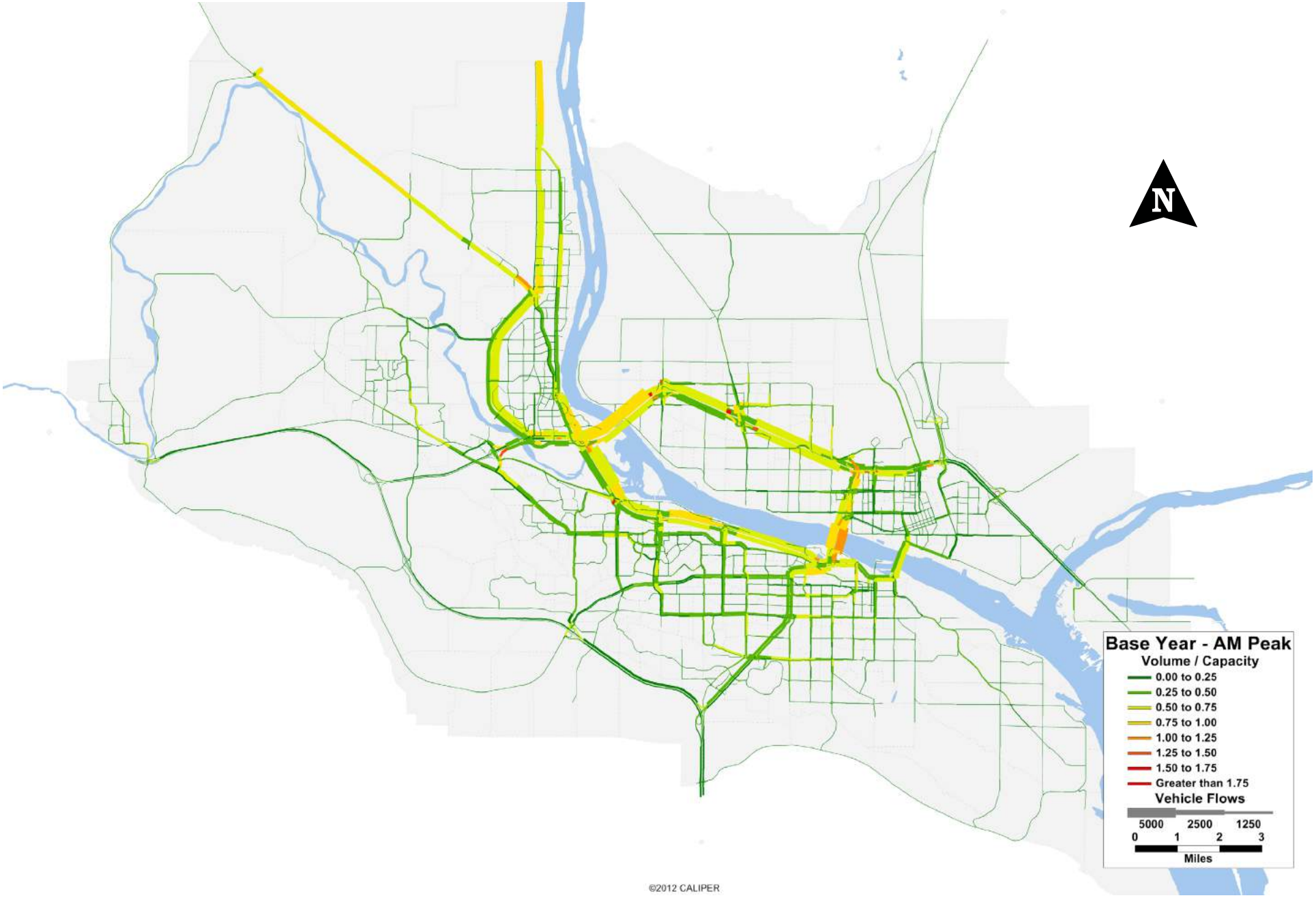


Figure 6-20: Base Year PM Peak

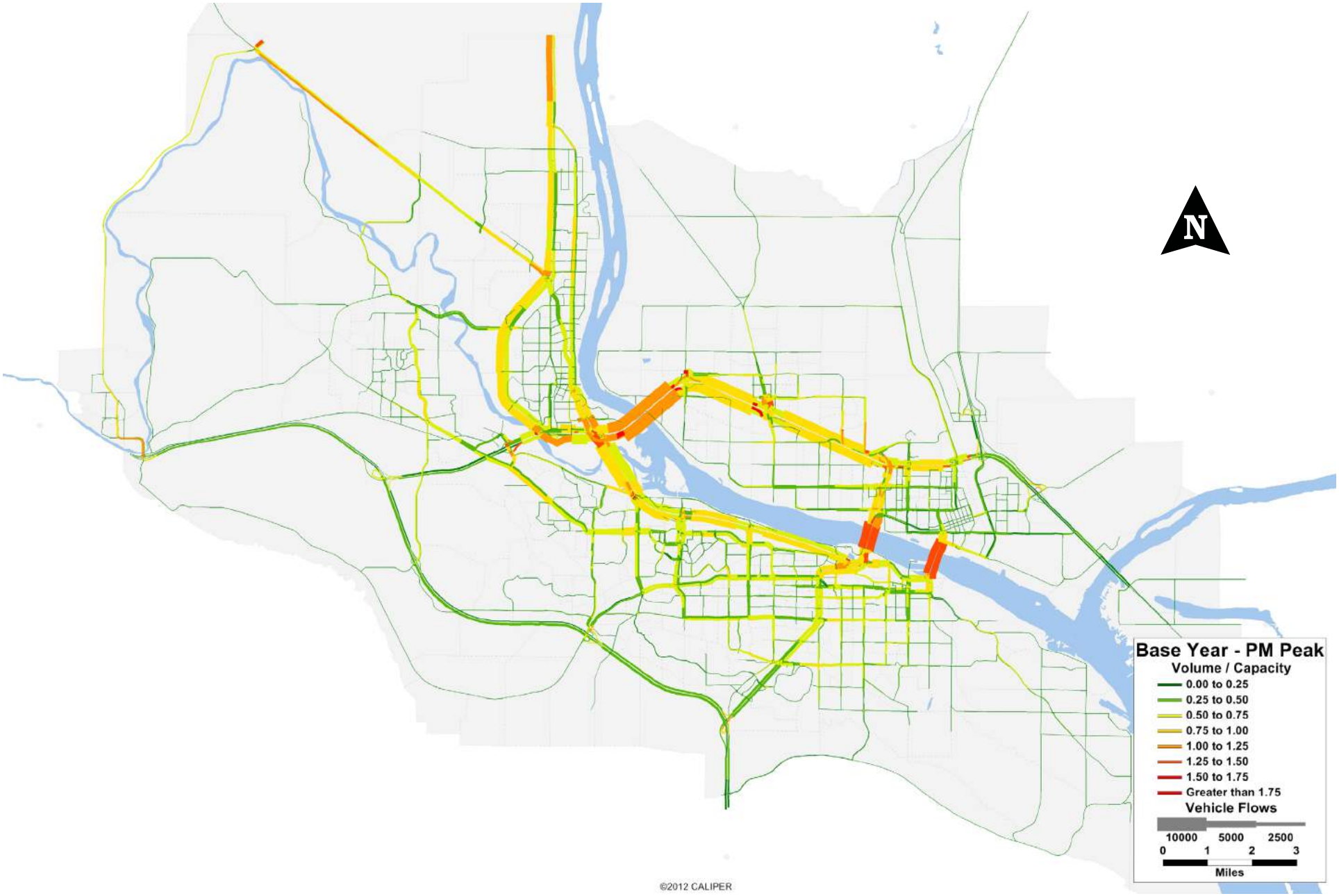


Figure 6-21: 2040 Build AM Peak

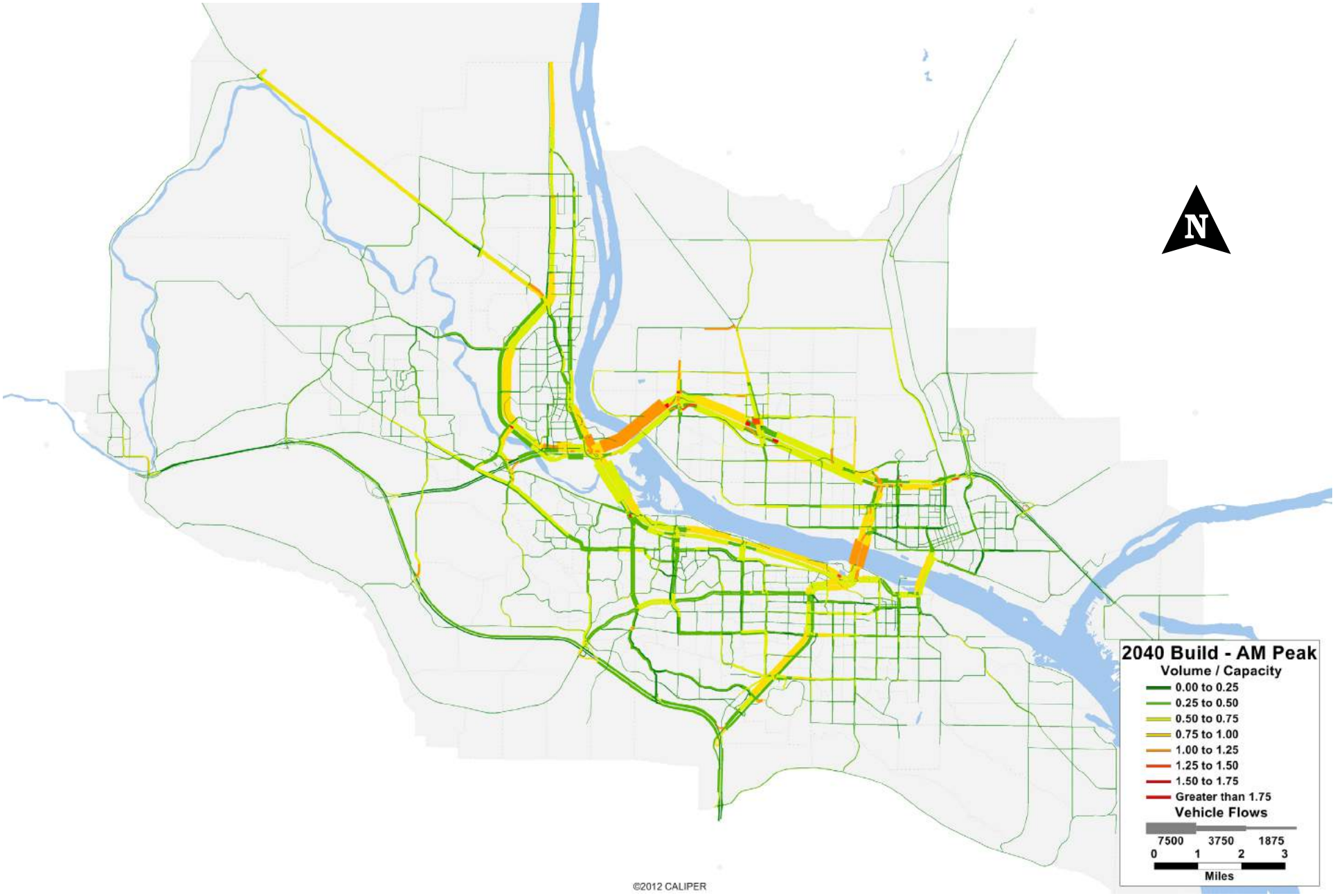


Figure 6-22: 2040 Build PM Peak

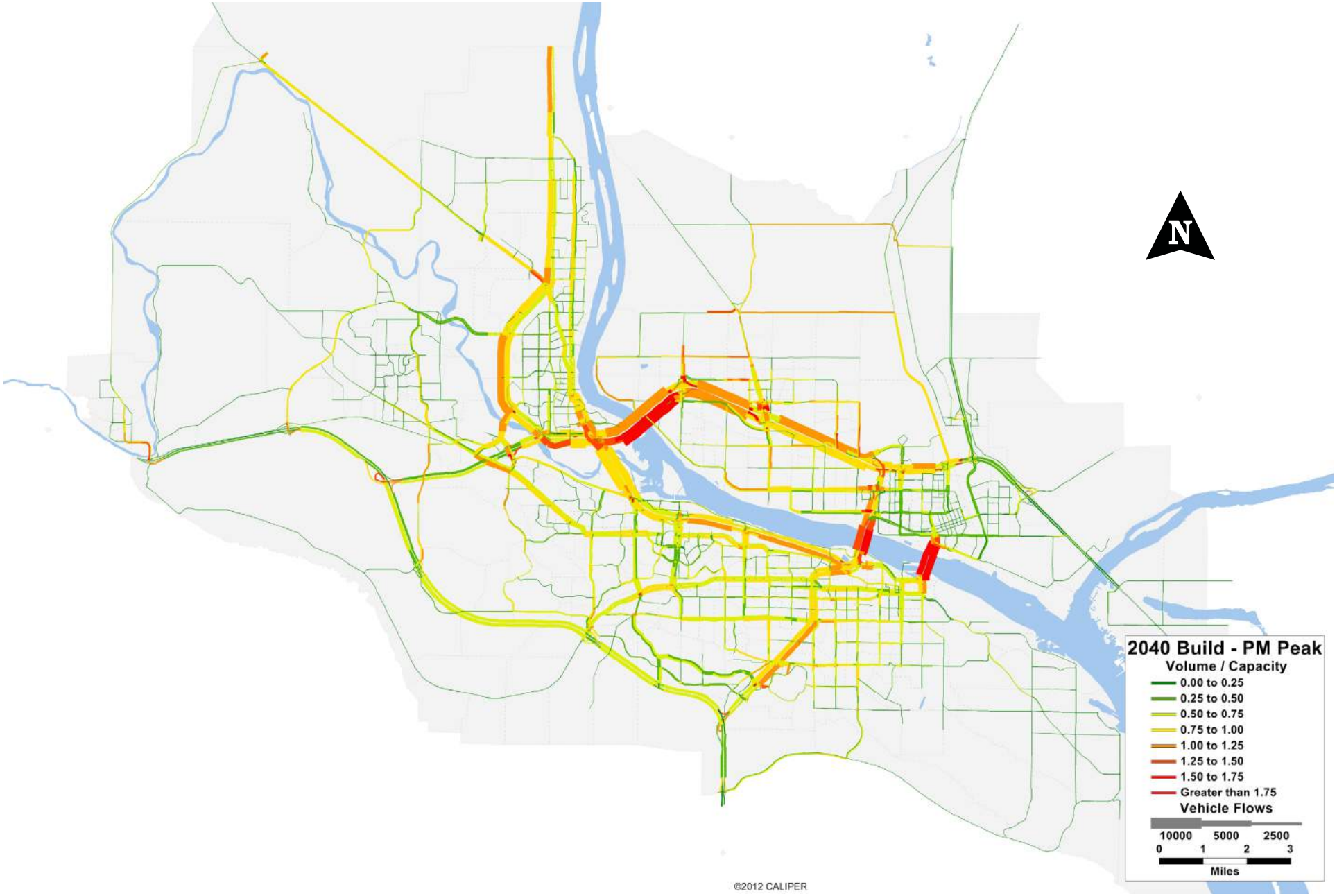


Figure 6-23: 2040 No Build AM Peak

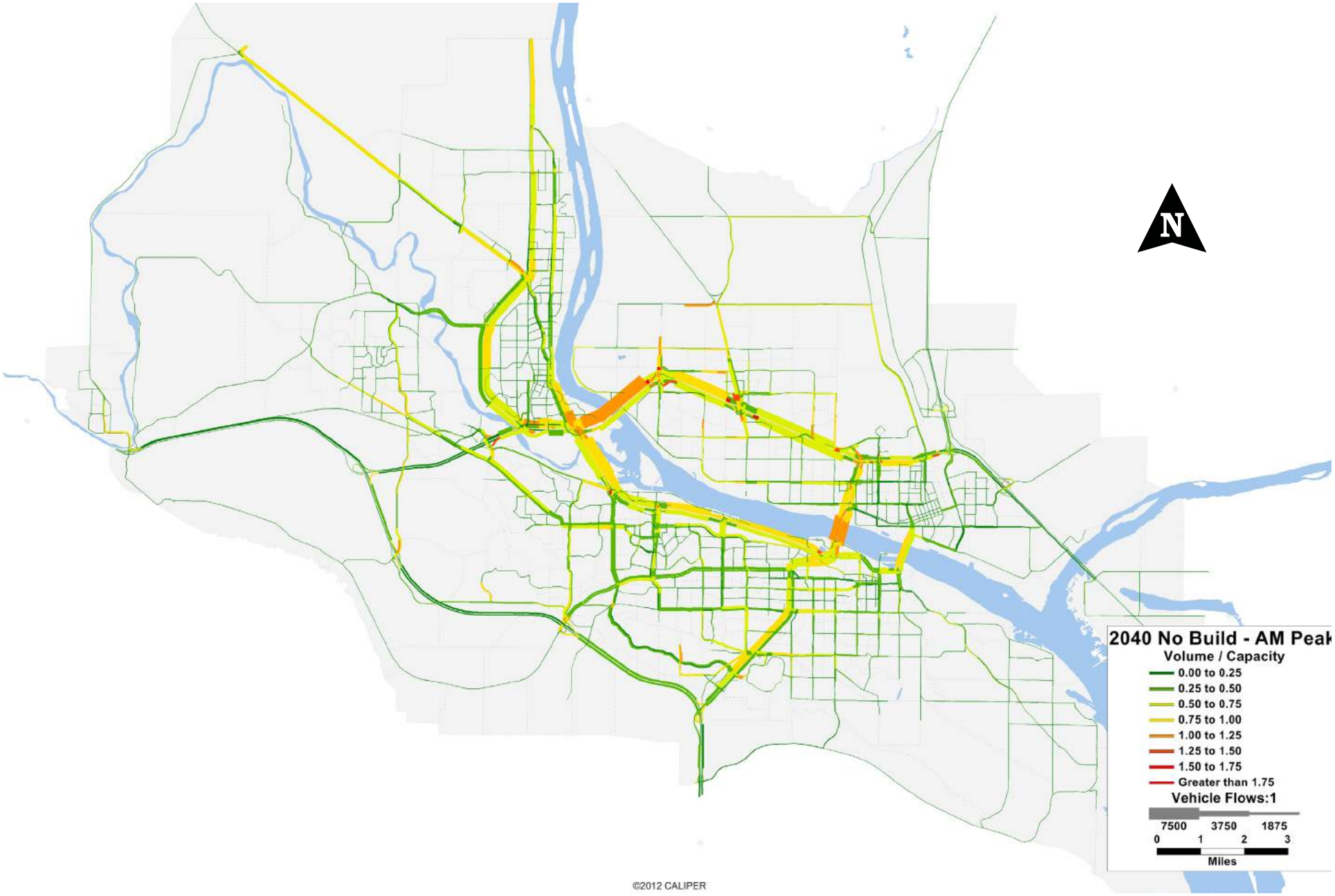
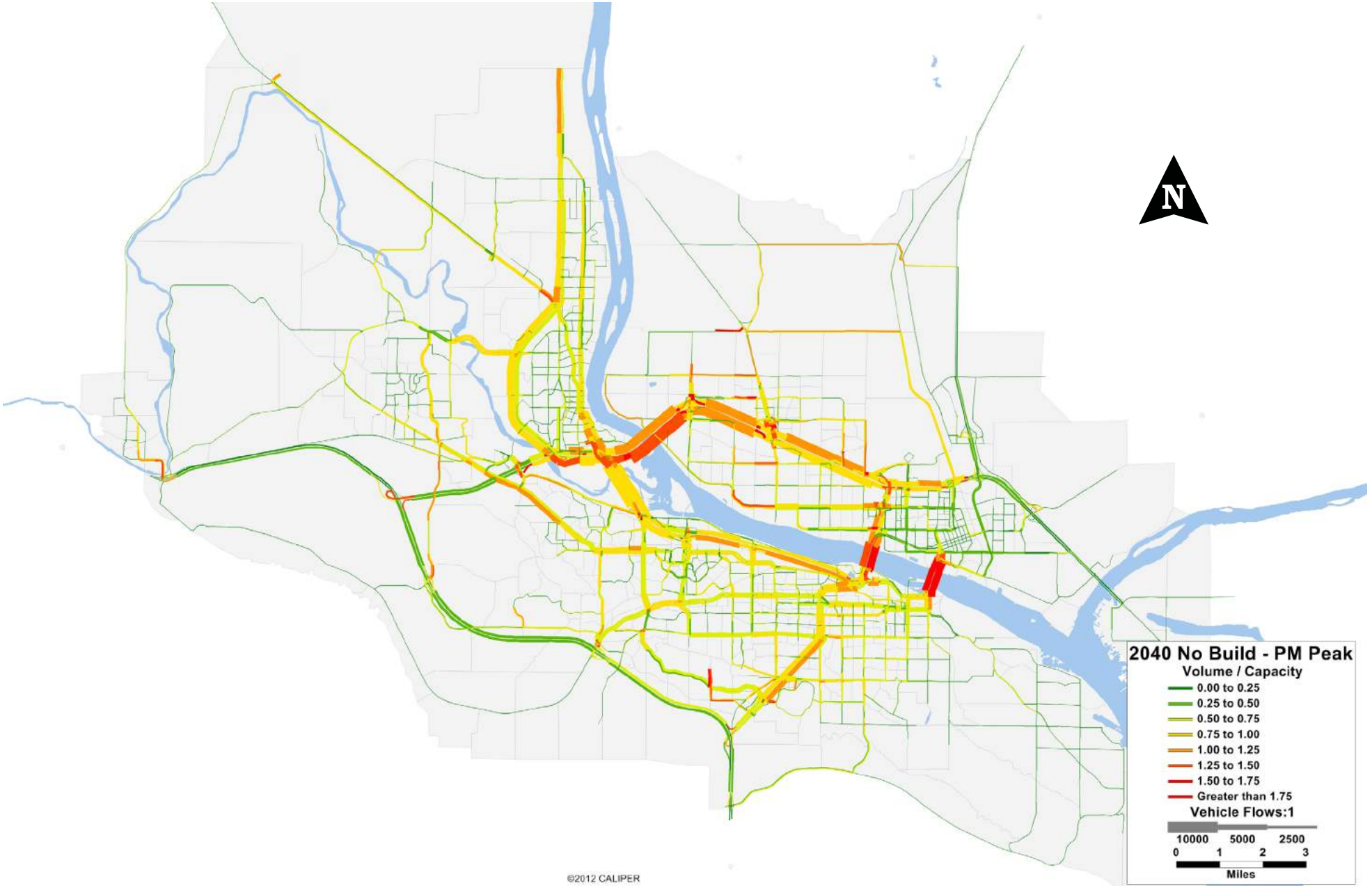


Figure 6-24: 2040 No Build PM Peak



Travel Demand Model Analysis - Summary

Vehicle Miles/ Hours Traveled

Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) are standard measurements for analyzing a region's transportation characteristics. How do the programmed transportation projects impact the time and distances traveled throughout the roadways? Table 6-7 and Table 6-8 break down those estimates.

The model results show that there will be an increase of just under two million vehicles miles traveled on the roadways with an additional 147 thousands hours spent traveling. The submitted projects (Build Scenario) do have an impact, without them an additional 31,000 miles and over 10,000 hours are projected.

Table 6-7: Vehicle Miles Traveled by Scenario

Scenario	Vehicle Miles Travelled (VMT)
Base Year	6,119,755
2040 Build	7,960,450
2040 No Build	7,994,916

Table 6-8: Vehicle Hours Traveled by Scenario

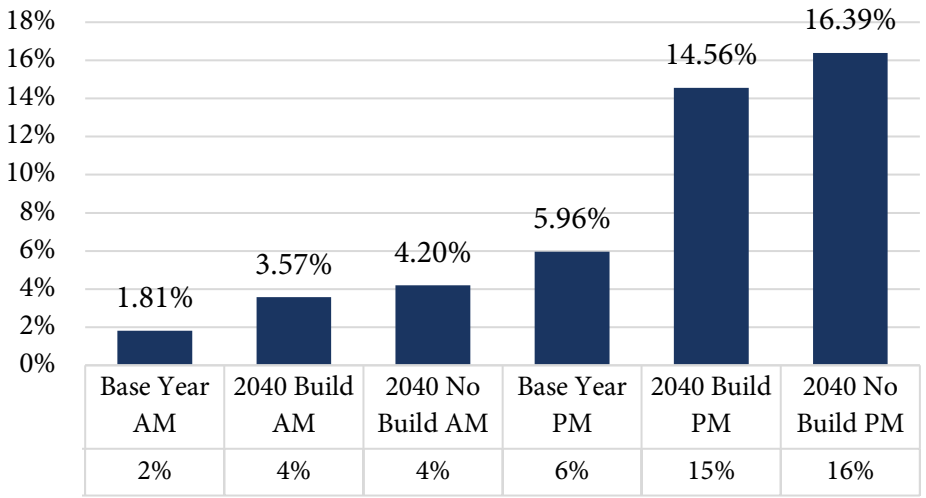
Scenario	Vehicle Hours Travelled (VHT)
Base Year	222,401
2040 Build	370,415
2040 No Build	380,791

Capacity

A different tool to measure results is the ratio of volume (of vehicles) over capacity. The model does not use the "theoretical" capacity; Theoretical capacity is what drivers in only the largest metropolitan areas in the country might experience (Ex. Boston, New York, Chicago, Los Angeles), and is the level of performance if the system were operating all the time at peak efficiency. In large cities, this can be drastically different to actual capacities on a daily basis.

Figure 6-25 through Figure 6-31 look at those segments that are at or above 80% of identified capacities. Results are categorized by scenario and peak period.

Figure 6-25: Percent of Road Segments At or Above 80% Capacity



Looking at the capacity of the roadways, we can begin to see how added growth, along with programmed projects, will have an impact. Currently, for the AM Peak Period (7AM – 9AM) less than 2% of roadway segments

are at capacity, and that is expected to double by 2040. The PM Peak Period (4PM – 6PM) experiences heavier traffic flows at the base year just under 6%, with an increase to almost 15% by the year 2040

Even with the added projects, the area will still see more roadways at capacity.

These results are only from modeling transportation capacity projects. Reviewing land use development and growth patterns will alter travel patterns across the region.

Future model analysis will include comparing projects that were entered in the model with additional possible projects and alignments. The projects selected for the model are required to be financially constrained. With the results of the model now available, BFCG and local partner agencies can begin to prioritize and select projects based on how they may provide congestion relief in the region.

Examining Future Development

The purpose of this chapter is to share results of the regions' population and employment growth, and how the use of the travel model can provide insight on where future attention may be needed. The region will continue to grow and although investments will provide some relief for newer developments, keeping pace with congestion and increased travel times across the entire metropolitan area will be challenging.

Reviewing the results of the travel model and the programmed improvements are two related but separate tasks. The model can tell us the level and location of future travel challenges will most likely occur. However the model does not take into account other necessary factors with regards to evaluating specific projects.

Regional planning and transportation staff must also consider the impacts of planned growth and projects on the environment, such as motor vehicle emissions, emergency planning, environmental justice and equitable distribution of accessibility for all in the community. The forecasts show development will take place away from the older city centers which are traditionally denser, walkable, and more accessible by public transit. As this occurs there will be additional stress on the transportation system (federal, state and local).

Transportation is a basic need for the entire community. Travel patterns, especially to and from school, work or recreation, have a significant impact on the transportation system across the region. Additional planning and coordination will be required to support the preservation of the transportation system, improve transit accessibility, increase safety, and ease congestion.

The alignment of local and regional land-use policies, transportation plans and economic development visioning will be key to maintaining a healthy quality of life for community members. While the analysis of these results only focus on capacity and new transportation projects, identifying other scenarios with regards to density and land use could provide additional insight about how to address transportation needs of the community.

Figure 6-26: Roadways at Capacity, 2015 AM Peak (.80 or above V/C)

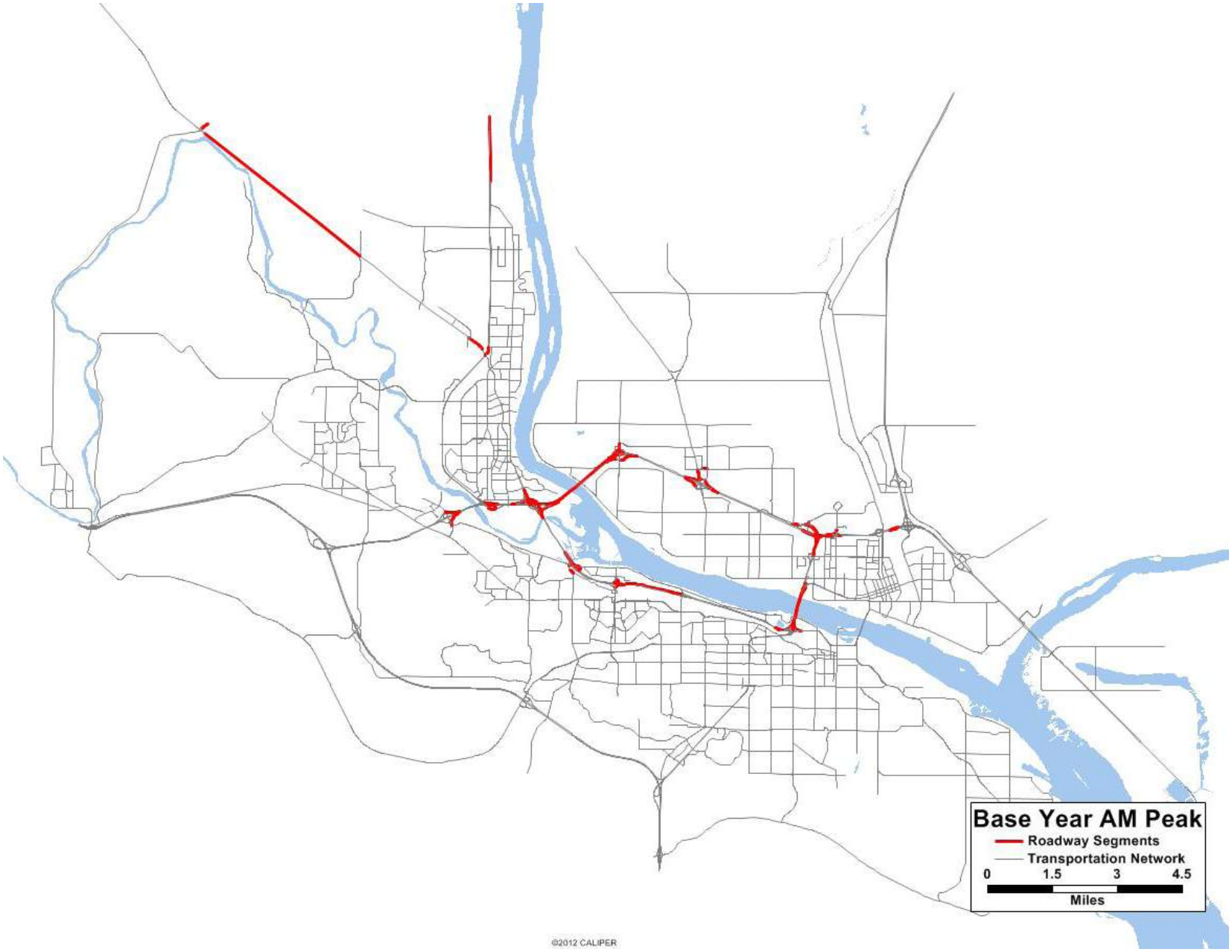


Figure 6-27: Roadways at Capacity, 2015 PM Peak (.80 or above V/C)

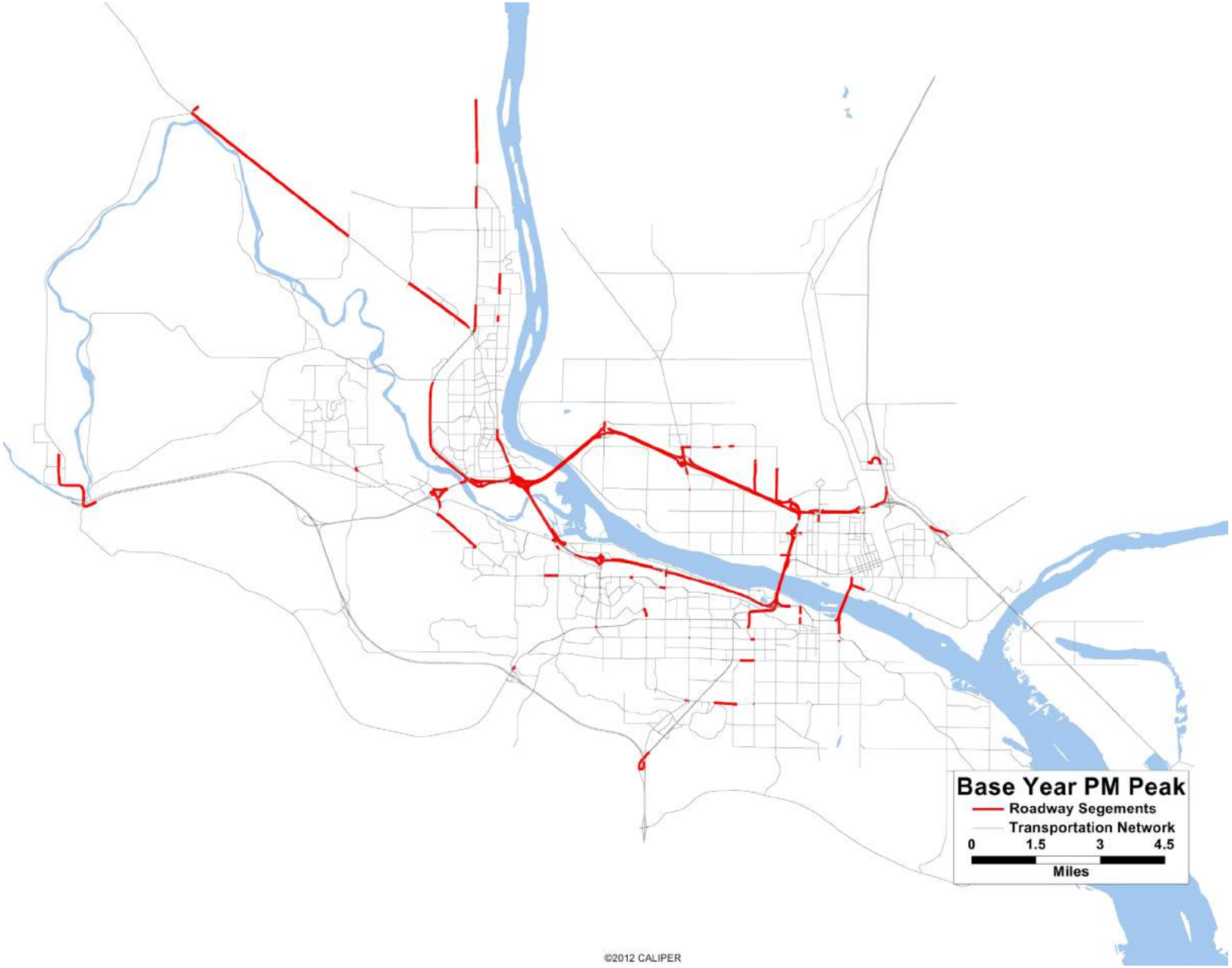


Figure 6-28: Roadways at Capacity, 2040 AM Peak- Build Scenario (.80 or above V/C)

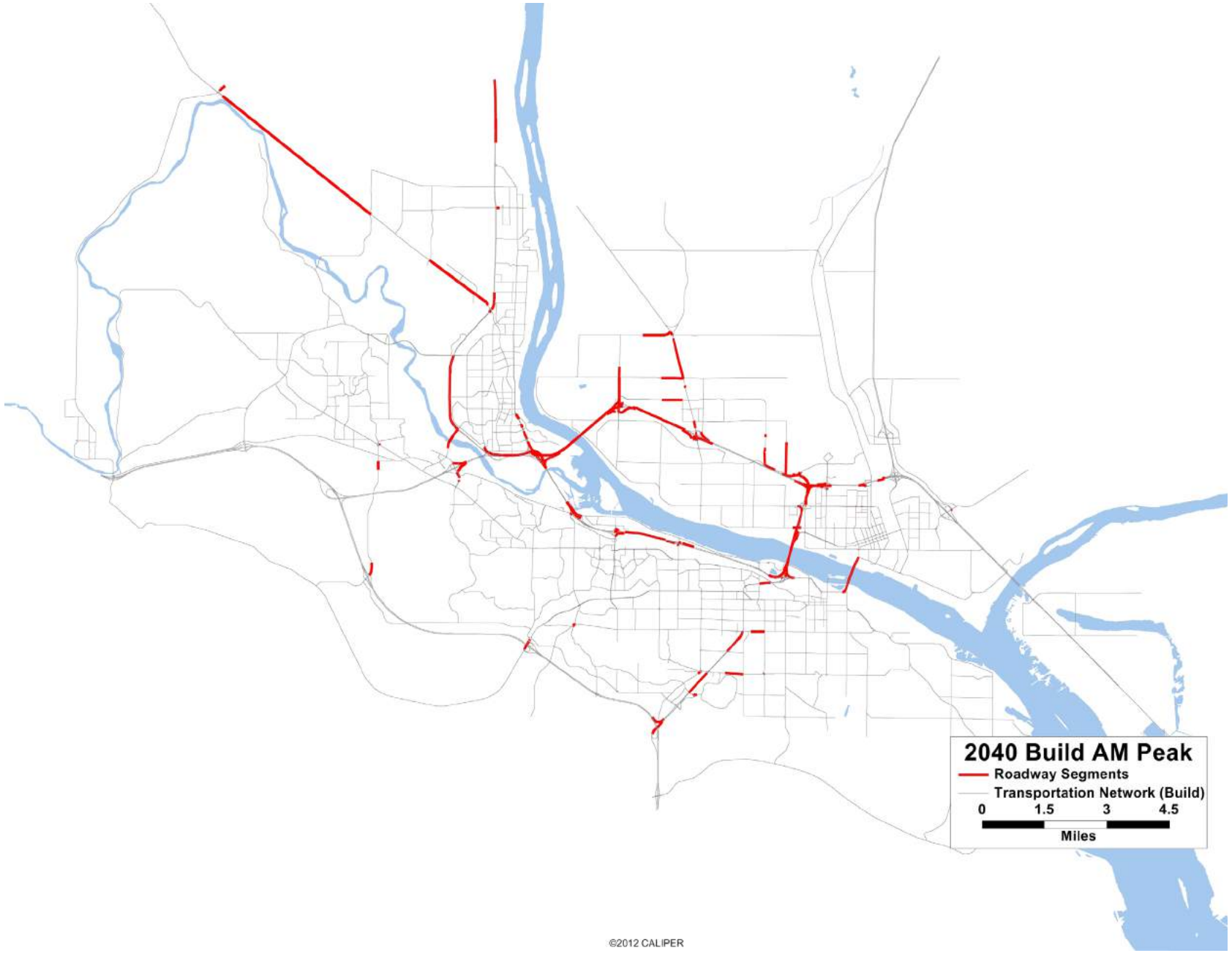


Figure 6-29: Roadways at Capacity, 2040 PM Peak- Build Scenario (.80 or above V/C)

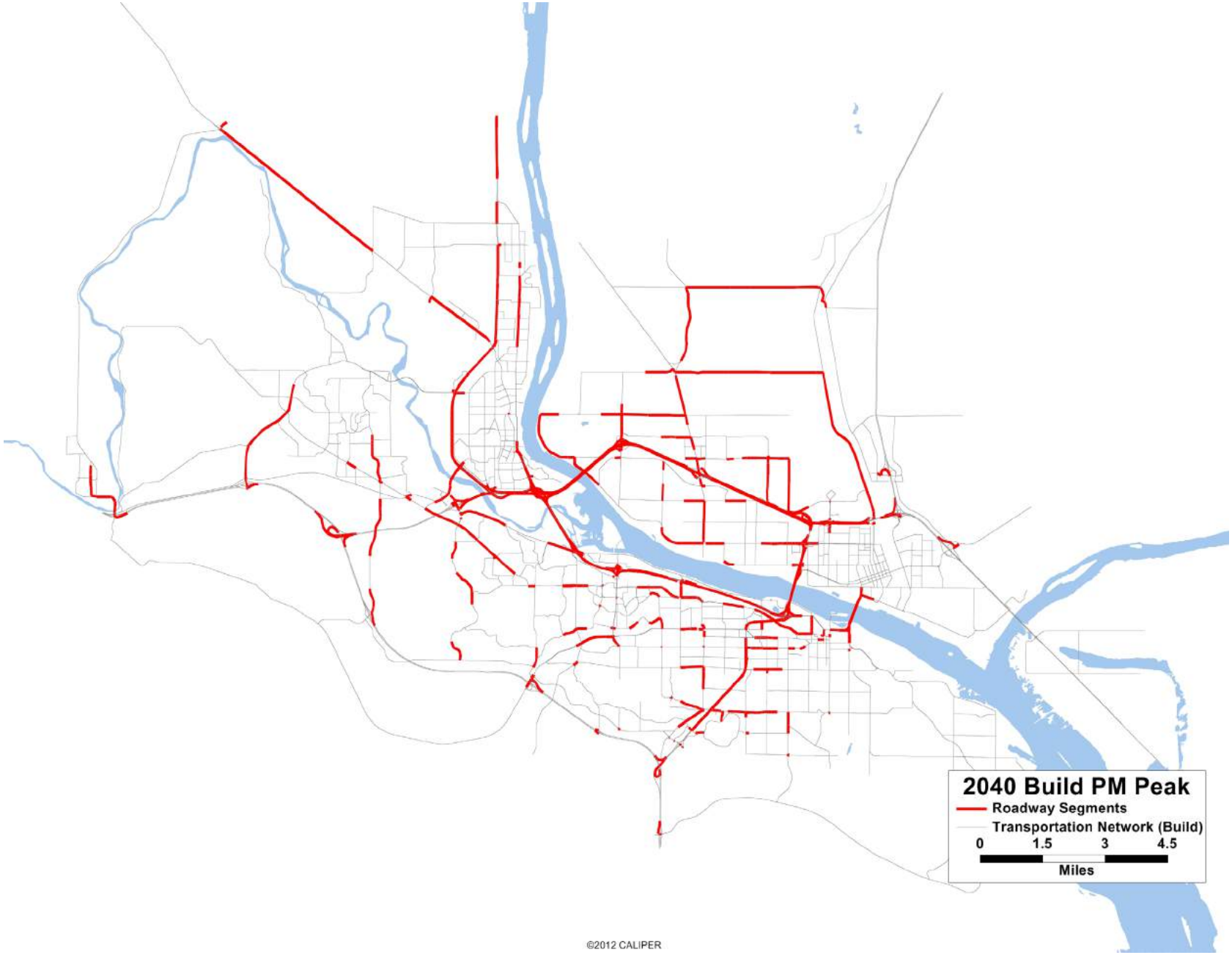


Figure 6-30: Roadways at Capacity, 2040 AM Peak- No-Build Scenario (.80 or above V/C)

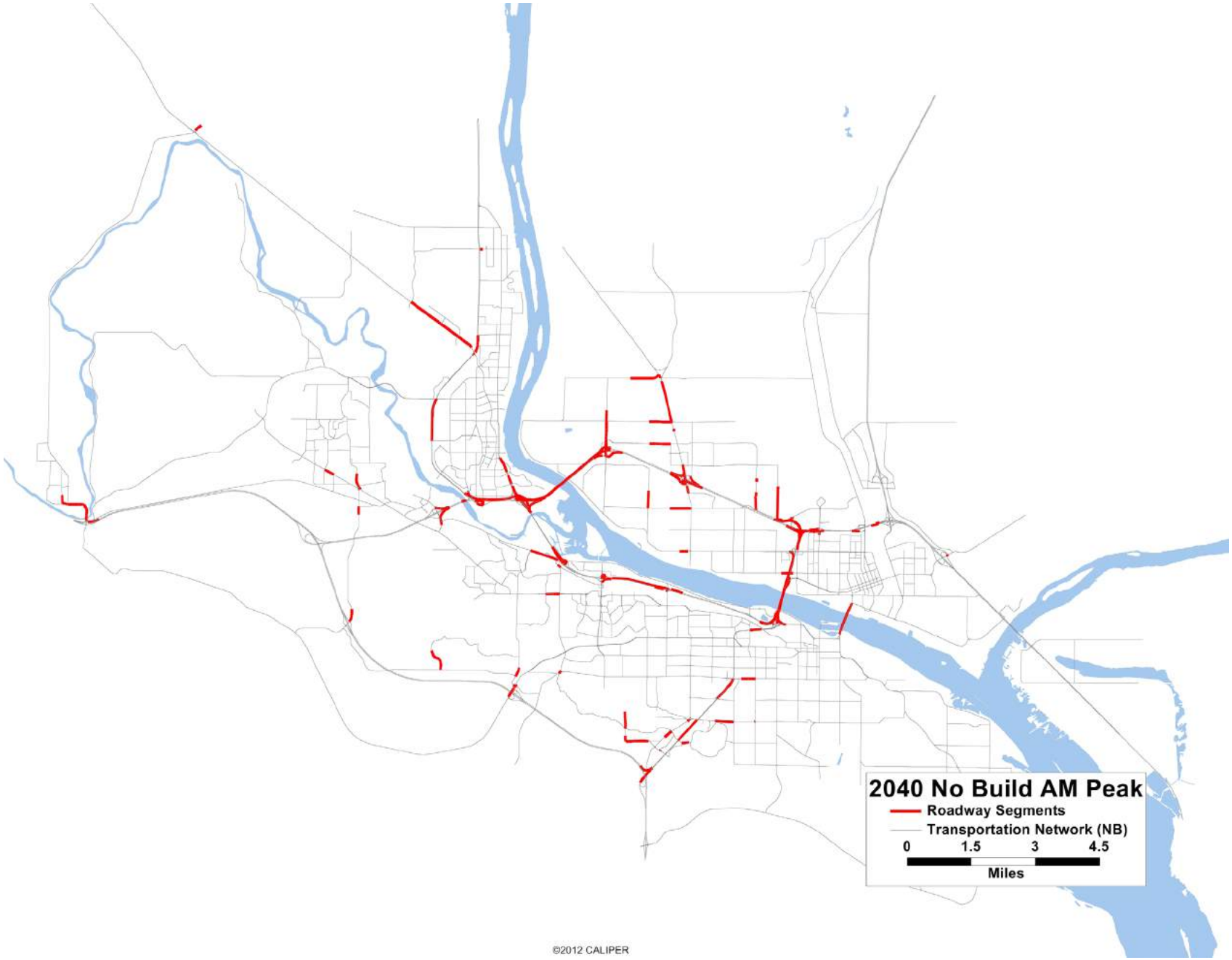
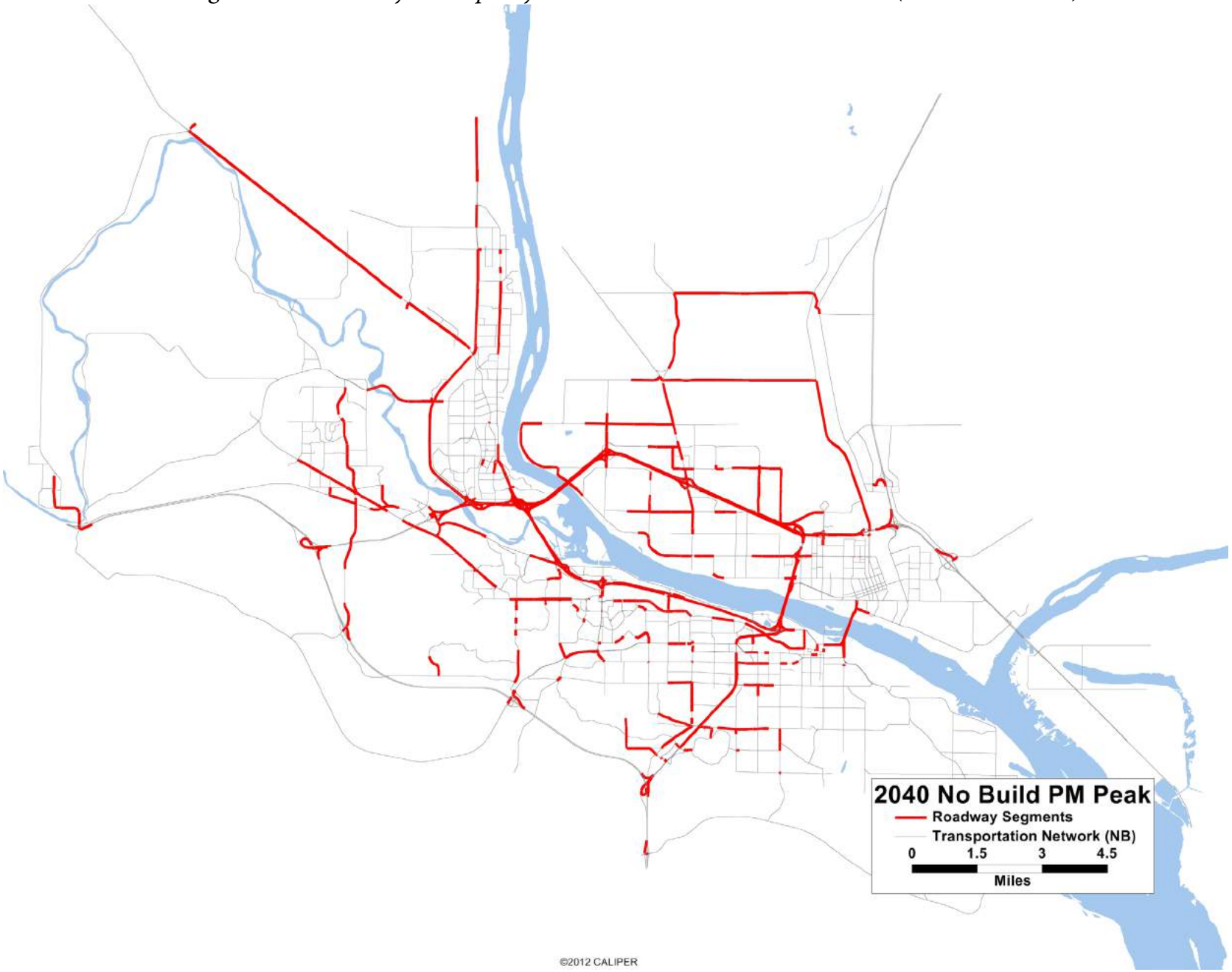


Figure 6-31: Roadways at Capacity, 2040 PM Peak- No-Build Scenario (.80 or above V/C)



This page left intentionally blank.

7

Investment Strategies

PERFORMANCE BASED PLANNING | INVESTMENT STRATEGIES | ENVIRONMENTAL HEALTH | PUBLIC HEALTH

Introduction

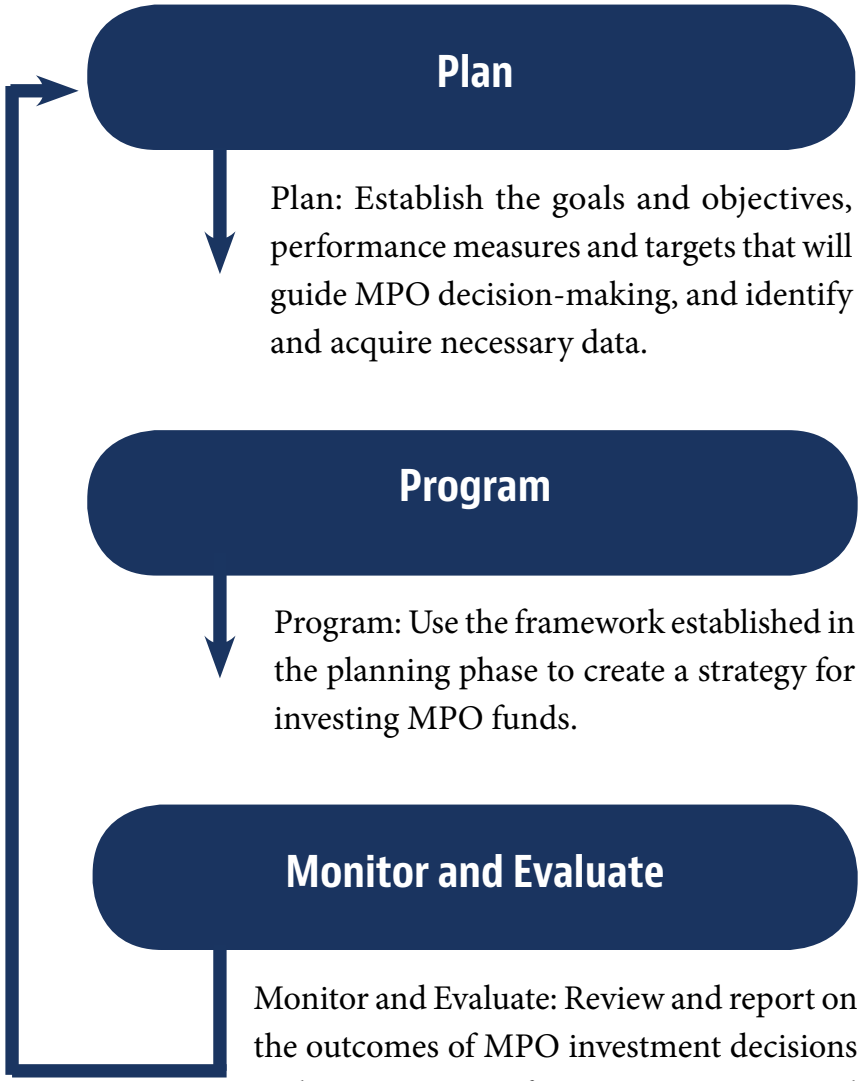
This chapter addresses the topic of performance based planning, and the strategies that *Transition2040* has deployed.

Over the past two decades, planners have been applying "performance management" – a strategic approach that uses performance data to support decisions to help achieve desired performance outcomes[1]. Performance management's implementation is on the rise, because it is thought to: improve project and program delivery, inform investment decision making, focus priorities, and provide increased transparency and accountability.

To incorporate performance management into *Transition2040*, investment strategies (goals) are linked to performance measures. Performance measures are data about the use, condition, and impact of the transportation system. These measures are best thought of as indicators – data that is publicly reported to demonstrate progress of transportation system improvements toward established targets.

Investment strategies have been created for each of *Transition2040*'s goals. After the investment strategies have been presented, this chapter delves into public health and environmental health, two strategies that are more abstract.

Performance Based Planning and Programming

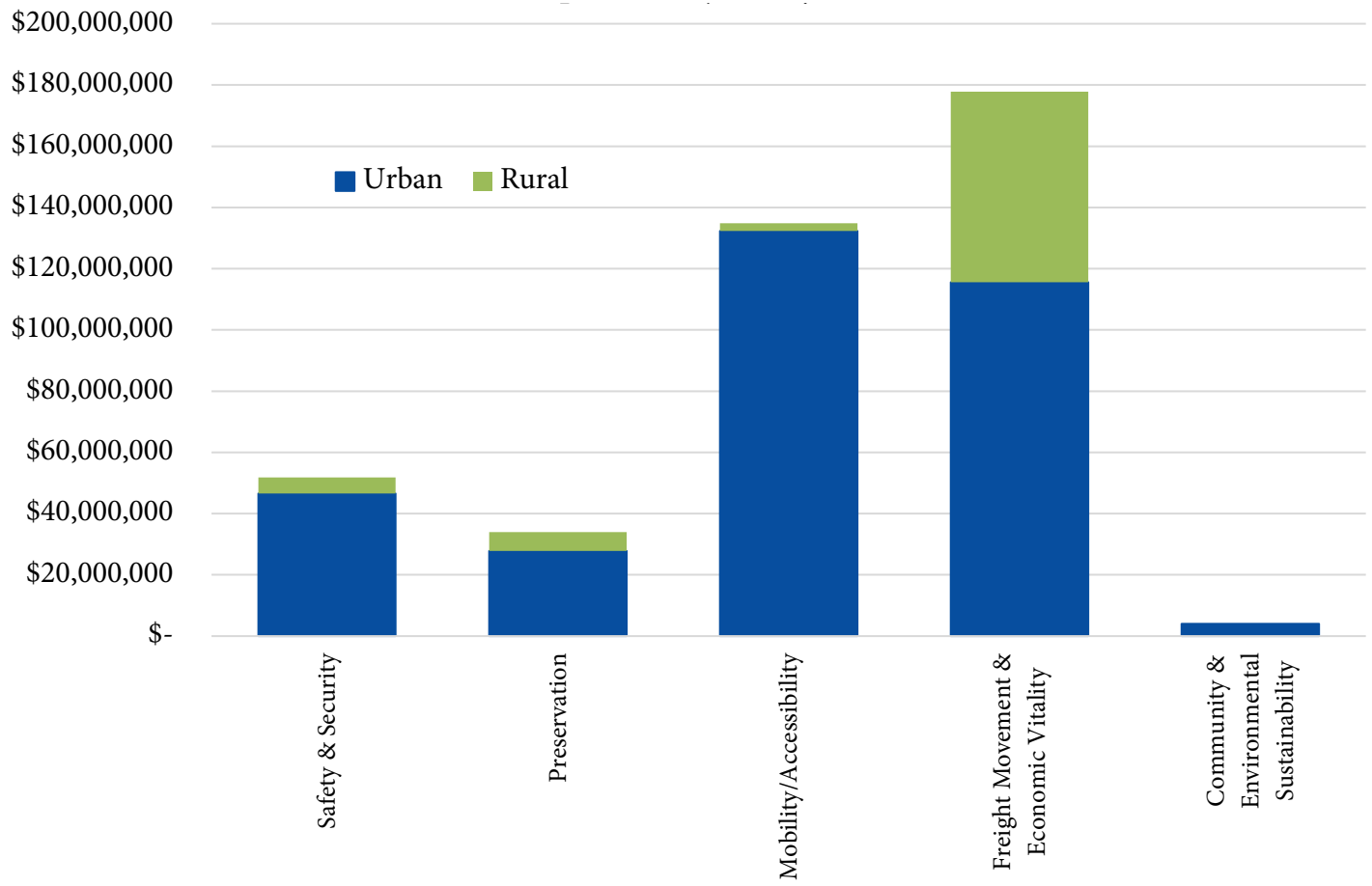


1 "Performance-Based Planning and Programming Guidebook," Federal Transit Administration

Submitted Projects and *Transition2040*

All projects submitted for *Transition2040* were assigned to one of *Transition2040*'s goals. Most projects related to more than one goal, but BFCG chose one so there would be no duplicates. Figure 5-5 shows the amount of money totaled up for each goal, broken down by urban and rural areas.

Figure 7-1: Submitted Projects by Transition2040 Goals



Performance Based Planning

Federal Policy

The FAST Act continues the MAP-21 evolution of the metropolitan planning process by maintaining the requirement that MPOs, in cooperation with the State and public transportation operators, develop long-range transportation plans and TIPs through a performance-driven, outcome-based approach to planning. BFCG will invest resources in projects to achieve individual targets that collectively will make progress toward national goals. Seven national goal areas are listed below.

Fast Act National Goal Areas for Performance Management

1. Safety
   To achieve reduction in fatalities and serious injuries on all public roads.
2. Infrastructure Condition
   To maintain highway infrastructure assets in state of good repair.
3. Congestion Reduction
   To achieve reduction in congestion on the National Highway System.
4. System Reliability
   To improve the efficiency of the surface transportation system.
5. Freight Movement and Economic Vitality
   To improve freight networks, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. Environmental Sustainability
   To enhance the performance of the transportation system while protecting and enhancing the environment.
7. Reduced Project Delivery Delays
   To 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.

Performance Measure Targets

The FAST Act describes a first option for target setting that consists of coordination between state DOTs and MPOs, with MPOs adopting state targets if they choose.

During and after the development and adoption of *Transition2040*, WSDOT, BFCG and all Washington MPOs have been meeting to establish targets for performance measures. This process is not yet complete. BFCG supports WSDOT's target setting process and will adopt WSDOT's targets. However final specific metrics have yet to be developed and will be incorporated in to *Transition2040* at a later date.

Performance Management Final Rules

According to federal regulation, an MPO Metropolitan Transportation Plan shall include a description of the federally required performance measures and performance targets used in assessing the performance of the transportation system.

The U.S. Department of Transportation issued final rules governing traffic safety and safety-oriented performance management rules that became effective on April 14, 2016. The WSDOT set a safety target goal in 2017 based on Target Zero, the 2016 Washington State Highway Safety Strategic Plan.

WSDOT and MPOs have worked together to jointly develop an approach in support of data, a process, and target-setting . MPOs across the state have until February 28, 2018 to adopt Target Zero or MPOs may establish a target specific to their own metropolitan planning area. If an MPO chooses to establish a goal other than Target Zero, documentation must be provided to verify the chosen methodology in order to confirm its validity.

This chapter will present a review of the final PMs and a look at additional BFCG-specific performance measures listed in the Plan.

Safety Performance Measure Final Rule

The Safety PM Final Rule supports the Highway Safety Improvement Program (HSIP). HSIP is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The Safety Final Rule establishes five performance measures to carry out the HSIP. The measures include the five-year rolling averages for:

- Number of Fatalities
- Rate of Fatalities per 100 million VMT
- Number of Serious Injuries
- Rate of Serious Injuries per 100 million VMT
- Number of Non-motorized Fatalities and Non-motorized Serious Injuries.

These safety performance measures are applicable to all public roads regardless of ownership or functional classification. The Safety PM Final Rule also establishes a common national definition for serious injuries.

Pavement and Bridge Condition Performance Measure Final Rule

The Pavement and Bridge Condition PM Final Rule, and the System Performance PM Final Rules that follow, support the National Highway Performance Program (NHPP). The NHPP provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and ensures that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS.

The Pavement and Bridge Condition Final Rule establishes six performance measures to support the HSIP:

- Percentage of pavements on the Interstate system in good condition
- Percentage of pavements on the Interstate system in poor condition
- Percentage of pavements on the non-interstate NHS in good condition
- Percentage of pavements on the non-interstate NHS in poor

condition

- Percentage of NHS bridges classified as in Good condition
- Percentage of NHS bridges classified as in Poor condition

System Performance Performance Measure Final Rules

The System Performance Final Rules include seven performance measures presented in four separate Final Rules:

- Percent of the person-miles traveled on the Interstate that are reliable
- Percent of person-miles traveled on the non-Interstate NHS that are reliable
- Percent of the non-Interstate NHS where peak hour travel times meet expectations
- Percent change in tailpipe CO2 emissions on the NHS compared to the calendar year 2017 level (Greenhouse Gas Emissions)
- Truck Travel Time on the Interstate (Freight Reliability)
- Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita;
- Percent of Non-SOV Travel.

The final two measures listed above address air quality and are the only measures not applicable to BFCG.

Performance Measures and Transition2040

Table 7-1 addresses performance measures and lists data sources and BFCG processes to be used in support of those measures. The data sources identified in Table 7-1 are discussed in the following pages.

Table 7-1: Performance Metric Data Sources

Data Type	Source
Collision Data	Washington State Department of Transportation (WSDOT)
Public Transportation	National Transit Database
Pavement Condition	WSDOT (State Highways and Interstate Facilities); Local Jurisdictions (Non-Interstate NHS); County Road Association Board (Rural roads)
Bridge Conditions	WSDOT
Travel Time	BFCG Congestion Management Process
Traffic Count	WSDOT, BFCG Regional Traffic Count Program
Demographic Data	US Census
Housing + Transportation Index	Center for Neighborhood Technology
Bicycle and Pedestrian System Characteristics	BFCG *Active Transportation Program*
Freight & Economic Corridors	WSDOT, BFCG Regional Traffic Count Program; BFCG *All-Weather Road Program*
Travel Demand Strategies	BFT Vanpool Program Data; BFCG Park and Ride Lot Inventory
Transit Utilization	BFT Passenger Data Program
SOV / HOV Use	BFCG SOV/HOV Survey
Employer Data	US Census, LEHD Data

Safety and Security

Collision Data – Collisions on local roads or state highways in Washington are reported to Washington State Patrol. The Washington State Department of Transportation (WSDOT) Transportation Data & GIS Division partners with Washington State Patrol to code each collision report into the state's collision database. Local agency transportation professionals then have access to this data WSDOT's Transportation Crash Data & Reporting Branch.

Transit Incidents - Ben Franklin Transit (BFT) submits reports of safety and security incidents the Federal Transit Administration National Transit Data Base, which issues annual reports compiling the data.

Preservation

Pavement and bridge conditions will be gathered from three different sources.

WSDOT - WSDOT manages a pavement condition reporting and data system that includes the National Highway System (NHS), the Non-interstate NHS and NHS bridges.

Local Jurisdictions – Local jurisdictions manage pavement condition data for their street systems

County Road Administration Board – CRAB manages a data base self-reported county road conditions updated annually.

Mobility and Accessibility

Travel Time – BFCG tracks travel time on congested corridors as a component of its Congestion Management Process. Multiple years of travel time data has been collected on metropolitan area congested corridors.

Traffic Volumes – In 2016 BFCG began a biennial regional traffic count program for the two county area.

Distance of Jobs and Housing to Transit – The BFCG Geographic Information System (GIS), in concert with census data will be used to determine this relationship.

Distance of Households to Community Resources – The BFCG GIS in concert with census data will be used to determine these relationships.

Bicycle and Pedestrian System Characteristics – BFCG will initiate broader engagement with active transportation modes. An initial development is documenting pedestrian systems in the metropolitan area.

The Housing and Transportation (H+T®) Affordability Index provides a comprehensive view of affordability at a neighborhood level. It includes both the cost of housing, and the cost of transportation. Housing is included in the transportation cost metric, because housing costs are generally negatively correlated with transportation costs.

The H+T Index is developed by the Center for Neighborhood Technology

(CNT) and is used as a performance measure in many MPO plans, including the Spokane Regional Transportation Council. For more information on the metric, visit http://htaindex.cnt.org/.

Freight Movement and Economic Vitality

All-Weather Road System - The BFCG will work with Benton and Franklin Counties to identify and monitor an all-weather road system for the two counties.

Measure Truck Average Annual Daily Traffic – WSDOT collects truck data on the Interstate and state highway system. The biennial BFCG Regional Traffic Count Program includes truck axle counts, which convert to truck counts.

Community and Environmental Sustainability

Travel Demand Strategies – BFT administers and collects data on a van pool program. BFCG is responsible for a quarterly census of the Regional Park and Ride system.

Transit Utilization – BFT is initiating an upgrade to its data collection capability that will increase the amount and variety of data it collects and enable more detailed analysis of that data.

SOV/HOV Use – BFCG coordinates an annual metropolitan area-wide SOV/HOV survey.

Transit Asset Management Final Rule

According to federal regulation (established in the MAP-21, and reaffirmed in the FAST Act), the USDOT is to develop rules to establish a system to monitor and manage public transportation assets, and establish performance measures (49 CFR 625). Transit Agencies that receive federal assistance and meet certain size criterion must develop a Transit Asset Management (TAM) Plan. Targets should be set by each transit provider of TAM plan sponsor every fiscal year.

> The FTA defines Transit Asset Management as a business model that uses the condition of assets to guide the optimal prioritization of funding transit priorities, in order to keep transit networks in a State of Good Repair (SGR). SGR is defined as the condition in which a capital asset is able to operate at a full level of performance.

A TAM plan should include[1]:

1. Inventory of Capital Assets
2. Condition Assessment
3. Decision Support Tools
4. Investment Prioritization
5. Transit Asset Management and State of Good Repair Policy
6. Implementation Strategy
7. List of Key Annual Activities
8. Identification of Resources
9. Evaluation Plan

1 Numbers 5-9 apply only to Tier I providers, and numbers 1-4 apply to Tier I and Tier II providers.

In developing the performance targets for capital assets, the transit provider must coordinate with States and Metropolitan Planning Organizations in the selection of State and MPO performance targets, to the maximum extent possible (49 CFR §625.45).

Ben Franklin Transit (BFT) has developed 2017 Targets for State of Good Repair (SGR) pending BFT Board approval, in compliance with 49 CFR 625 and the Federal Transit Administration's Transit Asset Management Final Rule[2].

BFT uses the Useful Life Benchmark (ULB) methodology in determining its SGR targets for rolling stock:

Table 7-2: BFT State of Good Repair (SGR) Targets

Vehicle Type	Years
Fixed Route Buses (Heavy Buses 30' – 40')	14
Demand Response (Medium-sized medium-duty chassis)	9
Light Duty (Vanpool, Non-Revenue, Maintenance)	7

BFT proposes a target of maintaining 100% of all facilities (administration building, qualified transit centers, maintenance facilities, and park-n-ride lots) at or above the "Adequate " condition rating as established in the FTA's Transit Economic Requirements Model (TERM) Condition Assessment Scale.

2 The Final Rule has not yet been adopted by the BFT Board

Investment Strategies

Transition2040 goals and performance measures serve as investment strategies for this plan. Not all performance measures are applicable. Additionally, in some cases, the performance measure evaluation tool is under development. Where appropriate, *Transition2040* will implement a strategy by placing a priority on projects that address conditions identified in the applicable performance measure.

Safety and Security

Safety and Security: To provide for and improve the safety and security of transportation users and the transportation system through design, operations, maintenance improvements, and public information.

Safety improvements should be targeted on the street or road segments where identified challenges exist, including fatalities, higher rates of vehicular collisions or bicycle and pedestrian involved collisions. Security remains a top regional priority especially in relation to the vital transportation facilities involved in the high volume movement of people and freight: bridges, the NHS, transit facilities, airports and other intermodal hubs.

Performance measures identified in the *Transition2040* Safety Goal are identical to those in the Safety Final Rule. Three measures below are adaptable to evaluation of a street segment and will be used to prioritize safety and security projects (collection of data supporting these performance measures is ongoing):

- Number of Fatalities
- Number of Serious Injuries
- Number of Non-motorized Fatalities and Non-motorized Serious Injuries.

Preservation

Preservation: To maintain, preserve and prolong the life and utility of prior investments in transportation systems and services.

The overall condition of public streets and roads is critical. However, a comprehensive inventory documenting conditions of regionally significant roadways in Benton and Franklin Counties has not been completed to date. Individual city and county data sets with partial information exist and WSDOT has survey data on non-interstate segments (urban principal arterials) of the National Highway System. At this time, complete pavement condition data is limited to U.S. and state highway data by maintained by WSDOT.

A road condition inventory should be completed for the RTPO. In the interim, preservation projects will be considered on their own merit. Relevant performance measures are below.

- Street/road segment classified in poor condition
- Bridge classified as in poor condition

Mobility and Accessibility

Mobility and Accessibility: To improve the predictable movement of and access to goods and people throughout the region and improve quality of life.

Automobile travel is a form of mobility, which refers to physical travel. Accessibility refers to people's ability reach desired goods, services and activities. Accessibility is the ultimate goal of most transportation activity. Mobility and accessibility is a strategy with solutions across modes, which may be addressed with motorized and non- motorized solutions.

Travel time delay and excessive volumes are challenges to mobility for automobiles and some forms of transit. Active transportation mobility/accessibility issues include system connectivity for bicyclists, and pedestrian and wheeled access to transit.

Both motorized and active transportation issues are addressed within this strategy. A sidewalk condition/connectivity inventory and an analysis of bicycle path connectivity should be completed in the metropolitan area. Until then each project should be considered on its own merits.

The 2015 BFCG Regional Traffic Model can be used to identify areas of current and potential congestion on the metropolitan street system, while the BFCG Regional Traffic Count Program can be used to monitor change in traffic volumes in real time.

Relevant performance measures from *Transition2040* are listed below. Collection of data supporting these performance measures is under development but will be ongoing.

- Travel time delay and traffic volume trends on CMP corridors
- Miles of pedestrian and bicycle facilities in the region
- Fill network gaps in existing bicycle and pedestrian facilities
- Sidewalk connections to transit locations
- Bicycle accommodations to/near/at transit locations

Freight Movement and Economic Vitality

Freight Movement and Economic Vitality: To promote and develop transportation systems that stimulate, support and enhance the movement of people and goods to ensure a prosperous economy.

A critical regional freight issue in the RTPO is all weather roads. At issue are sub-standard rural roads in that hinder the flow of commodities to market due to seasonal freeze/thaw challenges. An All-Weather Road system will be identified and improvements to all-weather corridors prioritized.

Performance measures supporting this strategy are listed below. Collection of data supporting these performance measures is under development but will be ongoing.

- All-weather road mileage
- Truck AADT
- Rural road closures by miles affected, and the length of closure due to weather related weight restrictions

Community and Environmental Sustainability

Community and Environmental Sustainability: To make transportation decisions that protect the environment and conserve natural resources while promoting sustainable development.

Sustainability is a condition in which economic, social and environmental

factors are optimized. Transportation and community sustainability is concerned with travel safety and public health, fair distribution of impacts, and equal access to basic mobility. Environmental sustainability concerns include reduced air, noise and water pollution, reduced and more efficient use of resources such as land and petroleum and preservation of farmlands, parks and natural habitats.

Performance measures supporting this strategy are listed below. Collection of data supporting these performance measures is ongoing.

- Use of Travel Demand Management strategies such as Vanpools and park and ride lots implemented in the region
- Fixed-Route transit utilization
- Rates of SOV to HOV use, and of non-motorized travel

Subjective Strategies

Subjective strategies are harder (if not impossible) to measure. They range from public health, which include are certain aspects can be measured, to livability, which is a vague, undefinable term. But even with public health, measures such as BMI, which are impacted by transportation, are impacted by many other prominent factors such as diet and genetics.

Environmental impact can have a dollar amount associated with it, but that dollar amount is flawed, and usually an underrepresentation of the real environmental impact.
Some aspects of subjective strategies are fluid; for example, livability changes with cultures, time, climate, and many other factors. A very warm, sunny climate might value shade trees higher than a colder, less sunny climate. Cultures value open space and privacy drastically different, and that affects how an urban area is shaped.

Other aspects remain more or less valued throughout cultures and time, like access to green space, but remain hard to measure.

For *Transition2040*, BFCG outlines two broad, subjective subjects: environmental health, and public health. Table 7-3 outlines estimated costs of traffic and congestion, relating to environmental and public health.

Table 7-3: National Costs Associated with Transportation

National Health Cost of:	$$ (Billions)	Estimate Factors	Source
Obesity and overweight	$142	• Healthcare costs • Lost wages due to illness & disability • Future earnings lost by premature death	National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. Statistics Related to Overweight and Obesity: The Economic Costs. Available at: http://win.niddk.nih.gov/statistics/index.htm
Air pollution from traffic	$50-80	• Healthcare costs • Premature death	Federal Highway Administration. 2000. Addendum to the 1997 Federal Highway Cost Allocation Study Final Report, May 2000. Available at: www.fhwa.dot.gov/policy/hcas/addendum.htm
Traffic crashes	$180	• Healthcare costs • Lost wages • Property damage • Travel delay • Legal/administrative costs • Pain & Suffering • Lost Quality of life	AAA. Crashes vs. Congestion? What's the Cost to Society? Cambridge, MD: Cambridge Systematics, Inc.; 2008. Available at: www.aaanewsroom.net/assets/#les/20083591910.crashesVscongestionfullreport2.28.08.pdf

*All cost estimates adjusted to 2008 dollars

Source: "The Hidden Health Costs of Transportation", Frank et al 2010. American Public Health Association.
https://www.apha.org/~/media/files/pdf/factsheets/hidden_health_costs_transportation.ashx

Environmental Health

Avoiding and Minimizing the Impacts

Transportation projects can have many environmental impacts. The best way to avoid these impacts is to identify and understand what environmental issues exist in the proposed project area. Once the issues are identified, they can then be incorporated into the planning and design phase to minimize or hopefully avoid any foreseeable negative impacts.

Mitigating Transportation Impacts

Mitigating transportation-related impacts to environmental issues by helping regional jurisdictions and agencies make informed planning decisions through analysis of planning transportation projects located in sensitive areas, including:

- Neighborhoods and communities, homes and businesses
- Cultural resources (i.e. historic properties or archaeological sites);
- Parks and recreation areas;
- Wetlands and water resources;
- Forested and other natural areas;
- Agricultural areas;
- Endangered and threatened species

The Washington State Department of Ecology provides Wetland Avoidance and Minimization Checklists for Project Assessment, Avoidance and Minimization. These checklists provide examples of how to accomplish avoidance and minimization during site analysis, project design and construction.

The Washington State Department of Ecology's Project Assessment checklist analyzes the proposed project site to initially determine what category it's classified and whether it needs special protection. The second part of the Project Assessment checklist is the Cost Analysis checklist which looks at whether there would be alternative areas the project could be built that would avoid and minimize the effects on a sensitive area. Alternative project areas may also save valuable time and money in pursuing and ultimately choosing those sites

The initial Project Assessment checklist to determine how sensitive the site is and if the site is cost effective for project development can be found in the Appendix G.

DEPARTMENT OF ECOLOGY
State of Washington

Environmental Trends in Transportation

FHWA's Environmental Justice Emerging Trends and Best Practices Guidebook summarizes transportation issues faced with increasing environmental concerns. The guidebook explains the importance of Environmental Justice (EJ) in transportation. It breaks down four categories of EJ trends in assisting MPOs.

The document addresses the following Topics which directs the FHWA and FTA to:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- Prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low-income populations.

NEPA Guidance

The Council on Environmental Quality (CEQ) regulations (40 CFR § 1500-1508) addresses the basic decision making framework and action forcing provisions established in the National Environmental Policy Act (NEPA).

The principles or essential elements of NEPA decision making include:

- Assessment of the social, economic, and environmental impacts of a proposed action or project.
- Analysis of a range of reasonable alternatives to the proposed project, based on the applicants defined purpose and need for the project.
- Consideration of appropriate impact mitigation: avoidance, minimization and compensation.
- Interagency participation: coordination and consultation.
- Public involvement including opportunities to participate and comment.
- Documentation and disclosure.

NEPA – Environmental, Economic and Social Documentation

Documenting the project development process is important to the NEPA process. Not only does it support public involvement, it also helps interagency coordination. NEPA requires Federal agencies make available their analysis of project implementation and its effects on the environment and give the public and interested parties time for comment.

Documentation of the NEPA process also allows complete disclosure to the public and interested parties are then able to provide input and comment on proposals, alternatives and environmental impacts which provides the appropriate information for the decision to make the best choice among project alternatives.

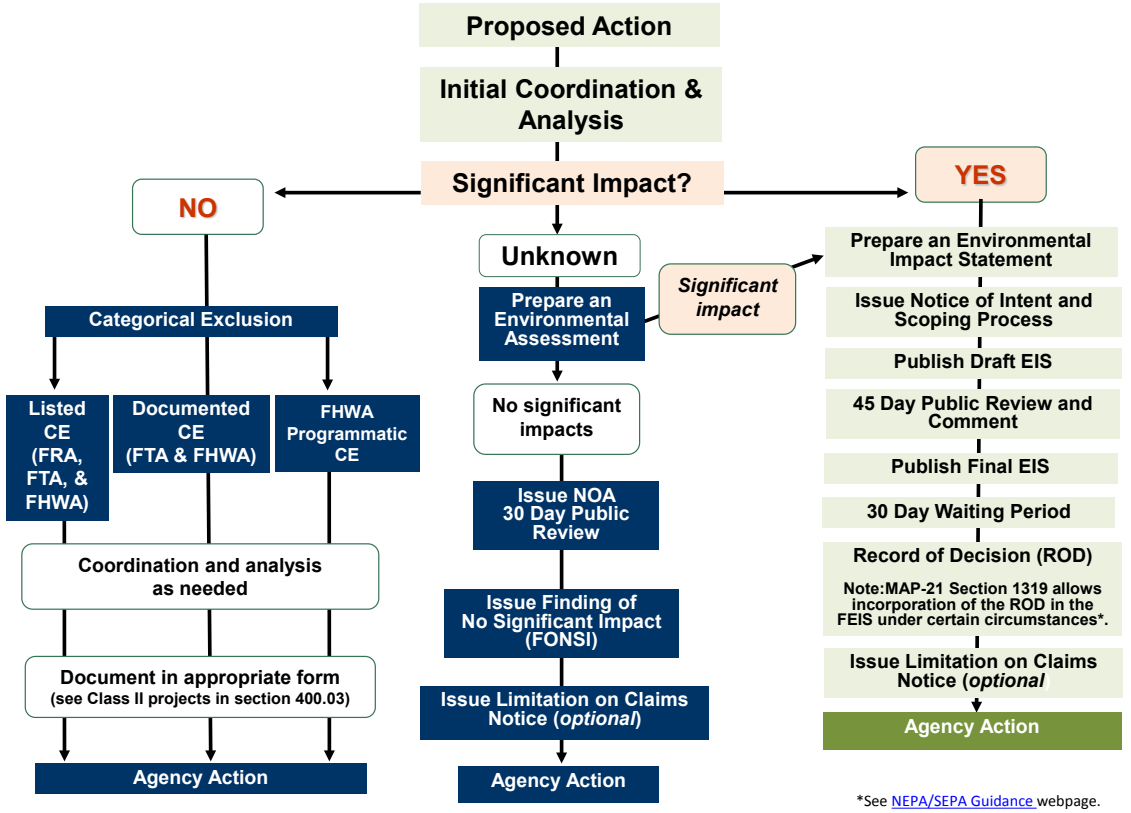
Transportation projects can vary on their impacts on the environment, from very little to major impacts. To address the varying degrees of impacts, NEPA has three basic "classes of action" to determine how projects are documented and how NEPA compliance is carried out:

- An Environmental Impact Statement (EIS) is prepared for projects where it is known that the action will have a significant effect on the environment.

- An Environmental Assessment (EA) is prepared for actions in which the significance of the environmental impact is not clearly established. Should environmental analysis and interagency review during the EA process find a project to have no significant impacts on the quality of the environment, a Finding of No Significant Impact (FONSI) is issued.

- Categorical Exclusions (CEs) are issued for actions that do not individually or cumulatively have a significant effect on the environment.

Figure 7-2: National Environmental Protection Agency Structure Process



Public Health

Highways, streets, sidewalks and trails are used by all citizens to get to places of work or school, recreate, connect with healthcare, access healthy foods, and other goods and services.

Transportation infrastructure and decisions impact public health- either positively or negatively. Public health stakeholders and transportation planners are beginning to connect and build meaningful relationships.

Transportation investments impact land use patterns, which in turn impacts travel behavior. For example, a sprawling landscape can be inhospitable to active transportation, leaving some without any option other than an automobile. On the other hand, a more compact, mixed-use neighborhood can encourage more citizens to walk, bike, or take public transit to a local grocery store. These travel choices, such as driving versus walking to the grocery store, impact health and are associated with additional medical costs of a non-active lifestyle.

Transportation can impact quality of life by the transportation choices that we make; physical activity and obesity, access to medical care, access to green space and other mental health benefits, access to healthy and affordable food, and air quality and pollution are just some examples of transportation impacts.

Federal agencies are now aiming to improve public health through transportation. The FAST Act renews focus on non-emergency medical care; the Federal Transit Administration's (FTA) is providing people with better transportation options to visit the doctor and access other non-emergency health services.

Transportation and public health officials are focusing on the built environment as a combatant to public health problems because when transportation options are limited, many patients do not have the proper access to health care; an estimated 3.6 million Americans miss or delay medical care each year because of transportation issues.

Healthy Cities

Healthy Cities is a global movement to improve the physical, social, and cultural environments of cities. The principals behind Healthy Cities address the impact of policy and infrastructure of human health.

According to the World Health Organization, a Healthy City aims to:

- Create a health-supportive environment;
- Achieve a good quality of life;
- Provide basic sanitation & hygiene needs; and
- Supply access to health care.

Health

Physical Activity

Healthy cities are active cities. Opportunities for active living need to be provided in an urban area.

Levels of physical activity are directly linked to obesity and obesity caused ailments, such as heart disease, diabetes, and more. One example

of a program/ movement is Safe Routes to School, discussed under Safety. More information on active transportation can be found in Chapter 3.

Air Quality

Air toxins and greenhouse gas emissions from transportation impact public and environmental health. The transportation sector is the second largest producer of greenhouse gas (GHG) emissions. According to the Environmental Protection Agency (EPA), transportation was responsible for 25% of the GHG emissions in 2014. Passenger cars and trucks are the source of half of the emissions.

Air pollutants from motor vehicles are found in higher concentrations near major roads, causing concern for those who live, work, or attend school near major roads. The EPA cites research showing the correlation between proximity to major roads and severity of health problems related to air pollution exposure. Some of these negative health effects include asthma, cardiovascular disease, impaired lung development in children, pre-term and low-birthweight infants, childhood leukemia, and premature death[1].

Quality of Life

Costs of Commuting

Along with wasted fuel and carbon dioxide emissions, traffic congestion has a negative effect on public health, both physical and psychological. Car commuting is typically attached with negative health effects.

Driving in traffic can be a major cause of stress-- due to unpredictability and a sense of loss of control, a cause of boredom, social isolation, and anger and frustration. Road rage is a common term to capture this phenomenon's effects, showcasing increased stress levels, irritation, hostility, and aggression over commuting patterns.
Additionally, longer commutes are also associated with lower physical activity level, cardiorespiratory fitness, elevated blood pressure, and a higher BMI. With more time spent on the road, workers had less time for more fulfilling and healthy activities, like exercise, sleep, food preparation, and leisure.

Longer commutes are associated with lower rates of well-being, with

"Flying Bikes": bikes on lamp posts at WSU Tri-Cities campus, adjacent to a Richland Bicycle and Pedestrian Facility.

1 US EPA. https://www3.epa.gov/otaq/nearroadway.htm

the average American spending 25 minutes commuting. In the MPA, over 46% of workers commute over 20 minutes, and almost 24% commute more than 30 minutes. In the RTPO, over 43% commute over 20 minutes, and almost 24% commute over 30 minutes (ACS).

Benefits of Commuting

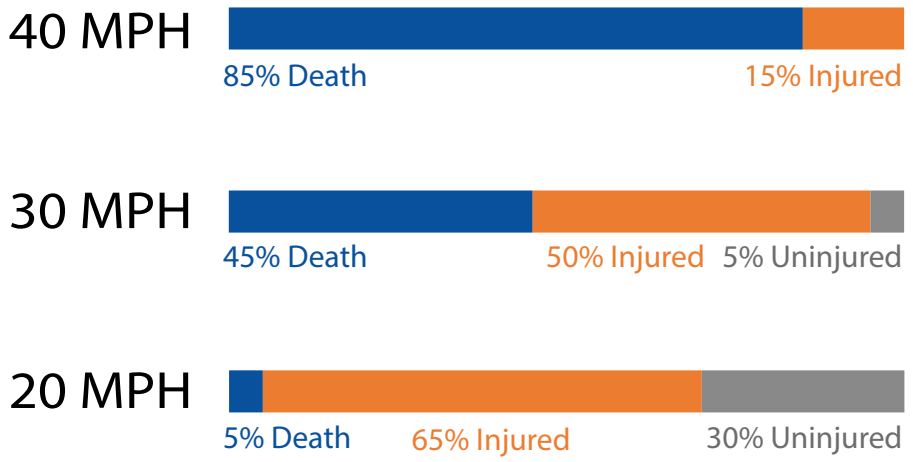
While there are many costs of commuting, from social, environmental, economic, and public health, there are also some benefits that can be found. Most of the benefits are reaped by active commuters, who see more alone time to unwind without the concentration drain of automobile driving, opportunities for social interaction, more mental and physical aspects of exercise, and increased well-being. Active transportation encourages more interaction with nature, neighbors, and local businesses.

Studies have indicated that psychological well-being, including happiness and the ability to concentrate, are higher in those who used active transportation compared to driving. Those who switch from driving to active transportation see an increase in overall well-being. Additionally, while longer travel time in automobile commuting is associated with negative effects, a longer commute time for some modes, like walking, actually can improve well-being.

Safety

Another adverse aspect of the transportation system is safety. According to the Center for Disease Control and Prevention, in 2013 4,735 pedestrians were killed in traffic crashes in the United States, and over 32,000 people are killed from automobile crashes every year. Fatality rates of crashes increase with speed, with the change of survival if hit by a 20 mph car at 95% (Figure 7-3). The chance of survival at 40mph lowers to 20%. There are many ways to make streets safer, but they sometimes come with costs to increased congestion.

Figure 7-3: Pedestrian Injuries at Impact Speeds



Source: FHWA

Complete Streets is one way to make streets safer. Complete Streets is a movement to redesign streets for everyone. They are designed to enable safe access for all modes (automobiles, pedestrians, bicyclists, etc.), for all ages and abilities. There is not a clear definition for complete streets, but it is rather a tool for designing each street for its given conditions. One way to incorporate Complete Streets is with a Compete Streets Policy.

Safe Routes to School (SRTS) is a federal program to improve safe walking and biking to and from school, spurred on by the dramatic decrease in the number of students walking or biking to school. SRTS focuses on infrastructure and non-infrastructure improvements, such as education. Education and infrastructure improvements go hand in hand at improving safe access to schools.

Additionally, SRTS has benefits outside safety. By restricting safe access to schools, we restrict the amount of exercise that is incorporated into a child's daily life. Children can get two-thirds of the recommended amount of physical activity just by walking a mile to school and back, just one of the benefits to a safe walking environment.

Access to Goods and Services

Not having access to certain goods and services can have a detriment effect on public health. This is not limited to transportation to a hospital or doctor when needed, but includes a wide range of places.

Green Space

Access to green space is important for wellbeing and health in people of all ages. Infrastructure should provide safe access to parks and other recreation opportunities by walking, bicycling, transit, and personal vehicle. Exercising in or periods spent in green space can decrease anger and fatigue, and increase overall mental health.

In the metropolitan area, there are many opportunities for outdoor recreation, including seven riverfront parks, 21 recreational parks, 67 miles of paved pedestrian and bike trails, outdoor markets, and more. The facilities are in place, but accessing them is another component.

Food

Food deserts (areas without access to fresh, affordable, and healthy foods) have been studied from many different angles, including buffer distances, by mode, affordability indexes, and others.

The USDA defines a Food Desert by using a one mile buffer from fresh, whole foods in urban areas, and 10 miles in rural areas. They measure this by census tract: if at least 33% of the residents reside more than one-mile from a supermarket (or large grocery store), then the census tract is flagged as a food desert.

Access to food is also an environmental justice (EJ) issue. Studies find that food deserts tend to occur in areas with greater racial segregation and greater income inequality. Additionally, these neighborhoods tend to have low car ownership, but on average have to drive farther, or take public transportation longer, than other neighborhoods.

There are several areas in the region that are considered a Food Desert by the USDA. Figure 7-4 shows two measures for food deserts in the metropolitan area: Low income and low access at 1 and 10 miles for urban and rural (the original food desert measure), and low income and low access at half mile and 10 miles for urban and rural. Pasco, Richland, and West Richland all have food deserts using a one mile measure, and Kennewick at the half mile measure.

Figure 7-4: Food Deserts in the Region

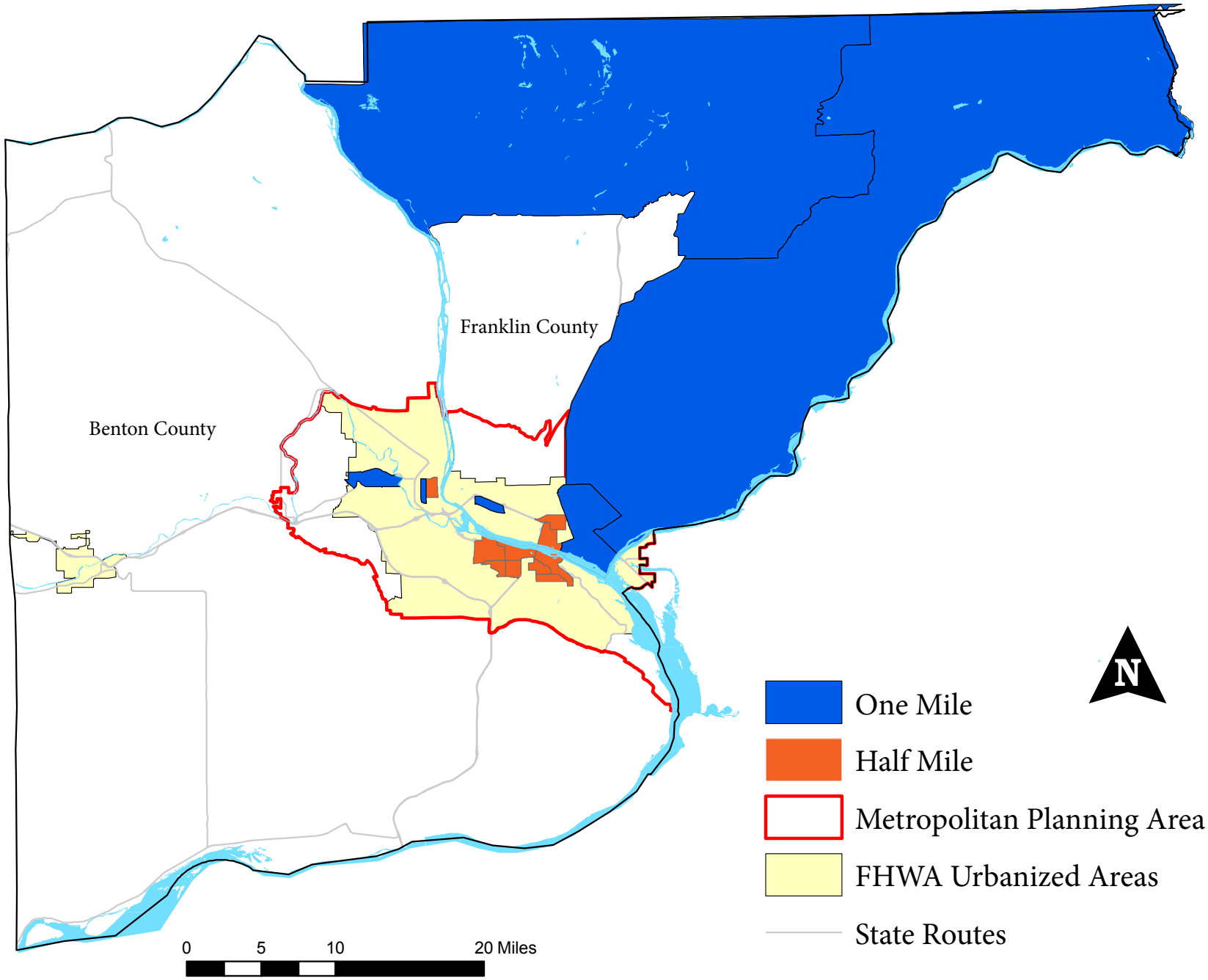
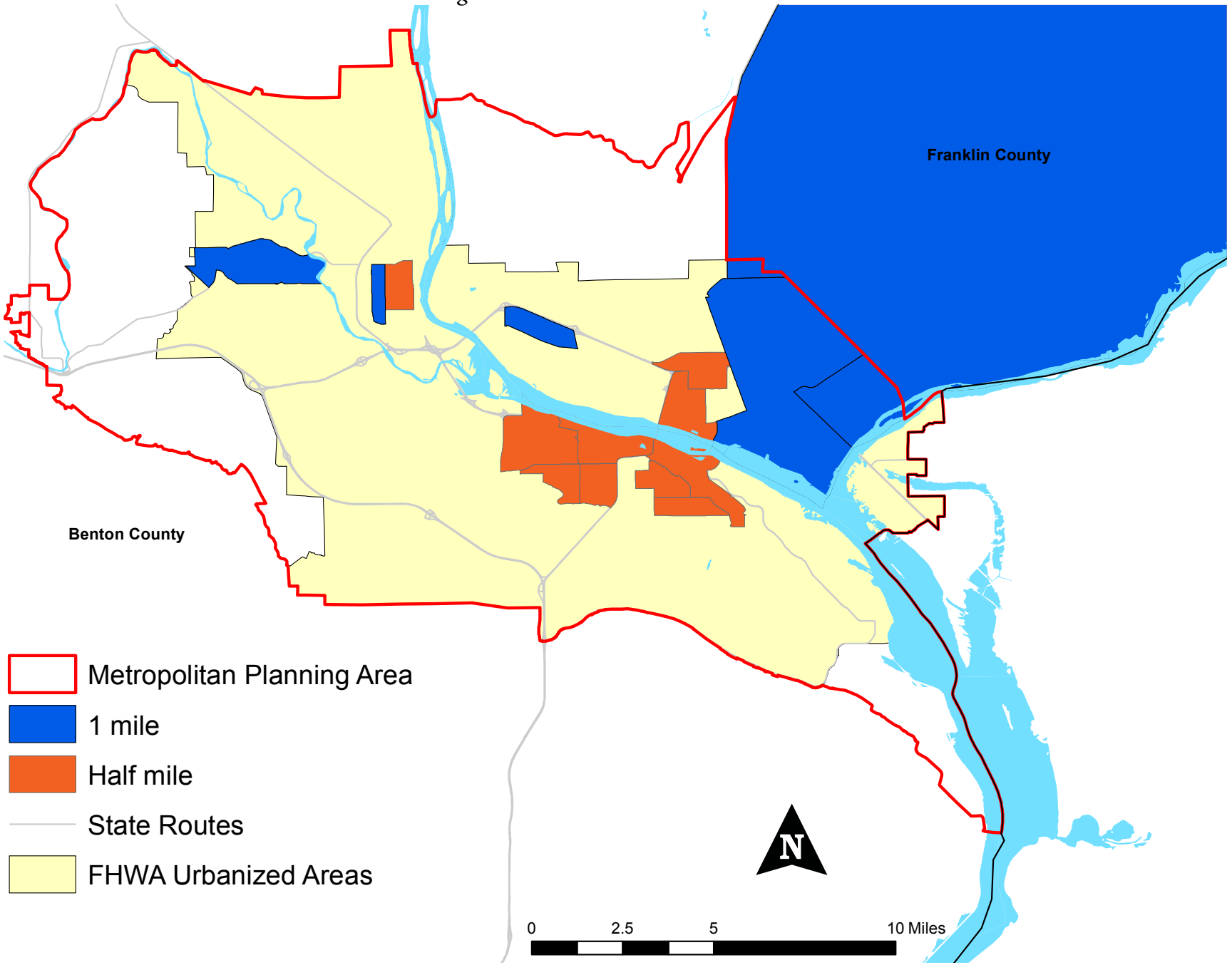


Figure 7-5: Food Deserts in the MPA



Local Health Plans

To access these plans, click on the images, or visit the Benton Franklin Health District Website.

Community Health Needs Assessment

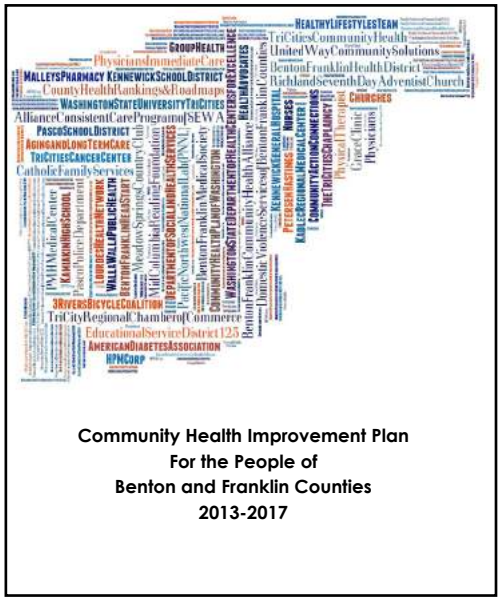
The 2016 Community Health Needs Assessment (CHNA) for Benton and Franklin Counties is a community-driven update from the 2012 plan. CHNA retains the 2012 plan's strategic issues of: "How to promote healthy weight and reduce obesity, and how to improve access to health care services." Unlike the 2012 plan, the 2016 CHNA focuses on health equity and root causes, adding a third strategic issue of mental health.

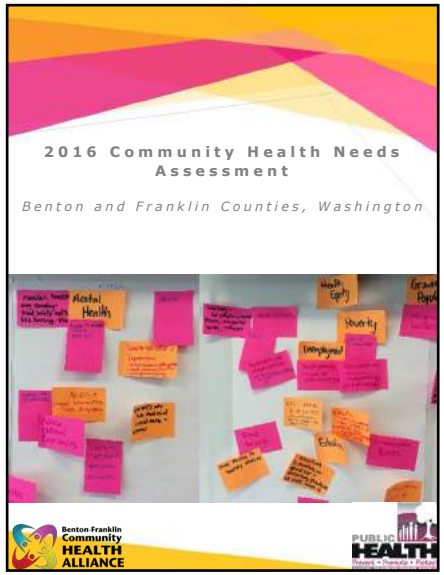
All three strategic issues (reduce obesity, improve access, and mental health) can be influenced by transportation access and infrastructure, like food deserts, green space, and Safe Routes to School, among many other factors.

Community Health Improvement Plan

The Community Health Improvement Plan for the People of Benton and Franklin Counties 2013-2017 (CHIP) uses the 2012 CHNA strategic issues and goals to develop objectives and performance measures. Obesity is a chosen issue, since both Benton and Franklin counties have higher rates of obesity than the state (Figure 2-33).

In 2012, the Gallup-Healthways Well-Being Index ranked the Tri-Cities as the No. 9 most obese metro area in the United States. Out of the three Healthy Weight Goals, two can be improved by transportation improvements. The first goal is to increase physical activity in community members, which can be helped with active transportation options. The second goal of healthier food choices can be helped by combating food deserts through increased access to fresh food. Beyond these two goals and examples, public health and transportation are tied together in various ways.





Public Health Rankings

The annual *County Health Rankings & Roadmaps* (a University of Wisconsin Population Health Institute supported by the Robert Wood Johnson Foundation database) is a measure vital health factors, including obesity, smoking, unemployment, access to healthy foods, the quality of air and water, and income, in nearly every county in America. Counties are ranked within each state.

The annual Rankings provide a revealing snapshot of how health is influenced by where people live, learn, work and play.

The Rankings compare Benton and Franklin Counties to all Counties in Washington. There are 39 counties in Washington.

Health outcomes in the County Health Rankings represent how healthy a county is. It assesses two types of health outcomes: how long people live (length of life) and how healthy people feel while alive (quality of life).

Franklin County was ranked 10th in 2011, but has fallen or stayed the same up to 2015. Benton was ranked 14th in 2011, and in 2015 it received its best ranking at 11th.

Health factors in the County Health Rankings represent what influences health, utilizing four health factors: health behaviors, clinical care, social and economic factors and physical environment factors. In turn, each of these factors is based on several measures.

For Health Factors ranking, Benton County has remained fairly similar from 2011-2015.

Figure 7-7: Health Outcomes: Health Rankings By WA Counties

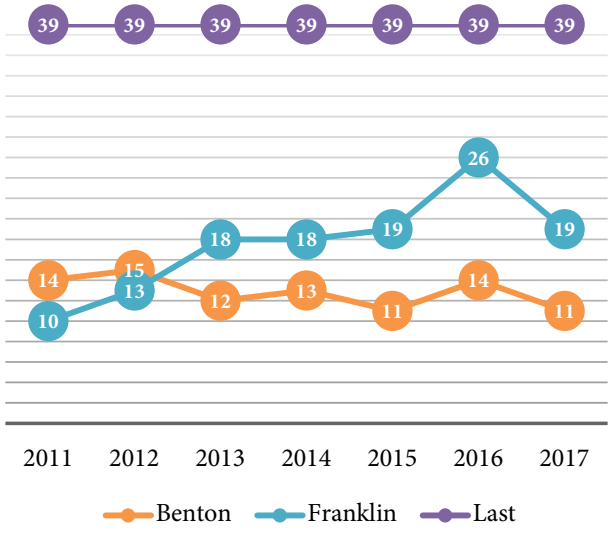


Figure 7-6: Health Factors: Health Rankings By WA Counties

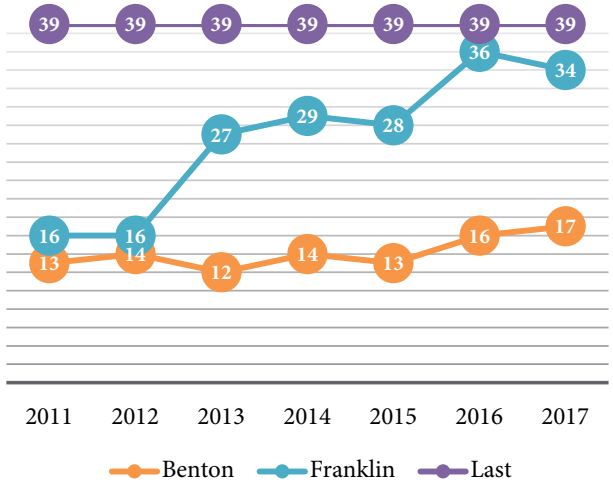


Figure 7-9: Share of Adults who are Obese, Compared to Washington State

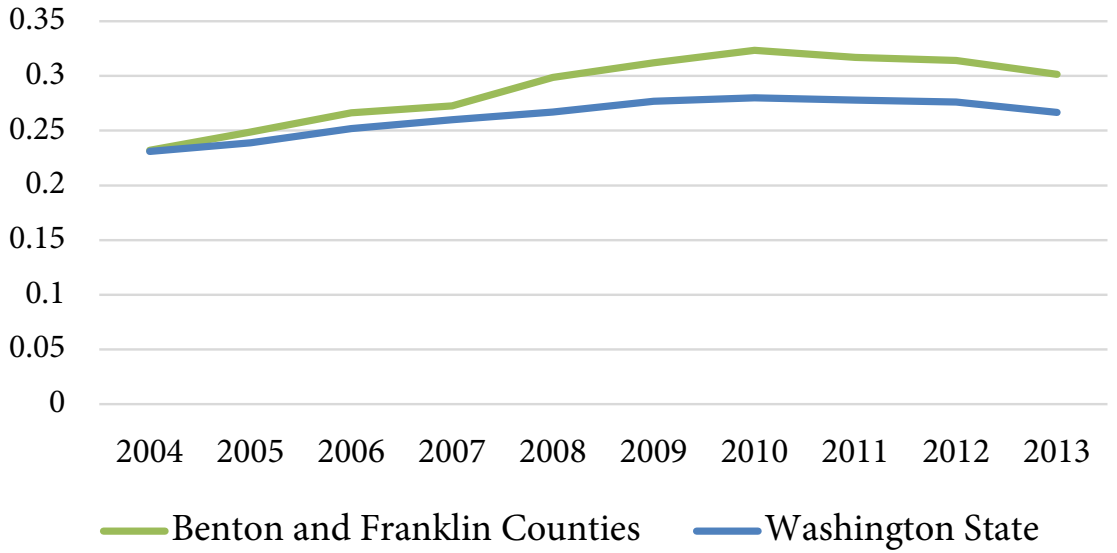
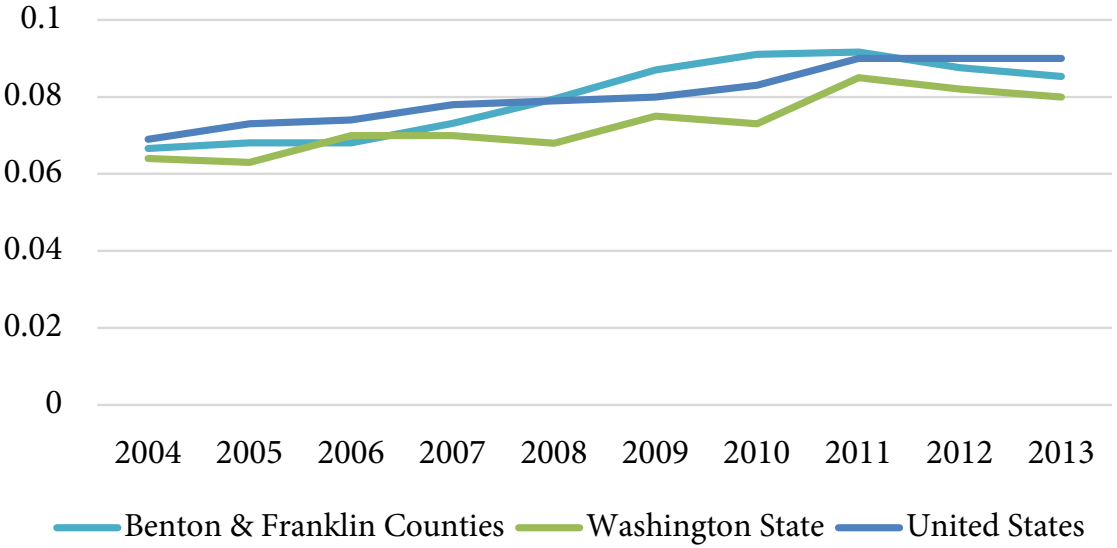


Figure 7-8: Share of Adults with Diabetes, Compared to Washington State and the United States



This page left intentionally blank.

Plan Implementation

8

INTRODUCTION | REGIONAL GROWTH STRATEGY | AMENDING THE PLAN | NEXT STEPS

Introduction

Transition2040 provides a basis for decision making concerning the future of the regional transportation system. Implementation is an ongoing process. The vision of *Transition2040* will not be built in the short run, but will act as a path in achieving long-term transportation goals.

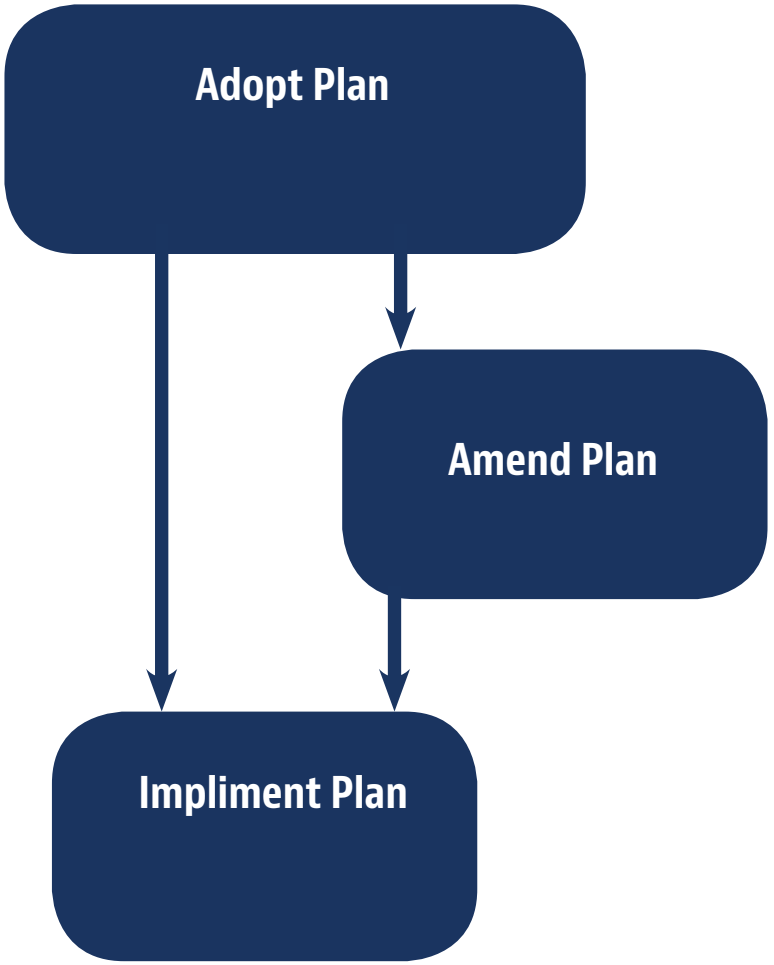
The BFCG will coordinate and manage a process to measure the goals and objectives of *Transition2040*, while maintaining engagement with local and state partners.

An integral part of *Transition2040* will be monitoring the performance of the regional transportation system over time, and comparing the results with the established regional growth and transportation strategies. BFCG must address performance metrics and measures on the federal, state, and regional level. The FAST Act, the current national transportation legislation, mandates that MPO's must adhere to performance based planning.

Measuring performance is necessary to determine the success of the plan and the effects of the desired improvements on the performance of the regional transportation system.

Collectively, member jurisdictions and agencies can periodically assess past, present and future conditions to evaluate the measurement tools and evaluate the efficiency of data collection.

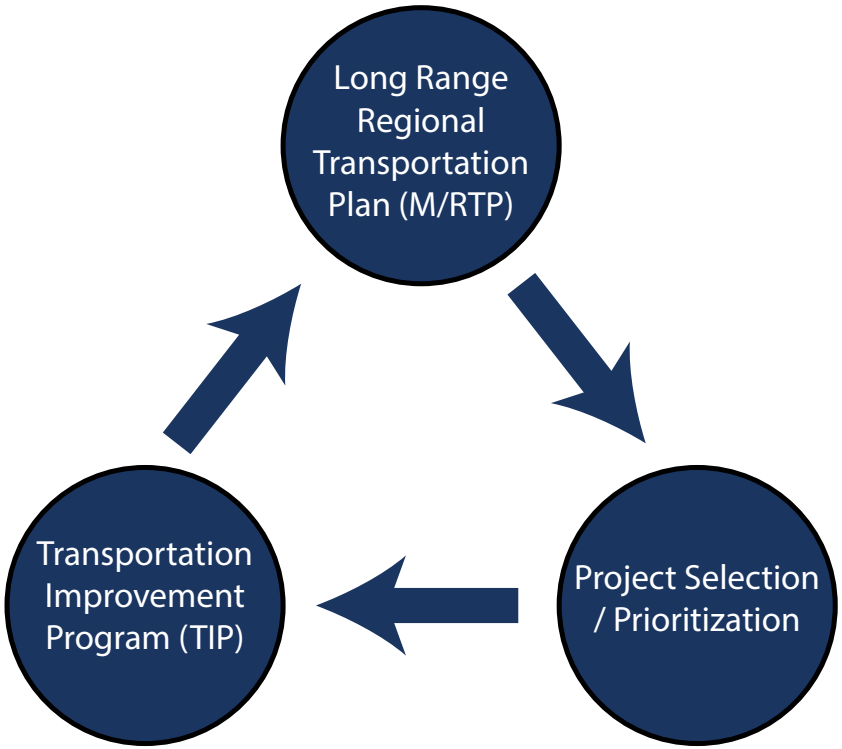
Critical to the success of the implementation process will be a commitment to increments of acceptable change in reference to stated goals and objectives.



Implementation

BFCG will implement the goals and objectives from *Transition2040* in our project selection and programming. The Unified Planning Work Program (UPWP), the Transportation Improvement Program (TIP), and the Congestion Management Process (CMP) following the adoption of *Transition2040* will incorporate the goals and objectives that are instrumental to the performance based planning process.

Figure 8-1: How the TIP/MRTP Work Together



UPWP

The UPWP details transportation planning elements and the tasks BFCG staff will undertake. The work program covers a one year span, following the state fiscal year, July 1st through June 30th.

The goals and objectives of *Transition2040* will provide guidance for the annual development of tasks within each work element.

TIP

Transportation needs identified in the *Transition2040* are selected and prioritized for programming in the Metropolitan/ Regional Transportation Improvement Program (TIP) based on *Transition2040* goals and objectives.

The TIP is fiscally constrained, four-year program of planned regional projects. The purpose of the TIP is to demonstrate that available resources are being used to implement the long-range transportation plan, consistent to the regions goals as established by *Transition2040*. Projects are developed from either short range or long range planning activities and have been found to be consistent with adopted goals and policies.

The TIP includes any project with federal funding under 23 U.S.C. (FHWA) and 49 U.S.C. Chapter 53 (FTA), projects that are regionally significant, or both.

BFCG administers federal funds through the Surface Transportation Block Grant Program (STBG, formally STP), and Transportation

Alternatives (TA, formally TAP) Set-Aside funds. The FHWA defines STBG funds as to: "provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals[1]."

TA funds include projects "encompassing a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity.[2]"

Applications by the jurisdictions for use of STBG and TA funds require information about the alignment of the project to the current M-RTP goals and objectives.

1 https://www.fhwa.dot.gov/specialfunding/stp/

2 https://www.fhwa.dot.gov/environment/transportation_alternatives/guidance/guidance_2016.cfm

Regional Growth Strategy

With an increasing population forecasted by the Office of Financial Management (OFM), jurisdictions will have to plan for the growth strategically. The cities have projected where the population and employment growth might occur (Chapter 6), and transportation planners will focus on the relationship between people and employment, specifically how to get people to their jobs (as well as school, places of interest, shopping, etc.) in an efficient manner.

Urban development will first be directed toward those areas already supplied with some level of government services or infrastructure. Urban infill will be encouraged in order to utilize existing infrastructure expenditures, and combat the transportation problems associated with sprawl development.

Outside the corporate city limits, within designated Urban Growth Boundaries (UGAs), the focus will be on phased development. Initially, growth should occur in that portion of the UGA already characterized by urban services and facilities, such as paved roads, public water, or sewer, or a combination. Secondarily, growth should occur in those areas of the UGA where services and facilities do not exist but are planned.

Multi-Modal Transportation System

Increased integration of transportation modes in the regional transportation system can result in more efficient use of existing infrastructure and programs. With a growing region, alternative modes of transportation will become increasingly more desired to combat congestion.

Transition2040 goals and objectives do not completely align with current data resources. Data are readily available on truck and personal automobile traffic. BFCG and WSDOT monitor congestion, and track traffic counts.

To prepare for the implementation of *Transition2040* goals and objectives, more data on the multi-modal system should be collected. Missing data include a sidewalk inventory of the MPA, especially noting ADA compliance, a regional bicycle network database, a household travel survey, and other multi-modal measures such as bikes and buses.

In order to track progress with accessibility, BFCG needs base data on the location and condition of sidewalks, curb cuts, crosswalks, and ADA compliance of the sidewalk network, and the location and condition of the bicycle network. Included in that data set will be gap analysis of the pedestrian and bicycle networks.

After an inventory of the locations of sidewalks and bicycle facilities, data should be collected on the amount of pedestrian and bicycle usage and travel patterns. Of particular focus will be facilities near schools, parks, and economic centers.

Local Coordination

The goals, objectives, and findings of Transition2040 will guide BFCG staff involvement in the local and regional planning processes.

At the time of *Transition2040's* adoption, WSDOT was developing its Corridor Sketch Initiative. Althought the initiative phase II is anticipated to be finished in June 2017, WSDOT will continue to update and refine the corridor sketches into 2018 and beyond.

WSDOT defines the sketches as: a data-driven approach to identify performance expectations and deliver cost-effective, multimodal strategies through ongoing engagement and collaborative decision-making.

The Corridor Sketch Initiative's primary goal is to cooperatively engage with partners to jointly assess the highway system and identify:

- Performance expectations
- What's working well
- What needs to change now and in the future
- Strategies to achieve performance expectations and sustain what works well

More information can be found at the WSDOT website.

Corridors that are currently part of the Corridor Sketch Initiative in the BFCG region include:

- SR 14, US 97 Jct. (Maryhill) to I-82 Jct. (Plymouth)
- SR 240, SR 24 Jct. (Vernita) to US 395 Jct. (Tri-Cities)
- I-182 US 12, I-82 Jct. (Richland) to US 395 Jct. (Pasco)
- US 12, SR 124 Jct. (Pasco) to Idaho Border
- SR 17, US 395 Jct. (Mesa) to I-90 Jct. (Moses Lake)
- US 395, I-82 Jct. (Kennewick) to I-182 Jct. (Pasco)
- US 395, I-182 Jct. (Pasco) to I-90 (Ritzville)
- SR 24, I-82 Jct. (Yakima) to SR 243 Jct.
- SR 260, SR 17 Jct. to US 395 Jct. (Connell)
- SR 260, US 395 Jct. (Connell) to SR 26 Jct. (Washtucna)
- SR 397, I-82 Jct. to Kennewick ECL
- SR 397, Kennewick ECL to SR 182 Jct.
- SR 124, US 12 Jct. (Pasco) to US 12 Jct. (Waitsburg)
- SR 22, I-82 Jct. (Zillah) to I-82 Jct. (Prosser)
- SR 241, I-82 Jct. (Sunnyside) to SR 24 Jct.
- SR 221, SR 14 Jct. to SR 22 Jct. (Prosser)
- SR 224, I-82 Jct. (Benton City) to SR 240 Jct. (Richland)
- SR 225, SR 224 Jct. (Benton City) to SR 240 Jct.
- I-82, Union Gap to Oregon Border (Umatilla)

Amending the Plan

Once *Transition2040* is adopted, the work on it does not end. MPO's may revise the transportation plan at any time, following proper procedure (23 CFR 450.324).

The MTP/RTP must be periodically reviewed and updated or amended to maintain its currency with issues, problems, and policies affecting regional planning. Agency and citizen participation is encouraged at multiple stages during the development of the update.

The process to amend or revise the plan first begins when a review of the document determines there is a need for an amendment or revision. BFCG transportation staff, in coordination with Technical Advisory Committee (TAC) and Policy Advisory Committee (PAC) members, develop the text needed for the amendment or revision. Once consensus is reached, regarding the text, the amendment is process through the TAC and PAC as an action item and recommendations for approval are forwarded to the BFCG Board for final approval. The approved amendment or revision is then sent to the appropriate state and federal agencies.

When to Update the Plan

The state's Growth Management Act requires that the RTP be reviewed for currency every two years. BFCG will forward the adopted plan along with documentation of the biennial review to WSDOT.

BFCG will monitor policies, financial conditions and growth patterns for impactful change, then plan amendments can take place subject to the public participation requirements, with fiscal constraints being met.

Public Participation

BFCG recognizes that an effective public participation process is a vital element in the development and implementation of transportation plans and programs. Therefore, in 2015, BFCG adopted a Public Participation Plan (PPP) to help the agency reach out to the public, and evaluate its success. Similar to creating *Transition2040*, all amendments must meet BFCG public participation guidelines as outlined in the PPP.

It is the responsibility of the MPO to provide reasonable opportunities to comment on the transportation plan and updates, set forth by federal legislation, to:

> individuals, affected public agencies, representatives of public transportation employees, public ports, freight shippers, providers of freight transportation services, private providers of transportation (including intercity bus operators, employer-based commuting programs, such as carpool program, vanpool program, transit benefit program, parking cashout program, shuttle program, or telework program), representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested

parties.[1]

BFCG also consulted with these groups/individuals when creating the plan, in addition to the TAC/PAC.

With continued emphasis on *Transition2040* after adoption, BFCG, following the PPP, intends to:

- Receive public input on BFCG's activities and decisions.
- Share information with a broad cross-section of the public.
- Ensure notification and invite participation of all populations, including people of color, low-income and special needs groups.
- Increase overall awareness of regional planning activities.
- Increase community support for transportation plans and programs through early identification and resolution of issues.

The PPP outlines BFCG's public involvement procedure for adherence:

1. Prior to review and action by the BFCG Board, regional plans and Transportation Improvement Plans (TIPs) (including major amendments) are subject to review and comment by the BFCG's Technical Advisory Committee (TAC) and the Policy Advisory Committee (PAC) before recommendation to the BFCG Board.
2. All BFCG committee meetings are open to the public.
3. Scheduled meeting dates of the BFCG Board are published on the agency website. Various agencies, organizations and individuals will be notified of these meetings via the BFCG monthly newsletter.
4. Public comments will be considered by the BFCG staff. A summary and report of the comments will be part of the final document for all plans, studies and policies.
5. The BFCG public process will be coordinated with ongoing local, regional and statewide public involvement processes when possible in order to enhance public involvement.

The BFCG Public Participation Plan can be found at the BFCG website.

BFCG also adheres to our Title VI program. The Title VI Plan, adopted in 2014, outlines Title VI responsibilities:

- Ensure that all aspects of the planning process comply with Title VI.
- Ensure that the opportunity for participation of a cross section of various social, economic, and ethnic interest groups in the planning process by disseminating program information to minority media and ethnic organizations.
- Gather and organize the data necessary to develop the Title VI Update Report.
- Ensure equal opportunity for participation on Advisory Committees regardless of race, gender or economic status.

BFCG's Title VI Plan can be found on the BFCG website. The Title VI notice is located in the introduction of this plan and on the BFCG website.

1 23 CFR 450.324

Next Steps

Moving forward, BFCG has anticipated the following advancements to *Transition2040* after adoption.

1. **Continue engagement between state and local partners, and outreach with the public.**
2. **Update Performance Metrics following Federal finalized rules.**
3. **Perform data gathering to monitor performance.**
    - **Continue current data gathering**
    - **Expand data gathering once Federal finalized rules are released**
4. **Monitor changes in policies, financial conditions, and growth patterns.**
5. **Formally review the plan at least two years after adoption, and plan any necessary amendments.**

This page left intentionally blank.

Appendices

Contents

Appendix A: Plan Overview 5

Appendix B: Regional Profile 23

Appendix C: Transportation Choices 29

Appendix D: Transportation System Management and Operations 53

Appendix E: Financial Plan 57

Appendix F: Future Conditions 66

Appendix G: Investment Strategies 68

Picture Credits

Ch 2

Gray Wolf and Yellow-Bellied Cuckoo, *US Fish and Wildlife Service*

"Palouse Falls", Jim Coleman

"Wetlands" -- US Fish & Wildlife Service

ALE Reserve, http://ecology.pnnl.gov/shrub/ale/ale.asp

Ch 3

"Sunrise" Dan Schmidt – Ben Franklin Transit

"BFT Fleet" – Ben Franklin Transit

"PSC Flight Map" – Port of Pasco

Lewis and Clark Trail Sign – http://usa-c2c.com/lctreview.html

Tesla Charging Station, http://www.plugshare.com/

"Train at Sunset" – Port of Benton

"The Columbia Snake River System," www.Bluefish.com

"Freight Comparison of Barges, Trains, and Trucks" – Marquette Transportation Company, http://www.marquettetrans.com/Page/Why_Marquette

"Barge Approaching Ice Harbor Lock," *US Army Corps of Engineers*

Ch 4

"SR 167 HOT Lanes" – WSDOT, https://www.flickr.com/photos/wsdot/4986563115/in/album-72157604901791163/

"*Space Required for Cars, Buses, and Bikes*" – ecofluence, August 2010.

Photos by http://www.tobinbennett.com/

Active Traffic and Demand Management – WSDOT

BFT Vanpool Fleet – Ben Franklin Transit

BFT Tulip Lane Park and Ride – Ben Franklin Transit

Ch 5

Cover – Port of Kennewick

Ch 7

"Flying Bikes" David Spaulding

Plan Overview

Appendix A: Plan Overview

Transition2040 Goals and FAST Act National Planning Goals Comparison

Transition2040 Goal	FAST Act National Planning Goal (23 U.S.C. Section 150)
Safety and Security -- To provide for and improve the safety and security of transportation users and the transportation system through design, operations, maintenance improvements and public information	(1) Safety — To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
Preservation-- To maintain, preserve and prolong the life and utility of prior investments in transportation systems and services	(2) Infrastructure condition — To maintain the highway infrastructure asset system in a state of good repair.
Mobility & Accessibility -- To improve the predictable movement of and access to goods and people throughout the region and improve quality of life	(3) Congestion reduction — To achieve a significant reduction in congestion on the National Highway System. (4) System reliability — To improve the efficiency of the surface transportation system.
Freight Movement & Economic Development -- To promote and develop transportation systems that stimulate, support and enhance the movement of people and goods to ensure a prosperous economy	(5) Freight movement and economic vitality — To improve the National Highway Freight Network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
Community & Environmental Sustainability -- To make transportation decisions that protect the environment, promote sustainable development, and coordinate regional/ community stakeholders	(6) Environmental sustainability — To enhance the performance of the transportation system while protecting and enhancing the natural environment.
	(7) Reduced project delivery delays — To 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.

Appendix A: Plan Overview

September 7, 2016 Transportation Fair: Questions and Answers

Question 1

How does the region/your neighborhood make you feel?

- Comfortable, but would like to see options expand on commuting
- Too many similar housing projects
- My neighborhood is safe and quiet. The region is good if you have your own car
- Not enough resources/access to language minorities (especially Spanish)
- Clearwater (Avenue/Kennewick) area feels a little rundown, comfortable though
- Bored
- Southridge Area is safe
- Needs to be more walkable

Question 2

What would the region look like in 2040 if we were to do nothing?

- A giant stand still
- Chaos
- (Hwy) 240 at 5pm
- More sprawl, difficulty accessing services on public transportation
- Crowded, confusion, rundown
- Urban sprawl, no mixed use (developments)
- Gridlock, no vit plant

Appendix A: Plan Overview

Transportation Fair Questions and Answers

Question 3

What kinds of changes could we make to create a better future?

- Push the semi-trucks off of HWY 395 through Kennewick
- Light Rail!
- Greater density of development
- Safe Routes to School
- Re-Route semi traffic on US-395 through Kennewick
- Provide more resources/translation for the local (large) Spanish speaking community
- Keep up existing roads
- Protected bike-lanes, improved walkability
- Hawk signals for pedestrians, protected bike intersections
- Self-driving cars and/or Uber
- Proactive planning

Question 4

What do you tell outsiders about the region?

- Sunny, lots of outdoor activities and you better own your own car
- Sunshine, low cost of living, many wineries
- Nice place to live
- Growing/changing region. Find out how to get involved
- Low cost, lots of community events, beautiful weather, nice/interesting people
- Lots of room to improve walkability
- Recreational activities along 3 rivers
- Sunshine and moderate temperatures
- I love it

Transportation Fair!

WEDNESDAY, SEPTEMBER 7TH

4:30-6:30pm

Where

The Fair will take place at the Tri-Cities Business and Visitor Center in the Bechtel Board Room and lobby area. 7130 W Grandridge Blvd, Kennewick.

What

This is an opportunity to learn about transportation projects, plans, and programs from various organizations, and provide input, including:

»BFCG Metropolitan/ Regional Draft 2017-2022 Transportation Improvement Program (TIP)

»Ben Franklin Transit's Transit Development Plan and Program of Projects

Why

We want to hear your thoughts regarding future transportation plans and projects. Join us and be involved in the discussion to improve our region's transportation!

▹Talk by transportation staff

▹Opportunity to walk around the booths will follow

▹Play Transportation Bucks and apply your Bucks to mobility strategies

▹Light refreshments will be served

Questions?
Contact Jacob Gonzalez at jgonzalez@bfcog.us

www.bfcog.us

www.bft.org

http://www.tricityregionalchamber.com/

*The Benton-Franklin Council of Governments fully complies with Title VI of the Civil Rights Act of 1964 and related statues and regulation in all programs and activities.

¡FERIA DE TRANSPORTACIÓN!

MIÉRCOLES, 7 DE SEPTIEMBRE

4:30-6:30pm

Dónde

La Feria se llevará a cabo en el Tri-Cities Business and Visitor Center en el Bechtel Board Room y área de sala de espera. 7130 W Grandridge Blvd, Kennewick.

Qué

Esta es una oportunidad para aprender sobre proyectos de transportación, planes, y programas de varias organizaciones, y proveer comentario, incluyendo:

»BFGG Metropolitan/Regional Draft 2017-2022 Programa de Mejoramiento de Transportación (TIP)

»Plan de Desarrollo de Tránsito y Programa de Proyectos de Ben Franklin Transit

Por qué

Queremos escuchar tus pensamientos con respecto a futuros planes y proyectos de transporte. ¡Únete a nosotros y participa en la discusión para mejorar el transporte de nuestra región!

▹Discurso de personal de transportación

▹Oportunidad de visitar los puestos despues

▹Juega Transportation Bucks y aplica tus Bucks a estratégias de mobilidad

▹Refrescos serán servidos

¿Preguntas?
Contacta a Jacob González en jgonzales@bfcog.us

www.bfcog.us

www.bft.org

http://www.tricityregionalchamber.com/

*El Consejo de Gobiernos Benton-Franklin cumple totalmente con el Título VI de la Ley de Derechos Civiles de 1964 y estatuas relacionadas y la regulación en todos los programas y actividades.

Appendix A: Plan Overview

Transportation Fair Postcard, English

Appendix A: Plan Overview

Transportation Fair Postcard, Spanish

Open House

Metropolitan/ Regional Transportation Plan
for the Tri-Cities and the Benton-Franklin Region

What?

A Metropolitan/ Regional Transportation Plan (M-RTP) is:

- Federally mandated
- A comprehensive evaluation of the area's transportation needs
- Guides transportation development for 20 years, updated every five

When & Where?

Kennewick:
Thursday
March 23rd
4:00 - 7:00pm
At the Mid-Columbia Library
(1620 S Union St, Kennewick)

Pasco:
Tuesday
March 28th
4:00 - 7:00pm
At the Mid-Columbia Library
(1320 S Hopkins St, Pasco)

For more information, contact Jacob at JGonzalez@bfcog.us

Benton-Franklin Council of Governments
1622 Terminal Drive, Richland, WA 99354 • Phone: (509) 943-9185

*The Benton-Franklin Council of Governments fully complies with Title VI of the Civil Rights Act of 1964 and related statues and regulation in all programs and activities.

Exhibición al Público

Plan de Transportación Metropolitana/Regional
de los Tri-Cities y la Región Benton-Franklin

¿Qué?

Un Plan de Transportación Metropolitana/Regional (M-RTP) es:

- Con mandato federal
- Una evalucación comprensiva de las necesidades de transporte del área
- Guía el desarrollo de la transportación por 20 años, actualizada cada cinco años

¿Cuándo y Donde?

Kennewick:
Jueves
23 de Marzo
4:00 – 7:00pm
En la Biblioteca Mid-Columbia
(1620 S Union St, Kennewick)

Pasco:
Martes
28 de Marzo
4:00 – 7:00pm
En la Biblioteca Mid-Columbia
(1320 S Hopkins St, Pasco)

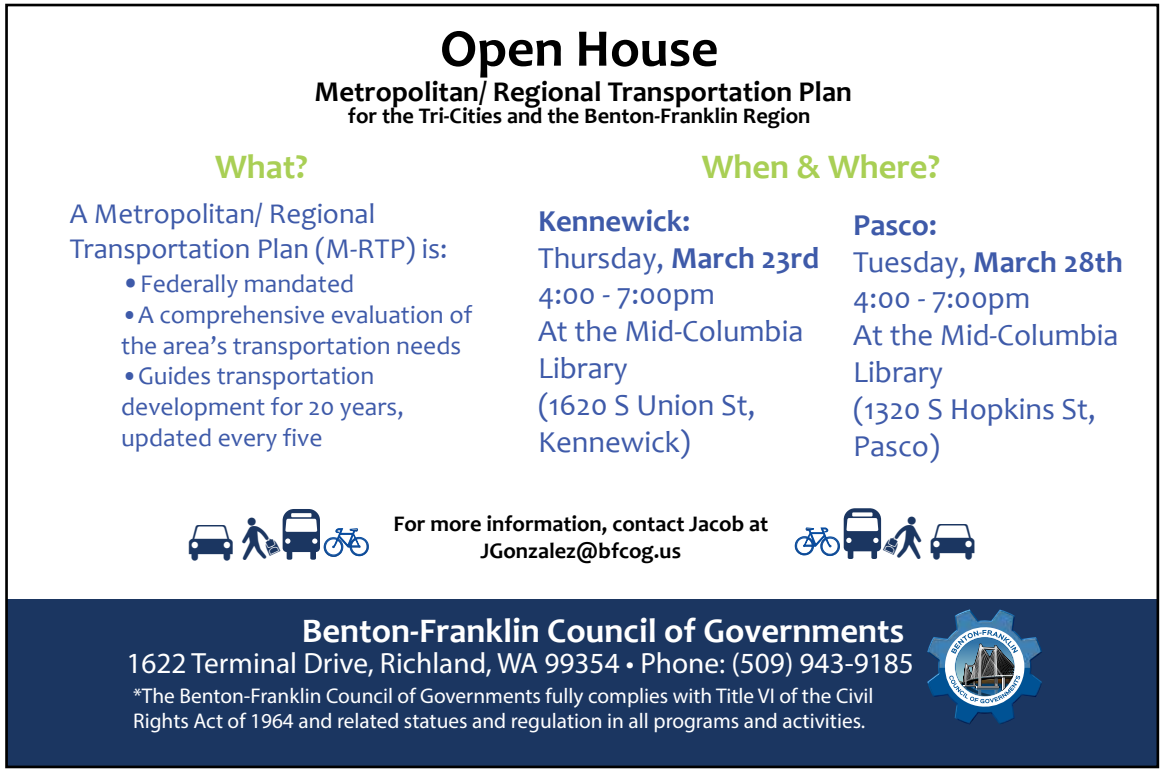
Para más información, contacte a Jacob a JGonzalez@bfcog.us

Benton-Franklin Council of Governments
1622 Terminal Drive, Richland, WA 99354 • Teléfono: (509) 943-9185

*El Consejo de Gobiernos Benton-Franklin cumple plenamente con el Título VI de la Ley de Derechos Civiles de 1964 y las estatuas y regulaciones relacionadas en todos los programas y actividades.

Appendix A: Plan Overview

Open House Postcard, English

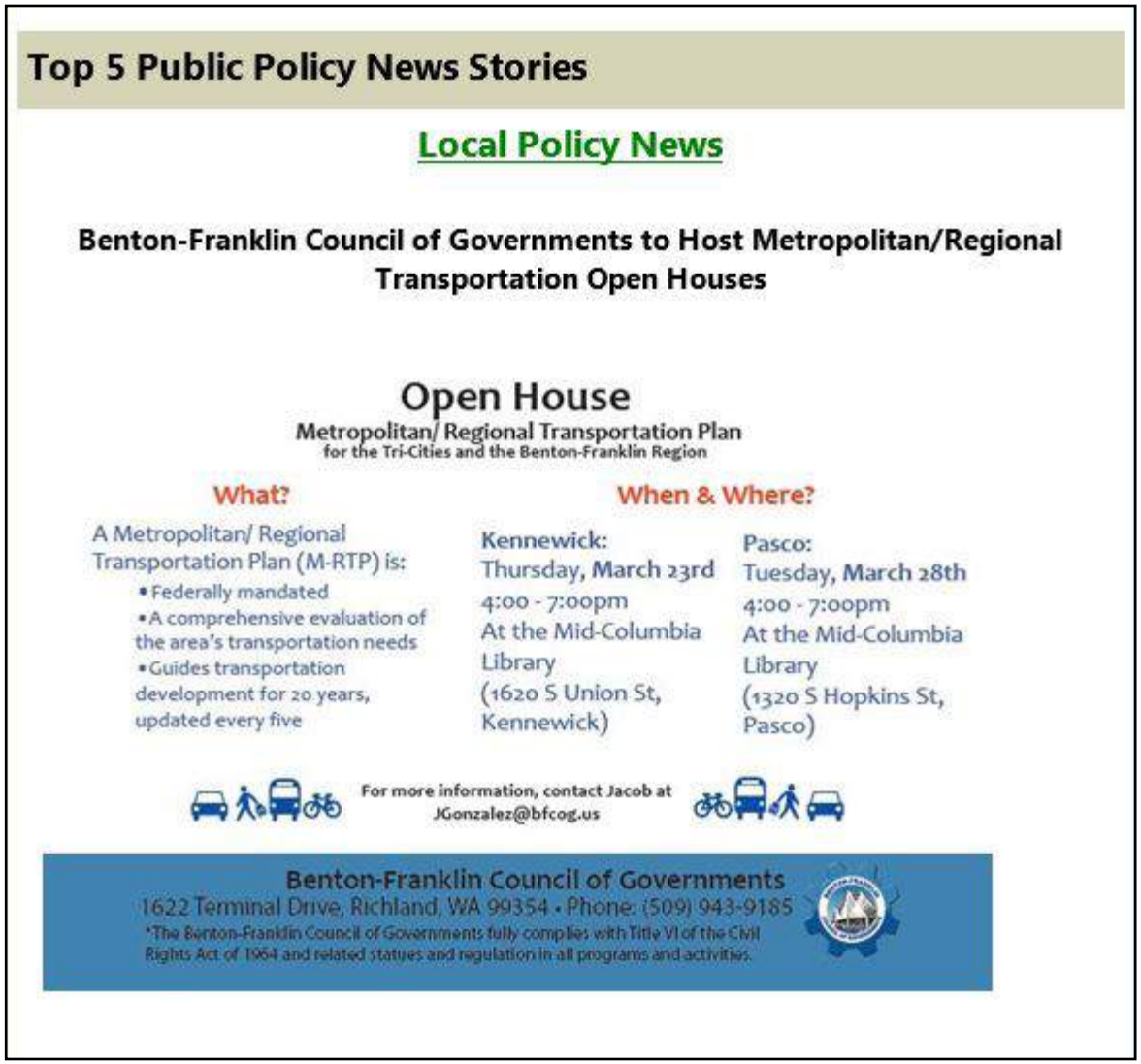


Appendix A: Plan Overview

Open House Postcard, Spanish

Appendix A: Plan Overview

Tri-City Regional Chamber Email Newsletter for the Open Houses



Top 5 Public Policy News Stories

Local Policy News

Benton-Franklin Council of Governments to Host Metropolitan/Regional Transportation Open Houses

Open House

Metropolitan/ Regional Transportation Plan
for the Tri-Cities and the Benton-Franklin Region

What?

A Metropolitan/ Regional Transportation Plan (M-RTP) is:

- Federally mandated
- A comprehensive evaluation of the area's transportation needs
- Guides transportation development for 20 years, updated every five

When & Where?

Kennewick:
Thursday, March 23rd
4:00 - 7:00pm
At the Mid-Columbia Library
(1620 S Union St, Kennewick)

Pasco:
Tuesday, March 28th
4:00 - 7:00pm
At the Mid-Columbia Library
(1320 S Hopkins St, Pasco)

For more information, contact Jacob at JGonzalez@bfcog.us

Benton-Franklin Council of Governments
1622 Terminal Drive, Richland, WA 99354 • Phone: (509) 943-9185
*The Benton-Franklin Council of Governments fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulation in all programs and activities.

Appendix A: Plan Overview

Tu Decides Advertisement Page for the Open Houses

10 de marzo 2017 — tú Decides – A Bilingual Newspaper — 9

Smile :) like you mean it.

Dentures starting at $340 Economy Single Arch

Routine Tooth Extraction Per tooth Starting At $95

Free Consult & X-Ray FOR NEW PATIENTS

Come see the Affordable Difference.
Same-day dentures at prices well below the competition.
Call 1-800-DENTURE® or Visit AffordableDentures.com

$50 OFF EconomyPlus or Higher Style Denture

Affordable Dentures - Yakima
Charles M. Gooss, DMD, FICOI, FAAIP
General Dentist

Gateway Center 102 N. Fair Avenue, Suite 102, Yakima WA

AFFORDABLE DENTURES & IMPLANTS®

321-65-10

Offer good only at designated location. $50 denture discount good on any one individual denture purchase at the EconomyPlus level or higher – Coupon must be presented at time of initial payment and cannot be combined with any other coupon, discount, package price or prior order. Offer may change or end without notice. Limit one coupon per person. Minimum estimated value of Consult and X-Ray is $75, and covers a traditional 2-D X-Ray. Same-day service on Economy Dentures in most cases, call for details. Additional fees may be incurred depending on individual cases. Advertised fees effective through 6/28/17.

Coupon expires 6/28/17 and may change without notice.

Call for an Appointment 509-469-0875

Exhibición al Público

Plan de Transportación Metropolitana/Regional
de los Tri-Cities y la Región Benton-Franklin

¿Qué?

Un Plan de Transportación Metropolitana/Regional (M-RTP) es:

- Con mandato federal
- Una evaluación comprensiva de las necesidades de transporte del área
- Guía el desarrollo de la transportación por 20 años, actualizada cada cinco años

¿Cuándo y Donde?

Kennewick:
Jueves
23 de Marzo
4:00 – 7:00pm
En la Biblioteca Mid-Columbia
(1620 S Union St, Kennewick)

Pasco:
Martes
28 de Marzo
4:00 – 7:00pm
En la Biblioteca Mid-Columbia
(1320 S Hopkins St, Pasco)

Para más información, contacte a Jacob a JGonzalez@bfcog.us

Benton-Franklin Council of Governments
1622 Terminal Drive, Richland, WA 99354 - Teléfono: (509) 943-9185

El Consejo de Gobiernos Benton-Franklin cumple plenamente con el Título VI de la Ley de Derechos Civiles de 1964 y las estatutas y regulaciones relacionadas en todos los programas y actividades.

AHORROS DE SAN PATRICIO

FINANCEAMOS EN CASA | NO REVISAMOS CRÉDITO
www.bblyakima.com

2002 Chevrolet Malibu 193k millas $2,295	1995 Jeep Grand Cherokee $2,995	1998 Lexus ES 300 $3,295	1998 Ford Explorer 4x4 $3,495	2001 Dodge Grand Caravan $3,995	1999 Buick Park Avenue 132k millas $4,295
1995 Volvo 850 Wagon 195k millas $4,295	2002 Ford Ranger 155k millas $4,995	2003 Jeep Liberty Sport $4,995	2005 Mazda MPV LX $5,795	2009 Chevrolet Impala 147k millas $6,795	2000 Cadillac Escalade 159k millas $6,795
2008 Hyundai Sonata 129k millas $6,795	2003 Jeep Liberty Limited 93k millas $6,795	2001 Jeep Grand Cherokee 136k millas $6,795	2003 Chevrolet Tahoe 133k millas $6,995	2008 VW Jetta TDI 118k millas $6,995	2010 Kia Soul 106k millas $7,995
2004 Mercedes-Benz E-Class E320 112k millas $8,795	2002 Cadillac Escalade 180k millas $9,095	2008 Chevy TrailBlazer LS Ext 109k millas $9,495	2005 Dodge Ram SLT 131k millas $9,695	2008 Dodge Avenger R/T 109k millas $9,695	2005 Chrysler 300 90k millas $9,995
2005 Infiniti G35 X 78k millas $10,495	2008 Chevrolet Equinox AWD 105k millas $10,695	2010 Chevrolet Malibu 1LT 95k millas $10,695	2003 Lexus GX 470 159k millas $11,495	2009 Honda CR-V 93k millas $12,495	2008 Cadillac CTS $12,695

BBL AUTO SALES
www.bblyakima.com

Lun. – Viernes: 9 am – 5 pm
Sábado: 9 am – 4 pm
Cerrado Los Domingos

Cerrado el último Sábado a Lunes del mes

¿MAL CRÉDITO? ¿NO CRÉDITO? ¡NO PROBLEMA!

575.0988 • 1514 S. 18th St. • Yakima

COMPRE AQUÍ PAGA AQUÍ

*Todos los precios mas impuesto, licencia y doc fee negociable de $150. Solo un vehiculo. Ville disponibles en la tienda. Precios validos hasta el 3-31-17

Sabiduría para las decisiones

Tri-City Herald
tricityherald.com
VOICE OF THE MID-COLUMBIA

LEGAL PROOF OF PUBLICATION

Account #	Ad Number	Identification	PO	Amount	Cols	Lines
447522	0002979173	Legal Ad		$37.67	1	8

Attention: Julia Cassidy

BENTON FRANKLIN COUNCIL OF GOVERNMENTS
PO BOX 217
RICHLAND, WA 99352

The Benton-Franklin Council of Governments is hosting two Open Houses for Metropolitan/Regional Transportation Plan (M-RTP) Transition2040: A federally mandated comprehensive evaluation of the area's transportation needs. Please visit bfcog.us for details.
#2979173 03/19 & 03/26/2017

AFFIDAVIT OF PUBLICATION

COUNTY OF BENTON)
.SS
STATE OF WASHINGTON)

Monica Allred, being duly sworn, deposes and says, I am the Legals Clerk of The Tri-City Herald, a daily newspaper. That said newspaper is a local newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publications hereinafter referred to, published continually as a daily newspaper in Benton County, Washington. That the attached is a true copy as it was printed in the regular and entire issue of the Tri-City Herald and not in a supplement thereof, ran 2 time(s) commencing on 03/19/2017, and ending on 03/26/2017, and that said newspaper was regularly distributed to its subscribers during all of this period.

Monica Allred
(Signature of Legals Clerk)

SUBSCRIBED AND SWORN BEFORE ME
THIS 27th DAY OF March, 2017

LouAnn Hug
Notary Public in and for the State of Washington residing in Benton County

COMMISSION EXPIRES: 3/1/2019

Appendix A: Plan Overview

Open House Public Comments

Comments Received at the Two Open House Events

Comment	BFCG Action
We need to find a way to link up downtown Pasco and Kennewick with a short range transportation system.	Forwarded to BFT.
Please distribute copies of the plan for Metropolitan/ Regional transportation to local public libraries.	BFCG will look into this.
More Signage along bike paths showing where you are and which way to the nearest city or the continuation of the path.	Forwarded to Jurisdictions, and will keep for next bike plan.
George Washington / 240 / 182 congestion.	Forwarded to City of Richland.
Eastbound Court St turning to Northbound HWY 395. Turn lane is too short. Traffic blocks the left lane.	Forwarded to City of Pasco.
Great open house!	Thank you.

Appendix A: Plan Overview

Federal Agency Consultation

In August, the Transportation Programs Manager, Tanna Dole from the Benton-Franklin Council of Governments (BFCG) spoke with Roxanne Bash from the Western Federal Land Highway Division regarding the Northwest Collaborative Long Range Transportation Plan (NW CLRTP).

The follow up email was dated 8/29/2016 and you were also included on the cc. In the email, Roxanne mentioned that you may be able to identify the appropriate contacts from FLMAs that would review/comment the update of our long range metropolitan/regional transportation plan. In the past, we have sent our plans for review to local contacts and have had little feedback.

Federal agencies sent draft chapters for review:

- Federal Highway Administration Western Lands Division
- US Fish and Wildlife Service
- Army Corps of Engineers
- Bureau of Land Management
- National Park Service
- Confederated Tribes of the Umatilla Indian Reservation

The following is an email sent to federal agencies:

My Name is Geoff Wagner, I'm a Transportation Planner for the Benton-Franklin Council of Governments (BFCG).

Our office serves as the federally designated Metropolitan Planning Organization (MPO) for the Tri-Cities area in southeastern Washington State. We also serve as the Regional Transportation Planning Organization (RTPO) for jurisdictions within Benton & Franklin counties for the state of Washington (for more information of the various activities of our office please visit our website).

As you may know during the process of updating long range transportation plans, we must "consult with applicable Federal, State, and Tribal land management, wildlife, and regulatory agencies" as per US Code.

We are asking for review/comment on the update of our long range metropolitan/regional transportation plan Transition2040 specifically Chapter 2 Environment & Natural Resources (attached file) by Wednesday December 28th.

Thank You!
Geoff

The following page contains two responses to the email.

Appendix A: Plan Overview

Federal Agency Consultation, Responses to BFCG Requests

Date	Name	Organization	Form	Comment
12/13/2016	Timothy Nitz	Whitman Mission National Historic Site (National Park Service)	Email (Response to comment request)	I am Superintendent of Whitman Mission National Historic Site, a unit of the National Park Service, located approximately 7 miles west of Walla Walla, Washington. I have reviewed the attached Chapter 2 of the Transportation2040 Transportation Plan. On page 40 are two references to the Confederated Tribes of the Umatilla Indian Reservation. Both appear differently that each other and differently than the official name used by the tribe. I would recommend contact with the CTUIR to ensure you are using their correct name. Secondly, while I understand your meaning, I do not use "ceded lands" and "treaty boundary" interchangeably. The lands within the treaty boundary include lands I don't typically refer to as "ceded." And in most cases I can think of, treaty boundaries actually exclude "ceded" lands. I suggest that consultation with the tribes can resolve this language issue. I have forwarded the document on to my peers, Superintendent Kris Kirby of the Manhatten Project, and Superintendent Dan Foster of Ice Age Floods, who may have additional comments on behalf of the National Park Service.
12/22/2016	Dan Foster	Lake Roosevelt National Recreation Area	Email (Response to comment request)	"After having read the material and evaluated it with Ice Age Floods National Geologic Trail, I agree with the comments that Superintendent Nitz provided and thank him for his insights. Please keep in touch with me with regards to any issues with Ice Age Floods National Geologic Trail."

Tri-City Herald
tricityherald.com
VOICE OF THE MID-COLUMBIA

LEGAL PROOF OF PUBLICATION

Account #	Ad Number	Identification	PO	Amount	Cols	Lines
447522	0003415867	Benton-Franklin Council of Governments Notice o		$94.20	1	20

Attention: Julia Cassidy

BENTON FRANKLIN COUNCIL OF GOVERNMENTS
PO BOX 217
RICHLAND, WA 99352

Public Notice
Benton-Franklin Council of Governments Notice of Plan Amendment
The Benton-Franklin Council of Governments is holding a comment period for an Amendment to the Metropolitan/Regional Long-Range Transportation Plan, Transition2040 (Adopted May 2017). Transition2040 is a federally mandated, multi-modal planning document that identifies the mobility needs of the Tri-Cities Urban Area and Benton-Franklin region through the year 2040. The Draft Amendment will be placed on the BFCG Website, www.bfcog.us/Transition2040. Comments on the draft amendment can be submitted by email to transportation@bfc, 0845, or by phone at (509)943-9185, by December 29th.
#3415867 12/10 & 12/17/2017

RECEIVED
JAN 05 2018
BFCG

AFFIDAVIT OF PUBLICATION

COUNTY OF BENTON)
.SS
STATE OF WASHINGTON)

Chera Cortez, being duly sworn, deposes and says, I am the Legals Clerk of The Tri-City Herald, a daily newspaper. That said newspaper is a local newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publications hereinafter referred to, published continually as a daily newspaper in Benton County, Washington. That the attached is a true copy as it was printed in the regular and entire issue of the Tri-City Herald and not in a supplement thereof, ran 2 time(s) commencing on 12/10/2017, and ending on 12/17/2017, and that said newspaper was regularly distributed to its subscribers during all of this period.

(Signature of Legals Clerk)

SUBSCRIBED AND SWORN BEFORE ME
THIS 18th DAY OF December, 2017

Notary Public in and for the State of Washington residing in Benton County

COMMISSION EXPIRES: 3/1/2019

MARCI T WEBB
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
03-01-2019

Appendix A: Plan Overview

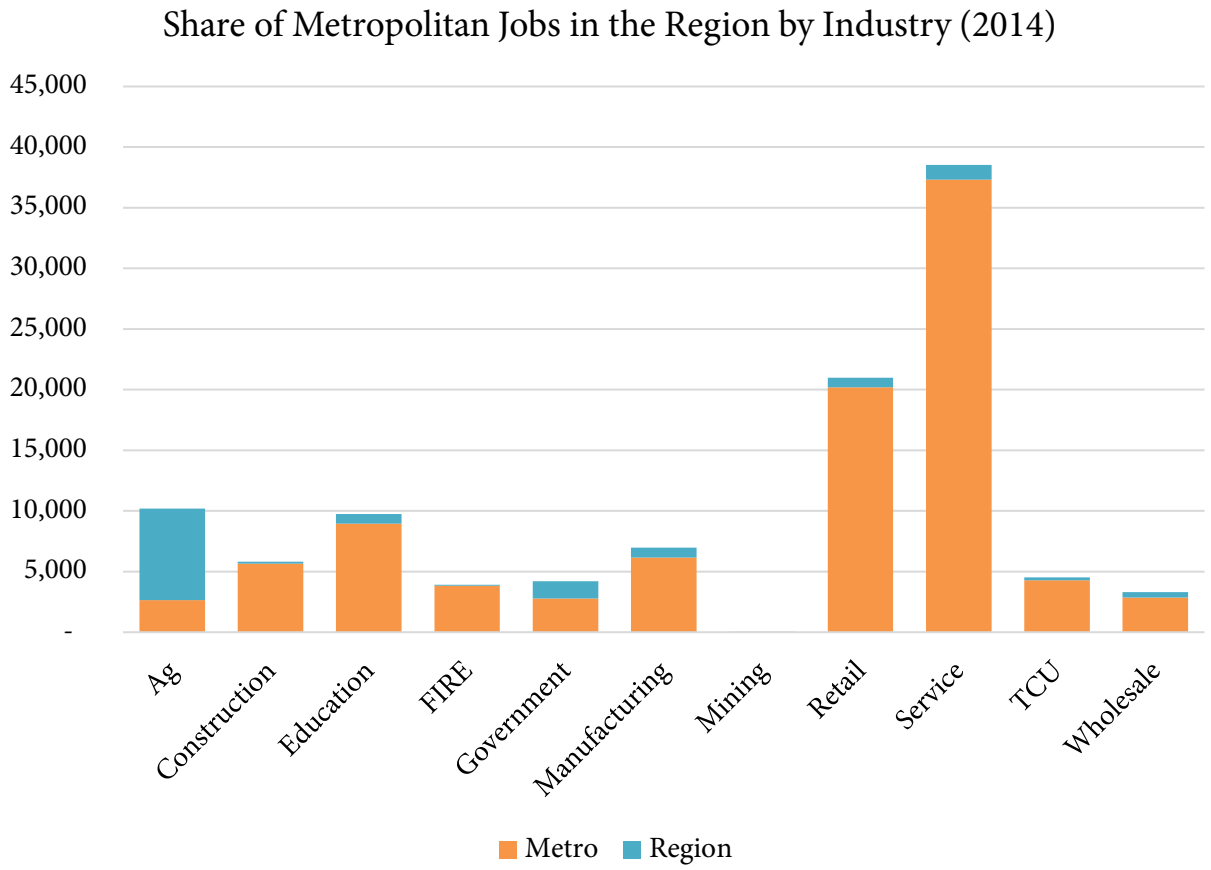
Appendix

B

Regional Profile

Appendix B: Regional Profile

Employment Breakdown by Industry



Appendix B: Regional Profile

Endangered and Threatened Animals and Plants of Benton and Franklin Counties: Mammals

Columbia Basin Pygmy Rabbit
Status: Endangered

Washington Ground Squirrel
Status: Candidate

Gray Wolf
Status: Endangered/ Recovery

Source: US Fish and Wildlife Service

Appendix B: Regional Profile

Endangered and Threatened Animals and Plants of Benton and Franklin Counties: Birds

Yellow-Bellied Cuckoo
Status: Threatened

Marbled Murrelet
Status: Threatened

Source: US Fish and Wildlife Service

Appendix B: Regional Profile

Endangered and Threatened Animals and Plants of Benton and Franklin Counties: Fish and Amphibians

Bull Trout
Status: Threatened

Oregon Spotted Frog
Status: Threatened

Source: US Fish and Wildlife Service

Appendix B: Regional Profile

Endangered and Threatened Animals and Plants of Benton and Franklin Counties: Flowering Plants

White Bluffs Bladderpod
Status: Threatened

Umtanum Desert Buckwheat
Status: Threatened

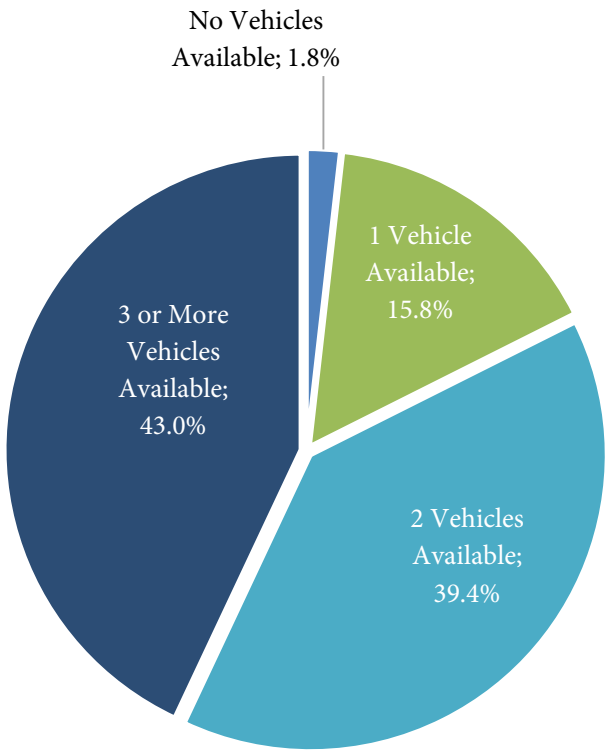
Source: US Fish and Wildlife Service

Appendix C

Transportation Choices

Appendix C: Transportation Choices

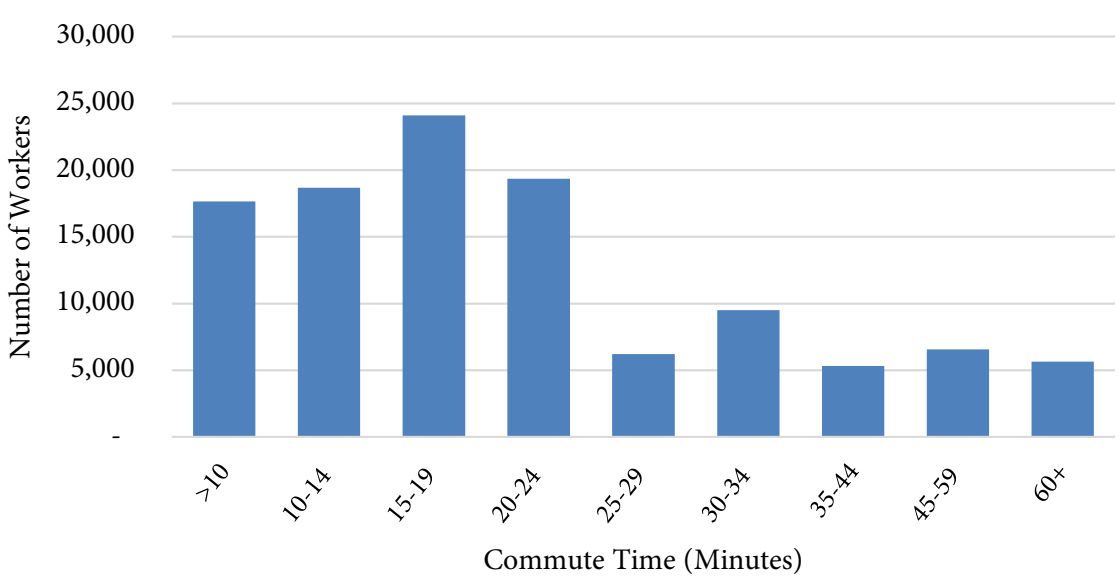
Vehicles Available for Workers 16 and Above in the Metropolitan Statistical Area (MSA)

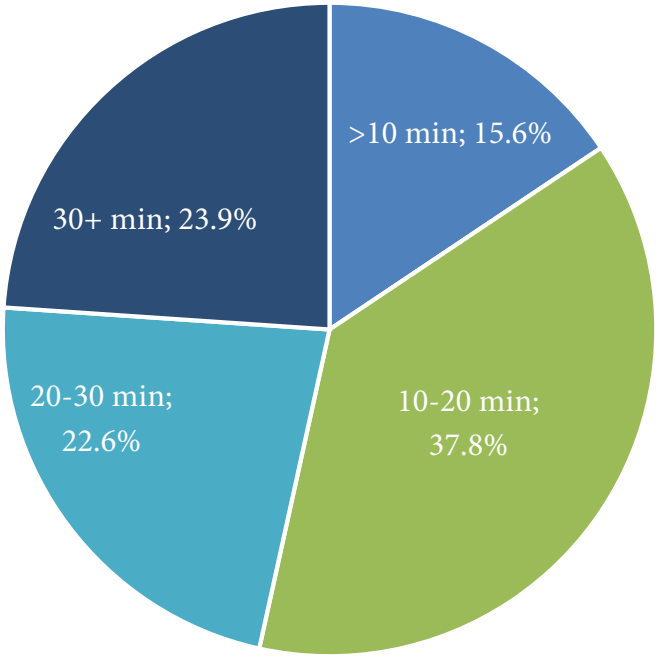


Source: US Census Bureau, 2014 ACS 5-year estimates. Table S0802- Means of Transportation to Work by Selected Characteristics.

Appendix C: Transportation Choices

Commute Time for Workers 16 and Above in the MSA

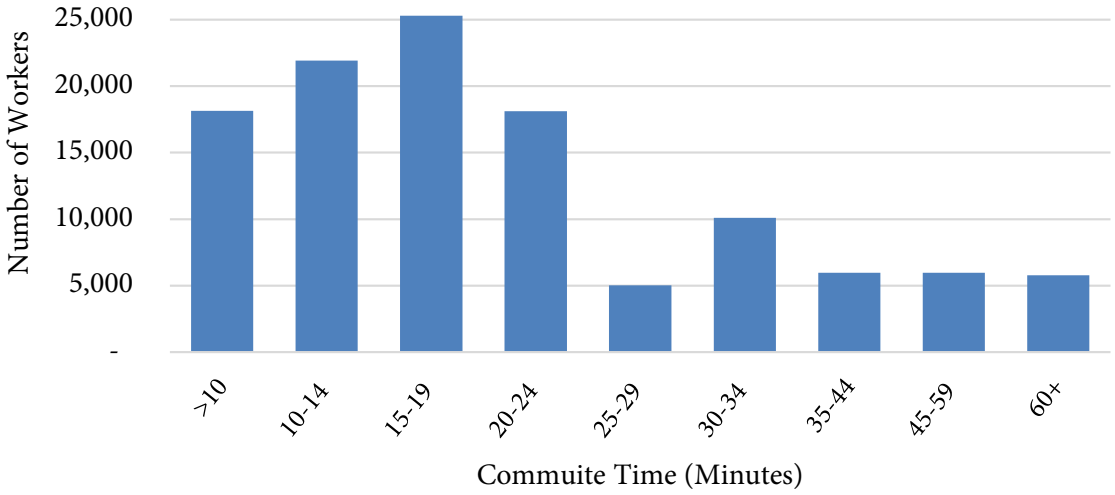


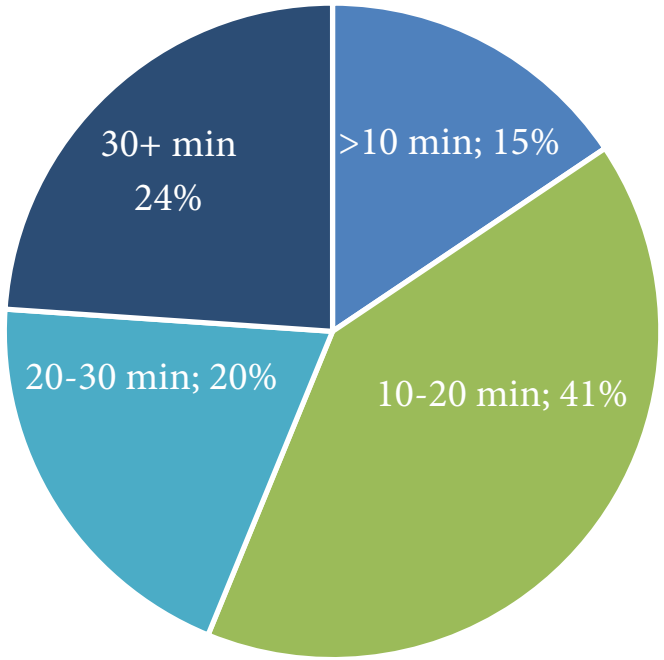


Source: US Census Bureau, 2014 ACS 5-year estimates. Table S0802- Means of Transportation to Work by Selected Characteristics.

Appendix C: Transportation Choices

Commute Time for Workers 16 and Above in the RTPO

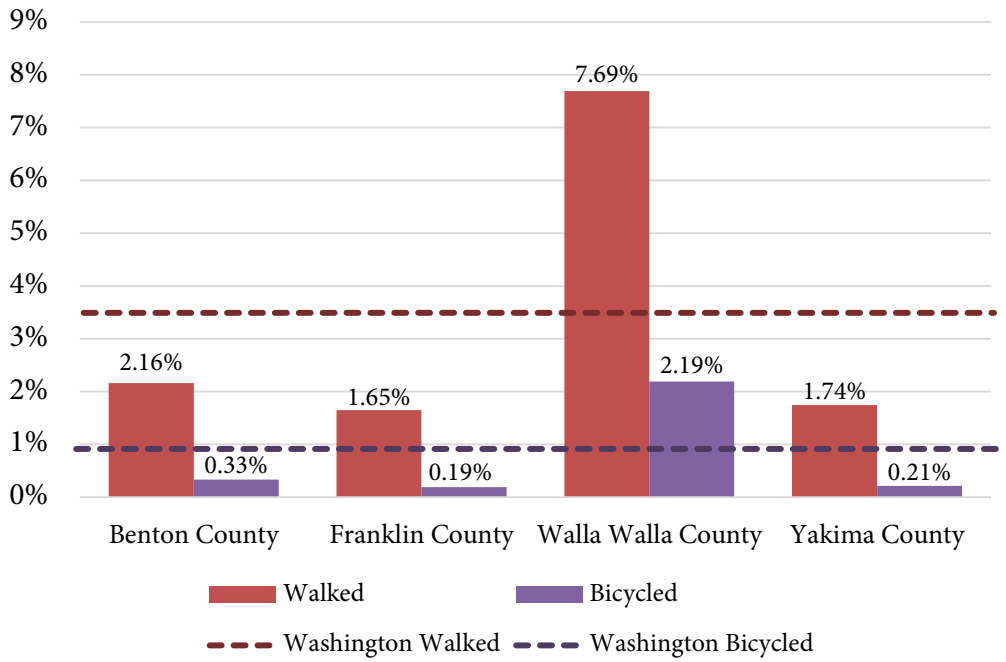




US Census Bureau, 2015 ACS 1-year estimates. Table S0802- Means of Transportation to Work by Selected Characteristics.

Appendix C: Transportation Choices

Journey to Work, Percent of Non-Motorized Trips 2014



Source: U.S. Census Bureau, 2010-2014 American Community Survey Five-Year Estimates

Appendix C: Transportation Choices

Bike Workshop: Identification of Issues Table 1

		SAFETY		CONNECTIVITY		MAINTENANCE		OTHER
Citizen Concern	Votes	Signing	Bike Lane Width	Spot Barrier	Missing Connection	Resurface /Repair	Clean / Weeds	
Bike lane on Van Giesen Street (SR 224) to I-82/SR 224 Interchange (Benton City) with Share the Road signs	23	X	X		X			
Badger Road bike lane and signage	15	X	X					
Railroad crossing on Weidle Road/Snyder Street from Robertson Drive to Stevens Drive	15			X				
Whole area at the west end of Columbia Park Trail and junction with Queensgate Drive needs better access; Complete the missing link	13				X			
Dallas Road - 5 foot bike lane and share the road signs; Repair the shoulder as a quick fix	12	X	X			X		
SR 240 Bypass/Stevens Drive intersection; Access from Richland across SR 240 Bypass towards Hanford, Horn Rapids, Lamb Weston, BMX Park, Business Park is not safe	12			X				
Sacagawea Heritage Trail southbound extended toward Two Rivers Park	10				X			
Improve bike-ped access and travel on the Columbia Center Boulevard overpass over SR 240 to the river	9				X			
Widen shoulders on Clodfelter Road, add 'Share the Road' signs	8	X	X					
Improve bike access and travel on the Edison Street overpass over SR 240 to the river	7			X				
Keene Road pathway extended to Columbia Center Mall	7				X			
Bike from CBC to Sacagawea trail (no connections to river)	6				X			
Riverfront Trail from Amon Park to WSU in need of maintenance; Path needs separation between bikes and pedestrians	5					X		X
Sandifur Pkway - No Bike Lanes! (recently repaved)	5				X			
Bike lanes on Edison Street and Canal Drive in both directions	4				X			
U.S. 395 & Ridgeline crossing access	4			X				

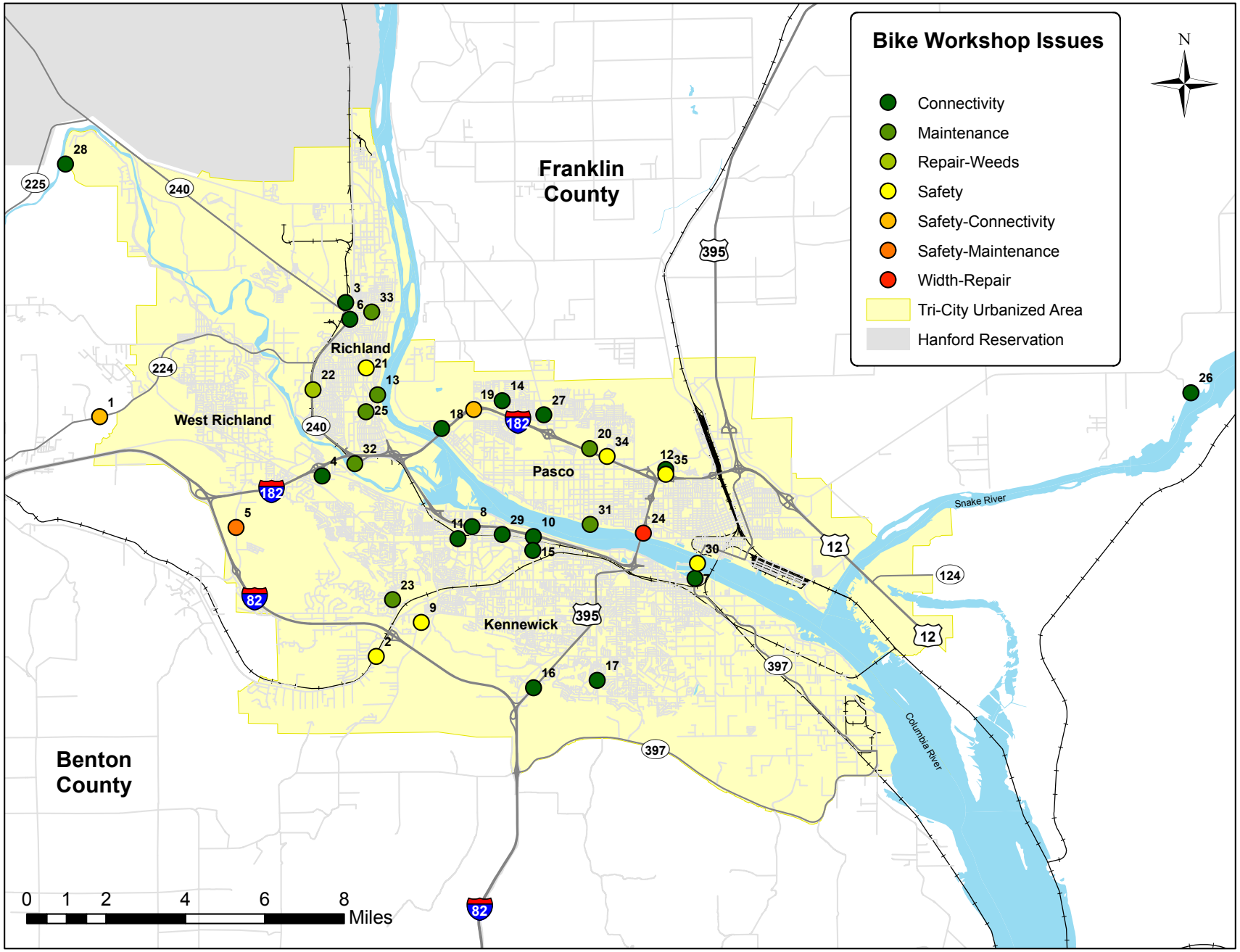
Appendix C: Transportation Choices

Bike Workshop: Identification of Issues Table 2

			SAFETY		CONNECTIVITY		MAINTENANCE		OTHER
	Citizen Concern	Votes	Signing	Bike Lane Width	Spot Barrier	Missing Connection	Resurface /Repair	Clean / Weeds	
17	Missing link between 45th Avenue & 27th Avenue at Ely Street	4				X			
18	Bike path extension between I-82 and Harris Road to Court Street	3				X			
19	Dangerous to cross over I-82 on Road 100 - this is a major bike route	3							
20	Improved and consistent maintenance on I-182 bike path from Argent to Road 68; path is in horrible shape/tackweeds!	3						x	
21	Jadwin between Van Giesen and Williams is too narrow to accommodate bikes	3		X					
22	Maintenance issues for Bypass Bike Trail (bumps, debris)	3					X	X	
23	Do not repeat failure of Rachel Road extension	2					X		
24	Bike path from dike to Court Street needs widening and resurfacing	2		X			X		
25	Eliminate shared parking spaces and bike lanes on Lee Boulevard and Swift Boulevard	2		X					
26	Pave the first 15 miles of the Columbia Plateau Trail	2					X		
27	Road 68 - No access to stores (too dangerous)	2			X				
28	Extend paved trail from Harrington Road to Ruppert Road	1				x	X		
29	Improve access at the railroad crossing in the vicinity of Kellogg Street and Yellowstone Avenue	1			X				
30	Shoulders on U.S. 397 to Cable Bridge in Kennewick	1		X					
31	Improved/consistent maintenance of Sacagawea Heritage Trail	1					X	X	
32	Lots of blowing sand on bike path near Chamna Natural Preserve	1						X	
33	Saint Street from Stevens Drive to the Columbia River needs resurfacing	1					X		
34	West Argent Road needs wider shoulders	1		X					
35	Wider shoulders needed near CBC	1		X					

Appendix C: Transportation Choices

Bike Workshop: Identification of Issues Visualized



Appendix C: Transportation Choices

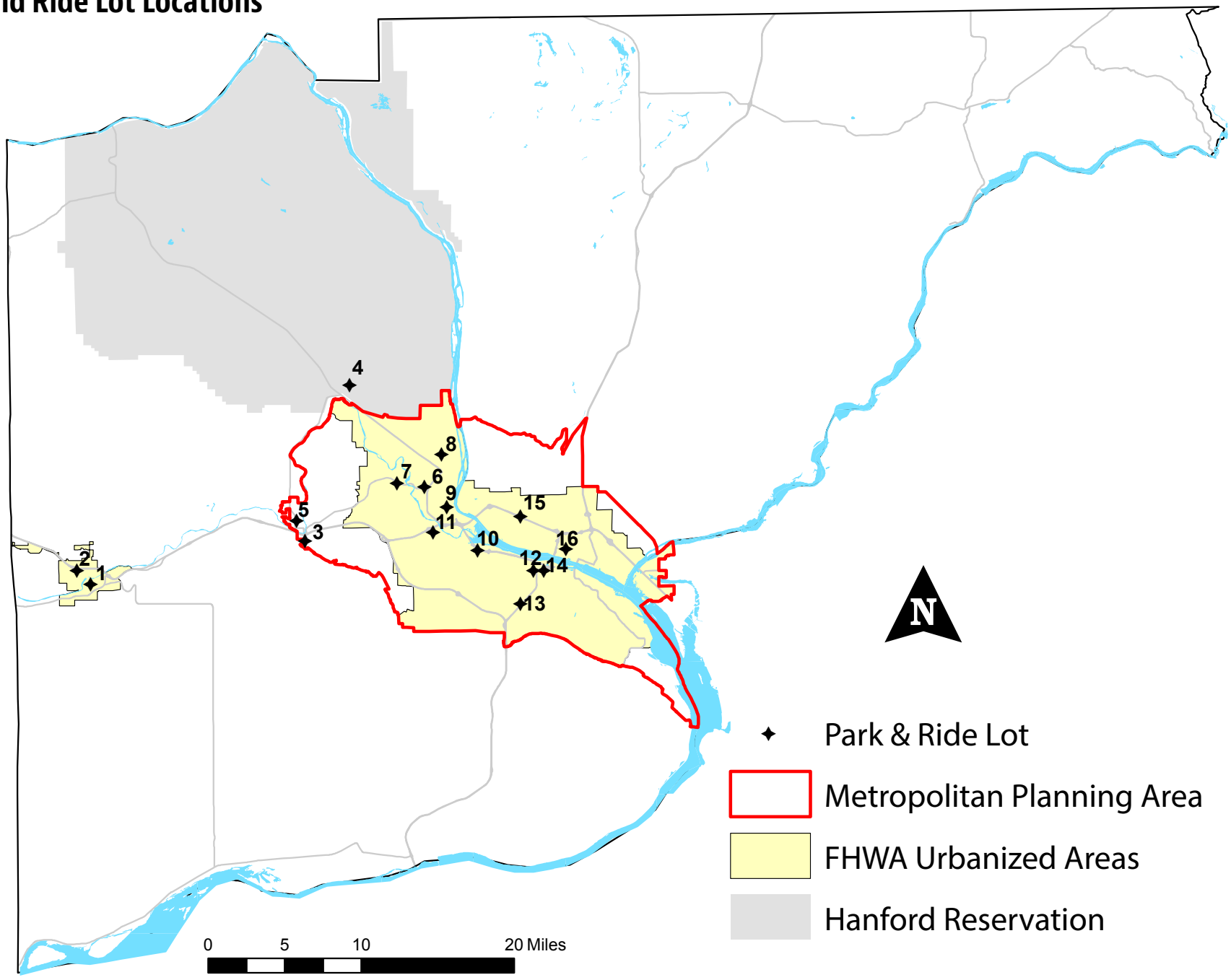
Shared Use Pathway Facilities in Benton and Franklin Counties

Shared Use Pathway Facilities in Benton and Franklin Counties

Trails by Jurisdiction	Length (miles)
Kennewick	
Sacagawea Heritage Trail: A 12-foot wide asphalt bike/walk pathway along the Columbia River	6.20
Steptoe Street Phase 1: A 12-foot wide asphalt bike/walk pathway	1.10
Spirit of America Trail: A 10-foot wide gravel bike/walk pathway	1.40
Pasco	
I-182 Trail: Road 100 to Argent Road - A 12-foot wide asphalt bike/walk pathway	3.51
Sacagawea Heritage Trail - A 12-foot wide asphalt bike/walk pathway along the Columbia River	9.75
Richland	
Richland Riverfront Trail (Horn Rapids Road to I-182 Bridge)	7.22
Leslie Groves Bike Trail	1.60
Bypass Shelterbelt (Wellsian Way to Jadwin Ave)	4.36
Sacagawea Heritage Trail	3.67
Chamna/Coulee Street Trail	0.96
Keene Road/ Gage Boulevard Trail	4.50
Stevens Drive Trail	0.82
West Richland	
Keene Road: Kennedy Road to Bombing Range Road - A 12-foot wide asphalt bike/walk pathway	1.20
Bombing Range Road: Keene Road to Mt. Adams View Drive - A 12-foot wide asphalt bike pathway	1.20
Keene Road: Bombing Range Road to South Highlands Boulevard - A 12-foot wide asphalt bike/walk pathway	1.00
Belmont Boulevard: Kilawea Drive to Keene Road - A 12-foot wide asphalt bike pathway	1.00
Park at the Lakes Community Park: An 8-foot wide asphalt bike/walk pathway	1.00
Belmont Boulevard: Keene Road South to end of new street - A 12-foot wide asphalt bike/walk pathway	0.60
Keene Road: South Highlands Boulevard to Belmont Boulevard - A 12-foot wide asphalt bike/walk pathway	0.30
Benton City	
Benton City Bike/Walking Path	2.00
Prosser	
Prosser Centennial Pathway	0.70

Appendix C: Transportation Choices

Park and Ride Lot Locations



Appendix C: Transportation Choices

State Routes Description

SR (State Route) 14 is an east-west route along the Columbia River from Vancouver to Plymouth in Benton County south of the Tri-Cities. This route provides a two-lane alternative to I-84 on the Oregon side of the river. A notable volume of truck traffic uses this route.

SR 17 extends north from U.S. 395 at Mesa to I-90 at Moses Lake and beyond. This route serves through traffic as well as farm-to-market. Trucks constitute 30-35 percent of the daily volumes.

SR 22 from Toppenish (SR 97) to Prosser (I-82) primarily serves local needs. Less than seven miles are in Benton County. Some truck traffic utilizes this route in lieu of I-82.

SR 24 extends from Yakima to SR 26 at Othello. A primary function of this route is access to the west gate of the Hanford site at the SR 24/ SR 240 Junction.

SR 221 is a 26-mile local farm route from SR 22 at Prosser to SR 14 at Paterson, but attracts through traffic as well.

SR 240 extends from SR 24 at the Hanford west gate to Richland and Kennewick (to a junction with US 395), a distance of 40 miles. In conjunction with SR 24 to Yakima and SR 243 north to SR 90 at Vantage, SR 240 carries regional traffic, including freight movements. It also serves as the primary route of the daily Hanford work-commute.

SR 397 extends from I-82 at the Locust Grove interchange (exit 114) to the Finley area, then to Kennewick, across the Columbia River, and through East Pasco to the I-182/US 395 interchange. This route serves as freight access to the Port of Pasco, the Port of Kennewick and other industrial sites along the river.

Appendix C: Transportation Choices

State Routes, Interstates, and US Routes Mileage

State Route Mileage in Benton County			
Route	*Beginning*	*Ending*	*Route Miles*
I-82	Yakima Co. Line West of Prosser	Oregon State Line at Umatilla	57.23
I-182	Jct. I-82 West of the Tri-Cities	Franklin Co. Line at Columbia Point	6.04
US 395	Jct. I-82 South of Kennewick	Franklin Co. Line at the Blue Bridge	5.88
SR 14	Klickitat Co. Line	Jct. I-82 at Plymouth	28.53
SR 22	Yakima Co. Line West of Prosser	Jct. I-82 at East Prosser	6.76
SR 24	Yakima Co. Line West of Hanford West Gate	Grant Co. Line at Vernita Bridge	12.80
SR 221	Jct. SR 14 at Paterson	Jct. SR 22 at Prosser	25.95
SR 224	Jct. I-82 at Kiona	Jct. SR 240 at Richland	10.18
SR 225	Jct. SR 224 at Kiona	Jct. SR 240 at Horn Rapids	11.32
SR 240	Jct. SR 24 at Hanford W. Gate	Jct. US 395 at Kennewick	40.22
SR 397	I-82/Locust Road Interchange	I-182/US 395 Interchange	22.31
State Route Mileage in Franklin County			
Route	*Beginning*	*Ending*	*Route Miles*
I-182	Benton Co. Line at Columbia Point	East of Jct. US 395/SR 397 at Pasco	9.15
US 395	Benton Co. Line at the Blue Bridge	Adams Co. Line North of Connell	39.98
US 12	End. I-182 at Pasco	Walla Walla Co. Line at Snake River Bridge	3.07
SR 17	Jct. US 395 at Mesa	Adams Co. Line South of Othello	14.31
SR 21	Jct. SR 260 at Kahlotus	Adams Co. Line	7.62
SR 260	Jct. SR 17 N. of Mesa	Adams Co. Line South of Washtucna	35.68
SR 261	Columbia Co. Line at Lyons Ferry	Jct. SR 260 NE of Kahlotus	14.33
SR 263	Port of Windust	Jct. SR 260 at Kahlotus	9.24
SR 397	Benton Co. Line at the Blue Bridge	Jct. I-182/US 395 at Pasco	3.99

Source: WSDOT State Log Report

Appendix C: Transportation Choices

National Highway System 2015 Local Routes - Benton County

COUNTY	City	NHS Route Description	From	To
Benton	Kennewick	N Steptoe ST	Richland North C/L	Richland South C/L
Benton	Kennewick	W Columbia Dr	N Kent Pl	N Beech St
Benton	Kennewick	S Carmichael Dr	W Vineyard DR	W Kennewick Ave
Benton	Kennewick	E & W 1st AVE	S Garfield St	SR 397
Benton	Kennewick	W Kennewick Ave	US 395	S Yelm St
Benton	Kennewick	W Kennewick Ave	S Yelm St	S Rainier St
Benton	Kennewick	W Kennewick Ave	S Rainier St	S Olympia St
Benton	Kennewick	Hildebrand Rd	US 395	Southridge Blvd
Benton	Kennewick	Steptoe St	Clearwater Ave	10th Ave
Benton	Kennewick	W Columbia Dr	US 395 / SR 240	N Kent Pl
Benton	Kennewick	W Gage Blvd	Bellerive Dr	N Center Parkway
Benton	Kennewick	N Center Parkway	W Gage Blvd	W Quinault Ave
Benton	Kennewick	W Quinault Ave	N Center Parkway	N Columbia Center Blvd
Benton	Kennewick	W Kennewick Ave	S Olympia St	W Carmichael Dr
Benton	Kennewick	N Columbia Center Blvd	W Canal Dr	City Limits (Rr-Uxing)
Benton	Kennewick	Steptoe St	W Clearwater Ave	Center Pkwy
Benton	Kennewick	N Columbia Center Blvd	W Quinault Ave	W Canal Dr
Benton	Kennewick	N Columbia Center Blvd	W Clearwater Ave	W Quinault Ave
Benton	Kennewick	Vista Way	US 395	W Kennewick Ave
Benton	Kennewick	W Clearwater Ave	N Edison St	US 395
Benton	Kennewick	W Clearwater Ave	N Irving Pl	N Edison St
Benton	Kennewick	W Clearwater Ave	N Quay St	N Irving Pl
Benton	Kennewick	Hildebrand Blvd	Southridge Blvd	S Sherman St
Benton	Kennewick	E Columbia Dr	N Beech St	SR 397 / N Gum St
Benton	Kennewick	W Clearwater Ave	N Columbia Center Blvd	N Quay St
Benton	Richland	George Washington Way	Williams Blvd	Mcmurray ST
Benton	Richland	George Washington Way	University Dr	Horn Rapids Rd
Benton	Richland	Stevens Dr	Spengler Rd	Horn Rapids Rd
Benton	Richland	George Washington Way	SR-240 / I-182 (Bridge Seat)	Adams St / Columbia Point Dr
Benton	Richland	George Washington Way	Spengler St	University Dr
Benton	Richland	George Washington Way	Adams St / Columbia Point Dr	Comstock St
Benton	Richland	George Washington Way	Bradley Blvd	Williams Blvd
Benton	Richland	George Washington Way	Mcmurray ST	Spengler St
Benton	Richland	Stevens Dr	Saint St	Spengler St
Benton	Richland	George Washington Way	Comstock St	Bradley Blvd
Benton	Richland	Gage Blvd	Keene Rd	Bellerive Dr
Benton	Richland	Steptoe St	Richland C/L	Columbia Park Trl
Benton	Richland	Keene Rd	I-182 Overpass	Shockley Rd
Benton	Richland	Keene Rd	Kennedy Rd	I-182 Overpass
Benton	Richland	Columbia Center Blvd	City Limits (R/R Xing)	SR-240
Benton	Richland	Bypass Highway / Stevens Dr	SR-240	Saint St

Appendix C: Transportation Choices

National Highway System 2015 Local Routes - Franklin County

COUNTY	City	NHS Route Description	From	To
Franklin		Road 68	Court Street	W Argent St
Franklin	Pasco	N 4th Ave	W Clark St	W Sylvester St
Franklin	Pasco	E Lewis St	N 1st Ave	N Wehe
Franklin	Pasco	E Lewis St	N Wehe Ave	N Cedar Ave
Franklin	Pasco	E Lewis St	N Cedar Ave	E Lewis Pl
Franklin	Pasco	E Lewis St	E Lewis Pl	Pasco Kahlotus Rd (at US 12 WB Ramps)
Franklin	Pasco	W Clark St	N 10th Ave	N 1st Ave
Franklin	Pasco	N 20th Ave	W Lewis St	W Sylvester
Franklin	Pasco	N 20th Ave	W Sylvester	I-182
Franklin	Pasco	N 4th Ave	W Lewis St	W Clark St
Franklin	Pasco	W Lewis St	N 4th Ave	N 1st Ave
Franklin	Pasco	N 4th Ave	W Sylvester St	W Marie St
Franklin	Pasco	N 4th Ave	W Marie St	W Court St
Franklin	Pasco	N 4th Ave	W Court St	I-182
Franklin	Pasco	W Lewis St	N 20th Ave	N 14th Ave
Franklin	Pasco	N 20th Ave	I-182	W Argent Road
Franklin	Pasco	W Court St	N Road 36	N Road 44
Franklin	Pasco	N Road 68	W Argent St	I-182 Intercha
Franklin	Pasco	S 10th Ave	SR 397	W A St
Franklin	Pasco	W Court St	US 395	N Road 36
Franklin	Pasco	W Court St	N Road 44	.03 Mi W of N Road 44
Franklin	Pasco	W Court St	N Road48	N Road 64
Franklin	Pasco	W Court St	N Road 64	N Road 68
Franklin	Pasco	W Lewis St	US 395	N 24th Ave
Franklin	Pasco	W Lewis St	N 26th Ave	N 20th Ave
Franklin	Pasco	W Lewis St	N 10th Ave	N 5th Ave
Franklin	Pasco	W Lewis St	N 14th Ave	N 10th Ave
Franklin	Pasco	S 10th Ave	W A St	W Clark St

Appendix C: Transportation Choices

Freight and Goods Transportation System (FGTS) T-1 and T-2

2015 Benton-Franklin RTPO Rural FGTS T-1 and T-2 State Routes									
County	Route	Description	Begin SR Milepost	End SR Milepost	Length (Mi.)	2015 FGTS Class	Annual Tonnage	Average Annual Daily Truck Volume	Truck Percentage
Benton	14	Klickitat/Benton Co. line to SR 221	152.24	167.25	15.01	T-2	3,830,000	590	42.1%
Benton	14	SR 221 to I-82 Plymouth	167.25	180.77	13.52	T-2	7,840,000	1,200	41.1%
Benton	22	SR 221 to 1-82	35.74	36.52	0.78	T-2	7,090,000	1,100	23.9%
Benton	24	Yakima/Benton Co. line to SR 240	30.76	38.71	7.72	T-2	4,510,000	680	23.4%
Benton	24	SR 240 to Benton/Grant Co. line	38.71	43.79	5.08	T-2	6,490,000	980	22.8%
Benton	I-82	Yakima/Benton Co. line to I-82	75.37	102.87	27.5	T-1	17,190,000	2,700	14.2%
Benton	I-82	I-82 to US 395	102.87	113.71	10.84	T-1	13,360,000	2,200	20.0%
Benton	I-82	Us 395 to Oregon State Line	113.71	132.6	18.89	T-1	21,870,000	3,500	19.4%
Benton	I-182	I-82 to SR 240/Thayer Dr	0	3.83	3.83	T-1	12,810,000	2,400	12.0%
Benton	I-182	SR 240 /Thayer Dr to Benton/Franklin Co. line	3.83	6.04	2.21	T-1	12,700,000	2,800	6.1%
Benton	221	SR 14/Patterson to SR 22	0	26.07	25.95	T-2	5,640,000	840	40.0%
Benton	240	Jadwin Ave/Stevens Dr to 1-82/coincident	30.63	34.87	4.24	T-2	7,530,000	1,900	5.8%
Benton	240	I-82 to Columbia Center Bvd.	36.05	38.91	2.83	T-2	3,689,250	1,291	2.6%
Benton	US 395	I-82 to Benton/Franklin Co. line	13.5	18.93	5.88	T-1	16,170,000	3,200	10.7%
Benton	397	Haney Rd to Benton/Franklin Co. line	13.89	18.32	4.43	T-2	5,040,000	1,300	13.0%
Franklin	US 12	I-182 to Franklin/Walla Walla Co. line	291.67	294.7	3.07	T-1	10,190,000	1,900	15.8%
Franklin	17	SR 395 to Franklin/Adams Co. line	7.43	21.8	14.31	T-2	7,570,000	1,200	25.5%
Franklin	I-182	Benton/Franklin Co. line to US 395/SR 397	6.04	14.37	8.33	T-1	12,700,000	2,800	6.1%
Franklin	I-182	US 395/SR 397 to US 12	14.37	15.19	0.82	T-1	8,420,000	1,700	8.9%
Franklin	US 395	Benton/Franklin Co. line to I-182/coincident	18.93	20.59	1.66	T-1	16,170,000	3,200	10.7%
Franklin	US 395	I-182 to SR 17	22.72	45.33	22.61	T-1	22,130,000	3,500	23.3%
Franklin	US 395	SR 17 to Franklin/Adams Co. line	45.33	61.24	15.71	T-1	15,180,000	2,400	30.4%
Franklin	397	Benton/Franklin Co. line to Oregon Ave	18.32	19.87	1.55	T-2	5,040,000	1,300	13.0%
Franklin	397	Oregon Ave to I-182 End Route	19.87	22.31	2.44	T-2	8,170,000	1,700	21.0%

Appendix C: Transportation Choices

State Scenic and Recreational Highway System

Washington State Department of Transportation
Capital Program Development & Management Office

Scenic and Recreational Highways (Per State Law)

City Limits

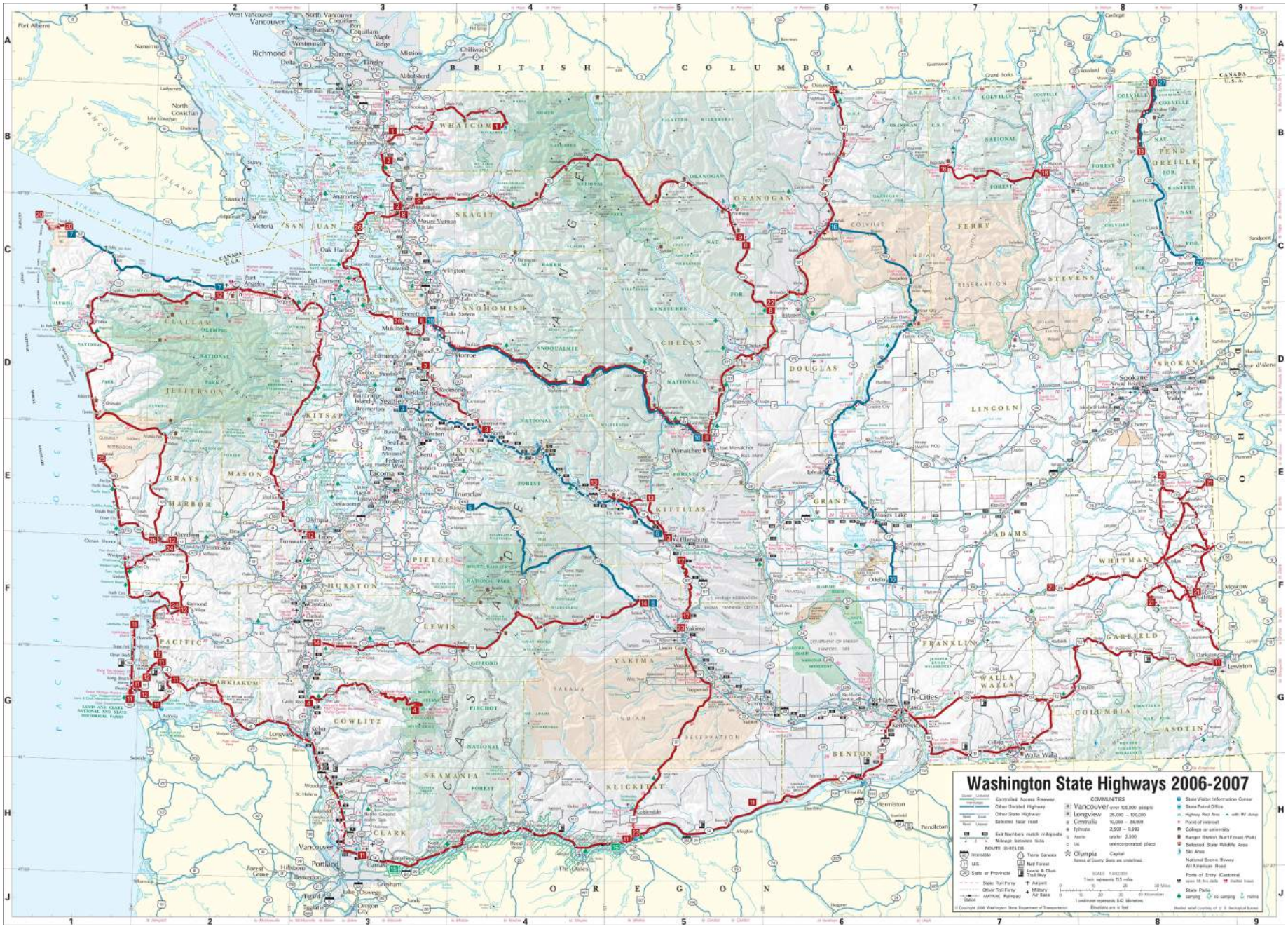
Scenic and Recreational Highways

Source: Revised Code of Washington 47.39 and 47.42

LSH:/ScenicByways/Scenic_and_Recreational_Highways.mxd 12/29/2009

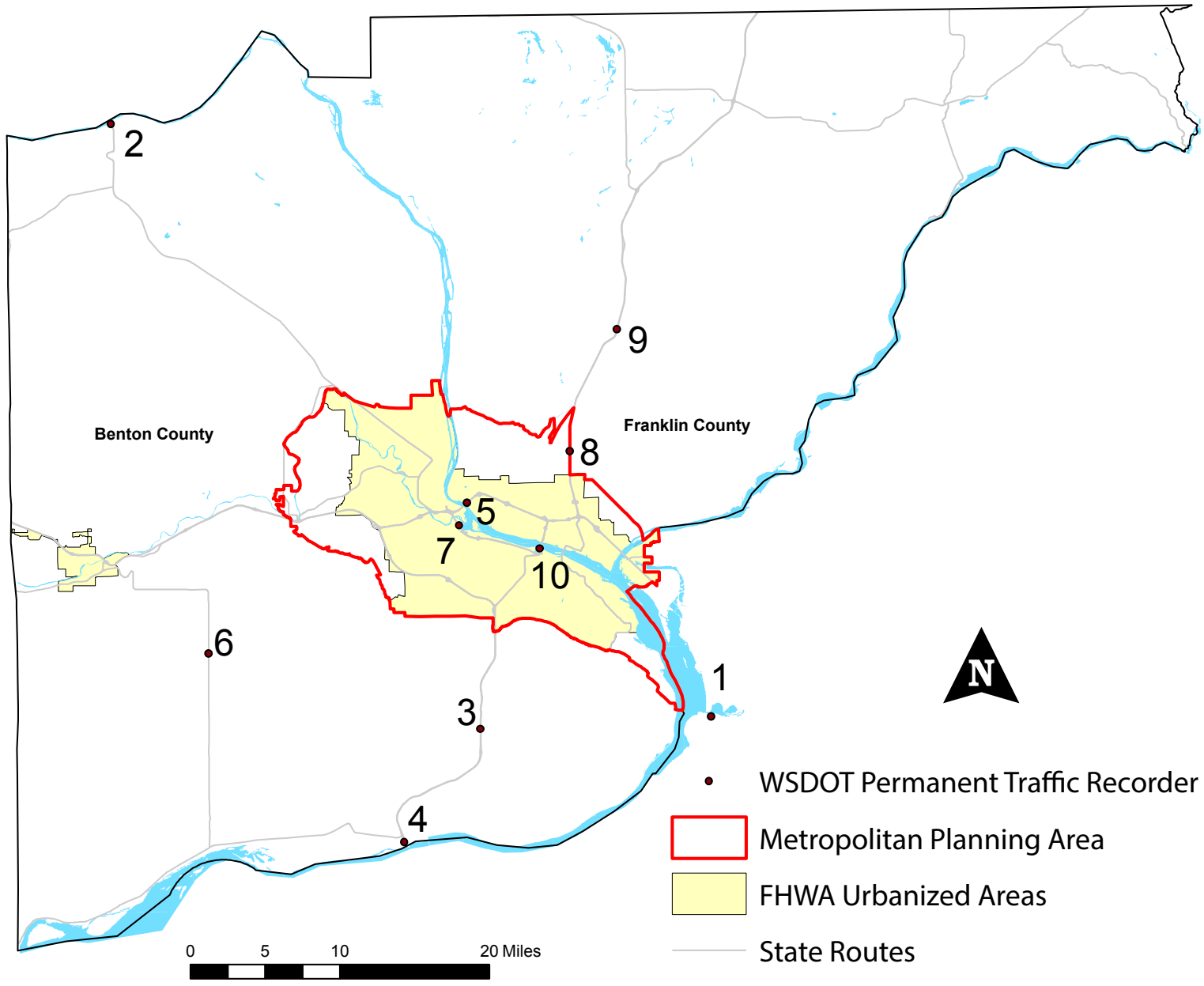
Appendix C: Transportation Choices

State Scenic Byway System



Appendix C: Transportation Choices

WSDOT Permanent Traffic Recorder Sites (See Next Page for Table of Locations)



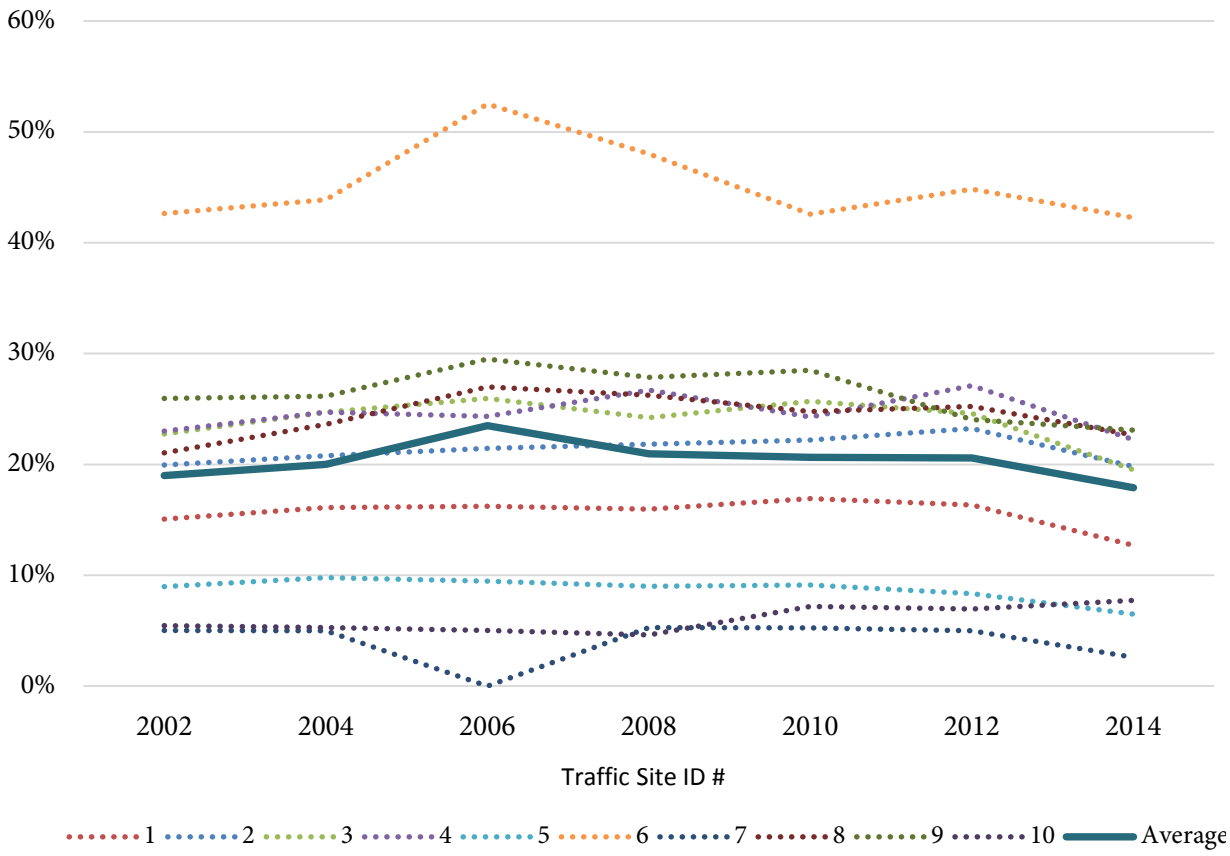
Appendix C: Transportation Choices

RTPO Average Daily Highway Truck Traffic, 2002-2014, at WSDOT Permanent Traffic Recorder Sites

Site ID	Route	Milepost	Location	2002	2004	2006	2008	2010	2012
1	SR 12	307.9	East of SR 730 Spur - Wallula	930	992	1,024	992	1,122	1,081
2	SR 24	43.5	Columbia River Bridge - Vernita	680	735	792	770	858	930
3	SR 82	121.2	West of Coffin Road - Benton County	3,450	3,750	4,000	3,750	4,250	4,123
4	SR 82	132.0	South of SR 14 - Umatilla	3,680	3,840	4,080	4,160	4,320	4,496
5	SR 182	6.34	Columbia River Bridge - Pasco	3,150	4,100	4,230	4,320	5,040	4,669
6	SR 221	13.1	South of Sellards Road - Prosser	738	810	1,056	960	903	946
7	SR 240	37.14	North of Columbia Park Trail - Richland	2,800	2,750	3,540	3,000	3,350	3,406
8	SR 395	27.2	South of Vinyard Drive - Pasco	2,880	3,250	3,640	3,640	3,750	3,826
9	SR 395	36.24	North of Blanton/Eltopia Road	3,000	3,120	3,640	3,640	3,920	3,292
10	SR 395	18.58	Columbia River Bridge - Kennewick	2,966	2,938	2,851	2,540	4,079	4,003
			All	24,274	26,285	28,853	27,772	31,592	30,772

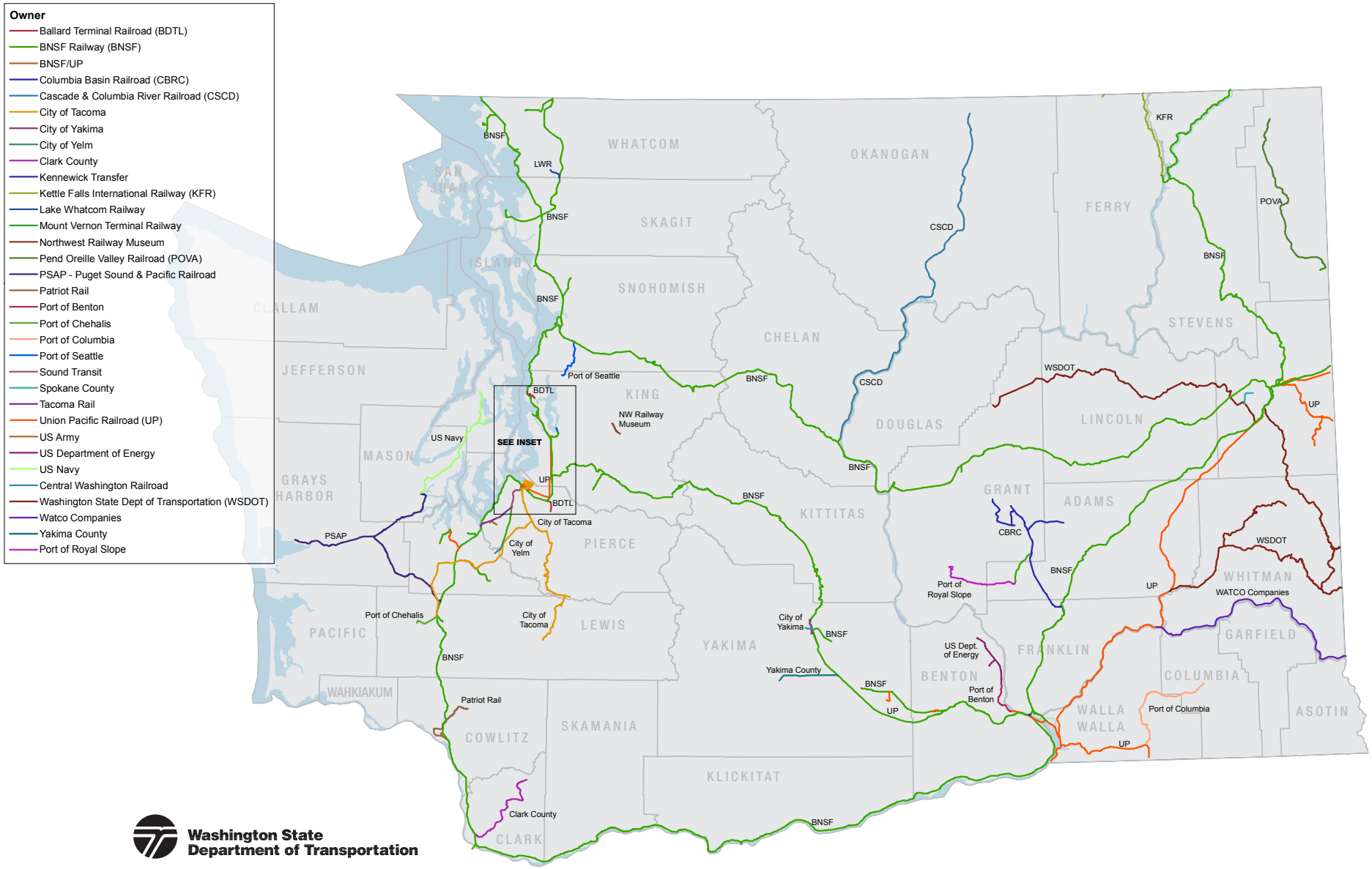
Appendix C: Transportation Choices

Truck Traffic as a Percent of AADT on Select State Routes



Appendix C: Transportation Choices

2015 Washington State Rail System by Owner



Washington State Department of Transportation

Updated in January 2016

16-01-0057

Appendix C: Transportation Choices

Washington State Economic Rail Corridors

Source: WSDOT Freight Systems Division – 2012 Freight Rail Data.

Appendix C: Transportation Choices

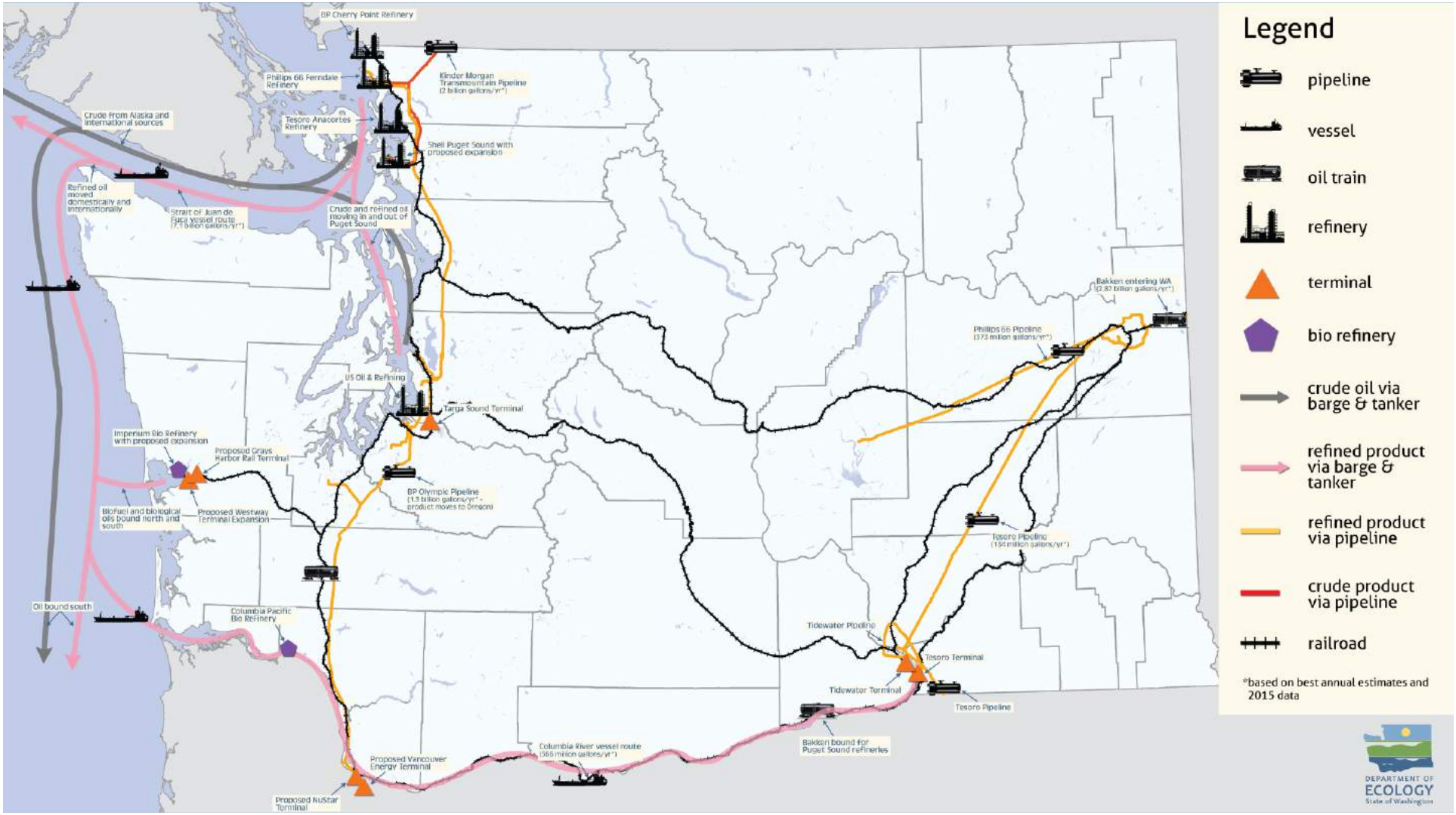
Washington State Economic Waterway Corridors

Source: US Army Corps of Engineers, Navigation Data Center – 2011 Waterway Commodity Data.

Washington State Department of Transportation

Appendix C: Transportation Choices

Oil Movement In and Out of Washington



Appendix

Transportation System Management and Operations

Appendix D: Transportation System Operation and Management

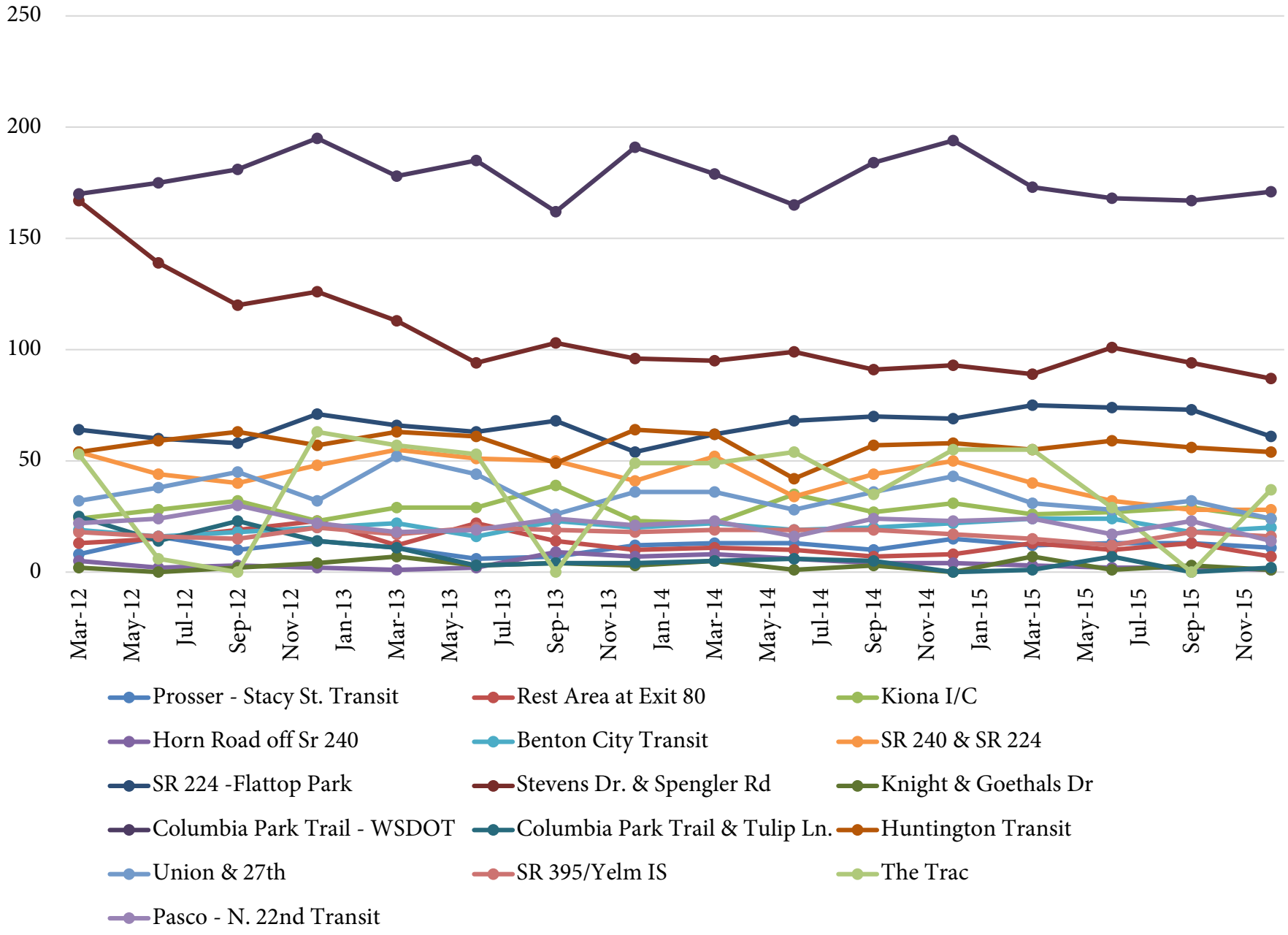
Earthquake MMI Scale

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest,especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

*Source: U.S. Geological Survey

Appendix D: Transportation System Operation and Management

Park and Ride Lots Quarterly Usage, 2012-2015



Appendix D: Transportation System Operation and Management

Target Zero: Strategic Highway Safety Plan, Table of Priority Level Factors and Associated Fatalities and Injuries

Washington State (2009-2011)		Fatalities		Serious Injuries	
		# of People	% of Total	# of People	% of Total
Priority Level One	Impaired Driver Involved	704	50.1%	1,519	21.0%
	Run-Off-The-Road	615	43.7%	2,156	29.7%
	Speeding Involved	555	39.5%	2,126	29.3%
	Young Driver 16-25 Involved	487	34.6%	2,763	38.0%
	Distracted Driver Involved	426	30.3%	868	11.9%
	Intersection Related	290	20.6%	2,474	34.1%
	Traffic Data Systems	**	**	**	**
Priority Level Two	Unrestrained Vehicle Occupants	348	24.8%	764	10.5%
	Unlicensed Driver Involved	253	18.0%	n/a	n/a
	Opposite Direction	221	15.7%	702	9.7%
	Motorcyclists	206	14.7%	1,230	17.0%
	Pedestrians	193	13.7%	869	12.0%
	EMS and Trauma Care Systems	**	**	**	**
Priority Level Three	Older Driver 75+ Involved	126	9.0%	378	5.2%
	Heavy Truck Involved	115	8.2%	341	4.7%
	Drowsy Driver Involved	45	3.2%	258	3.6%
	Bicyclists	26	1.8%	339	4.7%
	Work Zone	9	0.6%	132	1.8%
	Wildlife	8	0.6%	78	1.1%
	School Bus Involved	3	0.2%	18	0.2%
	Vehicle-Train	2	0.6%	3	0.0%
Total*		1406		7247	

* More than one factor is commonly involved in fatalities and serious injuries. Therefore, each fatality and serious injury tallied in "Total" may be represented in multiple factors in the table.

Appendix

Financial Plan

Appendix E: Financial Plan

Financial Forecasting

Assumptions

Revenue development for *Transition2040*:

- Urbanized area growth: 0.97% annual increase
- Rural area growth: 0.53% annual increase
- BFT: 2.5% sales tax and fares; 1.5% State and Federal Grants
- WSDOT: No new revenue sources

Expenditure development for *Transition2040*:

- Urbanized area growth: 2.13% annual increase
- Rural area growth: 1.88% annual increase
- BFT: 2.0% annual increase
- WSDOT - SCR: M&O to remain flat at $3,190,000 through the horizon year

Transportation Revenue And Expenditure Resources

- Transportation Revenue Forecast Council – November 2015
- Washington State Department of Transportation – Economic Analysis Unit
- WSDOT County Roads and City Street Revenues and Expenditures Report 2005-2014
- BFT Financial Forecast Model 2014-2040
- MPO membership assumptions

Methodologies

Forecasted growth rate for Revenues and Expenditures were calculated using the annualized growth rate equation:

- Present – Past/Past = % of change
- % of change/ number of years = annual

Transportation Revenue Resources

Local Funding Sources

City and county revenue resources can be categorized as either restricted or unrestricted. Unrestricted revenue is available for transportation to the extent that transportation needs can compete with the many other local government needs. Restricted revenue is funding collected through specific enabling legislation limiting how much can be collected as well as how it can be spent.

General funds

General funds include all local funds subject to appropriation by the governing body—property taxes, local option sales taxes, utility taxes, general state shared revenues, business license fees, etc. These funds may be used for transportation purposes; however, they are also available for all other general funds activities and therefore must compete against the balance of priorities for the community.

Restricted Funds

Example:

Present	Past	Difference	% Change	Annual Growth Rate
$ 20,000,000	$ 15,000,000	$ 5,000,000	33.33%	3.33%

Appendix E: Financial Plan

Financial Forecasting (Continued)

The State of Washington enables local jurisdictions to impose various local revenue options. The primary sources open to public agencies are property taxes, local improvement districts (LIDs), and special levies such as local option sales tax and vehicle registration fees.

Federal Funding Sources

On December 4, 2015, President Obama signed the *Fixing America's Surface Transportation (FAST) Act* (Pub. L. No. 114-94) into law—the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. The FAST Act maintains our focus on safety, keeps intact the established structure of the various highway-related programs we manage, continues efforts to streamline project delivery and, for the first time, provides a dedicated source of federal dollars for freight projects.

The Highway Trust Fund (HTF) is the source of funding for most of the programs in the 2015 FAST Act. The HTF is comprised of the Highway Account, which funds highway and intermodal programs, and the Mass Transit Account. Federal motor fuel taxes are the major source of income into the HTF. Although MAP-21, enacted in 2012, implemented policy and program changes, reform of the way highway programs are funded remains a challenge.

Federal Funding Programs

National Highway Performance Program (NHPP) funding supports the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in an asset management plan of a State for the NHS.

Surface Transportation Block Grant Program (STBGP) provides flexible funding that may be used by States and localities for projects to preserve or improve conditions and performance on any Federal-aid highway, bridge projects on any public road, facilities for non-motorized transportation, transit capital projects and public bus terminals and facilities.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program provides a flexible funding source to MPOs and TMAs for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate

Highway Safety Improvement Program (HSIP) provides funding for

Appendix E: Financial Plan

Financial Forecasting (Continued)

strategies to maximize safety on highways. Each state is required to identify key safety problems, establish their relative severity, and then adopt strategic and performance-based goals to maximize safety. Every state is required to update their Strategic Highway Safety Plan (SHSP) which lays out strategies to address these key safety problems. In addition to regular plan updates, defining a clear linkage between behavioral (NHTSA funded) State safety programs and the SHSP is mandated.

Transportation Alternatives Program (TAP) provides funding for construction, planning, and design of on-road and off -road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation.

Federal Lands Highways Programs (FLHP): Funding is managed by FHWA. There is limited state authority over this category of funding. Funding is provided through a discretionary program. The Federal Lands Highways Program includes the following categories of roads:

Indian Reservation Roads (IRR) are public roads that provide access to and within Indian reservations, Indian trust land, restricted Indian land, and Alaska native villages. IRR funds can be used for any type Title 23 transportation project providing access to or within Federal or Indian lands. Washington IRR TIPs are provided to WSDOT by FHWA and included as an attachment to the STIP. IRR projects may also be listed separately as part of the coordination with the WSDOT, MPOs, RTPOs and county lead agencies and tribal nations.

Park Roads program funds may only be used on public roads under the jurisdiction of the National Park Service (NPS). Public Lands Highways road is defined as a forest road, or any highway through unappropriated or unreserved public lands, non-taxable Indian lands, or other Federal reservations that are under the jurisdiction of, and maintained by a public authority and open to public travel. Projects on these facilities are funded through the national Public Lands Highways discretionary program.

Refuge roads are public roads that provide access to or within a unit of the National Wildlife Refuge System and for which title and maintenance responsibility is vested in the United States Government.

Transportation Infrastructure Financing and Innovation Act (TIFIA) program provides Federal credit assistance to eligible surface transportation projects.

Community Development Block Grant (CDBG) program. These federal funds are available to cities and counties for a variety of public facilities including transportation improvements, housing, and economic development projects that benefit low to moderate income households.

Appendix E: Financial Plan

Financial Forecasting (Continued)

Urbanized Area Formula Grants (Section 5307) is the largest of FTA's grant programs; this program provides grants to urbanized areas to support public transportation. Funding is distributed by formula based on the level of transit service provision, population, and other factors.

Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310) program provides formula funding to increase the mobility of seniors and persons with disabilities. At least 55 percent of program funds must be spent on public transportation projects planned, designed, and carried out to meet the special needs of seniors and individuals with disabilities when public transportation is insufficient, inappropriate, or unavailable.

State Funding Sources

State funding to local governments is primarily from the fuel tax revenue that is directly distributed to Benton and Franklin Counties and the cities and towns within the county. The State provides additional grant opportunities and revenues from taxes, fees, permits, bond proceeds or other sources.

Transportation Improvement Board (TIB) was established by the Washington State Legislature to manage the Transportation Improvement Account (TIA). The TIA provides funding for arterial street improvements that are coordinated among governmental agencies and encourage public/private participation. The Urban Program includes projects for jurisdictions with a population greater than 5,000 and a local match of 20% or greater is required. The Small City Program funds projects in cities and towns with a population under 5,000 and a local match of 5% or greater is required; jurisdictions with a population of under 500 need 0% local match.

The Washington State Legislature created the Transportation Improvement Board (TIB) to foster state investment in quality local transportation projects. TIB is an independent state agency that distributes and manages street construction and maintenance grants to 320 cities and urban counties throughout Washington State.

Freight Mobility Strategic Investment Board (FMSIB) provides state or federal funds to be combined with partnership funding from freight mobility and freight mitigation projects along strategic freight corridors as approved by the Legislature and Governor.

County Road Administration Board (CRAB) was created by the Washington State Legislature in 1965 to provide statutory oversight of Washington's thirty-nine county road departments. The agency is funded from a portion of the counties' fuel tax that is withheld for state supervision, and from a small portion of the two grant programs that it administers which are the Rural Arterial Program (RAP) and the County Arterial Preservation Program (CAPP).

Appendix E: Financial Plan

Urban Historic Expenditures, Percent of Total

Urban Historic Expenditures % of Total, 2005-2014

	Capital Costs	Preservation, Maintenance & Operations	All Other Expenditures	Total by Year
2005	$ 23,753,800	$ 8,514,235	$ 9,038,831	$ 41,306,866
2006	$ 28,019,136	$ 7,302,318	$ 9,139,049	$ 44,460,503
2007	$ 22,557,698	$ 6,812,657	$ 9,959,591	$ 39,329,946
2008	$ 13,620,234	$ 8,810,157	$ 9,862,262	$ 32,292,653
2009	$ 14,812,635	$ 8,474,909	$ 10,942,015	$ 34,229,559
2010	$ 16,091,032	$ 8,936,378	$ 13,909,567	$ 38,936,977
2011	$ 15,296,367	$ 12,424,045	$ 16,430,013	$ 44,150,425
2012	$ 17,810,570	$ 15,644,746	$ 18,242,673	$ 51,697,989
2013	$ 13,061,989	$ 15,052,509	$ 15,564,406	$ 43,678,904
2014	$ 19,479,409	$ 14,453,862	$ 16,188,084	$ 50,121,355
Total	**$ 184,502,870**	**$ 106,425,816**	**$ 129,276,491**	**$ 420,205,177**
Percent	**43.908%**	**25.327%**	**30.765%**	**100%**

Appendix E: Financial Plan

Rural Historic Expenditures, Percent of Total

Rural Historic Expenditures % of Total, 2005-2014

	Capital Costs	Preservation Maintenance & Operations	All Other Expenditures	Total by Year
2005	$ 7,071,925	$ 9,437,005	$ 5,948,614	$ 22,457,544
2006	$ 11,325,138	$ 10,003,738	$ 6,145,344	$ 27,474,220
2007	$ 6,509,901	$ 10,915,136	$ 6,518,301	$ 23,943,338
2008	$ 13,830,082	$ 10,639,181	$ 7,802,163	$ 32,271,426
2009	$ 10,818,854	$ 12,164,084	$ 8,201,463	$ 31,184,401
2010	$ 5,303,955	$ 12,707,437	$ 7,510,154	$ 25,521,546
2011	$ 6,478,577	$ 12,237,125	$ 8,123,311	$ 26,839,013
2012	$ 7,969,365	$ 12,225,452	$ 9,733,262	$ 29,928,079
2013	$ 5,757,583	$ 10,784,954	$ 9,717,381	$ 26,259,918
2014	$ 4,607,007	$ 12,891,301	$ 1,964,283	$ 19,462,591
Total	**$ 79,672,387**	**$ 114,005,413**	**$ 71,664,276**	**$ 265,342,076**
Percent	**30.026%**	**42.965%**	**27.008%**	**100%**

Appendix E: Financial Plan

Urban Historic Revenues

Urban Historic Revenues, 2005-2014

	Property TAX	Special Assessment	General Fund	Other Local	State Fuel TAX	Other State	Federal Revenue	**Totals**
2005	$ 1,042,065	$ 762,340	$ 11,604,788	$ 10,835,861	$ 3,514,710	$ 8,814,669	$ 6,403,128	**$ 42,977,562**
2006	$ 4,793,217	$ 555,403	$ 10,447,703	$ 15,122,761	$ 3,966,914	$ 4,097,875	$ 4,050,823	**$ 43,034,696**
2007	$ 4,130,693	$ 566,389	$ 9,266,004	$ 9,158,657	$ 4,220,780	$ 1,374,216	$ 6,280,573	**$ 34,997,312**
2008	$ 1,133,236	$ 2,166,947	$ 10,202,321	$ 9,579,511	$ 3,949,376	$ 5,001,376	$ 1,678,597	**$ 33,711,364**
2009	$ 967,866	$ 477,741	$ 9,633,964	$ 10,324,506	$ 3,383,199	$ 3,912,208	$ 1,078,285	**$ 29,777,768**
2010	$ 717,694	$ 287,224	$ 12,647,354	$ 10,155,487	$ 4,157,886	$ 3,447,544	$ 6,853,824	**$ 38,267,013**
2011	$ 758,044	$ 140,077	$ 15,052,097	$ 13,696,937	$ 3,891,030	$ 4,266,667	$ 6,834,870	**$ 44,639,722**
2012	$ 1,011,744	$ 451,035	$ 14,157,464	$ 17,724,943	$ 3,926,149	$ 7,144,073	$ 4,393,924	**$ 48,809,332**
2013	$ 843,265	$ 84,951	$ 12,976,296	$ 13,430,371	$ 4,485,718	$ 1,746,252	$ 6,911,581	**$ 40,478,434**
2014	$ 1,433,352	$ 68,269	$ 14,354,431	$ 15,269,807	$ 4,680,528	$ 3,977,777	$ 7,354,256	**$ 47,138,420**
Total	**$ 16,831,175**	**$ 5,560,376**	**$ 120,342,422**	**$ 125,298,841**	**$ 40,176,289**	**$ 43,782,656**	**$ 51,839,861**	**$ 403,831,622**

Appendix E: Financial Plan

Rural Historic Revenues

Rural Historic Revenues, 2005-2014

	Property TAX	Special Assesments	General Fund	Other Local Receipts	State Fuel Tax	Other State	Federal Revenue	**Totals**
2005	$ 6,115,253	$ 20,000	$ 5,193,094	$ 620,654	$ 6,255,246	$ 1,278,109	$ 1,576,089	**$ 21,058,445**
2006	$ 6,782,105	$ 179,598	$ 7,021,542	$ 814,749	$ 6,584,153	$ 5,785,193	$ 471,547	**$ 27,638,887**
2007	$ 7,080,700	$ 105,000	$ 9,110,819	$ 660,480	$ 6,691,609	$ 759,140	$ 1,023,016	**$ 25,430,764**
2008	$ 7,374,257	$ 145,000	$ 8,749,816	$ 1,087,761	$ 6,539,113	$ 4,870,630	$ 3,474,322	**$ 32,240,899**
2009	$ 8,050,261	$ 75,000	$ 8,687,393	$ 1,366,868	$ 6,290,605	$ 1,754,633	$ 4,288,980	**$ 30,513,740**
2010	$ 8,640,711	$ -	$ 6,479,729	$ 1,127,653	$ 6,390,850	$ 882,276	$ 2,817,655	**$ 26,338,874**
2011	$ 7,613,245	$ 90,000	$ 6,442,100	$ 557,066	$ 6,381,106	$ 3,455,355	$ 3,541,609	**$ 28,080,481**
2012	$ 7,920,885	$ 105,000	$ 8,452,250	$ 755,271	$ 6,562,399	$ 3,065,212	$ 2,276,368	**$ 29,137,385**
2013	$ 7,460,996	$ 105,000	$ 8,172,587	$ 848,202	$ 6,760,174	$ 1,199,562	$ 3,449,874	**$ 27,996,395**
2014	$ 8,505,703	$ -	$ 533,706	$ 1,534,569	$ 6,975,069	$ 1,337,177	$ 3,291,764	**$ 22,177,988**
Total	**$ 75,544,116**	**$ 824,598**	**$ 68,843,036**	**$ 9,373,273**	**$ 65,430,324**	**$ 24,387,287**	**$ 26,211,224**	**$ 270,613,858**

Appendix

F

Future Conditions

Appendix F: Future Conditions

Modeled Projects

Projects were submitted by jurisdictions and modeled by scenario year (2025, 2035, 2040). Not all projects in the M/RTP are modeled, only those that change capacity or alignments, or are new construction. The list of projects below also meet the financially constrained requirement of the M/RTP.

Jurisdiction	Scenario Year	Project ID	Project Title
Kennewick	2025	KENN_2025_1	Metaline Avenue - Kellogg to Edison
Kennewick	2025	KENN_2025_10	45th Avenue - Ely to Olympia
Kennewick	2025	KENN_2025_12	Cascade Street - 27th to 45th
Kennewick	2025	KENN_2025_13	Zintel Way/Ridgeline Drive/Bofer Canyon Road
Kennewick	2025	KENN_2025_14	10th Avenue/Morain Street Traffic Signal
Kennewick	2025	KENN_2025_15	27th Avenue & Washington Street Signal
Kennewick	2025	KENN_2025_2	Colorado Street - Bob Olson Parkway to Ridgeline Drive
Kennewick	2025	KENN_2025_3	Sherman Road - Ridgeline to Hildebrand
Kennewick	2025	KENN_2025_4	Ridgeline - Sherman to Southridge
Kennewick	2025	KENN_2025_5	Canal Drive/Edison Street Intersection Improvements
Kennewick	2025	KENN_2025_6	10th Avenue - CCB to Montana
Kennewick	2025	KENN_2025_8	10th Avenue - Clearwater to 5corners (Clodfelter)
Kennewick	2025	KENN_2025_9	Columbia Center Blvd.- Deschutes to Quinault
Kennewick	2035	KENN_2035_1	Colorado Street
Kennewick	2035	KENN_2035_2	Center Parkway Bridge
Kennewick	2035	KENN_2035_3	Center Parkway @ Interstate 82
Kennewick	2035	KENN_2035_4	Vancouver Street
Kennewick	2035	KENN_2035_5	Ridgeline Drive
Kennewick	2035	KENN_2035_6	Ridgeline Drive

Appendix F: Future Conditions

Modeled Projects (Continued)

Jurisdiction	Scenario Year	Project ID	Project Title
Pasco	2025	PSC_2025_1	Argent Road Improvements (Rd 40 to 20th Ave)
Pasco	2025	PSC_2025_2	Dual Right Southbound Rd 68
Pasco	2025	PSC_2025_3	Road 68 Triple Right Westbound
Pasco	2025	PSC_2025_4	Wrigley Drive Extension
Pasco	2025	PSC_2025_5	Chapel Hill Extension
Pasco	2035	PSC_2035_3	Sandifur (Convention to Road 68)
Pasco	2040	PSC_2040_1	Road 68 Widening - South
Pasco	2040	PSC_2040_2	Burns Road (Road 52 to Pasco City Limits)
West Richland	2025	WRCHL_2025_1	Paradise Way Extension - Phase 4
West Richland	2025	WRCHL_2025_2	Bombing Range Road - Phase 8
West Richland	2025	WRCHL_2025_3	S. 38th Ave & Mt. Adams View Drive
West Richland	2025	WRCHL_2025_4	S. 38th Ave & SR 224 Traffic Signal
West Richland	2025	WRCHL_2025_5	Bombing Range Road / Mt. Adams View Drive Intersection Modifications
West Richland	2025	WRCHL_2025_6	Belmont Blvd - Phase 2
West Richland	2035	WRCHL_2035_1	Bombing Range Road Widening
West Richland	2035	WRCHL_2035_2	Keene Road - Phase 6
West Richland	2035	WRCHL_2035_3	S. 38th Ave - Phase 2
West Richland	2040	WRCHL_2040_1	Red Mountain Way
West Richland	2040	WRCHL_2040_2	Alderman Avenue
West Richland	2040	WRCHL_2040_3	Fallon Drive Downtown Redevelopment Project
West Richland	2040	WRCHL_2040_4	Paradise Way Extension - Phase 5

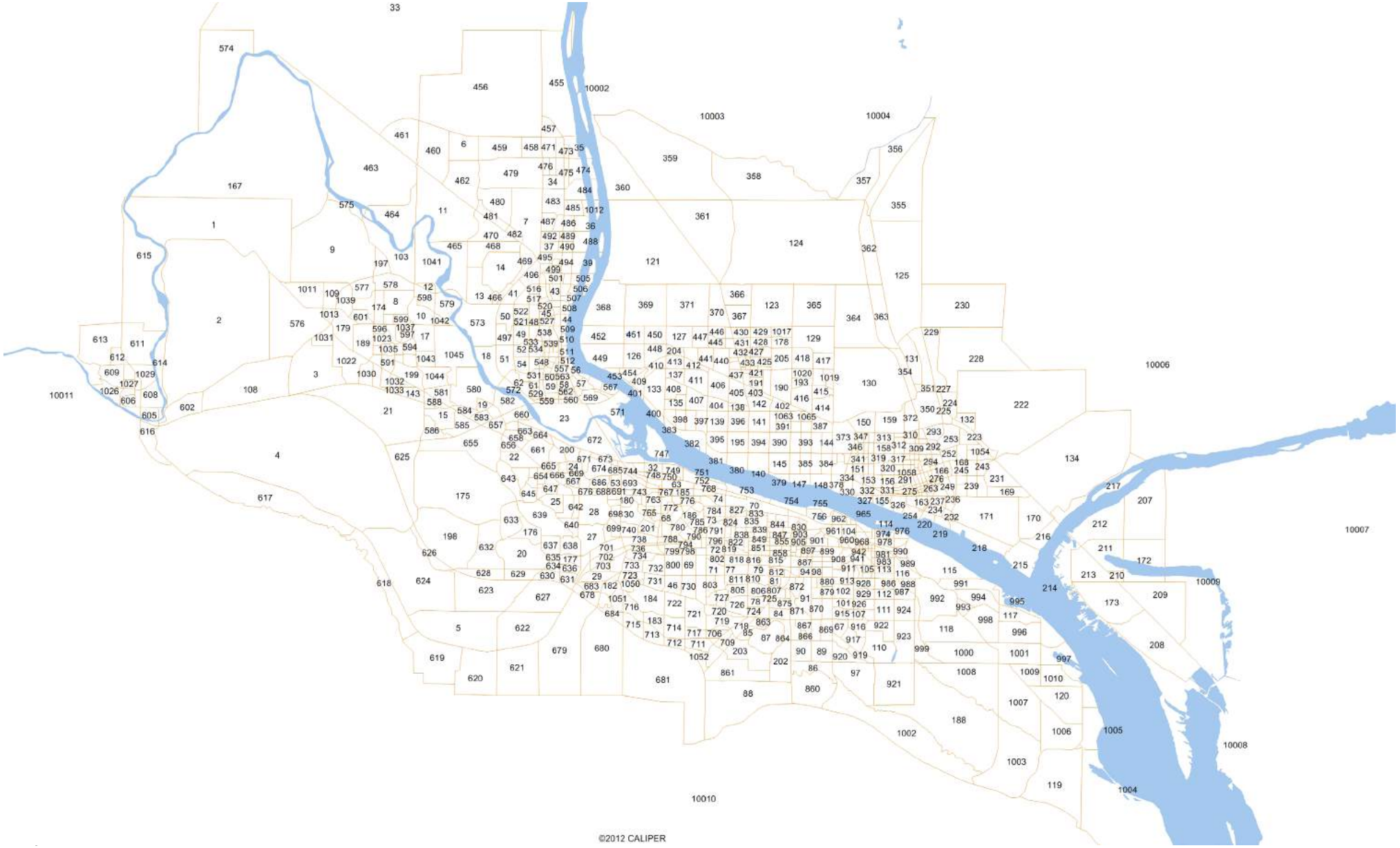
Appendix F: Future Conditions

Modeled Projects (Continued)

Jurisdiction	Scenario Year	Project ID	Project Title
Richland	2025	RCHL_2025_10	Bellerive Drive Extension
Richland	2025	RCHL_2025_11	Queensgate Drive - Phase II
Richland	2025	RCHL_2025_12	Kennedy Road - Duportail to West C/L
Richland	2025	RCHL_2025_13	Battelle Blvd. - Kingsgate Way to Blanchard Blvd.
Richland	2025	RCHL_2025_2	Center Parkway Extension
Richland	2025	RCHL_2025_3	I-182/Queensgate Drive Ramp Terminal Improvements
Richland	2025	RCHL_2025_4	Queensgate Drive/Columbia Park Trail Improvements
Richland	2025	RCHL_2025_5	Swift Boulevard Improvements
Richland	2025	RCHL_2025_6	Columbia Park Trail - East
Richland	2025	RCHL_2025_7	Steptoe Street/Tapteal Drive Intersection Improvements
Richland	2025	RCHL_2025_8	Rachel Road Improvements
Richland	2025	RCHL_2025_9	Queensgate Drive Extension
Richland	2035	RCHL_2035_1	Gage Boulevard Improvements
Richland	2035	RCHL_2035_3	Shockley Road
Richland	2040	RCHL_2040_1	Blanchard Road - SR240 to Horn Rapids Road
Richland	2040	RCHL_2040_2	SR240 / Twin Bridge Road Improvements
Richland	2040	RCHL_2040_3	Comstock Street - GWW to Wellsian
WSDOT	2025	WSDOT_CWA_2025_1	I-82 West Richland Red Mountain Interchange
WSDOT / Kenn	2025	WSDOT_CWA_KENN_2025_7	US 395/Ridgeline & Hildebrand Intersection Improvements CWA
WSDOT / PSC	2025	WSDOT_CWA_PSC_2025_5	Lewis Street Overpass CWA
WSDOT / RCHL	2025	WSDOT_CWA_RCHL_2025_1	Duportail Bridge CWA

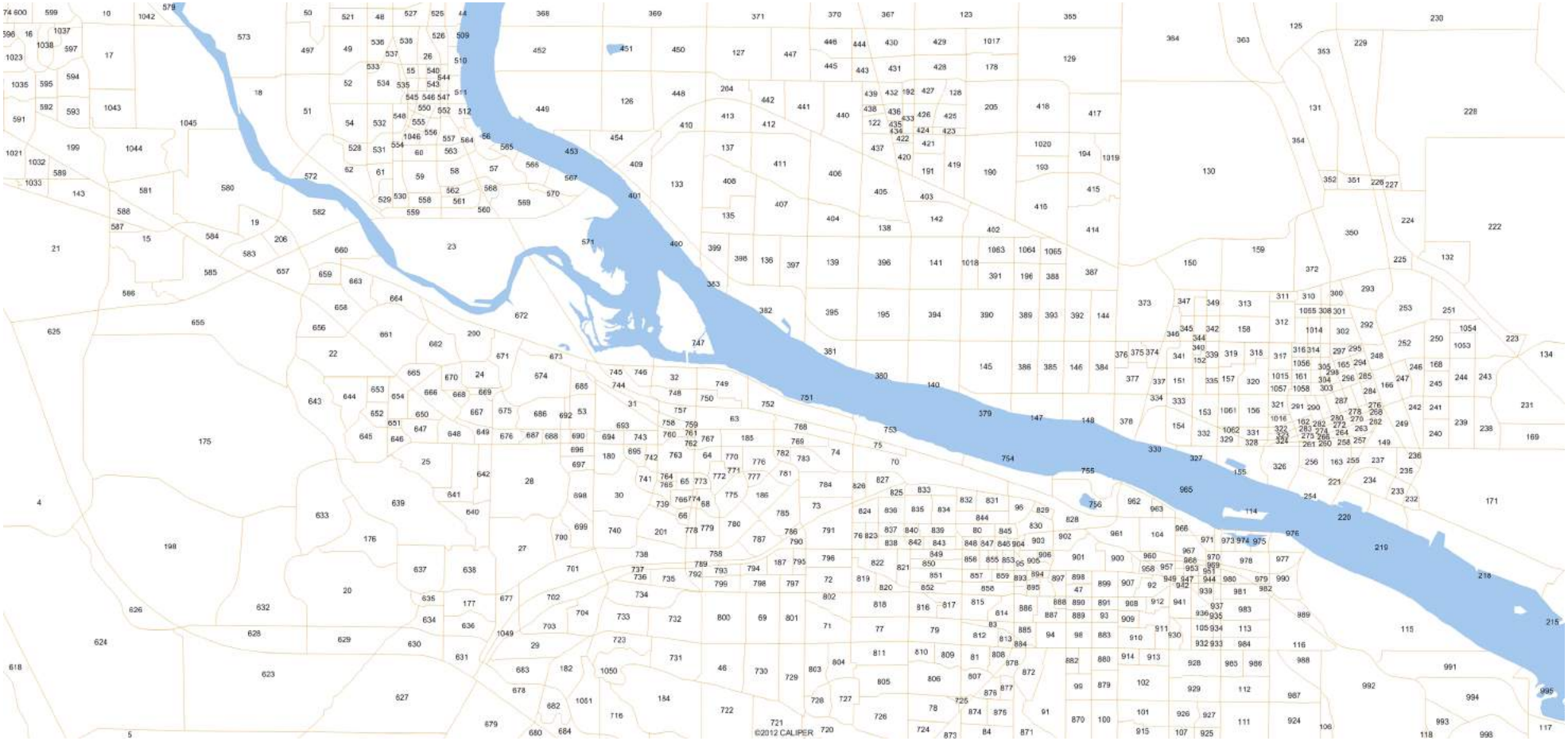
Appendix F: Future Conditions

TAZ Boundaries



Appendix F: Future Conditions

TAZ Boundaries



Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
1	Benton	282	-	-	200	282	-	-	-	108	-	-	-	1	2	2	3
2	Benton	722	803	859	889	722	803	859	889	276	307	328	340	127	136	141	145
3	Benton	2	2	2	2	2	2	2	2	1	1	1	1	-	-	-	-
4	Benton	373	399	426	440	373	399	426	440	132	141	151	156	104	112	115	118
5	Benton	81	83	86	88	81	83	86	88	28	29	30	30	8	9	8	9
6	Benton	-	-	-	-	-	3,297	5,859	6,169	-	-	-	-	14	19	21	21
7	Benton	-	-	-	-	-	-	-	-	1	-	-	-	828	1,148	1,234	1,267
8	Benton	175	275	345	345	175	275	345	345	57	90	112	112	16	27	33	40
9	Benton	601	1,226	2,055	2,493	601	1,226	2,055	2,055	245	500	838	838	18	31	382	532
10	Benton	561	899	899	899	561	899	899	899	206	330	330	330	4	7	8	11
11	Benton	1,985	3,297	5,859	6,169	1,985	3,297	5,859	6,169	853	1,417	2,518	2,651	75	104	112	115
12	Benton	349	349	349	411	349	349	349	349	165	165	165	165	66	115	142	171
13	Benton	76	89	89	89	76	89	89	89	27	32	32	32	42	59	62	65
14	Benton	-	-	-	-	-	-	-	-	1	-	-	-	1,193	1,658	1,782	1,830
15	Benton	602	726	922	970	602	726	922	970	202	244	309	325	38	53	56	58
16	Benton	382	382	382	382	382	382	382	382	135	135	135	135	2	4	4	5
17	Benton	409	628	756	756	409	628	756	756	149	229	275	275	8	14	17	21
18	Benton	774	1,185	1,185	1,185	774	1,185	1,185	1,185	384	588	588	588	35	48	52	54
19	Benton	396	396	396	396	396	396	396	396	229	229	229	229	496	689	740	760
20	Benton	759	762	765	767	759	762	765	767	276	277	278	279	38	41	42	43
21	Benton	417	567	567	715	417	567	567	567	122	166	166	166	7	13	15	19
22	Benton	756	756	756	756	756	756	756	756	302	302	302	302	31	42	45	46
23	Benton	-	-	-	-	-	-	-	-	-	-	-	-	63	88	94	97
24	Benton	396	377	377	377	396	377	377	377	144	137	137	137	6	9	9	10
25	Benton	369	470	470	470	369	470	470	470	143	182	182	182	15	21	22	23
26	Benton	-	-	-	-	-	-	-	-	-	-	-	-	243	338	363	373
27	Benton	709	1,116	1,116	1,116	709	1,116	1,116	1,116	236	371	371	371	23	32	34	36
28	Benton	1,236	1,277	1,277	1,277	1,236	1,277	1,277	1,277	638	659	659	659	41	57	61	63
29	Benton	135	199	279	320	135	199	279	320	46	68	95	109	34	35	40	44
30	Benton	1,315	1,378	1,378	1,378	1,312	1,378	1,378	1,378	558	586	586	586	61	63	72	79
31	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Benton	349	430	430	430	349	430	430	430	226	278	278	278	175	243	261	269
33	Benton	-				-				-	-	-	-	9,195	7,634	7,634	7,634
34	Benton	330	1,059	1,059	1,059	330	1,059	1,059	1,059	192	616	616	616	54	75	80	83
35	Benton	58	130	261	270	58	130	261	270	25	56	113	116	475	660	709	728
36	Benton	380	437	437	437	380	437	437	437	156	179	179	179	30	41	43	45
37	Benton	389	348	348	348	389	348	348	348	134	120	120	120	26	37	39	41
38	Benton	-	-	-	-	-	-	-	-	1	-	-	-	77	107	115	118
39	Benton	270	275	275	275	270	275	275	275	101	103	103	103	11	15	15	16
40	Benton	436	583	583	583	436	583	583	583	311	416	416	416	49	68	72	75
41	Benton	650	631	631	631	637	618	618	618	239	232	232	232	25	35	37	39
42	Benton	282	322	322	322	282	322	322	322	122	139	139	139	88	122	130	134
43	Benton	1,334	878	878	878	1,266	833	833	833	721	474	474	474	347	482	518	532
44	Benton	218	223	223	223	218	223	223	223	91	93	93	93	16	22	23	24

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
45	Benton	502	470	470	470	502	470	470	470	191	179	179	179	42	59	63	65
46	Benton	440	446	446	446	440	446	446	446	156	158	158	158	54	56	64	70
47	Benton	218	218	218	218	218	218	218	218	84	84	84	84	2	2	2	3
48	Benton	384	338	338	338	384	338	338	338	136	120	120	120	-	-	-	-
49	Benton	921	1,020	1,020	1,020	921	1,020	1,020	1,020	409	453	453	453	25	35	37	39
50	Benton	772	800	800	800	772	800	800	800	332	344	344	344	86	119	127	131
51	Benton	1,136	1,310	1,310	1,310	1,131	1,310	1,310	1,310	507	587	587	587	48	66	71	73
52	Benton	777	922	922	922	777	922	922	922	351	417	417	417	13	18	18	19
53	Benton	981	981	981	981	981	981	981	981	412	412	412	412	10	10	11	13
54	Benton	707	815	815	815	707	815	815	815	309	356	356	356	212	295	317	326
55	Benton	-	-	-	-	-	-	-	-	-	-	-	-	67	93	99	102
56	Benton	30	65	65	65	30	65	65	65	14	30	30	30	127	176	188	194
57	Benton	-	-	-	-	-	-	-	-	-	-	-	-	239	332	356	366
58	Benton	600	612	612	612	594	606	606	606	240	245	245	245	17	24	25	26
59	Benton	713	680	680	680	706	673	673	673	268	255	255	255	26	37	39	41
60	Benton	316	309	309	309	316	309	309	309	121	118	118	118	21	29	30	31
61	Benton	19	42	42	42	19	42	42	42	8	18	18	18	110	153	164	169
62	Benton	842	882	882	882	842	882	882	882	353	370	370	370	19	26	28	29
63	Benton	502	519	519	519	502	519	519	519	250	258	258	258	76	79	90	99
64	Benton	-	-	-	-	-	-	-	-	-	-	-	-	490	504	579	634
65	Benton	-	-	-	-	-	-	-	-	-	-	-	-	201	207	237	260
66	Benton	-	-	-	-	-	-	-	-	-	-	-	-	131	135	154	169
67	Benton	426	426	426	426	426	426	426	426	154	154	154	154	11	11	13	14
68	Benton	-	-	-	-	-	-	-	-	-	-	-	-	187	193	221	242
69	Benton	628	628	628	628	628	628	628	628	212	212	212	212	22	23	26	29
70	Benton	901	953	953	953	871	953	953	953	383	419	419	419	19	20	22	24
71	Benton	221	221	221	221	221	221	221	221	79	79	79	79	6	6	7	8
72	Benton	521	435	435	435	521	435	435	435	227	190	190	190	2	2	2	3
73	Benton	57	53	53	53	57	53	53	53	26	24	24	24	414	426	490	536
74	Benton	271	240	240	240	195	240	240	240	146	180	180	180	357	367	422	462
75	Benton	40	54	54	54	40	54	54	54	18	24	24	24	-	-	-	-
76	Benton	369	545	545	545	369	545	545	545	187	276	276	276	32	33	38	42
77	Benton	357	365	375	375	357	365	375	375	134	137	141	141	16	17	19	21
78	Benton	720	720	720	720	720	720	720	720	225	225	225	225	10	10	11	13
79	Benton	369	400	420	420	369	400	420	420	132	143	150	150	6	6	7	8
80	Benton	475	916	916	916	475	916	916	916	222	428	428	428	10	10	11	13
81	Benton	131	234	234	234	131	234	234	234	52	93	93	93	6	6	7	8
82	Benton	63	75	75	75	63	75	75	75	28	33	33	33	2	2	2	3
83	Benton	72	72	72	72	72	72	72	72	34	34	34	34	9	9	10	12
84	Benton	321	280	280	280	321	280	280	280	119	104	104	104	97	99	114	125
85	Benton	344	344	344	344	344	344	344	344	109	109	109	109	4	301	582	667
86	Benton	591	796	796	796	591	796	796	796	208	280	280	280	5	5	5	7
87	Benton	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	486	486	486	486	46	48	54	60
88	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
89	Benton	1,199	1,196	1,196	1,196	1,181	1,196	1,196	1,196	385	390	390	390	20	21	23	26
90	Benton	780	1,103	1,103	1,103	780	1,103	1,103	1,103	265	375	375	375	14	14	16	18
91	Benton	762	1,015	1,015	1,015	762	1,015	1,015	1,015	297	396	396	396	6	6	7	8
92	Benton	61	24	24	24	61	24	24	24	19	7	7	7	228	235	269	296
93	Benton	399	399	399	399	304	399	399	399	96	126	126	126	170	175	201	220
94	Benton	214	225	225	225	214	225	225	225	76	80	80	80	8	8	9	10
95	Benton	-	-	-	-	-	-	-	-	-	-	-	-	274	282	323	354
96	Benton	207	232	232	232	207	232	232	232	84	94	94	94	5	5	5	7
97	Benton	1,211	500	850	1,090	1,211	500	850	1,090	414	171	291	373	27	28	32	35
98	Benton	302	302	302	302	302	302	302	302	103	103	103	103	13	13	15	17
99	Benton	317	109	109	109	317	109	109	109	117	40	40	40	3	3	3	4
100	Benton	544	544	544	604	544	544	544	604	192	192	192	213	113	116	133	146
101	Benton	322	322	322	322	322	322	322	322	113	113	113	113	18	19	21	23
102	Benton	960	920	920	920	954	920	920	920	308	297	297	297	5	5	5	7
103	Benton	581	266	266	266	581	266	266	266	234	107	107	107	86	148	182	220
104	Benton	372	372	372	372	372	372	372	372	141	141	141	141	93	95	109	120
105	Benton	-	-	-	-	-	-	-	-	-	-	-	-	130	134	153	168
106	Benton	58	75	75	75	58	75	75	75	24	31	31	31	11	11	13	14
107	Benton	207	207	207	207	207	207	207	207	81	81	81	81	4	4	4	5
108	Benton	502	518	527	531	502	518	527	531	194	200	204	205	19	20	21	22
109	Benton	40	472	472	472	40	472	472	472	19	224	224	224	16	27	33	40
110	Benton	816	941	941	941	816	941	941	941	301	347	347	347	28	29	33	36
111	Benton	287	350	350	350	287	350	350	350	110	134	134	134	28	29	33	36
112	Benton	171	306	306	306	171	306	306	306	71	127	127	127	35	36	41	46
113	Benton	489	489	489	489	489	489	489	489	167	167	167	167	9	9	10	12
114	Benton	-	-	-	-	-	-	-	-	-	-	-	-	46	48	54	60
115	Benton	545	635	635	635	545	635	635	635	212	247	247	247	46	48	54	60
116	Benton	1,130	1,130	1,130	1,130	1,130	1,130	1,130	1,130	372	372	372	372	43	45	51	56
117	Benton	342	345	348	350	342	345	348	350	130	131	132	133	3	3	3	3
118	Benton	396	406	416	421	396	406	416	421	150	154	158	159	16	17	17	18
119	Benton	183	194	207	214	183	194	207	214	70	74	79	82	39	42	43	44
120	Benton	273	278	287	292	273	278	287	292	104	106	109	111	42	45	46	48
121	Franklin	168	219	285	325	168	219	285	325	70	91	119	135	66	79	92	103
122	Franklin	-	-	-	-	13	-	-	-	4	-	-	-	1,033	1,108	1,221	1,340
123	Franklin	6	46	328	655	6	46	328	655	2	15	109	218	-	-	-	-
124	Franklin	8	10	13	15	8	10	13	15	2	3	3	4	334	398	470	519
125	Franklin	2	2	3	3	2	2	3	3	1	1	2	2	90	96	105	116
126	Franklin	-	-	-	-	1	-	-	-	-	-	-	-	110	118	130	143
127	Franklin	1,243	1,380	1,380	1,380	1,243	1,380	1,380	1,380	489	543	543	543	234	251	276	304
128	Franklin	372	372	372	372	372	372	372	372	139	139	139	139	3	3	3	4
129	Franklin	671	1,342	1,944	1,944	671	1,342	1,944	1,944	211	422	611	611	33	36	39	43
130	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	174	186	205	225
131	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	450	483	532	584
132	Franklin	-	20	29	35	-	20	29	35	-	-	-	-	131	141	154	170

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
133	Franklin	776	782	1,089	1,455	776	782	1,089	1,455	279	281	392	523	22	23	25	28
134	Franklin	28	28	28	28	28	28	28	28	7	7	7	7	148	158	174	192
135	Franklin	247	300	354	408	247	300	354	408	85	103	122	140	9	10	11	12
136	Franklin	141	147	160	182	141	147	160	182	57	59	65	74	-	-	-	-
137	Franklin	974	974	974	974	974	974	974	974	318	318	318	318	7	8	8	9
138	Franklin	35	35	225	225	35	35	225	225	15	15	96	96	8	9	9	11
139	Franklin	173	194	216	245	173	194	216	245	64	72	80	91	106	114	125	138
140	Franklin	440	440	467	495	440	440	467	495	160	160	170	180	44	47	51	57
141	Franklin	357	413	430	447	351	406	423	439	126	146	152	158	18	19	20	23
142	Franklin	1,091	1,455	1,455	13,455	1,091	1,455	1,455	13,455	437	583	583	583	37	40	44	49
143	Benton	101	101	101	168	101	101	101	101	37	37	37	37	40	70	86	104
144	Franklin	426	432	448	464	426	432	448	464	131	133	138	143	116	125	137	151
145	Franklin	424	466	529	594	424	466	529	594	149	164	186	209	2	2	2	3
146	Franklin	417	425	431	437	417	425	431	437	133	136	137	139	31	33	36	40
147	Franklin	188	188	190	194	188	188	190	194	83	83	84	86	1	1	1	1
148	Franklin	372	372	372	373	372	372	372	373	137	137	137	137	-	-	-	-
149	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	31	33	36	40
150	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	701	752	828	909
151	Franklin	461	480	496	522	461	480	496	522	115	120	124	130	35	38	41	46
152	Franklin	-	-	-	-	3	-	-	-	1	-	-	-	85	92	101	111
153	Franklin	572	257	257	257	572	257	257	257	310	139	139	139	55	59	65	71
154	Franklin	289	289	289	289	289	289	289	289	120	120	120	120	54	58	63	70
155	Franklin	-	-	-	-	13	-	-	-	4	-	-	-	100	107	118	130
156	Franklin	665	665	665	665	665	665	665	665	177	177	177	177	31	33	36	40
157	Franklin	436	436	436	436	436	436	436	436	129	129	129	129	27	29	31	35
158	Franklin	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	306	306	306	306	157	169	185	204
159	Franklin	306	370	470	470	306	370	470	470	170	206	261	261	269	289	318	349
160	Franklin	462	465	474	474	456	459	468	468	126	127	129	129	18	19	20	23
161	Franklin	201	201	201	201	195	195	195	195	54	54	54	54	14	15	15	18
162	Franklin	93	93	93	93	93	93	93	93	25	25	25	25	11	12	13	15
163	Franklin	674	668	674	674	674	668	674	674	173	171	173	173	47	50	55	60
164	Franklin	234	234	234	234	234	234	234	234	73	73	73	73	-	-	-	-
165	Franklin	242	388	388	388	242	388	388	388	118	189	189	189	9	10	11	12
166	Franklin	35	24	21	21	35	24	21	21	13	9	8	8	50	53	58	64
167	Benton	570	-	-	100	570	-	-	-	230	-	-	-	28	49	60	72
168	Franklin	299	299	299	299	299	299	299	299	70	70	70	70	-	-	-	-
169	Franklin	606	889	1,094	1,407	606	889	1,094	1,407	165	242	298	383	12	13	14	16
170	Franklin	871	890	921	921	871	890	921	921	208	213	220	220	64	69	76	84
171	Franklin	3	6	6	6	3	6	6	6	3	6	6	6	341	366	403	442
172	Walla Walla	181	181	181	181	181	181	181	181	62	62	62	62	12	12	12	12
173	Walla Walla	1,013	1,013	1,013	1,013	1,013	1,013	1,013	1,013	367	367	367	367	17	17	16	17
174	Benton	177	283	283	283	177	283	283	283	65	104	104	104	-	-	-	-
175	Benton	63	1,214	2,427	2,554	63	1,214	2,427	2,554	24	462	925	973	4	6	5	6
176	Benton	98	388	647	667	98	388	647	667	38	150	251	259	11	15	15	16

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
177	Benton	455	455	455	455	455	455	455	455	143	143	143	143	8	11	11	12
178	Franklin	160	223	251	278	160	223	251	278	52	72	82	90	67	71	78	86
179	Benton	14	357	953	953	14	357	953	953	5	128	340	340	18	30	37	45
180	Benton	171	233	233	233	171	233	233	233	64	87	87	87	827	851	977	1,070
181	Benton	-	-	-	-	-	-	-	-	-	-	-	-	2	200	441	505
182	Benton	8	150	300	450	8	150	300	450	2	38	75	113	36	37	42	47
183	Benton	1	750	1,500	2,000	1	750	1,500	2,000	-	-	-	-	-	-	-	-
184	Benton	18	100	260	360	18	100	260	360	8	44	116	160	-	800	1,975	2,259
185	Benton	355	355	355	355	355	355	355	355	128	128	128	128	16	17	19	21
186	Benton	-	100	800	1,095	-	100	800	1,095	-	-	-	-	624	642	737	807
187	Benton	222	194	194	194	222	194	194	194	72	63	63	63	173	178	204	224
188	Benton	553	566	605	626	553	566	605	626	203	208	222	230	59	63	65	67
189	Benton	240	240	751	751	240	240	751	751	93	93	291	291	5	9	11	13
190	Franklin	1,236	1,896	2,166	2,166	1,236	1,896	2,166	2,166	391	600	685	685	20	21	23	26
191	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	56	60	66	73
192	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
193	Franklin	450	452	455	456	450	452	455	456	178	179	180	180	-	-	-	-
194	Franklin	529	529	533	533	529	529	533	533	168	168	169	169	74	79	87	96
195	Franklin	127	223	290	413	127	223	290	413	44	77	100	143	21	22	24	27
196	Franklin	69	69	74	77	69	69	74	77	25	25	27	28	26	28	30	34
197	Benton	688	688	688	767	688	688	688	688	287	287	287	287	28	49	60	72
198	Benton	6	1,214	2,427	2,554	6	1,214	2,427	2,554	2	405	809	851	-	15	30	40
199	Benton	790	790	790	790	790	790	790	790	269	269	269	269	2	4	4	5
200	Benton	731	705	705	705	731	705	705	705	263	254	254	254	53	73	78	80
201	Benton	920	1,190	1,190	1,190	920	1,190	1,190	1,190	349	451	451	451	194	200	229	251
202	Benton	731	756	756	756	731	756	756	756	262	271	271	271	18	19	21	23
203	Benton	584	693	846	922	584	693	846	922	201	239	291	317	80	1,001	1,906	2,177
204	Franklin	-	-	-	-	12	-	-	-	4	-	-	-	119	127	140	154
205	Franklin	2,021	2,021	2,021	2,021	2,021	2,021	2,021	2,021	591	591	591	591	64	69	76	84
206	Benton	-	-	-	-	-	-	-	-	-	-	-	-	597	830	892	916
207	Walla Walla	360	360	360	360	360	360	360	360	142	142	142	142	50	33	48	49
208	Walla Walla	336	336	336	336	336	336	336	336	120	120	120	120	57	57	57	57
209	Walla Walla	409	409	409	409	409	409	409	409	128	128	128	128	7	7	7	7
210	Walla Walla	21	21	21	21	21	21	21	21	9	9	9	9	11	11	11	11
211	Walla Walla	86	86	86	86	86	86	86	86	32	32	32	32	32	32	32	32
212	Walla Walla	319	319	319	319	319	319	319	319	133	133	133	133	45	44	44	44
213	Walla Walla	483	483	483	483	483	483	483	483	191	191	191	191	992	991	991	991
214	Walla Walla	8	8	8	8	8	8	8	8	3	3	3	3	2	2	2	2
215	Franklin	9	9	9	9	9	9	9	9	3	3	3	3	5	6	6	7
216	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	23	24	27	29
217	Franklin	4	6	8	10	4	6	8	10	1	2	2	3	14	17	19	22
218	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	60	65	71	78
219	Franklin	-	-	-	-	2	-	-	-	1	-	-	-	32	35	38	42
220	Franklin	163	162	163	163	163	162	163	163	49	49	49	49	20	21	23	26

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
221	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
222	Franklin	11	11	11	11	11	11	11	11	4	4	4	4	565	606	667	732
223	Franklin	-	-	-	-	16	-	-	-	9	-	-	-	365	387	427	468
224	Franklin	-	-	-	-	5	-	-	-	1	-	-	-	101	108	118	130
225	Franklin	15	22	22	25	15	22	22	25	8	12	12	13	108	116	127	140
226	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	19	20	22	24
227	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	12	13	14	16
228	Franklin	8	10	10	10	8	10	10	10	4	5	5	5	9	10	10	12
229	Franklin	-	6	-	-	6	-	-	-	2	-	-	-	28	30	33	36
230	Franklin	7	9	11	13	7	9	11	13	2	3	3	4	334	398	470	519
231	Franklin	87	87	87	87	87	87	87	87	24	24	24	24	40	42	46	51
232	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	5	6	6	7
233	Franklin	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
234	Franklin	-	-	-	-	9	-	-	-	2	-	-	-	76	81	90	98
235	Franklin	21	13	10	7	21	13	10	7	7	4	3	2	22	23	25	28
236	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	10	11	12	13
237	Franklin	105	97	90	90	105	97	90	90	28	26	24	24	34	37	40	45
238	Franklin	296	435	586	655	296	435	586	655	81	119	160	179	40	42	46	51
239	Franklin	565	573	614	727	565	573	614	727	136	138	148	175	5	6	6	7
240	Franklin	562	577	600	638	562	577	600	638	147	151	157	167	-	-	-	-
241	Franklin	364	364	364	364	364	364	364	364	103	103	103	103	105	113	124	136
242	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	162	174	191	210
243	Franklin	743	743	743	743	743	743	743	743	166	166	166	166	15	16	17	19
244	Franklin	758	758	766	778	758	758	766	778	180	180	182	185	29	31	34	38
245	Franklin	600	600	616	618	600	600	616	618	134	134	138	138	7	8	8	9
246	Franklin	118	190	190	198	118	190	190	198	32	52	52	54	3	3	3	4
247	Franklin	4	12	12	12	4	12	12	12	4	12	12	12	45	48	52	58
248	Franklin	2	-	-	-	2	-	-	-	-	-	-	-	58	62	68	76
249	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	250	268	295	324
250	Franklin	909	924	952	956	909	924	952	956	209	212	219	220	3	3	3	4
251	Franklin	3	-	-	-	3	-	-	-	1	-	-	-	96	103	113	124
252	Franklin	38	-	-	-	38	-	-	-	8	-	-	-	213	229	252	277
253	Franklin	372	126	126	126	372	126	126	126	108	37	37	37	359	385	424	465
254	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	35	38	41	46
255	Franklin	13	13	13	13	13	13	13	13	4	4	4	4	19	20	22	24
256	Franklin	542	542	542	542	542	542	542	542	147	147	147	147	25	26	28	32
257	Franklin	46	46	46	46	46	46	46	46	15	15	15	15	4	4	4	5
258	Franklin	25	25	25	25	25	25	25	25	4	4	4	4	32	35	38	42
259	Franklin	12	12	12	12	12	12	12	12	2	2	2	2	12	13	14	16
260	Franklin	3	4	4	4	3	4	4	4	1	1	1	1	14	15	15	18
261	Franklin	2	-	-	-	2	-	-	-	-	-	-	-	4	4	4	5
262	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	11	12	13	15
263	Franklin	39	30	30	30	39	30	30	30	13	10	10	10	42	45	49	54
264	Franklin	7	-	-	-	7	-	-	-	1	-	-	-	34	37	40	45

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
265	Franklin	14	14	14	14	14	14	14	14	3	3	3	3	14	15	15	18
266	Franklin	2	-	-	-	2	-	-	-	-	-	-	-	15	16	17	19
267	Franklin	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
268	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	10	11	12	13
269	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	41	44	47	53
270	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	28	30	33	36
271	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	17	18	19	22
272	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	47	50	55	61
273	Franklin	4	4	4	4	4	4	4	4	1	1	1	1	38	41	45	50
274	Franklin	49	49	49	49	49	49	49	49	32	32	32	32	17	18	18	22
275	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	147	157	173	190
276	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
277	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
278	Franklin	29	29	29	29	-	29	29	29	-	-	-	-	49	52	57	63
279	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	46	49	54	59
280	Franklin	32	32	32	32	32	32	32	32	9	9	9	9	46	49	54	59
281	Franklin	25	25	25	25	25	25	25	25	7	7	7	7	19	20	22	24
282	Franklin	44	44	44	44	44	44	44	44	15	15	15	15	5	6	6	7
283	Franklin	73	73	73	73	73	73	73	73	34	34	34	34	26	28	30	34
284	Franklin	50	50	50	50	50	50	50	50	16	16	16	16	15	16	17	19
285	Franklin	3	4	4	4	3	4	4	4	1	1	1	1	18	19	20	23
286	Franklin	258	258	258	258	258	258	258	258	80	80	80	80	17	18	19	22
287	Franklin	168	168	168	168	168	168	168	168	52	52	52	52	31	33	36	40
288	Franklin	315	315	315	315	315	315	315	315	89	89	89	89	14	15	15	18
289	Franklin	199	199	199	199	199	199	199	199	58	58	58	58	38	41	45	50
290	Franklin	250	250	250	250	250	250	250	250	71	71	71	71	-	-	-	-
291	Franklin	309	309	309	309	309	309	309	309	84	84	84	84	62	67	73	81
292	Franklin	4	-	-	-	4	-	-	-	1	-	-	-	42	44	48	54
293	Franklin	3	-	-	-	3	-	-	-	1	-	-	-	235	252	277	304
294	Franklin	2	-	-	-	2	-	-	-	1	-	-	-	45	46	50	56
295	Franklin	1	-	-	-	1	-	-	-	-	-	-	-	5	5	5	6
296	Franklin	135	135	135	135	135	135	135	135	45	45	45	45	163	175	193	212
297	Franklin	272	251	251	251	272	251	251	251	132	122	122	122	12	13	14	16
298	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
299	Franklin	109	109	1,091	109	109	109	1,091	109	75	75	751	75	6	6	6	8
300	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	35	38	41	46
301	Franklin	23	23	23	23	23	23	23	23	10	10	10	10	10	11	12	13
302	Franklin	319	392	392	392	319	392	392	392	60	74	74	74	38	41	45	50
303	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	468	502	553	607
304	Franklin	14	-	-	-	8	-	-	-	2	-	-	-	50	54	59	65
305	Franklin	175	175	175	175	-	-	175	175	-	-	-	-	233	250	275	302
306	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	22	23	25	28
307	Franklin	141	141	141	141	141	141	141	141	56	56	56	56	26	28	30	34
308	Franklin	24	24	24	24	24	24	24	24	11	11	11	11	6	7	7	8

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
309	Franklin	133	133	133	133	133	133	133	133	34	34	34	34	137	147	162	178
310	Franklin	272	272	272	272	272	272	272	272	65	65	65	65	-	-	-	-
311	Franklin	183	183	183	183	183	183	183	183	46	46	46	46	-	-	-	-
312	Franklin	1,162	1,162	1,162	1,162	1,162	1,162	1,162	1,162	296	296	296	296	31	33	36	40
313	Franklin	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	272	272	272	272	37	40	44	49
314	Franklin	48	48	48	48	48	48	48	48	13	13	13	13	50	54	59	65
315	Franklin	115	115	115	115	115	115	115	115	27	27	27	27	-	-	-	-
316	Franklin	172	172	172	172	172	172	172	172	47	47	47	47	-	-	-	-
317	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	287	308	339	372
318	Franklin	346	346	350	350	346	346	350	350	93	93	94	94	34	37	40	45
319	Franklin	606	606	606	606	606	606	606	606	170	170	170	170	52	56	61	67
320	Franklin	113	113	113	113	113	113	113	113	29	29	29	29	216	232	255	281
321	Franklin	496	496	496	496	496	496	496	496	143	143	143	143	24	26	28	31
322	Franklin	42	42	42	42	42	42	42	42	11	11	11	11	105	113	124	136
323	Franklin	4	4	4	4	4	4	4	4	2	2	2	2	223	239	263	289
324	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	17	18	19	22
325	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
326	Franklin	320	320	337	337	320	320	337	337	99	99	104	104	102	109	120	132
327	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	5	6	6	7
328	Franklin	13	13	13	13	13	13	13	13	5	5	5	5	58	62	68	76
329	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	31	58	58	58
330	Franklin	691	691	691	691	691	691	691	691	190	190	190	190	16	17	18	20
331	Franklin	319	319	319	319	319	319	319	319	91	91	91	91	25	27	29	32
332	Franklin	152	152	152	152	152	152	152	152	50	50	50	50	50	54	59	65
333	Franklin	421	421	421	421	421	421	421	421	173	173	173	173	37	40	44	49
334	Franklin	2	2	2	2	2	2	2	2	1	1	1	1	168	181	199	219
335	Franklin	206	206	206	206	206	206	206	206	45	45	45	45	34	37	40	45
336	Franklin	296	296	296	296	296	296	296	296	90	90	90	90	71	76	83	92
337	Franklin	-	-	-	-	3	-	-	-	-	-	-	-	19	20	22	24
338	Franklin	-	-	-	-	4	-	-	-	1	-	-	-	17	18	20	22
339	Franklin	96	96	96	96	96	96	96	96	20	20	20	20	167	180	197	217
340	Franklin	227	227	227	227	227	227	227	227	61	61	61	61	125	134	147	162
341	Franklin	559	559	559	559	559	559	559	559	165	165	165	165	32	34	37	41
342	Franklin	201	201	201	201	201	201	201	201	79	79	79	79	40	42	46	51
343	Franklin	226	226	226	226	226	226	226	226	57	57	57	57	3	3	3	4
344	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	53	57	62	69
345	Franklin	548	548	548	548	539	539	539	539	133	133	133	133	85	91	100	110
346	Franklin	-	-	-	-	210	-	-	-	53	-	-	-	257	276	304	333
347	Franklin	393	393	393	393	393	393	393	393	101	101	101	101	4	4	4	5
348	Franklin	251	259	259	259	186	259	192	192	104	145	107	107	15	16	17	19
349	Franklin	125	125	125	125	125	125	125	125	31	31	31	31	71	76	83	92
350	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	178	191	210	231
351	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	102	109	120	132
352	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	850	912	1,004	1,102

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
353	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	1,158	1,233	1,358	1,490
354	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	38	41	45	50
355	Franklin	23	30	39	44	23	30	39	44	9	12	15	17	52	62	73	81
356	Franklin	3	5	7	9	3	5	7	9	1	2	2	3	15	18	21	23
357	Franklin	12	16	21	24	12	16	21	24	4	5	7	8	1	1	1	2
358	Franklin	10	13	17	19	10	13	17	19	4	5	7	8	12	14	16	19
359	Franklin	101	131	170	194	101	131	170	194	35	45	59	67	103	123	144	160
360	Franklin	183	238	310	354	183	238	310	354	69	90	117	133	97	116	136	151
361	Franklin	38	49	64	73	38	49	64	73	16	21	27	31	217	258	305	337
362	Franklin	1	3	5	7	1	3	5	7	1	3	5	7	840	1,000	1,182	1,305
363	Franklin	1	-	-	-	1	-	-	-	-	-	-	-	641	687	757	831
364	Franklin	9	3	3	3	9	3	3	3	3	1	1	1	5	6	6	7
365	Franklin	648	669	704	746	648	669	704	746	213	220	231	245	14	15	15	18
366	Franklin	1	-	-	-	1	-	-	-	1	-	-	-	2	2	2	3
367	Franklin	121	136	153	306	121	136	153	306	49	55	62	124	8	9	9	10
368	Franklin	319	1,258	1,512	1,518	319	1,258	1,512	1,518	102	402	483	485	24	26	28	31
369	Franklin	56	348	990	1,632	56	348	990	1,632	24	149	424	699	211	227	249	274
370	Franklin	3	3	340	360	3	3	340	360	1	1	113	120	-	-	-	-
371	Franklin	7	1,200	3,100	5,600	7	1,200	3,100	5,600	3	514	1,329	2,400	5	6	6	7
372	Franklin	110	110	110	110	110	110	110	110	55	55	55	55	279	299	329	362
373	Franklin	1,005	1,016	1,041	1,066	1,005	1,016	1,041	1,066	324	328	336	344	166	179	196	216
374	Franklin	-	-	-	-	36	-	-	-	23	-	-	-	170	182	200	220
375	Franklin	-	-	-	-	36	-	-	-	23	-	-	-	46	49	54	59
376	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	31	33	36	40
377	Franklin	328	424	424	400	328	424	424	400	147	190	190	179	34	36	39	44
378	Franklin	231	236	245	259	231	236	245	259	82	84	87	92	6	7	7	8
379	Franklin	63	63	63	68	63	63	63	68	26	26	26	28	1	1	1	1
380	Franklin	490	501	511	526	490	501	511	526	194	198	202	208	3	3	3	4
381	Franklin	154	157	160	167	154	157	160	167	52	53	54	56	-	-	-	-
382	Franklin	260	265	268	268	260	265	268	268	104	106	107	107	24	25	27	31
383	Franklin	56	58	61	61	56	58	61	61	22	23	24	24	3	3	3	4
384	Franklin	485	485	485	485	485	485	485	485	172	172	172	172	71	76	83	92
385	Franklin	445	445	450	450	445	445	450	450	165	165	167	167	-	-	-	-
386	Franklin	318	318	358	398	318	318	358	398	111	111	125	139	2	2	2	3
387	Franklin	90	139	171	217	90	139	171	217	26	40	49	63	-	-	-	-
388	Franklin	69	82	104	132	69	82	104	132	25	30	38	48	4	4	4	5
389	Franklin	103	103	144	158	103	103	144	158	37	37	52	57	8	9	9	10
390	Franklin	243	282	324	369	243	282	324	369	82	95	109	125	2	2	2	3
391	Franklin	221	182	187	195	221	182	187	195	70	58	59	62	-	-	-	-
392	Franklin	293	303	313	329	293	303	313	329	114	118	122	128	31	33	36	40
393	Franklin	182	196	212	232	182	196	212	232	65	70	76	83	77	83	91	100
394	Franklin	307	307	307	307	307	307	307	307	113	113	113	113	20	21	23	26
395	Franklin	225	257	290	351	225	257	290	351	71	81	92	111	16	17	18	20
396	Franklin	226	277	300	340	226	277	300	340	80	98	106	120	68	73	79	88

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
397	Franklin	147	150	153	156	147	150	153	156	51	52	53	54	138	148	163	179
398	Franklin	128	156	185	188	128	156	185	188	44	54	64	65	23	25	27	30
399	Franklin	95	111	130	130	95	111	130	130	42	49	57	57	3	3	3	4
400	Franklin	92	92	95	95	92	92	95	95	35	35	36	36	3	3	3	4
401	Franklin	42	42	55	55	42	42	55	55	20	20	26	26	7	8	8	9
402	Franklin	363	809	840	840	363	809	840	840	120	267	278	278	2	2	2	3
403	Franklin	385	385	402	425	385	385	402	425	149	149	156	164	2	2	2	3
404	Franklin	73	73	84	90	73	73	84	90	51	51	59	63	227	243	268	294
405	Franklin	30	240	384	386	30	386	386	386	10	129	129	129	-	29	76	146
406	Franklin	5	636	2,825	3,910	5	636	2,825	3,910	2	254	1,130	1,564	-	-	-	-
407	Franklin	283	357	364	369	283	357	364	369	112	141	144	146	4	4	4	5
408	Franklin	562	562	739	739	562	562	739	739	168	168	221	221	14	15	15	18
409	Franklin	148	154	155	155	148	154	155	155	52	54	54	54	11	12	13	15
410	Franklin	469	663	778	956	469	663	778	956	258	365	428	526	15	16	17	19
411	Franklin	2,182	2,182	2,182	2,182	2,182	2,182	2,182	2,182	641	641	641	641	-	-	-	-
412	Franklin	260	260	260	260	260	260	260	260	97	97	97	97	20	21	23	26
413	Franklin	489	540	540	540	489	540	540	540	170	188	188	188	135	145	159	175
414	Franklin	28	28	28	28	28	28	28	28	8	8	8	8	16	17	18	20
415	Franklin	609	613	627	643	609	613	627	643	218	219	224	230	-	-	-	-
416	Franklin	759	759	941	941	759	759	941	941	249	249	309	309	31	33	36	40
417	Franklin	950	950	950	950	950	950	950	950	308	308	308	308	16	17	18	20
418	Franklin	1,833	1,833	1,833	1,833	1,818	1,818	1,818	1,818	525	525	525	525	36	39	43	47
419	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	17	18	19	22
420	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	45	48	52	58
421	Franklin	52	-	-	-	52	-	-	-	30	-	-	-	36	39	43	47
422	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	56	60	66	73
423	Franklin	-	-	-	-	29	-	-	-	10	-	-	-	74	79	87	96
424	Franklin	-	-	-	-	13	-	-	-	4	-	-	-	71	76	84	92
425	Franklin	569	569	570	570	569	569	570	570	182	182	182	182	9	10	11	12
426	Franklin	359	380	380	380	359	380	380	380	125	132	132	132	14	15	15	18
427	Franklin	587	587	587	587	587	587	587	587	180	180	180	180	4	4	4	5
428	Franklin	771	771	771	771	771	771	771	771	256	256	256	256	67	71	78	86
429	Franklin	991	991	991	991	991	991	991	991	333	333	333	333	-	-	-	-
430	Franklin	-	338	712	1,262	-	338	712	1,262	-	-	-	-	271	291	320	352
431	Franklin	-	313	313	313	-	313	313	313	-	-	-	-	-	-	-	-
432	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	85	92	100	111
433	Franklin	-	-	200	200	-	-	200	200	-	-	-	-	32	35	38	42
434	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	33	36	39	43
435	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	133	143	157	173
436	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	209	224	247	271
437	Franklin	-	-	-	-	8	-	-	-	3	-	-	-	219	235	259	285
438	Franklin	-	-	-	-	4	-	-	-	1	-	-	-	103	110	122	134
439	Franklin	-	-	-	-	19	-	-	-	6	-	-	-	197	211	232	255
440	Franklin	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	491	491	491	491	21	22	24	27

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
441	Franklin	1,161	1,288	1,288	1,288	1,161	1,288	1,288	1,288	388	430	430	430	88	95	104	115
442	Franklin	22	280	280	280	22	280	280	280	8	102	102	102	345	370	408	448
443	Franklin	236	300	300	300	236	300	300	300	80	102	102	102	15	16	17	19
444	Franklin	31	1,086	1,088	1,088	31	1,086	1,088	1,088	11	385	386	386	4	4	4	5
445	Franklin	682	682	682	682	682	682	682	682	227	227	227	227	87	94	103	113
446	Franklin	821	826	826	826	821	826	826	826	271	273	273	273	-	-	-	-
447	Franklin	1,199	1,444	1,444	1,444	1,199	1,444	1,444	1,444	361	435	435	435	60	65	71	78
448	Franklin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
449	Franklin	7	7	7	140	7	7	7	140	2	2	2	40	35	38	41	46
450	Franklin	-	1,099	2,198	3,297	-	1,099	2,198	3,297	-	-	-	-	-	-	-	-
451	Franklin	-	591	1,182	1,775	-	591	1,182	1,775	-	-	-	-	-	-	-	-
452	Franklin	11	64	364	620	11	64	364	620	4	23	132	225	3	3	3	4
453	Franklin	83	96	112	112	83	96	112	112	26	30	35	35	3	3	3	4
454	Franklin	5	6	315	609	5	6	315	609	2	2	126	244	1	1	1	1
455	Benton	-	-	-	-	-	-	-	-	1	-	-	-	350	486	522	537
456	Benton	-	-	-	-	-	-	-	-	1	-	-	-	19	26	28	29
457	Benton	-	-	-	-	-	-	-	-	-	-	-	-	266	370	398	409
458	Benton	-	-	-	-	-	-	-	-	-	-	-	-	23	32	34	36
459	Benton	-	-	-	-	-	-	-	-	-	-	-	-	634	882	947	973
460	Benton	-	-	-	-	-	-	-	-	-	-	-	-	117	163	175	180
461	Benton	-	-	-	-	-	-	-	-	-	-	-	-	16	22	23	24
462	Benton	-	415	415	415	-	415	415	415	-	-	-	-	38	53	56	58
463	Benton	39	3,297	5,859	6,169	39	65	200	280	19	32	97	136	2	3	3	3
464	Benton	31	-	-	-	31	-	-	-	18	-	-	-	-	-	-	-
465	Benton	41	65	65	65	41	65	65	65	18	29	29	29	4	6	6	6
466	Benton	5	10	10	10	5	10	10	10	1	2	2	2	40	56	60	62
467	Benton	-	-	-	-	-	-	-	-	-	-	-	-	336	467	502	516
468	Benton	4	-	-	-	4	-	-	-	2	-	-	-	438	608	653	671
469	Benton	-	-	-	-	-	-	-	-	-	-	-	-	101	140	151	155
470	Benton	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
471	Benton	-	-	-	-	-	-	-	-	-	-	-	-	1,147	1,594	1,713	1,759
472	Benton	-	-	-	-	-	-	-	-	-	-	-	-	1,150	1,599	1,718	1,764
473	Benton	-	-	-	-	-	-	-	-	-	-	-	-	251	348	374	384
474	Benton	-	-	-	-	-	-	-	-	1	-	-	-	163	226	243	250
475	Benton	-	-	-	-	-	-	-	-	-	-	-	-	125	173	185	190
476	Benton	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2
477	Benton	-	-	-	-	-	-	-	-	-	-	-	-	43	60	64	66
478	Benton	-	-	-	-	-	-	-	-	-	-	-	-	21	29	31	32
479	Benton	-	-	-	-	-	-	-	-	2	-	-	-	271	376	404	415
480	Benton	-	-	-	-	-	-	-	-	1	-	-	-	435	605	649	667
481	Benton	3	3	3	3	3	3	3		1	1	1	-	30	41	44	45
482	Benton	-	-	-	-	-	-	-	-	-	-	-	-	292	405	435	447
483	Benton	76	121	121	121	76	121	121	121	37	59	59	59	89	122	132	135
484	Benton	3	200	200	200	3	200	200	200	1	67	67	67	271	376	404	415

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
485	Benton	-	-	-	-	-	-	-	-	-	-	-	-	149	207	222	229
486	Benton	605	651	651	651	605	651	651	651	284	306	306	306	18	25	26	28
487	Benton	169	89	89	89	169	89	89	89	135	71	71	71	1,329	1,847	1,985	2,038
488	Benton	455	461	461	461	455	461	461	461	177	179	179	179	24	34	36	37
489	Benton	252	295	295	295	252	295	295	295	111	130	130	130	5	7	7	8
490	Benton	247	257	257	257	247	257	257	257	98	102	102	102	-	-	-	-
491	Benton	93	89	89	89	93	89	89	89	34	33	33	33	-	-	-	-
492	Benton	878	865	865	865	878	865	865	865	441	434	434	434	13	18	18	19
493	Benton	103	97	97	97	103	97	97	97	37	35	35	35	-	-	-	-
494	Benton	435	474	474	474	435	474	474	474	180	196	196	196	7	10	10	11
495	Benton	366	333	333	333	366	333	333	333	146	133	133	133	3	4	4	5
496	Benton	1,214	1,098	1,098	1,098	1,214	1,098	1,098	1,098	567	513	513	513	18	25	26	28
497	Benton	821	891	891	891	821	891	891	891	352	382	382	382	43	60	63	66
498	Benton	270	246	246	246	270	246	246	246	93	85	85	85	8	12	12	13
499	Benton	411	424	424	424	411	424	424	424	162	167	167	167	5	7	7	8
500	Benton	232	268	268	268	232	268	268	268	139	161	161	161	14	19	20	21
501	Benton	326	335	335	335	326	335	335	335	128	132	132	132	20	28	30	31
502	Benton	255	237	237	237	241	224	224	224	147	137	137	137	22	31	33	34
503	Benton	201	228	228	228	191	217	217	217	86	98	98	98	19	26	28	29
504	Benton	261	249	249	249	261	249	249	249	97	93	93	93	11	15	15	16
505	Benton	159	186	186	186	155	181	181	181	70	82	82	82	1	1	1	2
506	Benton	118	115	115	115	118	115	115	115	45	44	44	44	-	-	-	-
507	Benton	220	234	234	234	220	234	234	234	86	91	91	91	8	12	12	13
508	Benton	163	177	177	177	163	177	177	177	66	72	72	72	76	106	113	117
509	Benton	78	89	89	89	78	89	89	89	34	39	39	39	2	3	3	3
510	Benton	-	-	-	-	-	-	-	-	-	-	-	-	41	57	61	63
511	Benton	-	-	-	-	-	-	-	-	-	-	-	-	135	188	202	208
512	Benton	17	166	166	166	17	166	166	166	7	68	68	68	69	95	102	105
513	Benton	74	232	232	232	74	232	232	232	41	129	129	129	7	10	11	11
514	Benton	269	305	305	305	269	305	305	305	167	189	189	189	1	1	1	2
515	Benton	-	-	-	-	-	-	-	-	8	-	-	-	85	118	126	130
516	Benton	326	307	307	307	326	307	307	307	117	110	110	110	-	-	-	-
517	Benton	286	348	348	348	280	341	341	341	134	163	163	163	20	27	29	31
518	Benton	160	178	178	178	160	178	178	178	61	68	68	68	-	-	-	-
519	Benton	74	60	60	60	-	60	60	60	-	-	-	-	217	301	323	332
520	Benton	347	441	441	441	347	441	441	441	139	177	177	177	17	24	25	26
521	Benton	443	498	498	498	443	498	498	498	195	219	219	219	13	18	18	19
522	Benton	755	770	770	770	755	770	770	770	303	309	309	309	15	21	22	23
523	Benton	696	620	620	620	696	620	620	620	254	226	226	226	1	1	1	2
524	Benton	48	74	74	74	-	74	74	74	-	-	-	-	247	344	369	379
525	Benton	-	-	-	-	-	-	-	-	-	-	-	-	333	463	497	511
526	Benton	39	40	40	40	39	40	40	40	34	35	35	35	202	281	301	310
527	Benton	336	343	343	343	336	343	343	343	165	168	168	168	80	112	120	123
528	Benton	316	389	389	389	316	389	389	389	150	185	185	185	10	13	14	15

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
529	Benton	-	-	-	-	-	-	-	-	-	-	-	-	302	420	451	464
530	Benton	-	-	-	-	-	-	-	-	-	-	-	-	70	97	104	107
531	Benton	11	5	5	5	11	5	5	5	5	2	2	2	78	109	116	120
532	Benton	-	-	-	-	10	-	-	-	4	-	-	-	97	135	145	149
533	Benton	81	62	62	62	81	62	62	62	27	21	21	21	-	-	-	-
534	Benton	-	-	-	-	-	-	-	-	-	-	-	-	381	529	568	584
535	Benton	-	-	-	-	-	-	-	-	-	-	-	-	156	217	233	240
536	Benton	546	488	488	488	546	488	488	488	195	174	174	174	1	1	1	2
537	Benton	-	-	-	-	-	-	-	-	-	-	-	-	63	88	94	97
538	Benton	-	-	-	-	-	-	-	-	-	-	-	-	383	531	571	586
539	Benton	-	-	-	-	-	-	-	-	-	-	-	-	35	48	52	54
540	Benton	-	-	-	-	-	-	-	-	-	-	-	-	12	16	17	18
541	Benton	-	-	-	-	-	-	-	-	-	-	-	-	47	65	69	71
542	Benton	-	-	-	-	-	-	-	-	-	-	-	-	51	71	75	78
543	Benton	-	-	-	-	-	-	-	-	-	-	-	-	366	508	546	561
544	Benton	-	-	-	-	-	-	-	-	-	-	-	-	117	163	175	180
545	Benton	-	-	-	-	-	-	-	-	-	-	-	-	125	173	186	191
546	Benton	-	-	-	-	-	-	-	-	-	-	-	-	145	201	216	222
547	Benton	-	-	-	-	-	-	-	-	-	-	-	-	88	122	131	135
548	Benton	-	-	-	-	-	-	-	-	-	-	-	-	192	267	287	295
549	Benton	-	-	-	-	-	-	-	-	-	-	-	-	20	28	30	31
550	Benton	-	-	-	-	-	-	-	-	-	-	-	-	189	263	282	290
551	Benton	-	-	-	-	-	-	-	-	-	-	-	-	32	44	47	49
552	Benton	-	-	-	-	-	-	-	-	-	-	-	-	218	303	325	334
553	Benton	-	-	-	-	-	-	-	-	-	-	-	-	12	16	17	18
554	Benton	-	-	-	-	-	-	-	-	-	-	-	-	50	69	74	76
555	Benton	195	184	184	184	195	184	184	184	73	69	69	69	6	8	8	9
556	Benton	57	59	59	59	57	59	59	59	31	32	32	32	105	145	156	161
557	Benton	279	330	330	330	279	330	330	330	113	134	134	134	12	16	16	17
558	Benton	492	395	395	395	427	395	395	395	220	204	204	204	92	128	137	141
559	Benton	-	-	-	-	-	-	-	-	-	-	-	-	133	185	199	204
560	Benton	-	-	-	-	-	-	-	-	1	-	-	-	51	71	75	78
561	Benton	430	392	392	392	430	392	392	392	208	190	190	190	40	56	60	62
562	Benton	249	243	243	243	249	243	243	243	111	108	108	108	4	5	5	6
563	Benton	303	273	273	273	303	273	273	273	115	104	104	104	3	4	4	5
564	Benton	-	-	-	-	-	-	-	-	-	-	-	-	91	126	135	139
565	Benton	-	-	-	-	-	-	-	-	2	-	-	-	22	31	33	34
566	Benton	193	241	241	241	193	241	241	241	118	147	147	147	4	6	6	6
567	Benton	-	-	-	-	-	-	-	-	8	-	-	-	56	77	82	85
568	Benton	-	-	-	-	-	-	-	-	9	-	-	-	270	375	402	413
569	Benton	-	-	-	-	-	-	-	-	1	-	-	-	509	708	761	782
570	Benton	134	282	282	282	134	282	282	282	82	173	173	173	3	4	4	5
571	Benton	29	84	84	84	29	84	84	84	14	41	41	41	363	504	541	556
572	Benton	737	705	705	705	737	705	705	705	399	382	382	382	7	10	11	11

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
573	Benton	42	99	99	99	42	99	99	99	15	35	35	35	32	44	47	49
574	Benton	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-
575	Benton	47	-	-	-	47	-	-	-	21	-	-	-	2	4	4	5
576	Benton	514	520	543	550	514	-	-	-	190	-	-	-	2	54	60	70
577	Benton	331	715	715	815	331	715	715	715	139	300	300	300	4	7	8	11
578	Benton	98	198	326	326	98	198	326	326	40	81	133	133	23	40	48	59
579	Benton	339	400	400	400	339	400	400	400	154	182	182	182	20	28	30	31
580	Benton	134	134	1,339	1,409	134	134	1,339	1,409	44	44	440	463	261	363	390	401
581	Benton	268	268	268	268	268	268	268	268	79	79	79	79	31	54	66	80
582	Benton	472	472	472	472	472	472	472	472	253	253	253	253	298	414	445	457
583	Benton	-	-	-	-	-	-	-	-	-	-	-	-	317	441	473	486
584	Benton	2	2	2	2	2	2	2	2	1	1	1	1	17	24	25	26
585	Benton	825	841	841	841	825	841	841	841	301	307	307	307	90	125	134	138
586	Benton	72	587	587	587	72	587	587	587	28	228	228	228	11	15	15	16
587	Benton	1	1	1	1	1	1	1	1	1	1	1	1	24	41	51	62
588	Benton	127	127	127	127	127	127	127	127	48	48	48	48	4	7	8	11
589	Benton	131	131	131	131	131	131	131	131	47	47	47	47	11	20	24	29
590	Benton	216	216	216	216	216	216	216	216	57	57	57	57	7	13	15	19
591	Benton	593	593	593	593	593	593	593	593	201	201	201	201	2	4	4	5
592	Benton	87	87	87	87	87	87	87	87	30	30	30	30	69	119	146	177
593	Benton	451	451	451	451	451	451	451	451	171	171	171	171	1	2	2	3
594	Benton	589	589	589	589	589	589	589	589	224	224	224	224	32	55	68	83
595	Benton	337	337	337	337	337	337	337	337	111	111	111	111	4	7	8	11
596	Benton	292	292	292	292	292	292	292	292	106	106	106	106	2	4	4	5
597	Benton	497	497	497	497	497	497	497	497	154	154	154	154	8	14	17	21
598	Benton	517	517	517	517	517	517	517	517	224	224	224	224	134	232	287	346
599	Benton	7	67	67	67	7	67	67	67	2	19	19	19	218	378	467	563
600	Benton	129	129	129	129	129	129	129	129	39	39	39	39	2	4	4	5
601	Benton	425	545	545	545	425	545	545	545	156	200	200	200	3	5	6	8
602	Benton	153	153	153	153	153	153	153	153	55	55	55	55	4	7	8	9
603	Benton	3	3	3	3	3	3	3	3	1	1	1	1	4	7	8	9
604	Benton	3	3	3	3	3	3	3	3	2	2	2	2	4	7	8	9
605	Benton	104	118	136	145	104	118	136	145	44	50	58	61	12	22	25	28
606	Benton	180	264	448	563	180	264	448	563	91	133	226	285	10	19	21	23
607	Benton	137	140	143	145	137	140	143	145	44	45	46	47	16	30	33	37
608	Benton	765	785	806	817	765	785	806	817	291	299	307	311	12	22	25	28
609	Benton	188	205	225	235	188	205	225	235	66	72	79	83	56	102	115	127
610	Benton	262	284	310	323	262	284	310	323	99	107	117	122	44	80	90	99
611	Benton	1,255	1,585	2,109	2,401	1,255	1,585	2,109	2,401	433	547	728	828	232	427	481	528
612	Benton	99	99	99	99	99	99	99	99	34	34	34	34	34	63	71	78
613	Benton	452	455	458	460	452	455	458	460	159	160	161	162	27	50	56	62
614	Benton	41	44	47	49	41	44	47	49	14	15	16	17	6	6	6	7
615	Benton	643	688	736	761	643	688	736	761	253	271	290	299	-	-	-	-
616	Benton	91	91	91	91	91	91	91	91	32	32	32	32	1	2	2	2

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
617	Benton	192	198	205	208	192	198	205	208	78	80	83	85	5	5	5	6
618	Benton	93	99	105	108	93	99	105	108	35	37	40	41	3	3	3	3
619	Benton	296	312	322	327	296	312	322	327	94	99	102	104	12	13	13	14
620	Benton	365	384	397	403	365	384	397	403	123	129	134	136	7	8	7	8
621	Benton	287	307	317	322	287	307	317	322	93	99	103	104	26	28	28	30
622	Benton	607	623	644	655	607	623	644	655	175	180	186	189	24	26	26	27
623	Benton	564	1,011	1,013	1,014	564	1,011	1,013	1,014	202	362	363	363	22	24	24	25
624	Benton	233	290	310	320	233	290	310	320	89	111	118	122	20	21	22	23
625	Benton	-	-	-	-	-	-	-	-	-	-	-	-	6	9	9	10
626	Benton	136	212	212	212	136	212	212	212	49	76	76	76	-	-	-	-
627	Benton	385	412	440	455	385	412	440	455	113	121	129	134	57	61	63	65
628	Benton	148	153	155	158	148	153	155	158	51	53	53	54	40	43	44	46
629	Benton	185	191	198	201	185	191	198	201	70	72	75	76	19	20	21	22
630	Benton	3	3	48	52	3	3	48	52	1	1	16	17	-	-	-	-
631	Benton	3	-	-	-	3	-	-	-	1	-	-	-	1	1	1	2
632	Benton	277	222	2,331	2,454	277	222	2,331	2,454	104	83	875	921	15	21	22	23
633	Benton	117	401	1,220	1,285	117	401	1,220	1,285	43	147	448	472	2	3	3	3
634	Benton	69	69	69	69	69	69	69	69	27	27	27	27	1	1	1	1
635	Benton	44	44	44	44	44	44	44	44	12	12	12	12	-	-	-	-
636	Benton	341	341	341	341	341	341	341	341	108	108	108	108	14	19	20	21
637	Benton	460	463	464	465	460	463	464	465	152	153	153	154	25	27	27	28
638	Benton	585	593	621	653	585	593	621	653	199	202	211	222	18	25	26	28
639	Benton	606	713	1,344	1,415	606	713	1,344	1,415	211	248	468	493	7	10	11	11
640	Benton	320	320	343	361	320	320	343	361	125	125	134	141	18	25	26	27
641	Benton	826	826	826	826	826	826	826	826	328	328	328	328	38	53	56	58
642	Benton	610	610	610	610	610	610	610	610	231	231	231	231	45	63	67	70
643	Benton	635	951	951	951	635	951	951	951	251	376	376	376	18	24	26	27
644	Benton	465	637	637	637	465	637	637	637	201	275	275	275	6	9	9	10
645	Benton	196	267	561	590	196	267	561	590	81	110	232	244	-	-	-	-
646	Benton	59	73	115	119	59	73	115	119	20	25	39	40	1	1	1	2
647	Benton	372	356	356	356	372	356	356	356	129	123	123	123	4	5	5	6
648	Benton	290	290	290	290	290	290	290	290	174	174	174	174	35	48	52	54
649	Benton	11	11	11	11	11	11	11	11	4	4	4	4	169	235	251	259
650	Benton	293	293	293	293	293	293	293	293	100	100	100	100	6	8	8	9
651	Benton	51	81	81	81	51	81	81	81	17	27	27	27	-	-	-	-
652	Benton	499	228	228	228	499	228	228	228	255	117	117	117	2	3	3	3
653	Benton	39	299	299	299	39	299	299	299	22	169	169	169	82	115	123	126
654	Benton	44	44	212	219	44	44	212	219	18	18	87	90	10	13	13	14
655	Benton	991	1,483	1,700	1,759	991	1,483	1,700	1,759	361	540	619	641	86	119	127	131
656	Benton	26	26	26	26	26	26	26	26	9	9	9	9	3	4	4	5
657	Benton	190	190	190	190	190	190	190	190	91	91	91	91	71	98	105	108
658	Benton	58	29	29	29	58	29	29	29	23	12	12	12	85	118	126	130
659	Benton	8	29	29	29	8	29	29	29	4	15	15	15	-	5	10	11
660	Benton	46	73	73	73	46	73	73	73	21	33	33	33	204	281	302	310

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
661	Benton	153	176	558	587	153	176	558	587	56	64	204	215	5	7	7	8
662	Benton	153	209	235	243	153	209	235	243	61	83	94	97	14	19	20	21
663	Benton	32	65	152	157	32	65	152	157	12	24	57	59	-	-	-	-
664	Benton	189	257	293	303	189	257	293	303	71	97	110	114	3	4	4	5
665	Benton	-	-	-	-	-	-	-	-	4	-	-	-	114	159	170	175
666	Benton	222	222	222	222	222	222	222	222	84	84	84	84	34	47	50	52
667	Benton	312	267	267	267	312	267	267	267	119	102	102	102	17	24	25	26
668	Benton	-	-	-	-	-	-	-	-	1	-	-	-	72	100	107	110
669	Benton	112	112	112	112	112	112	112	112	35	35	35	35	3	4	4	5
670	Benton	253	253	253	253	253	253	253	253	86	86	86	86	6	9	9	10
671	Benton	409	409	409	409	409	409	409	409	137	137	137	137	15	21	22	23
672	Benton	59	65	65	65	59	65	65	65	24	26	26	26	5	7	7	8
673	Benton	18	-	-	-	18	-	-	-	26	-	-	-	-	-	-	-
674	Benton	928	1,024	1,024	1,024	928	1,024	1,024	1,024	402	444	444	444	16	22	23	24
675	Benton	778	403	403	403	778	403	403	403	412	213	213	213	12	16	17	18
676	Benton	67	193	193	193	67	193	193	193	43	124	124	124	48	66	71	73
677	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
678	Benton	-	633	1,266	1,266	-	633	1,266	1,266	-	-	-	-	-	-	-	-
679	Benton	392	419	448	463	392	419	448	463	143	153	163	169	55	59	60	62
680	Benton	68	70	72	73	68	70	72	73	23	24	24	25	4	4	4	5
681	Benton	7	7	7	7	7	7	7	7	2	2	2	2	4	504	2,184	2,500
682	Benton	1	400	700	890	1	400	700	890	-	-	-	-	-	-	-	-
683	Benton	76	500	600	600	76	500	600	600	28	184	221	221	8	8	9	10
684	Benton	1	250	400	500	1	250	400	500	-	-	-	-	-	-	-	-
685	Benton	50	41	41	41	50	41	41	41	23	19	19	19	6	9	9	10
686	Benton	650	474	474	474	650	474	474	474	297	217	217	217	19	26	28	29
687	Benton	2	508	508	508	2	508	508	508	1	254	254	254	63	88	94	97
688	Benton	5	-	-	-	5	-	-	-	2	-	-	-	7	10	11	11
689	Benton	24	160	160	160	24	160	160	160	11	73	73	73	31	43	45	47
690	Benton	28	460	460	460	28	460	460	460	13	214	214	214	29	30	34	38
691	Benton	84	-	-	-	84	-	-	-	40	-	-	-	26	27	30	34
692	Benton	147	142	142	142	147	142	142	142	69	67	67	67	3	4	4	5
693	Benton	680	591	591	591	680	591	591	591	273	237	237	237	7	7	8	9
694	Benton	20	-	-	-	20	-	-	-	8	-	-	-	227	234	268	294
695	Benton	-	-	-	-	-	-	-	-	-	-	-	-	804	827	950	1,040
696	Benton	195	158	158	158	195	158	158	158	139	113	113	113	367	510	548	563
697	Benton	53	569	569	569	53	569	569	569	38	408	408	408	72	100	107	110
698	Benton	1,088	419	419	419	1,088	419	419	419	660	254	254	254	40	56	60	62
699	Benton	264	380	380	380	264	380	380	380	106	153	153	153	4	6	6	6
700	Benton	2	50	50	50	2	50	50	50	1	25	25	25	-	-	-	-
701	Benton	8	569	569	569	8	569	569	569	3	213	213	213	-	-	-	-
702	Benton	1	-	-	-	1	-	-	-	1	-	-	-	120	123	141	155
703	Benton	24	300	300	300	24	300	300	300	9	113	113	113	73	76	86	95
704	Benton	177	626	626	626	177	626	626	626	64	226	226	226	91	93	107	117

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
705	Benton	10	448	448	448	10	448	448	448	5	224	224	224	-	-	-	-
706	Benton	5	-	-	-	5	-	-	-	2	-	-	-	133	137	157	172
707	Benton	-	-	-	-	-	-	-	-	-	-	-	-	5	250	516	590
708	Benton	-	-	-	-	-	-	-	-	-	-	-	-	604	621	713	781
709	Benton	-	-	-	-	-	-	-	-	-	-	-	-	87	750	1,020	1,166
710	Benton	1	250	450	518	1	250	450	518	-	85	154	178	31	300	526	600
711	Benton	137	850	938	938	137	850	938	938	50	310	342	342	-	154	166	172
712	Benton	4	86	194	248	4	86	194	248	1	22	49	62	-	10	11	12
713	Benton	4	600	800	900	4	600	800	900	1	150	200	225	-	800	2,070	2,368
714	Benton	1	573	1,289	1,648	1	573	1,289	1,648	-	-	-	-	-	-	-	-
715	Benton	1	800	1,300	2,000	1	800	1,300	2,000	-	-	-	-	-	-	-	-
716	Benton	-	750	1,500	1,700	-	750	1,500	1,700	-	-	-	-	-	-	-	-
717	Benton	43	256	317	520	43	256	317	520	14	83	103	169	-	-	-	-
718	Benton	-	-	-	-	-	-	-	-	-	-	-	-	163	168	192	211
719	Benton	760	1,025	1,025	1,025	760	1,025	1,025	1,025	344	464	464	464	9	76	80	86
720	Benton	402	385	385	385	402	385	385	385	151	145	145	145	8	8	9	10
721	Benton	79	273	614	682	79	273	614	682	36	124	280	311	2	2	2	3
722	Benton	136	284	639	816	136	284	639	816	62	129	291	372	-	-	-	-
723	Benton	3	87	195	250	3	87	195	250	1	29	65	83	-	-	-	-
724	Benton	73	-	-	-	73	-	-	-	21	-	-	-	257	264	303	332
725	Benton	2	-	-	-	2	-	-	-	1	-	-	-	27	28	32	35
726	Benton	604	604	604	604	604	604	604	604	225	225	225	225	85	87	99	109
727	Benton	617	617	617	617	617	617	617	617	244	244	244	244	6	6	7	8
728	Benton	280	280	280	280	280	280	280	280	100	100	100	100	2	2	2	3
729	Benton	428	428	428	428	428	428	428	428	147	147	147	147	79	82	93	103
730	Benton	532	532	532	532	532	532	532	532	190	190	190	190	8	8	9	10
731	Benton	268	423	423	423	268	423	423	423	124	196	196	196	12	12	14	16
732	Benton	1,092	1,183	1,183	1,183	1,092	1,183	1,183	1,183	698	756	756	756	21	22	24	27
733	Benton	631	654	654	654	631	654	654	654	201	208	208	208	20	21	23	26
734	Benton	933	956	956	956	933	956	956	956	362	371	371	371	17	18	20	22
735	Benton	218	520	520	520	218	520	520	520	157	374	374	374	8	8	9	10
736	Benton	36	-	-	-	36	-	-	-	13	-	-	-	30	31	35	39
737	Benton	-	-	-	-	-	-	-	-	-	-	-	-	17	18	20	22
738	Benton	1,434	1,160	1,160	1,160	1,434	1,160	1,160	1,160	679	549	549	549	66	68	78	86
739	Benton	6	-	-	-	6	-	-	-	3	-	-	-	339	349	400	439
740	Benton	801	827	827	827	801	827	827	827	282	291	291	291	17	18	20	22
741	Benton	102	118	118	118	102	118	118	118	119	138	138	138	177	182	209	229
742	Benton	-	-	-	-	-	-	-	-	-	-	-	-	304	313	359	393
743	Benton	58	-	-	-	58	-	-	-	24	-	-	-	585	602	692	758
744	Benton	-	-	-	-	-	-	-	-	-	-	-	-	21	29	31	32
745	Benton	36	60	60	60	36	60	60	60	19	32	32	32	2	3	3	3
746	Benton	47	164	164	164	47	164	164	164	24	84	84	84	104	144	154	159
747	Benton	-	-	-	-	4	-	-	-	2	-	-	-	3	4	5	5
748	Benton	22	15	-	-	22	15	-	-	10	7	-	-	85	118	126	130

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
749	Benton	206	359	359	359	206	359	359	359	144	251	251	251	116	162	173	178
750	Benton	-	-	-	-	-	-	-	-	69	-	-	-	367	510	548	563
751	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
752	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
753	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
754	Benton	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	7
755	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
756	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
757	Benton	-	-	-	-	-	-	-	-	-	-	-	-	108	147	158	162
758	Benton	-	-	-	-	-	-	-	-	-	-	-	-	238	331	355	365
759	Benton	-	-	-	-	-	-	-	-	-	-	-	-	10	13	14	15
760	Benton	-	-	-	-	-	-	-	-	-	-	-	-	70	72	83	91
761	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
762	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
763	Benton	-	-	-	-	-	-	-	-	-	-	-	-	1,455	1,497	1,719	1,883
764	Benton	-	-	-	-	-	-	-	-	-	-	-	-	138	142	162	178
765	Benton	-	139	139	139	-	139	139	139	-	-	-	-	44	46	52	57
766	Benton	-	-	-	-	-	-	-	-	-	-	-	-	588	605	694	760
767	Benton	79	79	79	79	79	79	79	79	24	24	24	24	56	58	66	73
768	Benton	167	210	174	174	167	210	174	174	69	87	72	72	10	10	11	13
769	Benton	226	284	284	284	226	284	284	284	96	121	121	121	8	8	9	10
770	Benton	76	-	-	-	-	-	-	-	-	-	-	-	1,208	1,243	1,428	1,564
771	Benton	306	-	-	-	-	-	-	-	-	-	-	-	106	109	124	137
772	Benton	229	600	600	600	-	600	600	600	-	-	-	-	446	459	526	577
773	Benton	-	-	-	-	-	-	-	-	-	-	-	-	198	204	234	256
774	Benton	-	-	-	-	-	-	-	-	-	-	-	-	26	27	30	34
775	Benton	-	-	-	-	-	-	-	-	-	-	-	-	188	194	222	243
776	Benton	-	-	-	-	-	-	-	-	-	-	-	-	466	479	550	603
777	Benton	-	-	-	-	-	-	-	-	-	-	-	-	40	41	47	52
778	Benton	2	-	-	-	2	-	-	-	1	-	-	-	296	304	349	383
779	Benton	-	-	-	-	-	-	-	-	-	-	-	-	507	522	599	656
780	Benton	-	100	800	1,095	-	100	800	1,095	-	-	-	-	216	223	255	280
781	Benton	-	90	500	730	-	90	500	730	-	-	-	-	41	42	48	53
782	Benton	3	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-
783	Benton	36	44	44	44	36	44	44	44	14	17	17	17	138	142	162	178
784	Benton	294	350	450	450	294	350	450	450	110	131	168	168	83	86	98	108
785	Benton	-	-	-	-	-	-	-	-	-	-	-	-	589	606	695	762
786	Benton	-	-	-	-	-	-	-	-	-	-	-	-	27	28	32	35
787	Benton	-	-	-	-	-	-	-	-	-	-	-	-	266	273	314	344
788	Benton	-	-	-	-	-	-	-	-	-	-	-	-	870	895	1,028	1,126
789	Benton	-	-	-	-	-	-	-	-	-	-	-	-	70	72	83	91
790	Benton	1	2	-	-	1	2	-	-	1	2	-	-	280	288	330	362
791	Benton	364	447	447	447	364	447	447	447	141	173	173	173	266	273	314	344
792	Benton	9	-	-	-	9	-	-	-	4	-	-	-	169	174	199	219

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
793	Benton	24	24	24	24	24	24	24	24	11	11	11	11	229	236	271	297
794	Benton	236	170	170	170	236	170	170	170	80	58	58	58	162	167	191	210
795	Benton	193	193	193	193	193	193	193	193	65	65	65	65	8	8	9	10
796	Benton	456	770	770	770	456	770	770	770	233	393	393	393	195	201	230	253
797	Benton	105	135	135	135	105	135	135	135	37	48	48	48	10	10	11	13
798	Benton	352	352	352	352	352	352	352	352	126	126	126	126	2	2	2	3
799	Benton	254	320	320	320	254	320	320	320	103	130	130	130	3	3	3	4
800	Benton	728	730	745	745	726	730	745	745	239	240	245	245	17	18	20	22
801	Benton	214	214	214	214	214	214	214	214	78	78	78	78	16	17	19	21
802	Benton	300	300	300	300	300	300	300	300	115	115	115	115	2	2	2	3
803	Benton	492	492	492	492	492	492	492	492	202	202	202	202	4	4	4	5
804	Benton	292	297	297	297	292	297	297	297	99	101	101	101	2	2	2	3
805	Benton	358	358	358	358	358	358	358	358	120	120	120	120	29	30	34	38
806	Benton	506	506	506	506	506	506	506	506	215	215	215	215	27	28	32	35
807	Benton	353	374	398	398	353	374	398	398	172	182	194	194	3	3	3	4
808	Benton	6	-	45	45	6	-	45	45	3	-	23	23	253	260	298	327
809	Benton	107	112	122	122	107	112	122	122	43	45	49	49	3	3	3	4
810	Benton	4	-	-	-	4	-	-	-	2	-	-	-	-	-	-	-
811	Benton	218	223	235	235	211	223	235	235	74	78	82	82	5	5	5	7
812	Benton	415	467	467	467	415	467	467	467	183	206	206	206	4	4	4	5
813	Benton	101	99	99	99	101	99	99	99	37	36	36	36	23	24	27	30
814	Benton	200	242	260	270	200	242	260	270	71	86	92	96	17	18	20	22
815	Benton	477	477	477	477	477	477	477	477	166	166	166	166	12	12	14	16
816	Benton	27	38	38	38	27	38	38	38	13	18	18	18	88	90	103	113
817	Benton	381	382	382	382	381	382	382	382	147	147	147	147	1	1	1	1
818	Benton	702	702	702	702	702	702	702	702	271	271	271	271	13	13	15	17
819	Benton	235	235	235	235	235	235	235	235	80	80	80	80	88	90	103	113
820	Benton	316	163	163	163	316	163	163	163	98	51	51	51	16	17	19	21
821	Benton	191	212	212	212	191	212	212	212	75	83	83	83	-	-	-	-
822	Benton	1,157	452	452	452	1,157	452	452	452	452	177	177	177	192	198	227	249
823	Benton	406	270	270	270	406	270	270	270	198	132	132	132	182	187	215	236
824	Benton	66	-	-	-	66	-	-	-	40	-	-	-	142	146	167	184
825	Benton	51	51	51	51	51	51	51	51	8	8	8	8	16	17	19	21
826	Benton	89	-	-	-	89	-	-	-	30	-	-	-	23	24	27	30
827	Benton	321	321	321	321	321	321	321	321	107	107	107	107	7	7	8	9
828	Benton	145	145	145	145	145	145	145	145	58	58	58	58	1	1	1	1
829	Benton	83	83	83	83	83	83	83	83	52	52	52	52	2	2	2	3
830	Benton	385	414	414	414	385	414	414	414	243	261	261	261	58	60	68	76
831	Benton	244	244	244	244	244	244	244	244	97	97	97	97	3	3	3	4
832	Benton	75	86	86	86	75	86	86	86	29	33	33	33	51	53	60	66
833	Benton	257	257	257	257	257	257	257	257	104	104	104	104	5	5	5	7
834	Benton	370	316	316	316	370	316	316	316	137	117	117	117	7	7	8	9
835	Benton	871	871	871	871	871	871	871	871	336	336	336	336	15	16	17	20
836	Benton	952	952	952	952	949	952	952	952	413	414	414	414	5	5	5	7

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
837	Benton	349	538	538	538	346	538	538	538	153	238	238	238	8	8	9	10
838	Benton	152	-	-	-	152	-	-	-	69	-	-	-	344	354	406	445
839	Benton	160	262	262	262	160	262	262	262	67	110	110	110	194	200	229	251
840	Benton	345	345	345	345	345	345	345	345	148	148	148	148	5	5	5	7
841	Benton	-	-	-	-	-	-	-	-	-	-	-	-	38	39	45	49
842	Benton	20	118	118	118	20	118	118	118	8	47	47	47	1	1	1	1
843	Benton	175	175	175	175	175	175	175	175	72	72	72	72	71	73	84	92
844	Benton	320	320	320	320	314	320	320	320	155	158	158	158	9	9	10	12
845	Benton	163	163	163	163	163	163	163	163	58	58	58	58	10	10	11	13
846	Benton	29	-	-	-	29	-	-	-	14	-	-	-	114	117	134	147
847	Benton	33	-	-	-	33	-	-	-	16	-	-	-	191	197	225	247
848	Benton	153	-	-	-	153	-	-	-	67	-	-	-	81	84	96	105
849	Benton	159	9	9	9	159	9	9	9	70	4	4	4	296	304	349	383
850	Benton	235	380	380	380	235	380	380	380	96	155	155	155	38	39	45	49
851	Benton	572	672	672	672	572	672	672	672	292	343	343	343	17	18	20	22
852	Benton	296	296	296	296	296	296	296	296	127	127	127	127	8	8	9	10
853	Benton	-	-	-	-	-	-	-	-	-	-	-	-	208	214	246	270
854	Benton	-	-	-	-	-	-	-	-	-	-	-	-	107	110	126	138
855	Benton	12	-	-	-	12	-	-	-	5	-	-	-	41	42	48	53
856	Benton	-	-	-	-	-	-	-	-	-	-	-	-	340	350	402	440
857	Benton	545	221	221	221	545	221	221	221	271	110	110	110	80	83	95	104
858	Benton	461	816	816	816	455	816	816	816	219	393	393	393	34	35	40	44
859	Benton	-	-	-	-	-	-	-	-	-	-	-	-	255	262	300	329
860	Benton	4	500	850	1,200	4	500	850	1,200	1	125	213	300	-	-	-	-
861	Benton	2	150	501	600	2	150	501	600	1	51	172	206	-	301	652	744
862	Benton	3	-	-	-	3	-	-	-	1	-	-	-	440	452	519	569
863	Benton	-	-	-	-	-	-	-	-	-	-	-	-	60	62	71	78
864	Benton	531	531	531	531	455	531	531	531	329	384	384	384	85	87	99	109
865	Benton	771	771	771	771	771	771	771	771	241	241	241	241	5	5	5	7
866	Benton	16	16	16	16	16	16	16	16	5	5	5	5	86	88	101	111
867	Benton	268	268	268	268	268	268	268	268	105	105	105	105	20	21	23	26
868	Benton	530	530	530	530	530	530	530	530	166	166	166	166	9	9	10	12
869	Benton	653	819	819	819	653	819	819	819	199	250	250	250	14	14	16	18
870	Benton	822	822	822	822	822	822	822	822	281	281	281	281	10	10	11	13
871	Benton	362	362	362	362	362	362	362	362	138	138	138	138	49	51	58	64
872	Benton	148	148	148	148	148	148	148	148	62	62	62	62	7	7	8	9
873	Benton	28	-	-	-	28	-	-	-	10	-	-	-	200	206	236	259
874	Benton	175	116	116	116	175	116	116	116	70	46	46	46	65	67	77	85
875	Benton	315	315	315	315	315	315	315	315	112	112	112	112	5	5	5	7
876	Benton	90	90	90	90	90	90	90	90	39	39	39	39	6	6	7	8
877	Benton	2	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-
878	Benton	-	-	-	-	-	-	-	-	-	-	-	-	182	187	215	236
879	Benton	396	396	396	396	396	396	396	396	135	135	135	135	3	3	3	4
880	Benton	147	147	147	147	147	147	147	147	54	54	54	54	1	1	1	1

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
881	Benton	91	88	88	88	91	88	88	88	31	30	30	30	5	5	5	7
882	Benton	151	151	151	151	151	151	151	151	50	50	50	50	2	2	2	3
883	Benton	291	291	291	291	291	291	291	291	104	104	104	104	23	24	27	30
884	Benton	12	6	6	6	12	6	6	6	5	3	3	3	33	34	39	43
885	Benton	137	137	137	137	137	137	137	137	54	54	54	54	2	2	2	3
886	Benton	353	353	353	353	353	353	353	353	140	140	140	140	16	17	19	21
887	Benton	408	408	408	408	408	408	408	408	162	162	162	162	7	7	8	9
888	Benton	46	46	46	46	46	46	46	46	18	18	18	18	20	21	23	26
889	Benton	211	211	211	211	211	211	211	211	74	74	74	74	4	4	4	5
890	Benton	413	413	413	413	413	413	413	413	138	138	138	138	-	-	-	-
891	Benton	290	290	290	290	290	290	290	290	110	110	110	110	12	12	14	16
892	Benton	36	-	-	-	36	-	-	-	14	-	-	-	1	1	1	1
893	Benton	89	93	93	93	89	93	93	93	34	36	36	36	209	215	247	271
894	Benton	71	27	27	27	71	27	27	27	20	8	8	8	64	66	76	83
895	Benton	5	-	-	-	5	-	-	-	2	-	-	-	72	75	85	94
896	Benton	141	141	141	141	141	141	141	141	49	49	49	49	-	-	-	-
897	Benton	284	284	284	284	284	284	284	284	98	98	98	98	2	2	2	3
898	Benton	172	172	172	172	172	172	172	172	58	58	58	58	7	7	8	9
899	Benton	383	383	383	383	383	383	383	383	144	144	144	144	56	58	66	73
900	Benton	414	414	414	414	414	414	414	414	164	164	164	164	2	2	2	3
901	Benton	88	88	88	88	88	88	88	88	50	50	50	50	2	2	2	3
902	Benton	189	189	189	189	182	189	189	189	110	114	114	114	30	31	35	39
903	Benton	191	191	191	191	168	191	191	191	76	86	86	86	118	121	139	152
904	Benton	-	-	-	-	-	-	-	-	-	-	-	-	104	107	122	134
905	Benton	237	168	168	168	237	168	168	168	91	65	65	65	200	206	236	259
906	Benton	78	78	78	78	78	78	78	78	33	33	33	33	1	1	1	1
907	Benton	293	293	293	293	293	293	293	293	121	121	121	121	26	27	30	34
908	Benton	933	933	933	933	933	933	933	933	322	322	322	322	62	64	73	81
909	Benton	971	824	824	824	971	824	824	824	265	225	225	225	17	18	20	22
910	Benton	486	1,990	1,990	1,990	486	1,990	1,990	1,990	164	672	672	672	12	12	14	16
911	Benton	905	905	905	905	905	905	905	905	828	828	828	828	8	9	10	10
912	Benton	77	-	-	-	77	-	-	-	18	-	-	-	75	78	89	98
913	Benton	4	-	-	-	4	-	-	-	1	-	-	-	79	82	93	103
914	Benton	579	579	579	579	579	579	579	579	270	270	270	270	19	20	22	25
915	Benton	429	429	429	429	417	429	429	429	151	155	155	155	76	79	90	99
916	Benton	433	578	578	578	433	578	578	578	155	207	207	207	19	20	22	25
917	Benton	450	512	512	512	450	512	512	512	166	189	189	189	3	3	3	4
918	Benton	88	88	88	88	88	88	88	88	34	34	34	34	4	4	4	5
919	Benton	76	76	76	76	76	76	76	76	28	28	28	28	51	53	60	66
920	Benton	931	931	931	931	931	931	931	931	310	310	310	310	11	11	13	14
921	Benton	288	295	320	350	288	295	320	350	96	98	107	117	6	6	7	8
922	Benton	268	300	300	300	260	300	300	300	101	117	117	117	9	9	10	12
923	Benton	363	380	425	460	363	380	425	460	133	139	156	169	6	6	7	8
924	Benton	298	325	320	360	298	325	320	360	108	118	116	130	26	27	30	34

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
925	Benton	193	193	193	193	193	193	193	193	74	74	74	74	1	1	1	1
926	Benton	304	304	304	304	304	304	304	304	105	105	105	105	7	7	8	9
927	Benton	93	104	104	104	93	104	104	104	38	42	42	42	63	65	74	82
928	Benton	498	498	498	498	498	498	498	498	193	193	193	193	6	6	7	8
929	Benton	514	514	514	514	514	514	514	514	181	181	181	181	5	5	5	7
930	Benton	235	235	235	235	235	235	235	235	82	82	82	82	1	1	1	1
931	Benton	63	63	63	63	63	63	63	63	22	22	22	22	31	32	36	40
932	Benton	-	-	-	-	-	-	-	-	-	-	-	-	518	533	612	671
933	Benton	-	-	-	-	-	-	-	-	-	-	-	-	76	79	90	99
934	Benton	162	165	165	165	162	165	165	165	155	158	158	158	29	30	34	38
935	Benton	59	62	62	62	59	62	62	62	59	62	62	62	-	-	-	-
936	Benton	-	-	-	-	-	-	-	-	-	-	-	-	105	108	123	135
937	Benton	58	60	60	60	55	60	60	60	25	27	27	27	5	5	5	7
938	Benton	32	32	32	32	32	32	32	32	12	12	12	12	24	25	28	31
939	Benton	103	112	112	112	103	112	112	112	51	55	55	55	36	37	42	47
940	Benton	16	22	22	22	16	22	22	22	10	14	14	14	10	10	11	13
941	Benton	-	-	-	-	-	-	-	-	-	-	-	-	186	192	220	241
942	Benton	16	24	24	24	16	24	24	24	8	12	12	12	5	5	5	7
943	Benton	-	-	-	-	-	-	-	-	-	-	-	-	17	18	20	22
944	Benton	2	-	-	-	2	-	-	-	1	-	-	-	19	20	22	25
945	Benton	-	-	-	-	-	-	-	-	-	-	-	-	32	33	38	42
946	Benton	29	30	30	30	29	30	30	30	25	26	26	26	31	32	36	40
947	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
948	Benton	32	35	35	35	32	35	35	35	11	12	12	12	2	2	2	3
949	Benton	15	20	20	20	15	20	20	20	6	8	8	8	12	12	14	16
950	Benton	-	-	-	-	-	-	-	-	-	-	-	-	20	21	23	26
951	Benton	3	3	3	3	3	3	3	3	2	2	2	2	99	101	116	128
952	Benton	-	-	-	-	-	-	-	-	-	-	-	-	55	57	65	72
953	Benton	24	22	22	22	24	22	22	22	15	14	14	14	266	273	314	344
954	Benton	30	35	35	35	30	35	35	35	18	21	21	21	-	-	-	-
955	Benton	23	26	26	26	23	26	26	26	11	12	12	12	5	5	5	7
956	Benton	2	6	6	6	2	6	6	6	2	6	6	6	51	53	60	66
957	Benton	134	134	134	134	134	134	134	134	54	54	54	54	14	14	16	18
958	Benton	76	76	76	76	76	76	76	76	30	30	30	30	4	4	4	5
959	Benton	65	65	65	65	65	65	65	65	22	22	22	22	1	1	1	1
960	Benton	31	24	24	24	31	24	24	24	8	6	6	6	13	13	15	17
961	Benton	230	230	230	230	230	230	230	230	89	89	89	89	153	157	180	198
962	Benton	93	500	1,000	1,410	93	500	1,000	1,410	68	366	731	1,031	35	36	41	46
963	Benton	36	75	200	310	36	75	200	310	19	40	106	164	27	28	32	35
964	Benton	36	-	-	65	36	-	-	65	23	-	-	42	45	47	53	59
965	Benton	133	85	375	510	133	85	375	510	61	39	172	234	22	23	26	29
966	Benton	46	60	275	360	46	60	275	360	17	22	102	133	27	28	32	35
967	Benton	17	90	400	540	17	90	400	540	8	42	188	254	172	177	203	223
968	Benton	-	-	-	-	-	-	-	-	-	-	-	-	11	11	13	14

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
969	Benton	-	-	-	-	-	-	-	-	-	-	-	-	6	6	7	8
970	Benton	-	30	120	180	-	30	120	180	-	-	-	-	26	27	30	34
971	Benton	32	70	280	420	32	70	280	420	12	26	105	158	32	33	38	42
972	Benton	20	35	140	210	20	35	140	210	12	21	84	126	25	26	29	33
973	Benton	32	80	375	480	32	80	375	480	14	35	164	210	76	79	90	99
974	Benton	48	50	200	300	48	50	200	300	21	22	88	131	2	2	2	3
975	Benton	44	50	200	300	44	50	200	300	19	22	86	130	8	8	9	10
976	Benton	-	-	-	-	-	-	-	-	-	-	-	-	232	239	274	301
977	Benton	7	-	-	-	7	-	-	-	5	-	-	-	37	38	44	48
978	Benton	54	135	540	810	27	135	540	810	13	65	260	390	137	141	161	177
979	Benton	-	-	-	-	-	-	-	-	-	-	-	-	91	93	107	117
980	Benton	57	40	40	40	57	40	40	40	20	14	14	14	55	57	65	72
981	Benton	424	418	418	418	424	418	418	418	156	154	154	154	11	11	13	14
982	Benton	-	-	-	-	-	-	-	-	-	-	-	-	11	11	13	14
983	Benton	595	595	595	595	585	595	595	595	215	219	219	219	16	17	19	21
984	Benton	617	581	581	581	617	581	581	581	175	165	165	165	8	8	9	10
985	Benton	409	409	409	409	409	409	409	409	143	143	143	143	29	30	34	38
986	Benton	463	550	413	417	463	550	413	417	149	177	133	134	7	7	8	9
987	Benton	234	250	275	275	234	250	275	275	91	97	107	107	6	6	7	8
988	Benton	-	-	-	-	-	-	-	-	-	-	-	-	64	66	76	83
989	Benton	-	-	-	-	-	-	-	-	-	-	-	-	108	111	127	139
990	Benton	-	-	-	-	-	-	-	-	-	-	-	-	72	75	85	94
991	Benton	320	330	341	346	320	330	341	346	116	120	124	125	19	20	21	22
992	Benton	120	750	1,300	1,500	120	750	1,300	1,500	45	281	488	563	23	24	27	30
993	Benton	33	35	37	38	33	35	37	38	9	10	10	10	15	16	16	17
994	Benton	258	263	272	276	258	263	272	276	102	104	108	109	18	19	20	20
995	Benton	103	106	109	111	103	106	109	111	43	44	46	46	17	18	18	19
996	Benton	403	406	413	417	403	406	418	422	142	143	147	149	16	17	17	18
997	Benton	81	81	81	81	81	81	81	81	28	28	28	28	249	267	276	283
998	Benton	233	240	248	252	233	240	248	252	100	103	106	108	45	48	50	51
999	Benton	106	109	116	120	106	109	116	120	44	45	48	50	8	9	8	9
1000	Benton	618	639	661	672	618	639	661	672	206	213	220	224	7	8	7	8
1001	Benton	327	330	341	346	327	330	341	346	117	118	122	124	24	26	26	27
1002	Benton	36	39	42	43	36	39	42	43	12	13	14	14	14	15	15	16
1003	Benton	116	120	124	126	116	120	124	126	45	47	48	49	46	49	51	52
1004	Benton	276	281	290	296	276	281	290	296	90	92	95	97	148	159	164	168
1005	Benton	42	42	42	42	42	42	42	42	15	15	15	15	3	3	3	3
1006	Benton	339	350	362	368	339	350	362	368	114	118	122	124	23	25	25	26
1007	Benton	581	622	665	688	581	622	665	688	218	233	250	258	70	75	77	80
1008	Benton	582	623	666	689	582	623	666	689	213	228	244	252	16	17	17	18
1009	Benton	354	360	366	369	354	360	366	369	103	105	106	107	4	4	4	5
1010	Benton	201	205	207	209	201	205	207	209	71	72	73	74	179	192	198	204
1011	Benton	96	528	528	528	96	528	528	528	37	204	204	204	2	4	4	5
1012	Benton	63	108	108	108	63	108	108	108	26	45	45	45	2	3	3	3

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
1013	Benton	7	7	7	7	7	7	7	7	3	3	3	3	-	-	-	-
1014	Franklin	409	409	409	409	409	409	409	409	108	108	108	108	103	110	121	134
1015	Franklin	311	311	311	311	311	311	311	311	87	87	87	87	6	7	7	8
1016	Franklin	296	296	296	296	296	296	296	296	85	85	85	85	11	12	13	15
1017	Franklin	441	376	376	376	441	376	376	376	148	126	126	126	5	6	6	7
1018	Franklin	54	75	87	96	54	75	87	96	18	25	29	32	1	1	1	1
1019	Franklin	359	378	378	378	359	378	378	378	129	136	136	136	14	15	15	18
1020	Franklin	578	758	578	578	571	749	571	571	215	282	215	215	-	-	-	-
1021	Benton	179	179	179	179	179	179	179	179	56	56	56	56	1	2	2	3
1022	Benton	40	40	40	144	-	-	-	-	-	-	-	-	-	325	325	350
1023	Benton	662	662	662	662	662	662	662	662	234	234	234	234	39	68	84	102
1024	Benton	94	133	212	260	94	133	212	260	51	72	115	141	16	30	33	37
1025	Benton	71	79	89	94	71	79	89	94	29	32	36	38	2	4	4	5
1026	Benton	99	135	202	242	99	135	202	242	36	49	73	88	9	17	18	21
1027	Benton	131	137	144	147	131	137	144	147	64	67	70	72	4	7	8	9
1028	Benton	84	92	102	106	84	92	102	106	42	46	51	53	216	397	448	491
1029	Benton	72	114	224	297	72	114	224	297	25	40	78	103	5	9	10	12
1030	Benton	3	-	-	-	3	-	-	-	1	-	-	-	-	100	100	100
1031	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	50	150	190
1032	Benton	40	40	40	144	40	40	40	40	13	13	13	13	21	36	44	54
1033	Benton	83	83	83	83	83	83	83	83	30	30	30	30	3	5	6	8
1034	Benton	229	229	229	229	229	229	229	229	90	90	90	90	4	7	8	11
1035	Benton	437	437	437	437	437	437	437	437	162	162	162	162	26	45	55	67
1036	Benton	78	78	78	78	78	78	78	78	31	31	31	31	2	4	4	5
1037	Benton	186	186	186	186	186	186	186	186	67	67	67	67	23	40	48	59
1038	Benton	271	271	271	271	271	271	271	271	101	101	101	101	6	11	13	16
1039	Benton	49	837	1,337	1,337	49	837	1,337	1,337	18	307	491	491	-	-	-	-
1040	Benton	461	739	739	739	461	739	739	739	169	271	271	271	-	-	-	-
1041	Benton	156	390	390	390	156	390	390	390	71	178	178	178	15	35	40	60
1042	Benton	162	226	226	226	162	226	226	226	51	71	71	71	34	59	73	88
1043	Benton	60	260	260	342	60	260	260	260	19	82	82	82	5	9	11	13
1044	Benton	367	367	367	367	367	367	367	367	120	120	120	120	22	38	45	56
1045	Benton	472	195	195	195	472	195	195	195	166	69	69	69	4	7	8	11
1046	Benton	199	188	188	188	191	180	180	180	73	69	69	69	1	1	1	2
1047	Benton	251	278	278	278	251	278	278	278	104	115	115	115	5	7	7	7
1048	Benton	234	862	862	862	234	862	862	862	188	693	693	693	10	13	14	15
1049	Benton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1050	Benton	2	150	72	450	2	150	72	450	1	75	36	225	-	-	-	-
1051	Benton	1	750	1,500	2,500	1	750	1,500	2,500	-	-	-	-	-	-	-	-
1052	Benton	12	-	-	-	12	-	-	-	5	-	-	-	71	125	139	146
1053	Franklin	553	553	553	553	553	553	553	553	138	138	138	138	3	3	3	4
1054	Franklin	696	696	698	700	696	696	698	700	171	171	171	172	-	-	-	-
1055	Franklin	318	85	85	85	318	85	85	85	85	23	23	23	-	-	-	-
1056	Franklin	256	256	256	256	256	256	256	256	58	58	58	58	-	-	-	-

Appendix F: Future Conditions

Modeled Projects TAZ Forecast Results (Continued)

TAZ	County	15_Pop	25_Pop	35_Pop	40_Pop	15_HHPop	25_HHPop	35_HHPop	40_HHPop	15_HU	25_HU	35_HU	40_HU	15_EMP	25_EMP	35_EMP	40_EMP
1057	Franklin	329	329	329	329	329	329	329	329	87	87	87	87	43	46	50	55
1058	Franklin	184	184	184	184	184	184	184	184	61	61	61	61	-	-	-	-
1059	Franklin	124	116	116	116	116	109	109	109	27	25	25	25	8	9	9	11
1060	Franklin	72	72	485	72	72	72	485	72	16	16	108	16	-	-	-	-
1061	Franklin	719	719	719	719	719	719	719	719	200	200	200	200	-	-	-	-
1062	Franklin	19	19	19	19	19	19	19	19	46	46	46	46	4	4	4	5
1063	Franklin	163	165	167	173	163	165	167	173	43	44	44	46	-	-	-	-
1064	Franklin	76	78	83	87	76	78	83	87	32	33	35	37	-	-	-	-
1065	Franklin	76	76	79	86	76	76	79	86	22	22	23	25	-	-	-	-

Appendix

Investment Strategies

Appendix G: Investment Strategies

Project Assessment Checklist Washington State Department of Ecology

Yes/No	Site Analysis
	Is the wetland rated as Category I or II or listed as a wetland with Special Characteristics or that needs Special Protection in the appropriate state rating system: > Washington State Wetland Rating System for Eastern Washington: 2014 Update (Ecology publication #14-06-030) > Washington State Wetland Rating System for Western Washington: 2014 Update (Ecology publication #14-06-029)
	Has the wetland or site been identified as a high priority for restoration in a watershed plan?
	Is the wetland associated with fish-bearing streams, shorelines of the state, or approved mitigation/restoration sites?
	Has the wetland been identified as a Habitat of Local Importance by the local jurisdiction?
	Does the site have high aquatic resource value and is the proposed development suitable for the site?
	Has a hydrologic analysis assessed potential impacts to hydrology following project construction? See the Washington Department of Fish and Wildlife Aquatic Habitat Guidelines.
	Cost Analysis
	Are there other sites available for the project that would allow for greater avoidance or minimization of the impacts to aquatic resources?
	Are the proposed wetland impacts consistent with the conditions for a U.S. Army Corps of Engineers Nationwide Permit (i.e., generally less than 0.5 acres of wetland fill)? If not, the review and approval time for an individual permit may be considerably longer and therefore more expensive.
	Has the cost of mitigation and monitoring been evaluated against the cost of avoidance and minimization in project design and construction? For example, state and federal resource agencies typically require 10 years of monitoring and maintenance for mitigation sites targeting scrub-shrub and forested wetlands. Local jurisdictions typically require financial guarantees for mitigation sites.
	Is onsite mitigation appropriate for unavoidable impacts or would offsite mitigation provide greater environmental benefit? Would additional property need to be purchased for offsite mitigation?
	Is the site within the approved service area of a mitigation bank or in-lieu fee program? If so, what are the credit costs to compensate for the impacted aquatic resource?

Source: Washington State Department of Ecology

Appendix G: Investment Strategies

Project Avoidance Checklist

Yes/No	Project Design
	Avoid impacting higher-quality (rated) wetlands first if there are multiple wetlands on site.
	Reposition the building or the access on the lot.
	Cluster multiple structures.
	Decrease the building's footprint by adding levels or putting parking underneath the building.
	Realign road or utility corridors to avoid wetlands and their buffers.
	Suspend utilities from the bridge instead of trenching through the wetland.
	Reduce the width of access roads or driveways. Use pullouts if needed.
	Use steeper slopes or retaining walls to avoid placing fill in the wetland. Retaining walls should not block hydrology or wildlife corridors.
	Use bridges or spans instead of culverts.
	Include wetlands in development open space.
	Minimize the use of pipes and route them around wetlands.
	Request setback variances or easements from neighbors if it will help avoid impacts.
	Avoid grading by incorporating natural topography into the site design.
	Incorporate plants already on site into landscape design to avoid clearing and grubbing.

Source: Washington State Department of Ecology

Appendix G: Investment Strategies

Project Minimization Checklist 1

Yes/No	Project Design
	Prioritize minimizing impacts to higher-quality wetlands if there are multiple wetlands on site.
	Reduce the size and number of bridge piers placed in the water or buffer.
	Cross wetlands at their narrowest point.
	Keep wetland crossing widths to the minimum necessary. Reduce or eliminate road shoulders and/or sidewalks at wetland crossings if safety is not compromised.
	Include upland areas on one or both sides of the wetland under a bridge to allow wildlife movement (habitat connectivity) during high water periods.
	Size culverts correctly for best hydrologic connectivity.
	Use permeable fill material or culverts between wetlands to maintain hydrologic connectivity.
	Design stormwater facilities to use infiltration where feasible. Avoid redirection of water to or from an existing wetland.
	Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered.
	Use engineered swales for stormwater conveyance instead of curb and gutter.
	If you can't avoid buffer impacts with stormwater facilities, try to limit them to the outer 25% of the buffer. Check with your local drainage ordinance as certain types of wetlands may not be allowed to be disturbed for stormwater facilities.
	Use existing disturbed areas for utility crossings.
	Minimize use of pipes and use directional boring (tunneling) instead of excavation and backfill.
	Convert permanent impacts such as access roads to temporary impacts where feasible.
	Use existing roadways, paths, or trails if possible by upgrading them and including new culverts or bridges.
	Trails that are mandated by local code should be kept out of the buffer if possible or in the outer 25% of the buffer.
	Direct lights away from wetland.
	Locate activity that generates noise (commercial and industrial buildings) away from wetland.
	Plant tall, dense evergreen vegetation around the outside edge of buffers to improve screening between development and sensitive areas. Avoid invasive plant species.
Yes/No	**Low Impact Development Techniques**
	Reduce the amount of impervious surface and preserve as much natural soil cover as possible.
	Disperse downspouts to vegetated areas or direct them to rain gardens instead of impervious surfaces.
	Disconnect impervious surfaces from each other by interspersing them with natural cover.
	Increase the travel time of water leaving the site.
	Use pervious materials for construction of hard surfaces (driveways, parking lots, sidewalks) where possible.
	Do not clear and grub wetlands or their buffers except when preparing for permanent impacts.
Yes/No	**Construction Techniques**
	On plans, clearly mark limits of construction. In the field, clearly mark wetlands and buffers with high-visibility construction fencing and maintain it for the life of the construction project.
	Use BMPs for erosion control and construction stormwater management and maintain those structures and practices for the life of the construction.

Source: Washington State Department of Ecology

Appendix G: Investment Strategies

Project Minimization Checklist 2

	Use compost berms, blankets, and socks instead of silt fence where these BMPs are appropriate.
	Keep construction staging and stockpiling of materials out of wetlands and their buffers.
	Use low-pressure tires or tracks on equipment to help prevent soil compaction.
	Restrict site access of machinery to as few areas as possible to reduce soil compaction.
	Clean equipment brought from other sites away from the wetland and its buffer so that invasive plants and animals are not introduced into the work site.
	Use clean fill materials so that invasive plants and animals are not introduced into the project site.
	Sample or bore on the edges of a wetland instead of driving through the middle. Conduct boring activities when soil is dry if possible.
	Adequately backfill trenches to ensure that temporary impacts don't become permanent by draining a wetland. If the potential for dewatering exists, consider using clay plugs in the trench. Monitor the area for changes.
	Replace side cast material in a trench in the same order it was removed to maintain integrity of the soil.
	If temporary fill must be used for access or other construction purposes, make removal easier by placing geotextile fabric or geogrid below the fill.
	Use removable crane mats instead of building construction pads.
	Remove bridge pilings where possible or cut two feet below the soil surface and backfill with native soil.
	If movable equipment must be in the wetland or buffer, do not leave it there over night or on weekends.
	Do not store fuel or refuel movable equipment in a wetland or its buffer. When refueling equipment that is not readily movable (i.e. cranes), follow BMPs for temporary spill prevention, control, and containment.
	Do not mix, test, store, or dispose of concrete within a wetland or its buffer.

Yes/No	**Construction Timing**
	Construct the project during the dry season to reduce impacts to aquatic resources.
	Pay attention to timing restrictions on in-water work (i.e. fish windows) or potential impacts to special-status species (i.e. breeding or migration).
	Install mitigation planting in the appropriate season.
Yes/No	**Property Management**
	Establish long-term protection of wetlands through natural areas designations, such as native growth protection easements.
	Protect the wetland from adjacent land uses with signs, fences, and buffers.
	Establish covenants limiting use of pesticides and fertilizers within 150 feet of wetland.
	Use integrated pest management techniques for landscape maintenance.
	Care for newly established desirable plants until they are well-established and able to out-compete undesirable plant species (weeds).
	Do not allow grass clippings, yard-waste or other material to be dumped in wetlands or buffers.

Source: Washington State Department of Ecology

Appendix G: Investment Strategies

County Health Rankings

The annual County Health Rankings measure vital health factors, including high school graduation rates, obesity, smoking, unemployment, access to healthy foods, the quality of air and water, income, and teen births in nearly every county in America and rank the counties within states. The annual Rankings provide a revealing snapshot of how health is influenced by where people live, learn, work and play.

The Rankings are compiled using county-level measures from a variety of national and state data sources. These measures are standardized and combined using scientifically-informed weights. The Rankings are based on a model of population health that emphasizes the many factors that, if improved, can help make communities healthier places to live, learn, work and play.

Health outcomes in the County Health Rankings represent how healthy a county is. It assesses two types of health outcomes: how long people live (length of life) and how healthy people feel while alive (quality of life).

Health factors in the County Health Rankings represent what influences the health of a county. It measures four types of health factors: health behaviors, clinical care, social and economic factors and physical environment factors. In turn, each of these factors is based on several measures.

Health behaviors measures alcohol and drug use, diet and exercise, sexual activity and tobacco use. Clinical care evaluates access to care and quality of care. Social and economic factors assessed include community, safety, education, employment, family and social support and income. Physical environment evaluates air and water quality, housing and transit. These rankings are relevant because they present snapshot evaluations of counties using identical metrics, and are comparable over time.

Appendix G: Investment Strategies

County Health Rankings Tables 2011-2013

2011	Health Outcomes	Mortality	Morbidity	Health Factors	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment
County	**Rank**	Rank	Rank	**Rank**	Rank	Rank	Rank	Rank
Benton	**14**	13	22	**13**	21	21	8	4
Franklin	**10**	3	20	**26**	9	36	33	24
Spokane	**22**	16	27	**14**	23	7	14	16
Walla Walla	**17**	17	21	**9**	7	2	15	10
Yakima	**30**	29	33	**34**	25	32	37	12

2012	Health Outcomes	Mortality	Morbidity	Health Factors	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment
County	**Rank**	Rank	Rank	**Rank**	Rank	Rank	Rank	Rank
Benton	**15**	12	22	**14**	21	16	11	19
Franklin	**13**	9	25	**26**	10	38	23	36
Spokane	**25**	18	27	**15**	22	6	14	29
Walla Walla	**18**	20	15	**6**	4	4	13	16
Yakima	**31**	28	33	**38**	27	36	39	31

2013	Health Outcomes	Mortality	Morbidity	Health Factors	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment
County	**Rank**	Rank	Rank	**Rank**	Rank	Rank	Rank	Rank
Benton	**12**	10	18	**12**	21	18	8	5
Franklin	**18**	15	32	**27**	7	32	37	33
Spokane	**24**	21	26	**16**	22	5	14	14
Walla Walla	**16**	18	16	**6**	5	3	13	11
Yakima	**35**	31	36	**37**	25	37	38	20

Appendix G: Investment Strategies

County Health Rankings Tables 2014-2015

2014	Health Outcomes	Mortality	Morbidity	Health Factors	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment
County	**Rank**	Rank	Rank	**Rank**	Rank	Rank	Rank	Rank
Benton	**13**	10	20	**14**	15	16	12	7
Franklin	**18**	15	31	**29**	19	35	32	21
Spokane	**22**	21	25	**16**	22	7	14	24
Walla Walla	**12**	18	7	**6**	7	5	15	6
Yakima	**35**	31	37	**37**	28	38	37	19

2015	Health Outcomes	Mortality	Morbidity	Health Factors	Health Behaviors	Clinical Care	Social & Economic Factors	Physical Environment
County	**Rank**	Rank	Rank	**Rank**	Rank	Rank	Rank	Rank
Benton	**11**	7	17	**13**	16	18	15	7
Franklin	**19**	9	30	**28**	15	36	29	23
Spokane	**22**	21	24	**15**	23	8	13	26
Walla Walla	**10**	18	7	**7**	7	9	16	3
Yakima	**30**	27	35	**36**	27	37	37	19