

Strategic Freight Transportation Analysis

All Weather Road Projects for the State of Washington: A GIS Application/Analysis

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SFTA Research Report # 23

September 2007

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STFA Research Reports: Background and Purpose

This is the 23rd report in a series of research studies prepared as part of the Strategic Freight Transportation Analysis (SFTA) study. SFTA is a six year comprehensive research and implementation analysis that will provide information (data and direction) for local, state and national investments and decisions designed to achieve the goal of efficient and seamless freight transportation.

The overall SFTA scope includes the following goals and objectives:

- Improving knowledge about freight corridors.
- Assessing the operations of roadways, rail systems, ports and barges – freight choke points.
- Analyze modal cost structures and competitive mode shares.
- Assess potential economic development opportunities.
- Conduct case studies of public/private transportation costs.
- Evaluate the opportunity for public/private partnerships.

The five specific work tasks identified for SFTA are:

- Work Task 1 - Scoping of Full Project
- Work Task 2 - Statewide Origin and Destination Truck Survey
- Work Task 3 - Short Line Railroad Economic Analysis
- Work Task 4 - Strategic Resources Access Road Network (Critical State and Local Integrated Network)
- Work Task 5 - Adaptive Research Management

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Report 1

SFTA Full Scope of Work

by Eric L. Jessup

Report 2

Freight Truck Origin and Destination Study: Methods, Procedures, and Data Dictionary

by Michael L. Clark

Report 3

Value of Modal Competition for Transportation of Washington Fresh Fruits and Vegetables

by Ken L. Casavant & Eric L. Jessup

Report 4

Transportation Usage of the Washington Wine Industry

by Ken L. Casavant & Eric L. Jessup

Report 5

Dynamics of Wheat and Barley Shipments on Haul Roads to and from Grain Warehouses in Washington State

by Michael L. Clark, Eric L. Jessup & Ken L. Casavant

Report 6

An Assessment of the Current Situation of the Palouse River and Coulee City Railroad and the Future Role of the Port of Whitman County

by Ken L. Casavant, Eric L. Jessup, & Joe Poire

Report 7

New Techniques for Estimating Impacts of Rail Line Abandonment on Highways in Washington

by Denver Tolliver, Eric L. Jessup & Ken L. Casavant

Report 8

Implications of Rail-Line Abandonment on Shipper Costs in Eastern Washington

by Denver Tolliver, Eric L. Jessup & Ken L. Casavant

Report 9

Rail Line Investment Alternatives Resulting from Abandonment: A Case Study of Moses Lake, Washington

by Eric L. Jessup & Ken L. Casavant

Report 10

Freight Movements on Washington State Highways: Results of the 2003-2004 Origin and Destination Study

by Steve Peterson, Eric L. Jessup & Ken L. Casavant

Report 11

Transportation Characteristics and Needs of the Washington Hay Industry: Producers and Processors

by Stephanie Meenach, Eric L. Jessup & Ken L. Casavant

Report 12

Transportation and Marketing Needs for the Washington State Livestock Industry

by Stephanie Meenach, Eric L. Jessup & Ken L. Casavant

Report 13

Washington Warehouse/Distribution Center Industry: Operations & Transportation Usage

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Washington State Grain Cooperatives: History, Functions, and Regulations

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2003 Eastern Washington Transportation Input-Output Study

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2003 Washington Statewide Transportation Input-Output Study

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Freight Movements on Washington State Highways: Comparison of Results of 1993 to 2003

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2005 Transportation of Mining/Mineral Survey Summary Report

by Hayk Khachatryan, Eric Jessup, and Ken Casavant

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by Hamilton Galloway, Ken Casavant, and Eric Jessup

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INTRODUCTION

Freight transportation is an important component of the larger transportation system, as it underpins the national and state economies, supports national defense and facilitates the distribution of goods and services to all residents on a daily basis (WTP 2005). Because of this, the freight transportation system in Washington must function at all levels of government from international, national, to state and local. *Internationally*, Washington is a “gateway” state connecting Asian, Canadian and Mexican trade flows to the U.S. economy. *Nationally*, in 2002, 11.6 billion tons of freight was transported with a value of \$8.5 trillion. Of this amount, the truck share was \$6.2 trillion¹. The projected increase by 2020 is 70 percent, with most of this freight moved on roads because shipping by truck is faster and more reliable than other modes. As a component of the national freight system, Washington's freight system facilitates trade from Asia, Canada, Mexico, Alaska and other states.

By 2025 there will be twice as many cars and trucks on the road as there are now, states Douglas G. Duncan, President and CEO of Fed Ex Freight Corporation. This could have the potential of grid-locking freight movements and negatively impacting our economy. Major manufacturers and large retailers like Wal-Mart depend on an efficient transportation system to keep their shelves stocked without resorting to an inventory of a significant amount of commodities, e.g. just in time delivery. It is believed that congestion combined with rising fuel prices have caused transportation costs to increase by a record 14 percent in 2005. At the same time, trucking companies are having trouble keeping up with the increased demand, especially long haul truck routes, stated Christopher Lofgren, President and CEO of Schneider National, Inc., a Green Bay, Wisconsin trucking company.

Additionally, the *state's* producers (firms and/or farmers) rely upon the freight transportation system to access distant markets across the country and around the world for Washington made products. And lastly, Washington's freight transportation system serves as a *local* utility, vital for access and mobility

¹ Source: http://www.bts.gov/publications/commodity_flow_survey/2002/united_states/html/table_01_a.html

for citizens throughout the state as they meet their consumption needs (WTP 2005). As a result, the planning of transportation and freight improvement projects should be multi-faceted to include all government jurisdictions.

According to the Washington State Department of Transportation (WSDOT) *Washington Transportation Plan*, "Globalization, competitive industry trends, and new technologies are pushing freight volumes up twice as fast as Washington's overall population and passenger traffic growth." Whereas the state population is projected to grow 34 percent by 2030, growth in the freight system, in part as measured by truck trips and freight volumes, is expected to increase by nearly 80 percent (WSOFM 2004). In order to meet this growing demand on the freight transportation system, it will become imperative to employ coordinated decision-making and coordinated collection and integration of transportation projects, priorities and information.

SFTA Research Report No. 20, *Freight Movements on Washington State Highways: Comparison of Results 1993 to 2003* notes that in 1993 to 1994 the annual economic value of cargo carried by freight truck was \$163 billion (in 1997 dollars) which increased to \$421 billion (in 1997 dollars), in 2003 to 2004, an increase of 158 percent. Of this increased cargo value, the greatest increase was experienced in eastern Washington, where cargo values increased over 180 percent to \$47.6 billion annually. During the same period, truck trips nearly doubled, from 8 million to just over 14 million annually, while cargo weight increased 96 percent from 90 million tons to 176 million tons annually. These projections for freight movement increases underscore the need to have good, all weather roads to accommodate this demand.

The projected increased demand for freight transportation for commerce all across the state is increasing the need for the state and local governments to appropriately anticipate and provide for current and future freight transportation infrastructure, especially as it relates to improved freight

mobility. To assist planners and policymakers at all levels of government, this report coordinates the collected statistical and geospatial data of specific improvements from all counties in Washington into one complete GIS dataset addressing examples of all weather roads relative to county freight movements.

BACKGROUND AND MOTIVATION

A presentation to the National Service Transportation Policy and Revenue Study Commission by Jack Wells, Chief Economist, U.S. Department of Transportation on June 26, 2006, noted that transportation is particularly important to certain industries, e.g. it accounts for 12 percent of the total value for agriculture, fertilizers and chemicals, 10 percent for steel and other metals, and 8 percent for food. These examples reflect the importance of transportation to keep our economy moving forward. Moreover, the same presentation notes the average length of haul for trucks in 1960 was 280 miles which increased to 450 miles in 1999. Congestion is also growing on our roadways and is growing most rapidly in rural areas, which can particularly impact freight movements.

The need for a coordinated collection, presentation, and integration of data is evident when considering the various types of roads that contribute to the freight transportation system in Washington and the different governmental jurisdictions under which the operational management of these roads fall. Not only does the state host international border crossings and interstate highways, it is comprised of a myriad of county and city roads. As a result, these different key agencies may have different priorities and goals when it comes to freight transportation planning in Washington: Washington State Department of Transportation (WSDOT), Freight Mobility Strategic Investment Board (FMSIB), Washington State Association of Counties (WSAC), County Road Administration Board (CRAB), Metropolitan Planning Organizations (MPO), Regional Planning Transportation Organizations (RPTO), Association of Washington Cities (AWC), as well as the county and municipal

governments. In the process of completing this report, several of these agencies were contacted to assist in the collection of data and maps.

It is also important, from a policy/planning context, to have a standardized statewide GIS map of county level transportation projects relative to the existing all weather road system. This Geographic Information System provides an important analytical tool that can facilitate decision-making by presenting both quantitative (tabular) data as well as geospatial data (maps) and allows analysts to perform multiple queries across various attributes on a wide (statewide, regional) or narrow (county, municipality) scale. The importance of a *uniform* GIS across multiple organizations with differing needs as to level and types of analysis were suggested by Brian Mayfield: “The concept of the enterprise GIS is to provide uniformity and accessibility to geographic information across an entire organization. End users have differing levels of geographic data needs as they relate to accuracy, precision and overall cartographic appearance” (Mayfield). Having such an “enterprise” GIS with uniformity and accessibility assured across jurisdictions will facilitate the coordination of decision-making with respect to freight transportation needs throughout the state.

PROJECT SCOPE AND OBJECTIVES

The primary objective of this study is to collect and organize information from individual counties throughout Washington State such that system-wide freight mobility issues or transportation system inefficiencies from county to county may be better identified and addressed. By assessing specific transportation infrastructure priorities on a county basis and placing that information in the context of the entire statewide system (using GIS), possible regional freight chokepoints or inefficiencies can be identified and ultimately addressed.

The specific project objectives:

- 1) Survey individual county officials regarding a maximum of three top priority all weather road freight transportation improvement projects with locations and estimated cost to upgrade to all weather road status

- 2) Consolidate information and data from County Road engineers into a Geographic Information System (GIS) to show proposed freight projects on a county, regional and statewide basis, relative to the all weather road network
- 3) Create a uniform statewide GIS coverage of all weather roads from state and county data
- 4) Identify possible adjoining projects across counties and reconcile priorities

The scope of the project itself was limited to a maximum of the top three priority freight projects per county as reported by individual county engineers and representatives. All weather road needs go well beyond the three projects per county constraint, but this effort provides a prioritized beginning to address the issue. These county representatives (planners, engineers, commissioners) varied across the counties and may in fact reflect the different organizational structures. Data was also collected informally via phone solicitation and e-mail requests between December, 2004 and May 2005 and verified by county review October-November 2006. This project provides an important output in the form of a standardized GIS presentation of state and county roads and all weather status including estimates to address infrastructure deficiencies that can aid future planning for freight transportation.

DATA COLLECTION AND METHODOLOGY

DATA AND INFORMATION SOURCES:

I. Data Collection

The collection of specific transportation project data and maps was coordinated by Walt Olsen of the County Road Administration Board (CRAB). The data included a prioritized list of the top three (maximum) transportation projects each county would like to see completed, accompanied by a physical map detailing the exact geographic location of each project. In most situations, the county engineer or planner responded to the request, although for some smaller (rural) counties, a county commissioner responded directly with the requested information. The counties also reported data

about estimated costs for each of the three transportation projects. In some cases, follow-up contacts were made with specific questions to clarify details regarding projects and the cost details.

II. Geospatial Data

In order to identify and locate the individual transportation projects for each county, geographic data was first collected for the relevant transportation attributes for each county (all county and state highways, the geographic boundaries for each county and those highways which were designated all weather status). From this base level of information, the individual transportation projects identified by the counties were mapped and identified within the GIS (The proposed projects and their costs as reported by the 39 counties are presented in tabular form in Appendix A). The comprehensive road coverage (interstate & state highway systems, county & local roads) were obtained from the ESRI Geography Network (www.esri.com). Other Washington transportation layers (road annotations, bridges, tunnels) were obtained from the WSDOT website (WSDOT GeoData Distribution Catalog) at www.wsdot.wa.gov. In the process of digitizing the data, some county specific data including geographic features such as rivers, lakes, parks were helpful with mapping. These GIS layers were found at the Washington Department of Natural Resources website and the WSDOT GeoData Distribution Catalog.

III. Geo-Coding the Individual Project Data

After the county level project data was collected and organized into a spreadsheet (Appendix A), the GIS layers (highways, county roads, and natural features) were compiled for all the counties to assist with the digitizing of the projects into separate (projects) layers. This involved taking the physical flat maps from each county and creating a digital map of the project region. Once in digital form, the project layers could be used by multiple jurisdictions for decision making.

The process of digitizing was time consuming as the various layers were from different sources (federal, state and local governments) and often had features identified differently. For example, a road might have one name designation from one data source (ex. TIGER files) and yet be referred to by a different name by another level of government (local municipality). It was common that the TIGER line files have one name for roads, but local roads have a different name designation and then the information provided by the county may have a third name designation. It is important to note that the name designations were not changed during this project but making associations between different names for the same road should be considered to facilitate the comprehensive GIS for freight planning.

Because of the challenges of identifying the correct location for the projects, follow-up was often important and involved contacting the counties directly for clarification. More than once it was impossible to reach the person who first responded to the survey. The verification of the data was in some cases conducted by a different person altogether.

Lastly, after the projects were digitized into their own coverage, an all weather layer was created using information provided in a spreadsheet from the WSDOT. In many cases, especially the more rural counties of the state, the all weather roads within the counties consisted primarily of state and interstate highways including portions of some county roads with direct highway access. On the other hand, in the more populated areas of the state, such as King County, many of the roads were classified as “all weather.”

IV. Analysis of the Data

Across the 39 counties of Washington, data was reported for 109 proposed freight projects with a total estimated cost of \$1.485 billion in 2006 dollars. A complete listing of the projects can be found in Appendix A. The transportation improvement projects ranged in expected costs from Pierce County’s

Cross Base Highway (\$300,000,000) to Benton County's 0.25 mile Travis Rd. improvement (\$600,000). Since no stipulations were placed on the types of freight transportation improvement projects, the counties responded with a wide variety of needs. In fact, five counties (Asotin, King, Kittitas, Lewis and Yakima) reported only one major improvement project. Some examples of projects included improvements to interchanges (5 counties), under crossings (2 counties), bridge improvements (2 counties), a county-wide overlay and a ferry landing. The top three transportation projects reported by the counties varied widely in estimated cost as well. For example, Pierce County reported three projects that together were expected to cost a high of \$528,300,000 while Wahkiakum County's three improvement projects had a reported cumulative cost of only \$2,135,000.

PROJECT DESCRIPTION

COUNTY LEVEL ANALYSIS:

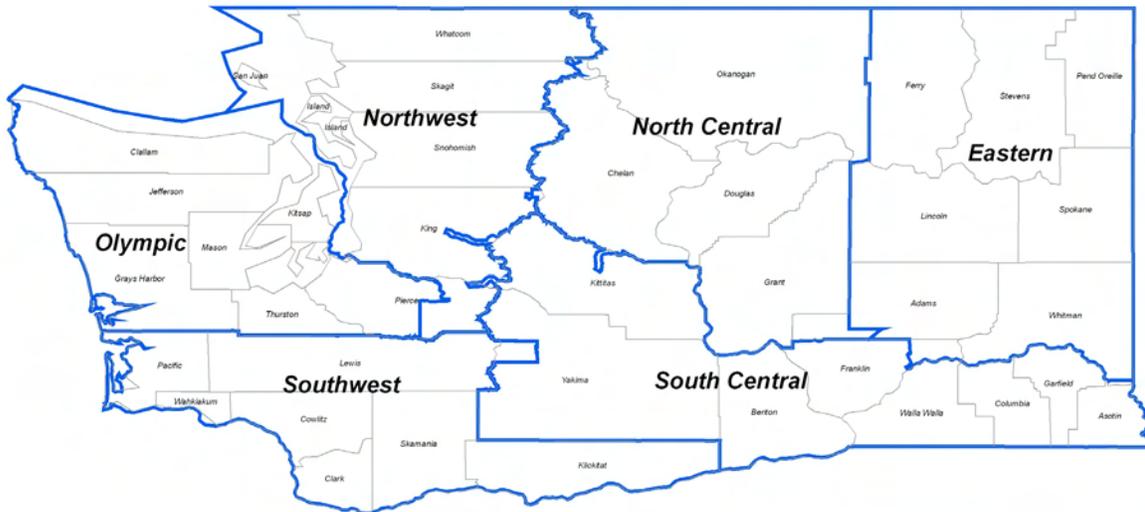
Since the original source of the data for each of the projects came from the counties, the following maps are presented at the county level. Later in the report, the counties are combined for each WSDOT region. However, given the scale difficulties associated with presenting a region with the geographical extent of Washington on a 8 and ½ by 11 inch page, many of the county level projects become difficult to identify and distinguish.

Using the GIS, the county could show on a map the location of the project as well as the relationship to other features or freight routes. Although these maps identify only the county roads and the proposed transportation projects, decision-makers have the option of adding/including other relevant features such as rivers, bridges, or railroads simply by adding the appropriate GIS layer to the map.

Additionally, one of the benefits of using GIS is that tabular data can be presented along with the map. This allows decision-makers to see the cost or length of the proposed freight project in addition to the placement. Other data such as “purpose” (for example, access, safety, or mobility) of the project could also be included in the table.

The following pages include the county level maps for all 39 counties in the state of Washington. Following each map is a brief description of the project as provided by the county officials. Some counties provided more detail than others. Each map shows the transportation system including the interstate and state highways and county roads. Those roads that were deemed to be “all weather” by the county have been identified as well. The projects are shown in varying shades of green to depict their priority.

Washington State Department of Transportation Regions



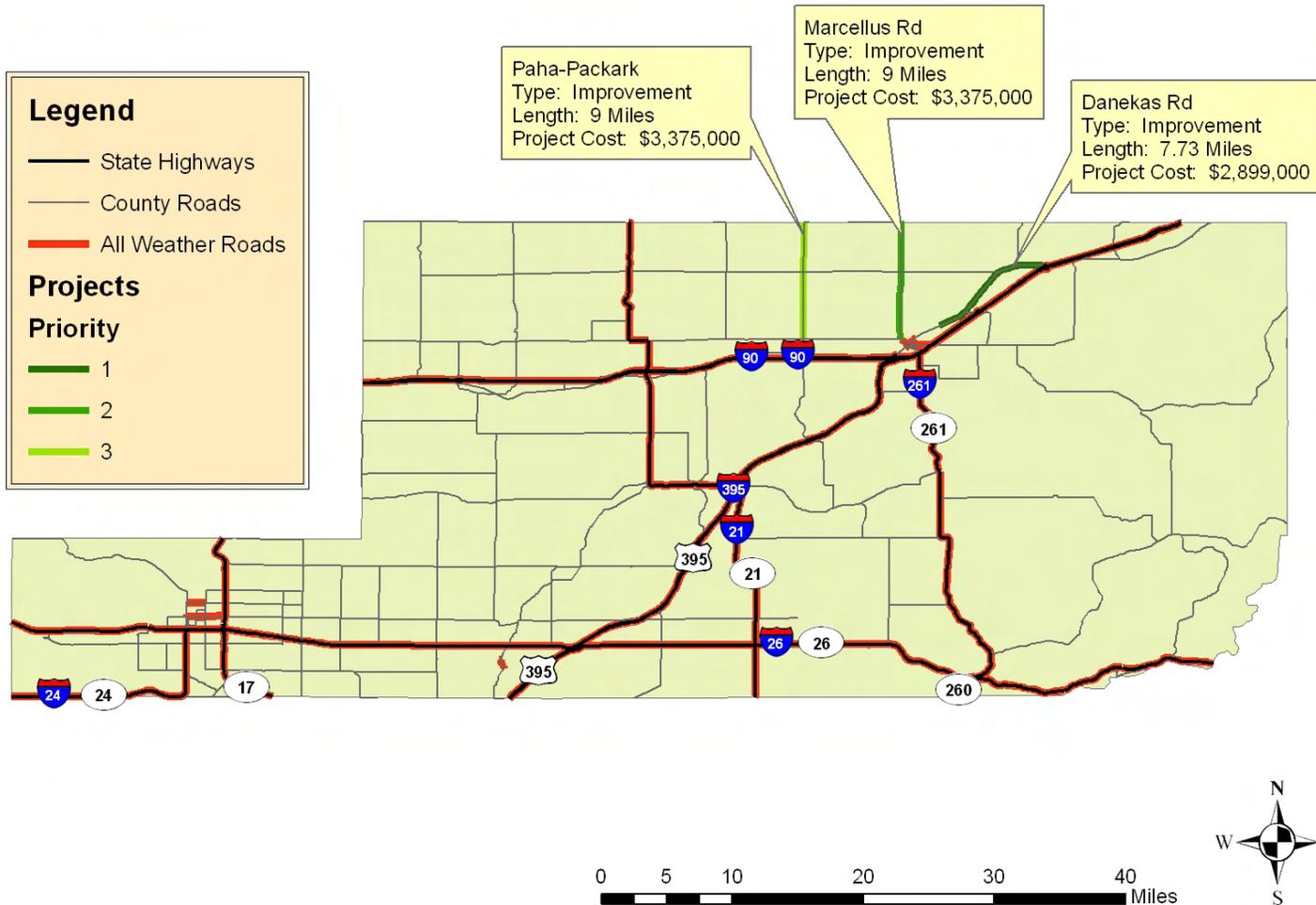
Adams County



The new unit train grain terminal facility located east of Ritzville has diverted traffic (truck traffic) away from the Snake River onto Danekas, Marcellus and Paha-Packard Roads to access the terminal. It is necessary for Adams County to improve these roads to handle the increased freight volume. The top priority transportation project identified by Adams County is 7.73 miles of Danekas Road up to I-90 for an estimated cost of \$2.899 million. The second priority is the improvement of 9 miles of Marcellus Road for an estimated cost of \$3.375 million. The third priority is the improvement of 9 miles of Paha-Packard Road for an estimated cost of \$3.375 million.

In terms of all weather status, there are very few non-state routes that were classified as “all weather” roads. Most of these were within the city limits of Hatton, Othello and Ritzville. The Marcellus Road project would connect with an all weather road.

Adams County Transportation Projects



Asotin County

The key transportation project to improve freight mobility in Asotin County is the Fleshman Way / SR129 Interchange project. This project is estimated to cost \$5.25 million. The second highest priority for Asotin County is upgrading eleven miles of Grande Ronde Road for a total estimate of \$10 million. This road is a key connector to Oregon and the National Forests and supports timber, cattle and a variety of farm-to-market shipments. The third most important freight project is the upgrade of Asotin Creek Road. This is also a primary connector to timber and agricultural markets, with an estimated cost of \$7 million.

Asotin County Transportation Projects

Legend

- State Highways
- County Roads

Projects

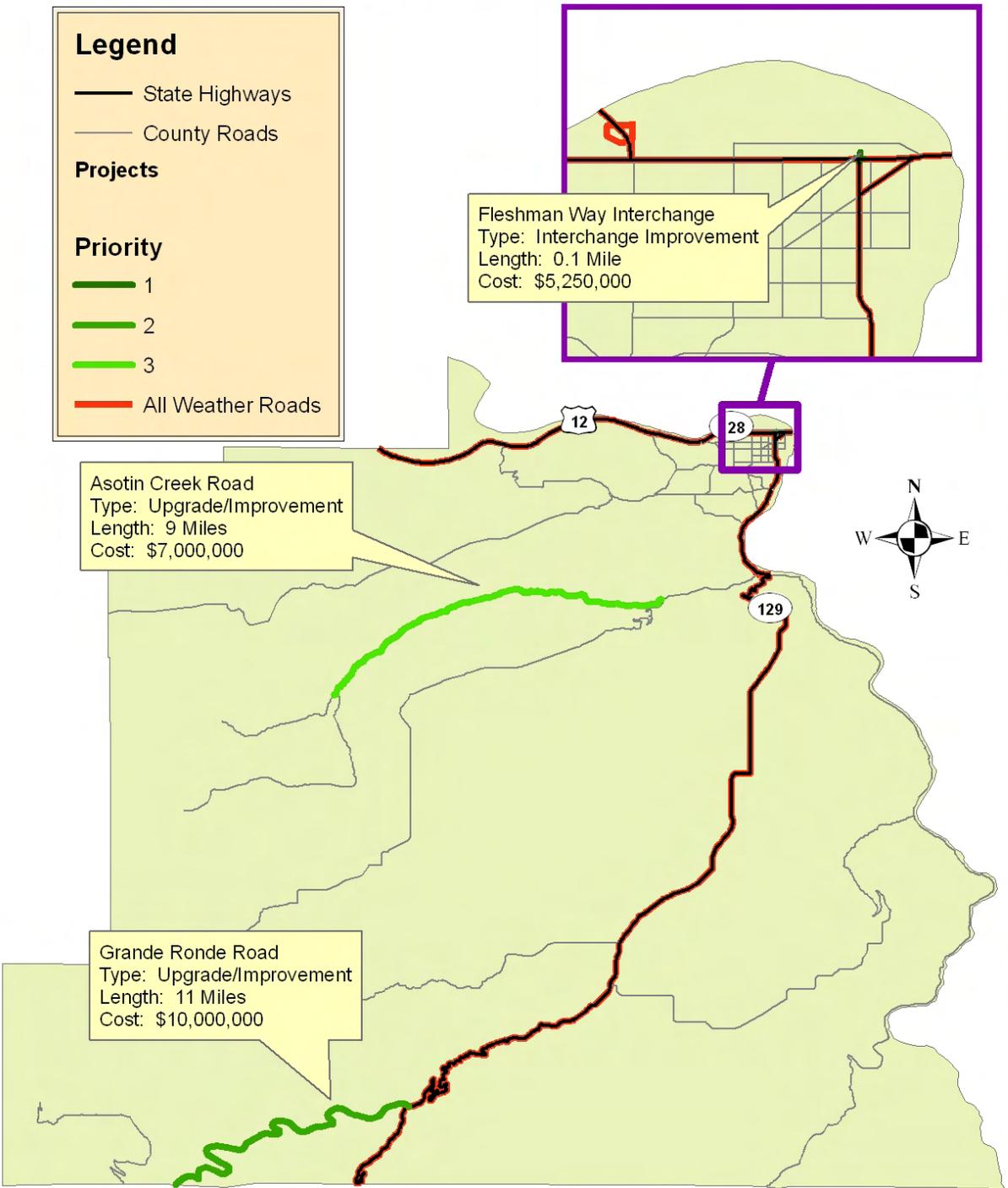
Priority

- 1 (Dark Green)
- 2 (Medium Green)
- 3 (Light Green)
- All Weather Roads (Red)

Fleshman Way Interchange
Type: Interchange Improvement
Length: 0.1 Mile
Cost: \$5,250,000

Asotin Creek Road
Type: Upgrade/Improvement
Length: 9 Miles
Cost: \$7,000,000

Grande Ronde Road
Type: Upgrade/Improvement
Length: 11 Miles
Cost: \$10,000,000



Benton County

Benton County has several freight projects underway. Their top three freight route projects include County Route 397 (I-82 to SR397 intertie), Travis and Webber Canyon Roads, Clodfelter and Locust Grove Roads. Below is a description of each.

County Route 397

This is a new roadway alignment to connect I-82 with the Finley industrial area and is being constructed in four phases:

- Phase I – CR397 from I-82 to Olympia St. was constructed in 2004 for a cost of \$2.3 million.
- Phase II – CR397 from Olympia St. to Finley Rd. is currently under construction and expected to be completed this year for a cost of \$8.7 million.
- Phase IIIA – CR397 from Finley Rd to SR397 expected to be completed in 2007 for a cost of \$7.1 million
- Phase IIIB – Piert Rd from SR397 to Bowles Rd, expected to be completed in 2008 at a cost of \$3.8 million.

Travis and Webber Canyon Roads

These two roads connect the Horse Heaven agricultural area with Benton City and are expected to be constructed in six phases:

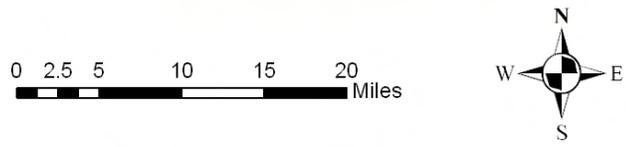
- Phase I – Webber Canyon Rd. from County Well Rd. to MP 1.3 was completed in 1998 for \$1.5 million.
- Phase II – Webber Canyon Rd. from Dennis Rd. to Kiona is expected to be finished in 2008 at a cost of \$4.4 million.
- Phase III – Construction of a new BNSF railroad grade-separation crossing on the south side of I-82/Benton City Interchange, expected to be completed in 2009 at \$3.5 million.
- Phase IV – Webber Canyon Rd through Kiona and under the BNSF bridge and local access roads in Kiona. This is expected to cost \$3.8 million and be completed in 2010.
- Phase V – Webber Canyon Rd. from MP 1.3 to Dennis Rd. scheduled to be completed in 2007 at a cost of \$600,000.
- Phase VI – Travis Rd. from Sellards Rd. to County Well Rd. scheduled to be completed in 2008 at a cost of \$1.5 million.

Clodfelter and Locust Grove Roads

These roads will also connect the Horse Heaven agricultural area with I-82 via CR397 and the Finley industrial area. The following three phases include:

- Phase I – Locust Grove Rd. from Edwards Rd. to I-82 was constructed in 2002 for \$1.3 million.
- Phase II – Clodfelter Rd. from Plymouth Rd. to Bently Rd. was constructed in 2005 for \$1.9 million.
- Phase III – Clodfelter Rd. from Bently Rd. to C. Williams Rd and Locust Grove Rd from C. Williams Rd. to Edwards Rd. is expected to be finished in 2008 at a cost of \$2.5 million.

Benton County Transportation Projects

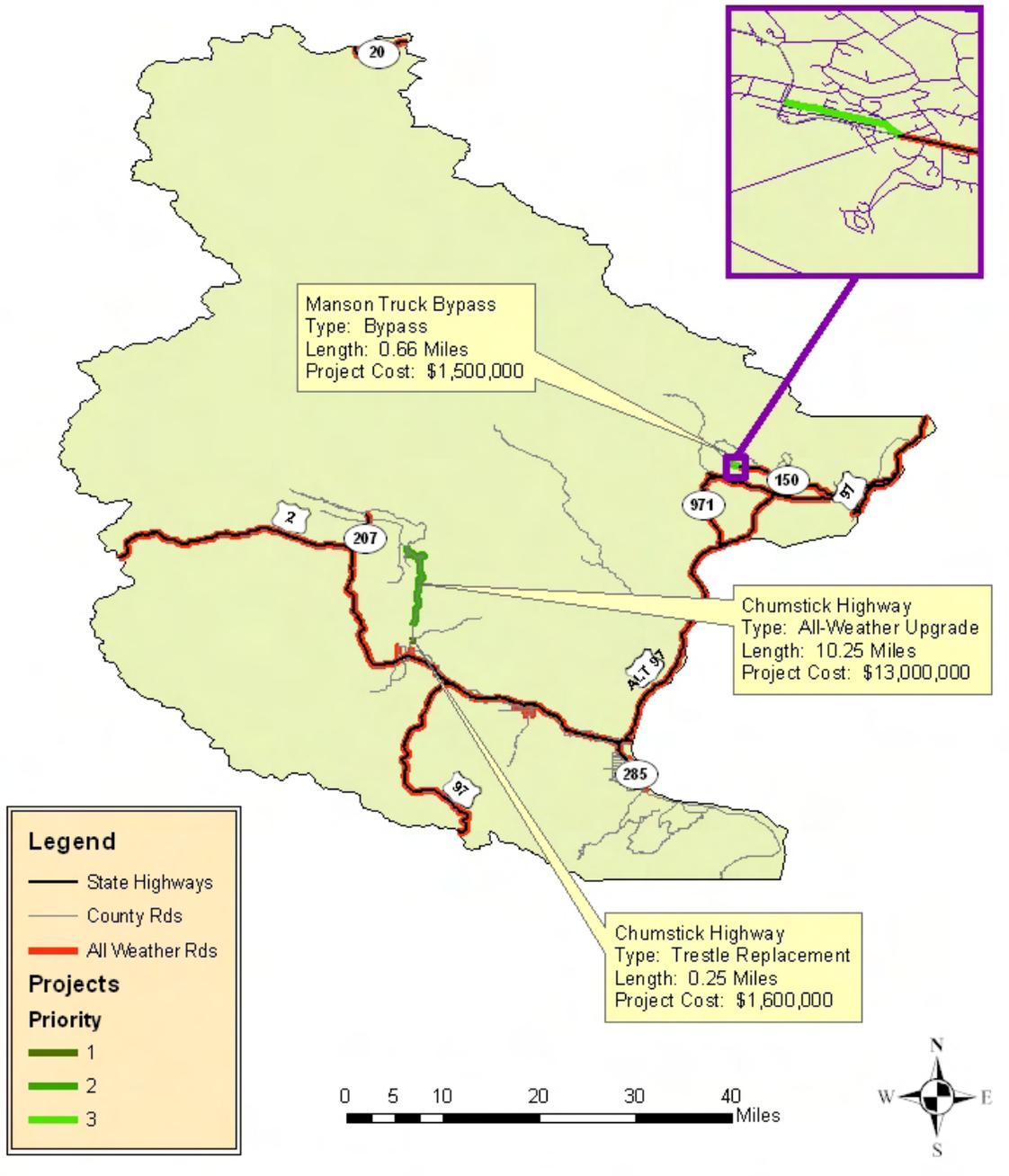


Chelan County

The top priority transportation needs in Chelan County included a trestle replacement, all weather road upgrade on Chumstick Highway and the creation of a truck bypass in Manson. The top priority project is the BNSF trestle replacement with an estimated project cost of \$1.6 million. The second priority transportation project was the all weather upgrade of 10.25 miles of Chumstick Highway for an estimated \$13 million. The Manson truck bypass was the third priority and included the creation of a truck bypass on Boetzkes / Totem Pole Roads for 0.66 miles to divert truck traffic away from a school estimated to cost \$1.5 million.

There were only a few all weather roads that were non-state routes. These were found within the city limits of Cashmere and Wenatchee.

Chelan County Transportation Projects

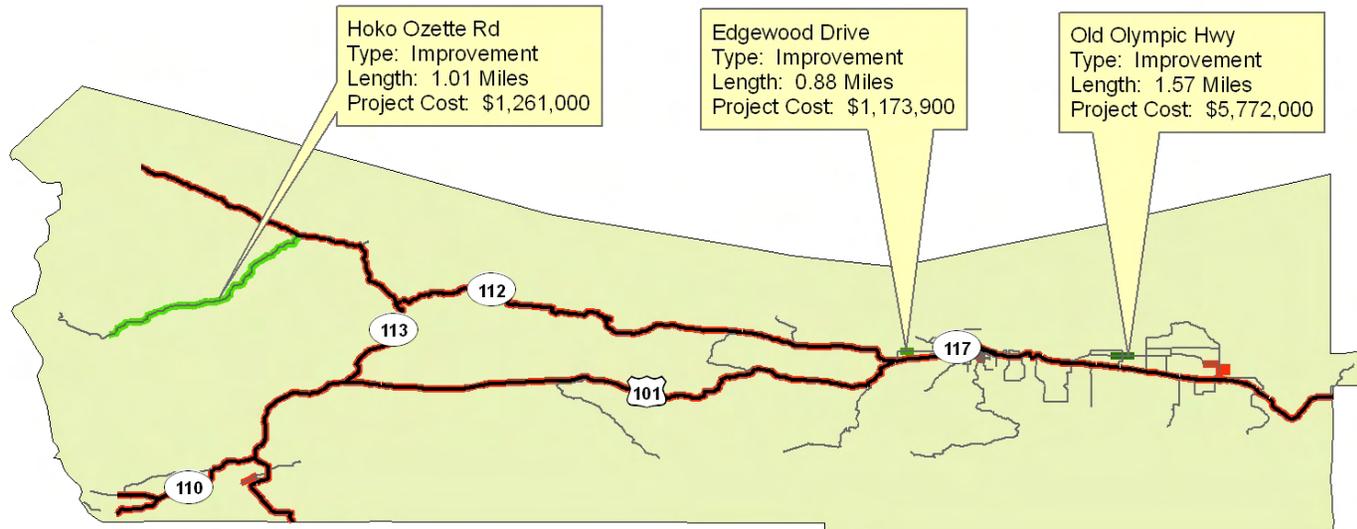


Clallam County

The top transportation improvement project for Clallam County is the improvement of 1.57 miles of Old Olympic Highway for an estimated cost of \$5.772 million. The second priority freight project was 0.88 miles of Edgewood Drive for an estimated cost of \$1,173,900. The third priority project identified by the county was Hoko Ozette Road. This project included moving various segments of the road away from the Hoko River. In all, this project involved one mile of road for an estimated cost of \$1,261,000.

Most of the all weather roads in Clallam County are state routes. There were a few non-state routes that were also identified as all weather roads. These were located mostly within the city limits of Port Angeles.

Clallam County Transportation Projects



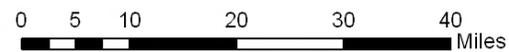
Legend

- State Highways
- County Roads
- All Weather Rds

Projects

PRIORITY

- 1
- 2
- 3



Clark County

The top transportation project for Clark County is the interchange improvements to the Salmon Creek Interchange. The project encompasses the area where I-5 and I-205 merge in the Salmon Creek area. Specifically, the work will be completed in the rectangular zone between NE 10th Avenue and NE 23rd Avenue and between NE 129th Street and NE 149th Street and include a new interchange to be added at I-5 and NE 139th Street. The estimated cost of \$40 million is the county's share of this project.

The second priority transportation project to improve freight mobility in Clark County is the improvement of NE 88th Street. This 2.9 mile project is estimated to cost \$21.9 million.

The third priority transportation improvement project involves 0.8 miles of NE 72nd Avenue and is estimated to cost \$9.5 million.

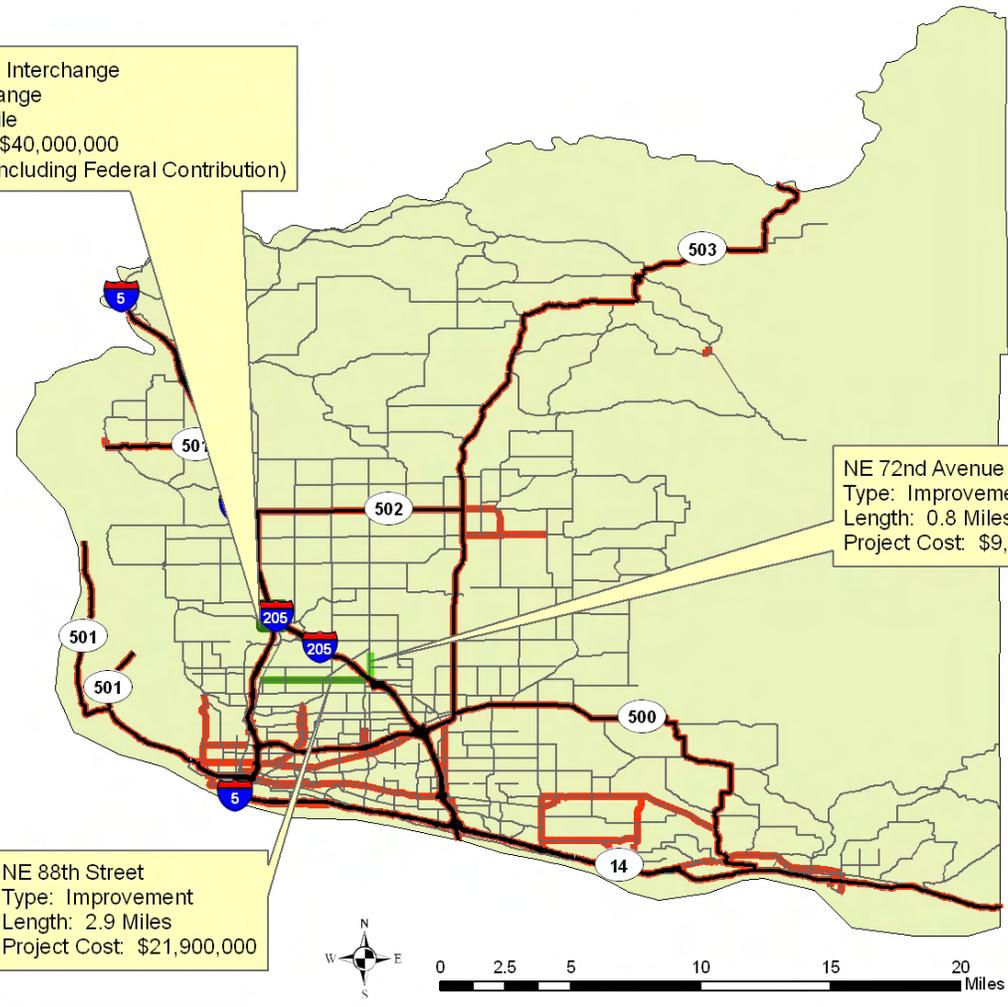
The all weather road network in Clark County is located in the southern part of the county within the city limits of Vancouver and Camas.

Clark County Transportation Projects

Salmon Creek Interchange
 Type: Interchange
 Length: < 1 Mile
 Project Cost: \$40,000,000
 (\$125 million including Federal Contribution)

NE 72nd Avenue
 Type: Improvement
 Length: 0.8 Miles
 Project Cost: \$9,500,000

NE 88th Street
 Type: Improvement
 Length: 2.9 Miles
 Project Cost: \$21,900,000



Legend

- State Highways
- County Roads
- All Weather Rds

Projects PRIORITY

- 1
- 2
- 3

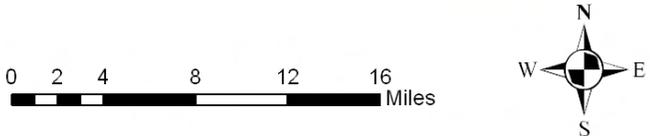
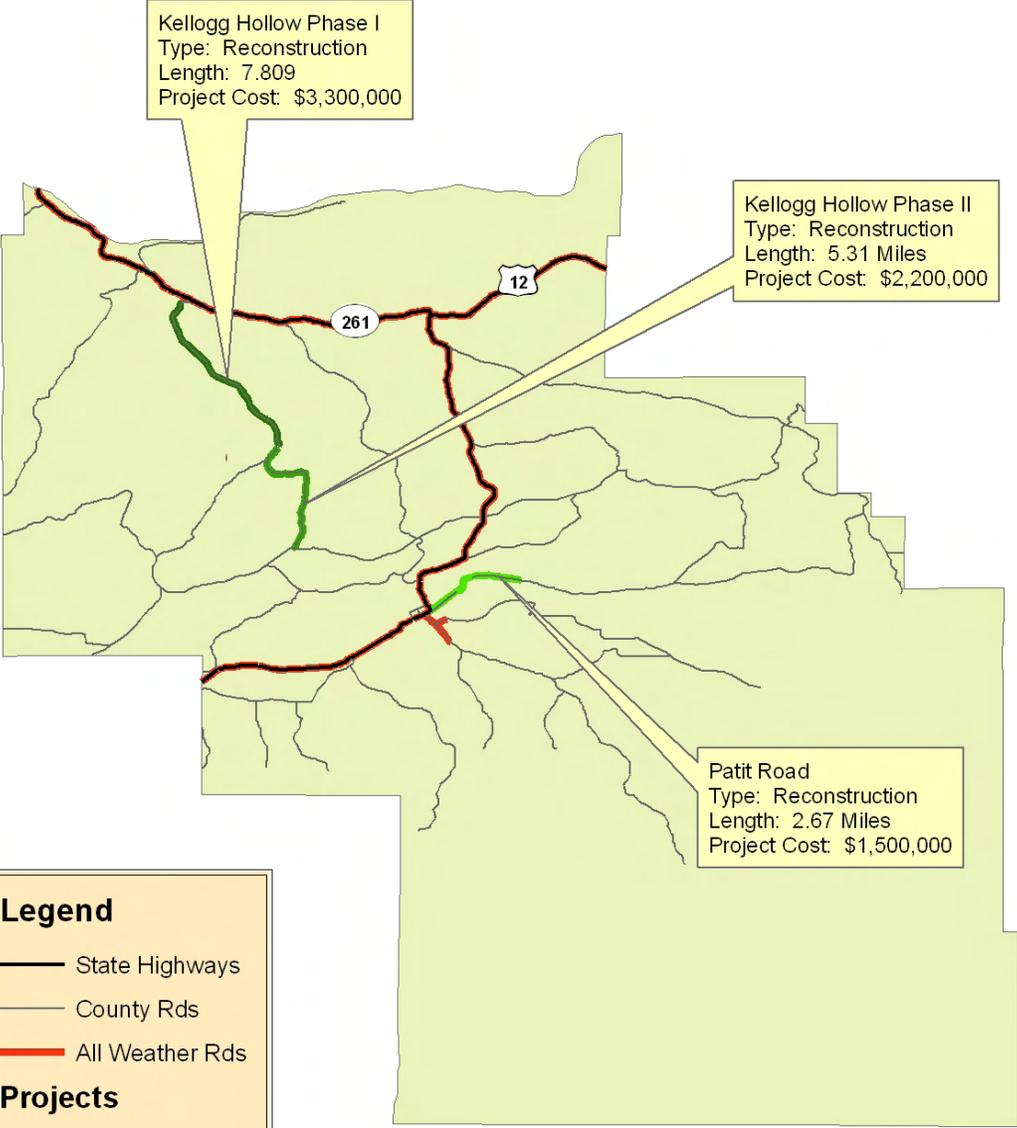


Columbia County

Columbia County submitted three reconstruction projects that were deemed important for improving freight transportation within the county. The top two priority projects involved the reconstruction of various segments of Kellogg Hollow Road. The top priority project, Phase I, was 7.8 miles that terminates within a few miles of the barge facilities on the Snake River. Grain haulers heading to the barge facilities utilize this road. The estimated cost is \$3.3 million. Phase II of the Kellogg Hollow reconstruction involves 5.31 miles that is also used to haul grain. This portion is currently rated T-4 on the Freight and Goods Transportation System (FGTS) and is presently in very poor shape with an estimated cost of \$2.2 million. The third priority transportation project for the county is the reconstruction of 2.67 miles of Patit Road for an estimated cost of \$1.5 million. This road will allow access to a \$100 million windmill power project. Additionally, this road is a primary haul route for grain shipments accessing the river. The reconstruction will turn this road into an all weather road and will allow for the hauling of grain and access to the windmill year round.

Columbia County only reported three non-state routes that were all weather status. These were within the cities of Dayton and Starbuck.

Columbia County Transportation Projects

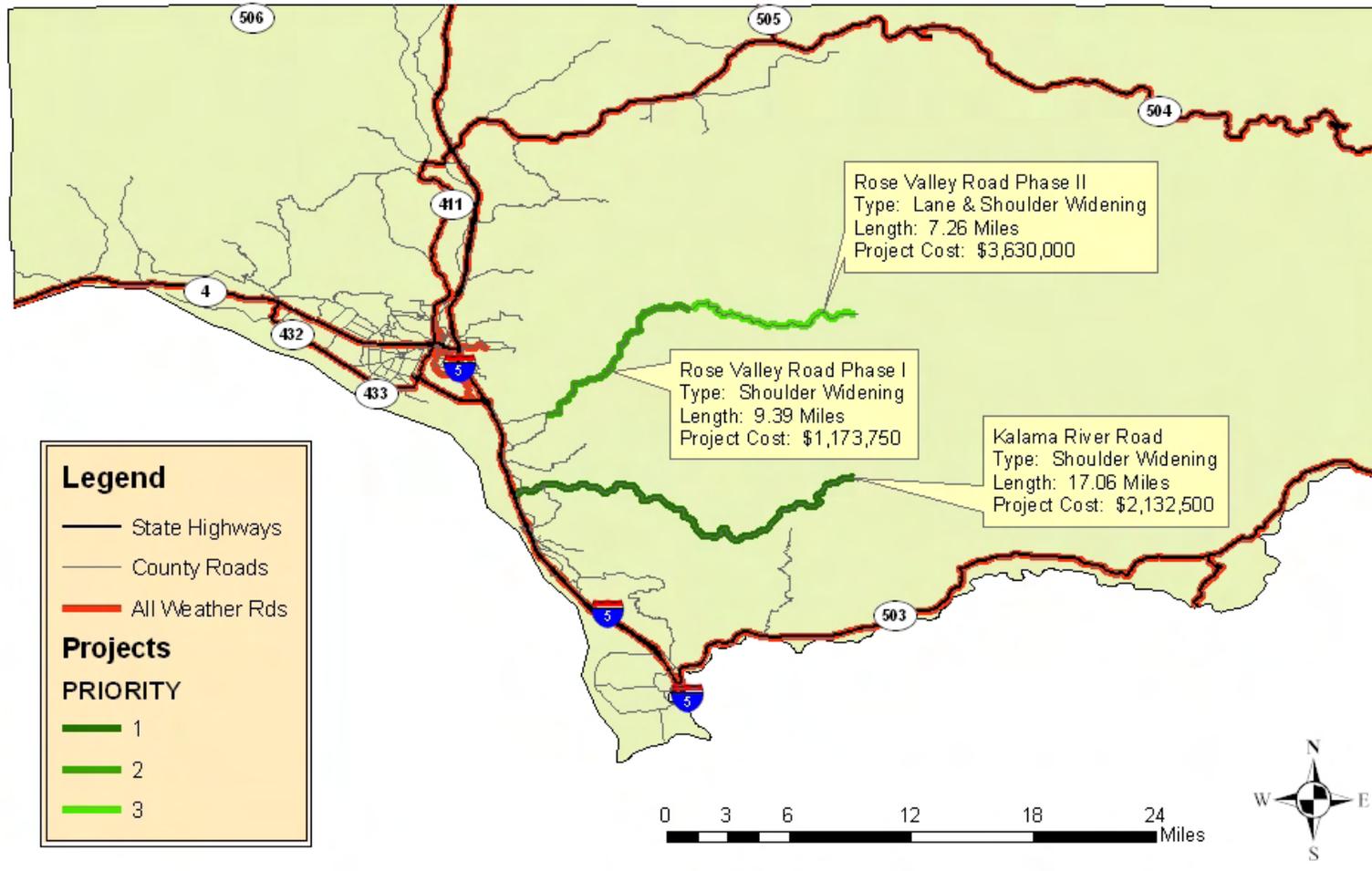


Cowlitz County

Although many of the freight routes in the county are state roads, the county does have some roads used for logging that are in need of repair. The top priority project is the Kalama River Road. This project involves 17.06 miles of shoulder widening at an estimated cost of \$2.133 million. The second and third priority projects include lane and shoulder widening for the Rose Valley Road. Phase I of this project is 9.39 miles in length for an estimated cost of \$1.174 million. Phase II of the project is 7.26 miles for an estimated cost of \$3.63 million.

Most of the all weather roads within Cowlitz County are state routes. There were a few all weather roads within the city limits of Kalama and Kelso.

Cowlitz County Transportation Projects



Douglas County

Douglas County identified three freight improvement projects that would upgrade portions of three county roads to “all weather” status. The top priority was 17 miles of Badger Mountain Road for an estimated \$8.0 million. The second priority project included 18.53 miles of Palisades Road at an estimated cost of \$16 million. The final freight priority project is the Waterville North Oil project, which encompasses 13.9 miles and is estimated to cost \$7.8 million.

Almost all of the all weather roads in Douglas County were state routes. However, there are non-state all weather routes in Bridgeport, East Wenatchee and Waterville.

Douglas County Transportation Projects

Badger Mountain Road
Type: All Weather Upgrade
Length: 17 Miles
Cost: \$8,000,000

Waterville North Oil
Type: All Weather Upgrade
Length: 13.9 Miles
Cost: \$7,800,000

Palisades Road
Type: All Weather Upgrade
Length: 18.53 Miles
Project Cost: \$16,000,000

Legend

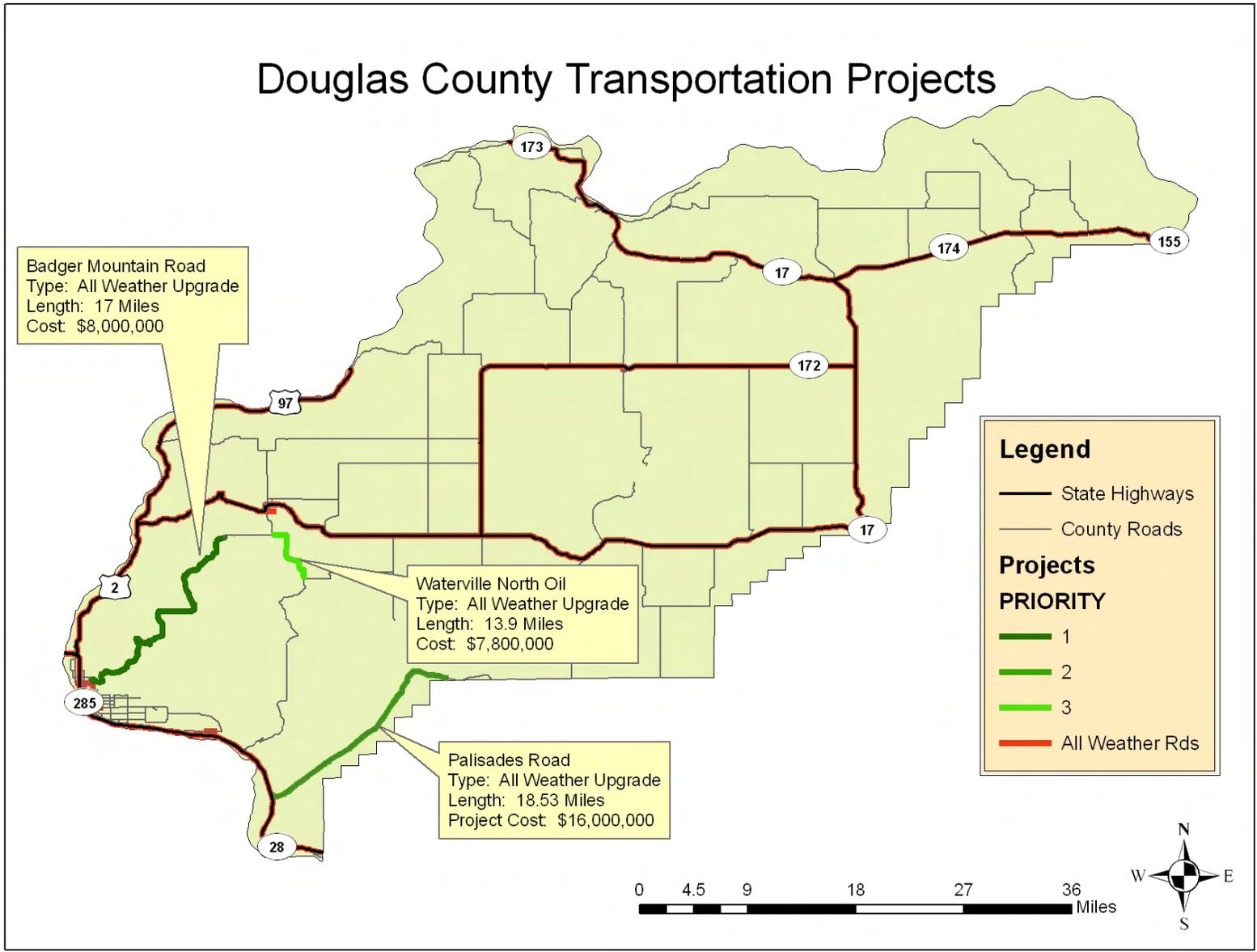
- State Highways
- County Roads

Projects

PRIORITY

- 1
- 2
- 3

— All Weather Rds



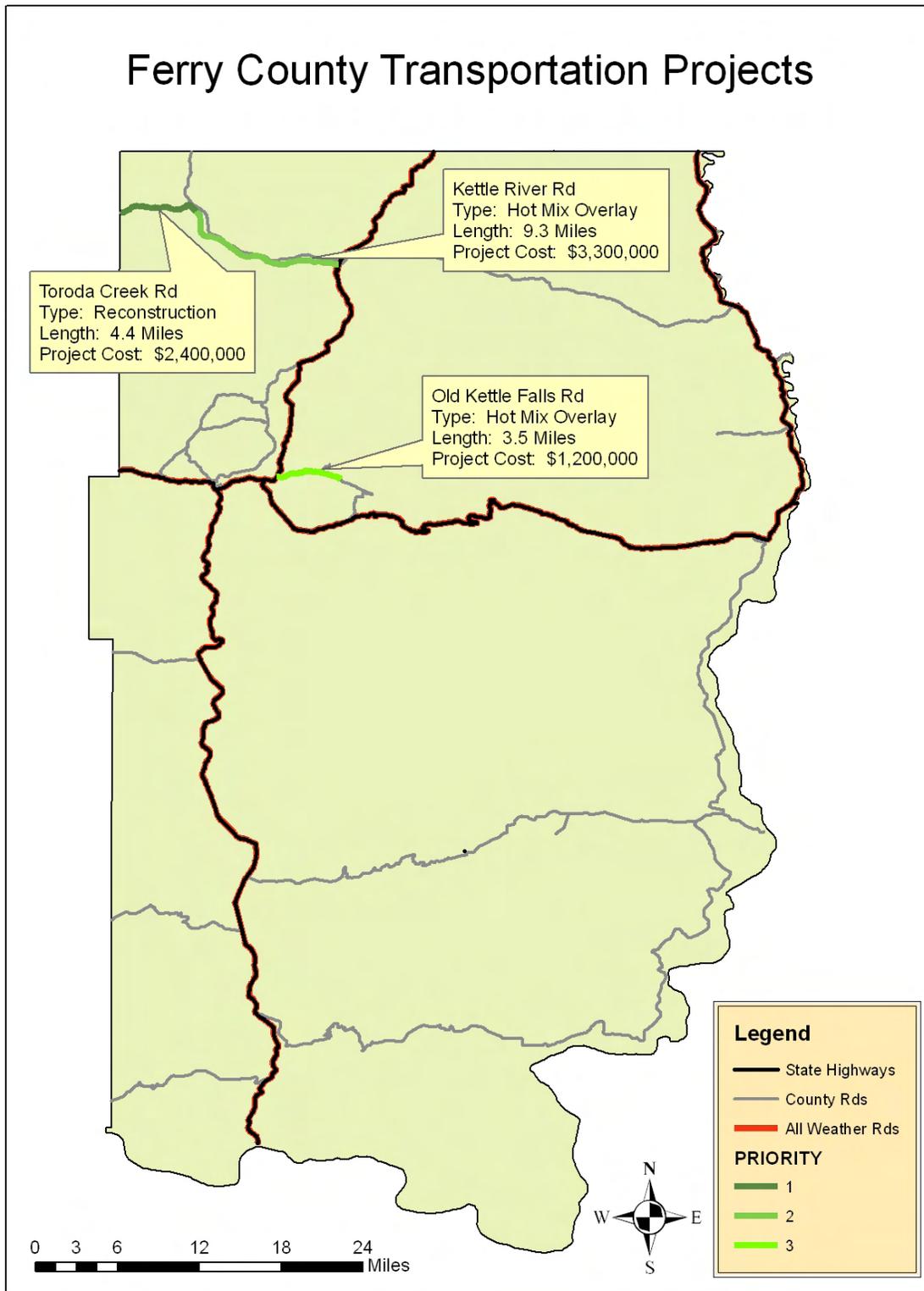
Ferry County

The top two priority transportation projects for Ferry County are already underway and include the reconstruction of 4.4 miles of Toroda Creek Road at an estimated cost of \$2.4 million.

The second and third priority transportation projects included hot mix overlays for 9.3 miles of Kettle River Road and 3.5 miles of Old Kettle Falls Road. The Kettle River Road project was expected to cost \$3.3 million and the Old Kettle Falls Road was estimated to cost \$1,200,000.

There was only one non-state all weather route reported by Ferry County in the city of Republic.

Ferry County Transportation Projects



Franklin County

Franklin County submitted three primary transportation projects that were all weather upgrades to existing freight routes. The top priority is Glade North Road from Pasco to Basin City. This represents 18.59 miles of road and is estimated to cost \$9.295 million. The second highest priority for the county would be an all weather upgrade to nearly 35 miles of the Pasco-Kahlotus Highway from Pasco to Kahlotus for an estimated cost of \$14 million. The third transportation project is an all weather upgrade to 28.56 miles from Pasco to Othello including Road 68 North, Taylor Flats, Ringold Road and Sagehill. The total project is estimated to cost \$11.5 million.

Franklin County Transportation Projects

Glade North Rd
 Type: All-Weather Upgrade
 Length: 18.59 Miles
 Project Cost: \$9,295,000

Road 68 North
 Type: All-Weather Upgrade
 Length: 28.56 Miles
 Project Cost: \$11,500,000

Pasco Kahlotus Hwy
 Type: All-Weather Upgrade
 Length: 34.87 Miles
 Project Cost: \$14,000,000



Legend

- State Highways
- County Roads
- All Weather Rds

Projects PRIORITY

- 1
- 2
- 3



Garfield County

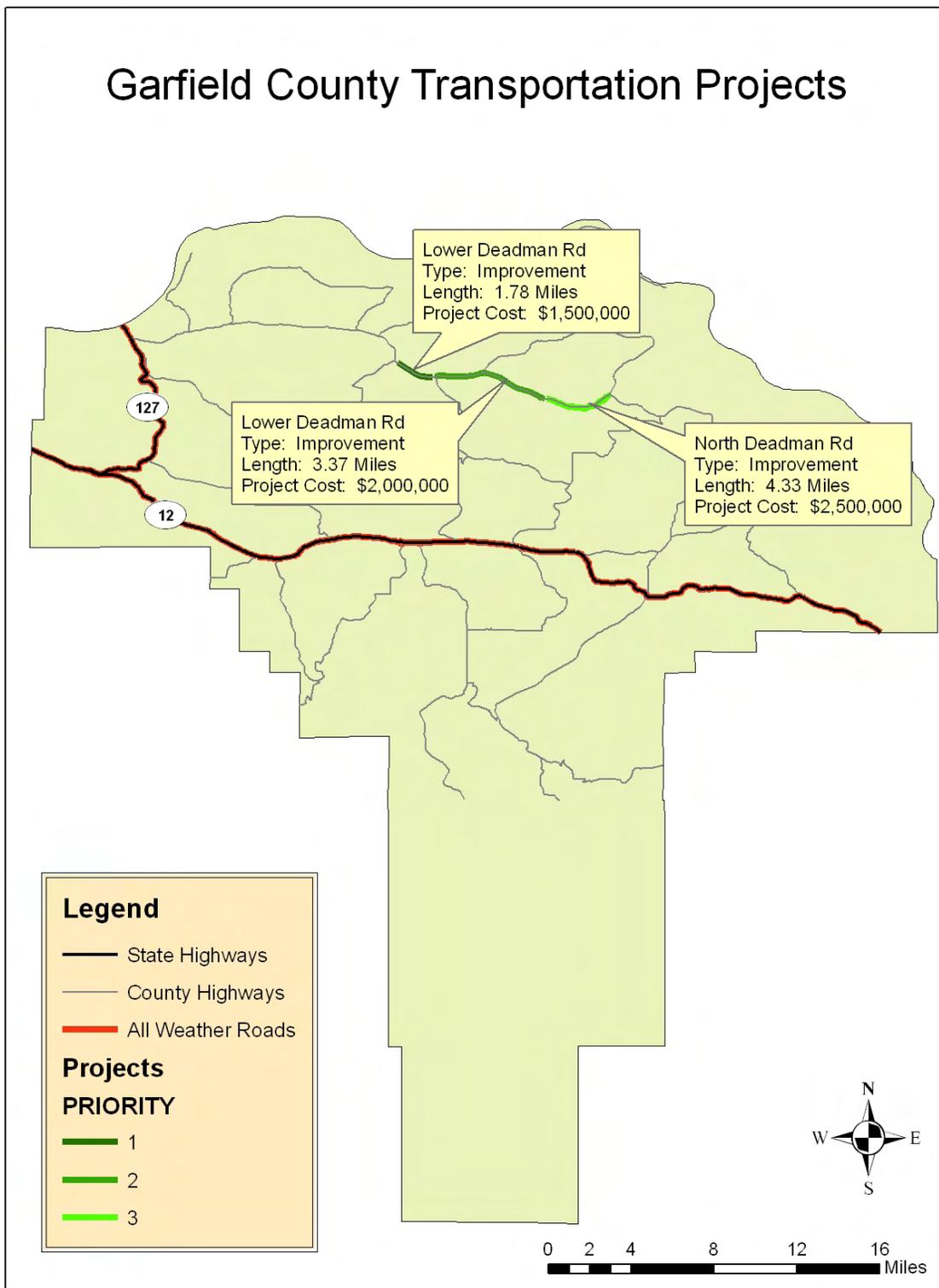
The primary transportation project for Garfield County included 1.78 miles of Lower Deadman to North Deadman Roads. The top priority, Lower Deadman Road from Wildhorse Road to Gould City involved improving road of the T-4 freight class road. The project would include widening, slope flattening, rehabilitation, safety and minor alignments estimated to cost \$1,500,000.

The second highest priority improvement of 3.37 miles of Lower Deadman Road to North Deadman Road would include widening, spot realignment, slope flattening, safety and rehabilitation. The estimated cost is \$2 million. This portion of road currently has an FGTS rating of T-5.

The third priority transportation project for the county is actually the second phase of the above project on North Deadman Road. Similarly, this road is currently rated as T-5 freight class. This project also involves widening, spot realignment, slope flattening, safety and rehabilitation of 4.33 miles and is estimated to cost \$2.5 million.

The only non-state route all weather roads in Garfield County are in Pomeroy.

Garfield County Transportation Projects



Grant County

Grant County reported three transportation highway projects that were currently not all weather classified. The top priority project included the 8.03 miles of Wilson Creek to 31 NE on R-NE for a total of \$1.77 million. The second priority project was a continuation on R-NE from 31-NE to 36-NE at an expected cost of \$1.22 million. The third priority project completed R-NE from 36-NE to Hartline at an estimated cost of \$1.064 million.

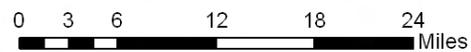
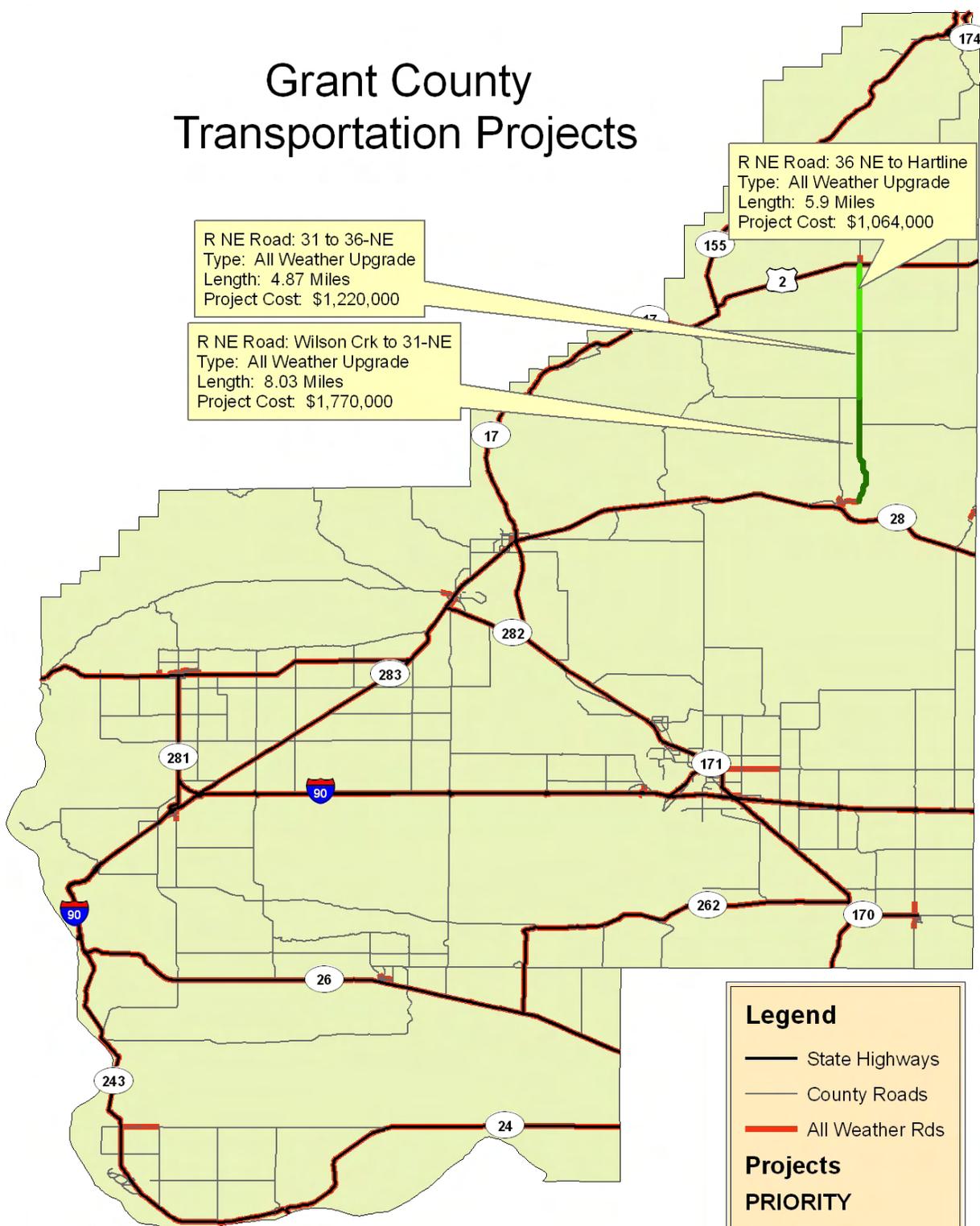
Grant County has many interstate and state routes that are all weather roads. Most of the cities in the county do have some all weather routes within their city limits. The proposed transportation projects would represent a significant expansion of the county all weather road system.

Grant County Transportation Projects

R NE Road: 31 to 36-NE
 Type: All Weather Upgrade
 Length: 4.87 Miles
 Project Cost: \$1,220,000

R NE Road: Wilson Crk to 31-NE
 Type: All Weather Upgrade
 Length: 8.03 Miles
 Project Cost: \$1,770,000

R NE Road: 36 NE to Hartline
 Type: All Weather Upgrade
 Length: 5.9 Miles
 Project Cost: \$1,064,000



Legend

- State Highways
- County Roads
- All Weather Rds

Projects PRIORITY

- 1
- 2
- 3

Grays Harbor County

The top three transportation improvement projects for Grays Harbor County involve roads that are on FGTS class T-3 roads. The top priority is the realignment project on 0.7 miles of North River Road at an estimated cost of \$2.5 million. The second priority is a safety project on 0.3 miles of Ocean Beach Road for an estimated cost of \$0.7 million. The third priority is a realignment project on 0.3 miles of Boundary Road for an estimated \$0.7 million.

Most of the all weather roads within Grays Harbor County are state routes. There are a few non-state routes that are all weather status. Most of these are located in Aberdeen and Hoquiam.

Grays Harbor County Transportation Projects



Island County

The top transportation project for Island County is the repair and widening of a 0.5 mile portion of Cameron Road for an estimated cost of \$1.5 million. The county identified this project as a priority because it serves the major employer in the county. The road carries a large amount of raw materials used by the shipyard in the fabrication of large ocean going vessels including US Navy craft. It is also the road used by the employees of the shipyard arriving from different locations on Whidbey Island. The major private employer is undergoing expansion and will be adding additional shifts and workers.

The second highest priority project for the county is the construction of a new bypass route for SR 525. This bypass road will parallel the state highway. There presently is no bypass and a closure of SR 525 could stop all traffic on Whidbey Island, north or south bound, including freight that is critical to the economy and well-being of Whidbey Island and adjacent counties. This project is estimated to cost \$2.5 million.

The third priority freight transportation project for the county is the improvement of a mile of Main Street, Freeland for an estimated cost of \$1.6 million. This is the main road through the unincorporated area of Freeland and carries local freight destined for stores and other commercial outlets as well as some raw materials, mostly logs. The main problem with the existing road is the conflict between large trucks and automobiles, as well as use by pedestrians and parking.

In addition to the state routes within the county, the all weather roads serve the cities of Langley and Oak Harbor.

Island County Transportation Projects



Legend

- State Highways
- County Roads
- All Weather Rds

Projects

PRIORITY

- 1
- 2
- 3

0 2 4 8 12 16 Miles



Jefferson County

Jefferson County identified three truck routes that are in need of repair. The top priority is the improvement of 0.57 miles of Chimacum Road for an estimated \$720,000. The second priority for the county is the improvement of the truck route to the paper mill on Island Mill Road. This project covers 0.77 miles and is estimated to cost \$970,000. The third priority reported by the county is the improvement of 6.81 miles of Center Road for an estimated \$1.298 million. This truck route provides the main north-south corridor of the county.

Jefferson County Transportation Projects

Legend

- State Highways
- County Roads
- All Weather Rds

Projects

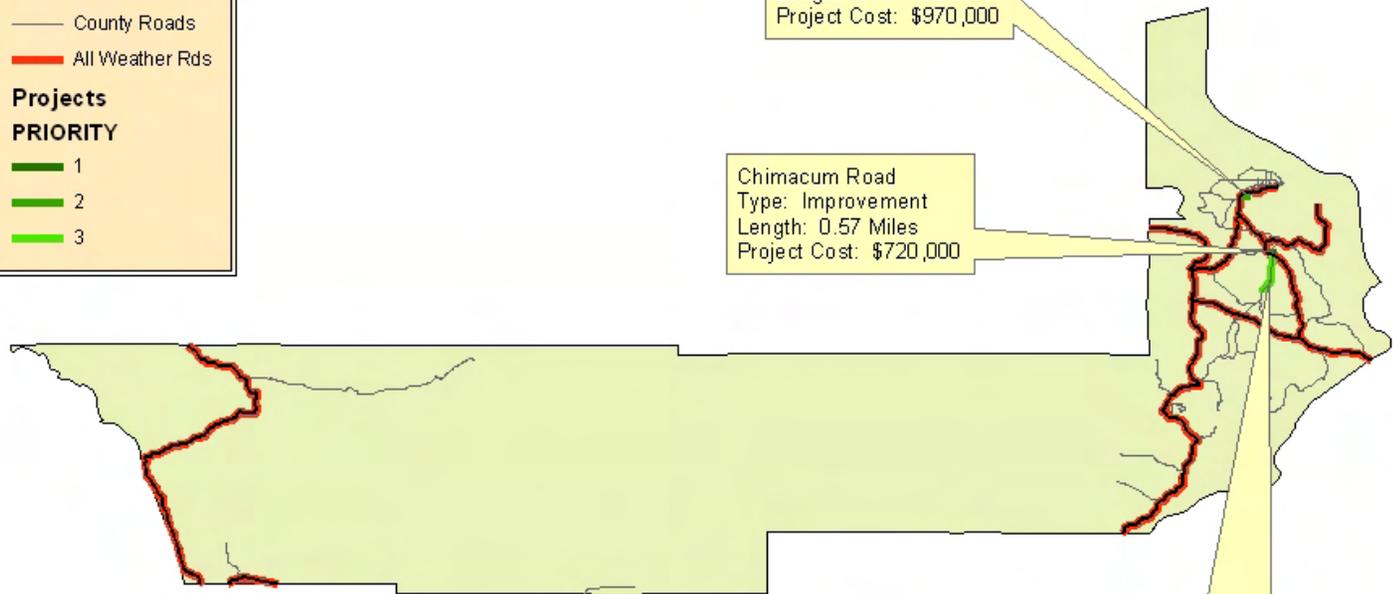
PRIORITY

- 1
- 2
- 3

Island Mill Road
Type: Improvement
Length: 0.77 Miles
Project Cost: \$970,000

Chimacum Road
Type: Improvement
Length: 0.57 Miles
Project Cost: \$720,000

Center Road
Type: Improvement
Length: 6.81 Miles
Project Cost: \$1,298,000



King County

The only major transportation project identified by King County was the reconstruction of the South Park Bridge for an estimated cost of \$150 million. The bridge is important to freight transportation because it links the manufacturing and industrial center located north of the Duwamish River with the business and urban centers located on the south side of the river. The bridge moves freight traffic from these industrial centers to SR 99, SR 509 and I-5 corridors. Failure of this deteriorating structure would result in extensive detour routes, severance of the South Park Business Center from the Duwamish and North Tukwila Industrial Centers and increase traffic congestion to the bridges/arterials east and west of the South Park Bridge. The bridge is part of a principle arterial and has an annual average daily traffic count of 20,000 vehicles per day. It is part of a corridor that carries significant tonnage of freight and goods annually and has a T-2 freight route classification.

King County Transportation Project

South Park Bridge
Type: Reconstruction
Length: 0.25 Miles
Project Cost: \$150,000,000



Legend

- State Highways
- County Roads
- All Weather Rds
- Projects



Kitsap County

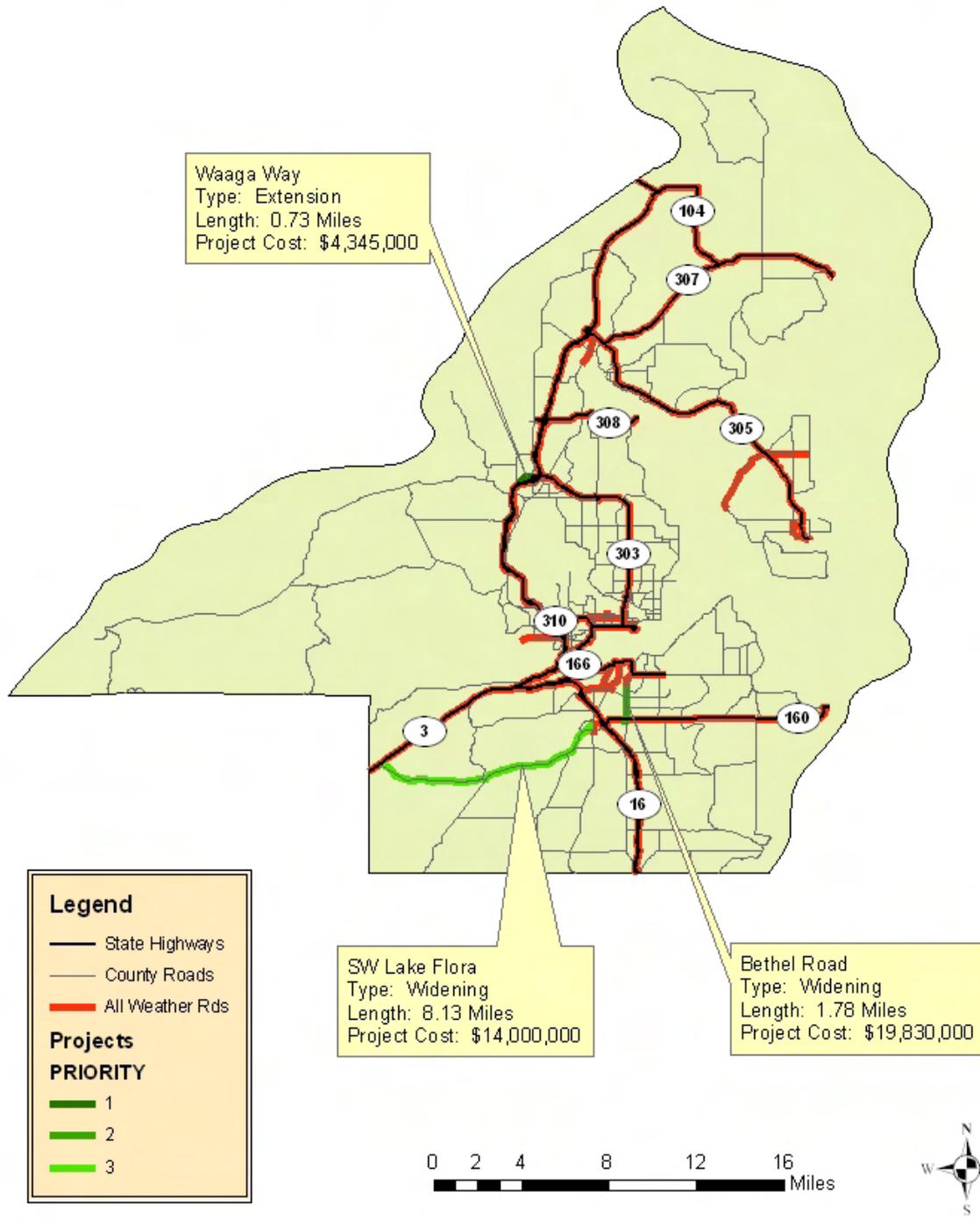
The top freight transportation improvement project for Kitsap County is the extension of Waaga Way from SR 303 / Clear Creek Road to Old Frontier Road. This is a new road that will be federally classified as a future minor arterial. Zoning in the area is Business Park / Industrial and the project lies just west of Silverdale and the SR 3 / SR 303 interchange. The cost for the 0.73 mile project is estimated to be \$4.345 million.

The second priority project is Bethel Road from Ives Mill to Lincoln Road (Port Orchard City Limits). This project involves widening 1.78 miles of road at an estimated cost of \$19.830 million. Bethel Road is being developed as a commercial road with a Wal-Mart already located in the corridor and several other “big box” retailers in the process of locating there. Bethel is a Principal / Minor Arterial.

The third important freight transportation project identified by Kitsap County is the widening of SW Lake Flora Road to four lanes. The 8.13 mile project from SR 3 to Glenwood Road SE is estimated to cost \$14 million. SW Lake Flora Road is the southern terminus of the South Kitsap Industrial Area (SKIA) development. Traffic generated within the SKIA property will have the option of traveling northeast to SR 3 or south to Lake Flora. The redevelopment of Lake Flora Road will create a bypass route to address the Gorst congestion.

In addition to several state routes, the county is served by all weather roads in Bainbridge Island, Bremerton and Port Orchard.

Kitsap County Transportation Projects



Kittitas County

Kittitas County submitted one major freight transportation project. The Teanaway Road project covers 5.8 miles of Teanaway Road and another 5.8 miles of North Fork Teanaway Road and is expected to cost \$14.7 million. This highway is the only route for U.S. Timber to access and actively log the Teanaway Valley. It is used heavily for access to both summer and winter recreation opportunities. The county has recently built a bridge that supports the logging and recreational opportunities served by these roads.

The non-state route all weather roads within the county are found primarily in Cle Elum, Kittitas, and Ellensburg.

Kittitas County Transportation Project



Klickitat County

The highest priority freight project in Klickitat County is to reconstruct and pave 2.2 miles of Lakeside Road, County Road #19270. This project will include the removal of one blind curve, generally improve sight distance to the existing horizontal and vertical alignment, install drainage, provide adequate structural surfacing for an all weather road, and pave with a bituminous surface treatment. Estimated cost for this project is \$680,000. This project along with another project under the Rural Arterial Program (RAP) will provide an all weather, paved, surface from the community of Glenwood to Klickitat and Lyle.

The second top priority transportation project for the county is to reconstruct and pave 6.27 miles of Hale Road, County Road #46180. This project will improve sight distance to the existing horizontal and vertical alignment, install drainage, provide adequate structural surfacing for an all weather road, and pave with a bituminous surface treatment. Completion of this section will provide an all weather, paved surface from the community of Bickleton to Alderdale. Estimated cost for this project is \$1.255 million.

Lastly, Klickitat County would like to perform a county-wide overlay to create an all weather haul network from major collector routes within the county. Klickitat County has several towns in the northwest and north-central regions of the county that rely on major collector roads as the sole access route to transport goods from timber and farm harvests to regional markets. Currently these roads do not have the necessary structure to provide year-round service for the heavy trucks used to transport these goods. Until the structure of these roads is improved, they must be closed during the freeze/thaw season when the roads are at their weakest. Completion of this project will provide “all weather” service to major collectors (Glenwood Highway, BZ-Glenwood Highway, Trout Lake Highway, Warner Road and Sunnyside Road) that connect the towns of Goldendale, Trout Lake and Glenwood to regional markets. Although portions of the network have already been completed or are currently underway, specific remaining needs include portions of Trout Lake Highway, BZ-Glenwood Highway and Glenwood Highway and are estimated to cost \$10.250 million.

Klickitat County Transportation Projects

Glenwood Hwy / Trout Lake Hwy
 Type: Overlay
 Length: 29.57 Miles
 Project Cost: \$10,250,000

Lakeside Road
 Type: Reconstruct & Pave
 Length: 2.2 Miles
 Project Cost: \$680,000

Hale Road
 Type: Reconstruct & Pave
 Length: 6.27 Miles
 Project Cost: \$1,255,000

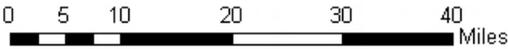
Legend

- State Highways
- County Rds
- All Weather Rds

Projects

PRIORITY

- 1
- 2
- 3



Lewis County

Lewis County identified one primary freight transportation improvement project. The extension of Rush Road by 0.63 miles is expected to cost \$2,500,000.

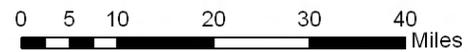
In addition to the interstate and state highway system, Lewis County is served by all weather roads in Centralia, Chehalis and Napavine as well as other smaller cities throughout the county.

Lewis County Transportation Projects



Legend

- State Highways
- County Roads
- All Weather Rds
- Projects

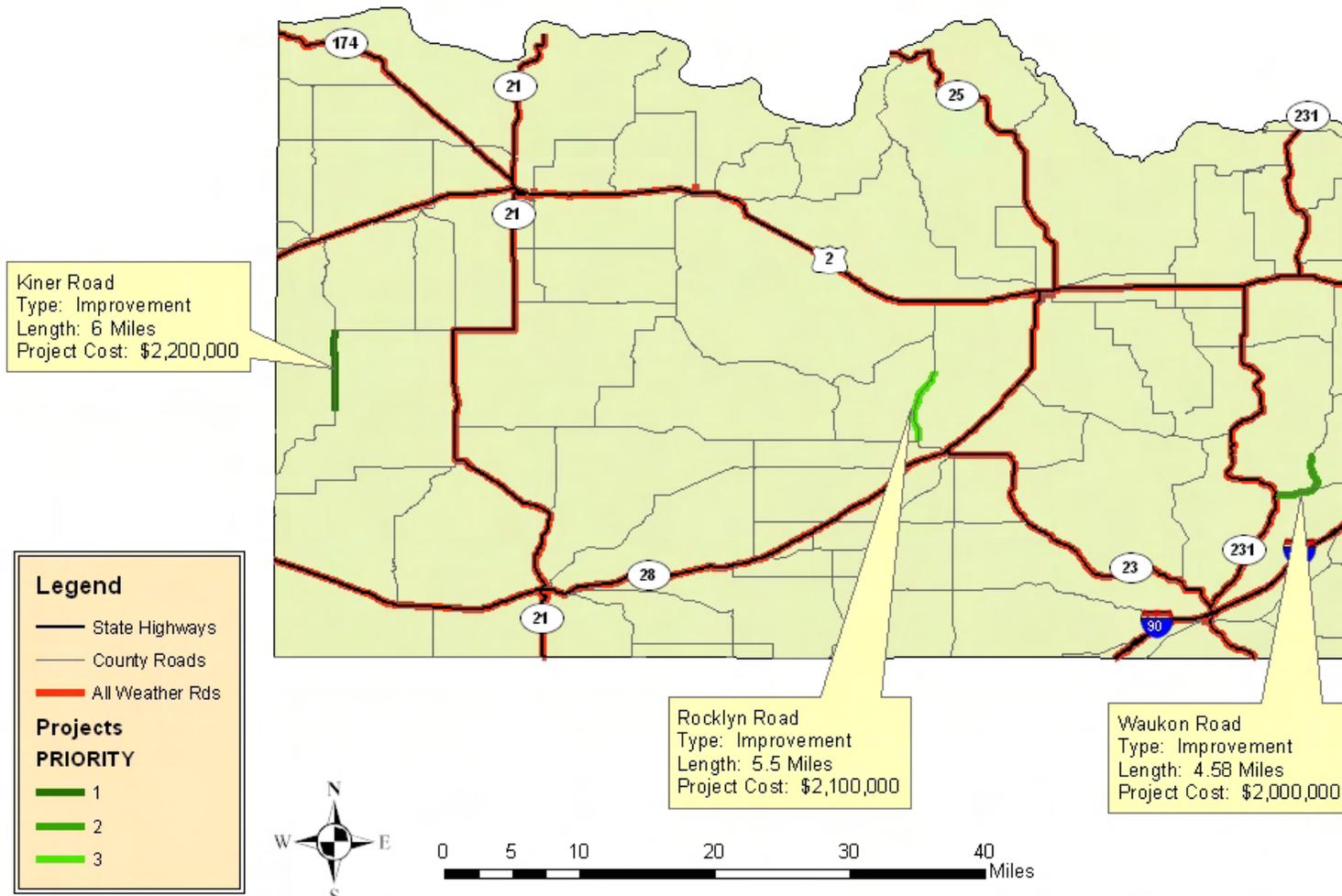


Lincoln County

The top freight transportation project for Lincoln County is the improvement of six miles of Kiner Road for an estimated cost of \$2.2 million. The second highest improvement project is 4.58 miles of Waukon Road for an estimated cost of \$2 million. The third top priority freight improvement project is 5.5 miles of Rocklyn Road for an estimated \$2.1 million.

Except for the state routes throughout the county, Lincoln County does not have an extensive all weather road system. There are some all weather roads within the various city limits. The proposed transportation projects would represent a significant increase in all weather coverage for the county.

Lincoln County Transportation Projects

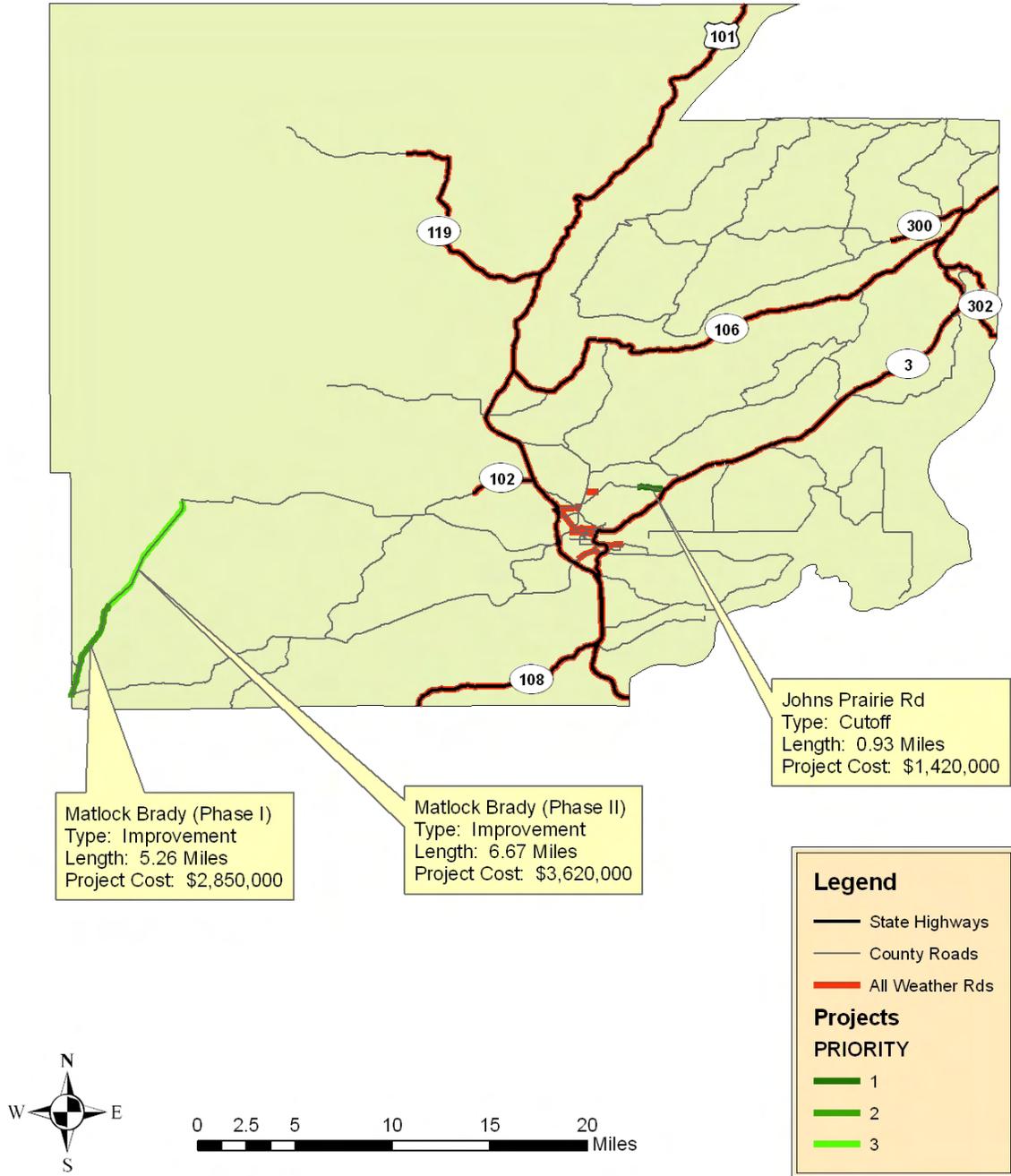


Mason County

All three freight improvement projects in Mason County involved T-3 freight routes. The top priority project is the Shelton cutoff on Johns Prairie Road. This nearly one mile project is estimated to cost \$1,420,000. The other two top priority projects were improvements to two separate phases of the same road. The Matlock Brady Phase I project could improve 5.26 miles for an estimated \$2,850,000. Phase II of the same project would improve six miles of Matlock Brady Road for an estimated \$3.620 million.

In addition to the state routes, Mason County has several all weather roads in the city of Shelton.

Mason County Transportation Projects



Okanogan County

The primary freight transportation project for Okanogan County is the improvement of 9.91 miles of Old 97 for an estimated cost of \$7.425 million. The next top priority is the improvement of 19.27 miles of Torada Creek Road for an estimated \$15.416 million. The third priority transportation project reported by the county is the improvement of 21.91 miles of Highway 7 for an estimated cost of \$16.432 million.

The all weather roads in Okanogan County consist primarily of state routes with few all weather roads serving the various cities of the county.

Okanogon County Transportation Projects

Highway 7
Type: Improvement
Length: 21.91 Miles
Project Cost: \$16,432,500

Torada Creek Road
Type: Improvement
Length: 19.27 Miles
Project Cost: \$15,416,000

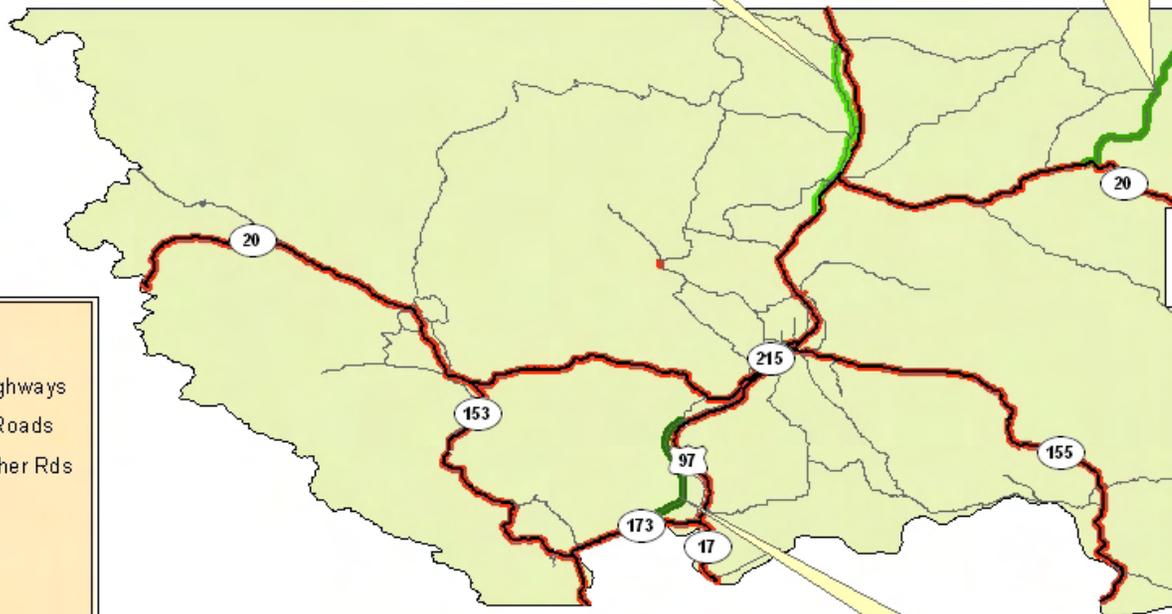
Legend

- State Highways
- County Roads
- All Weather Rds

Projects

PRIORITY

- 1
- 2
- 3



Old 97
Type: Improvement
Length: 9.9 Miles
Project Cost: \$7,425,000



Pacific County

The top three transportation projects for Pacific County involved all weather surfacing for three important freight routes. The Smith Creek Road project is nine miles in length and is estimated to cost \$10 million. The second highest freight project is the 3.41 miles of Salmon Creek Rd for an estimated cost of \$3,000,000. Lastly, the Mill Creek Road project is 2.1 miles in length and is estimated to cost \$1.5 million.

There are very few all weather roads in Pacific County outside of the state route network. The proposed transportation projects represent a significant increase in the amount of all weather roads in the county.

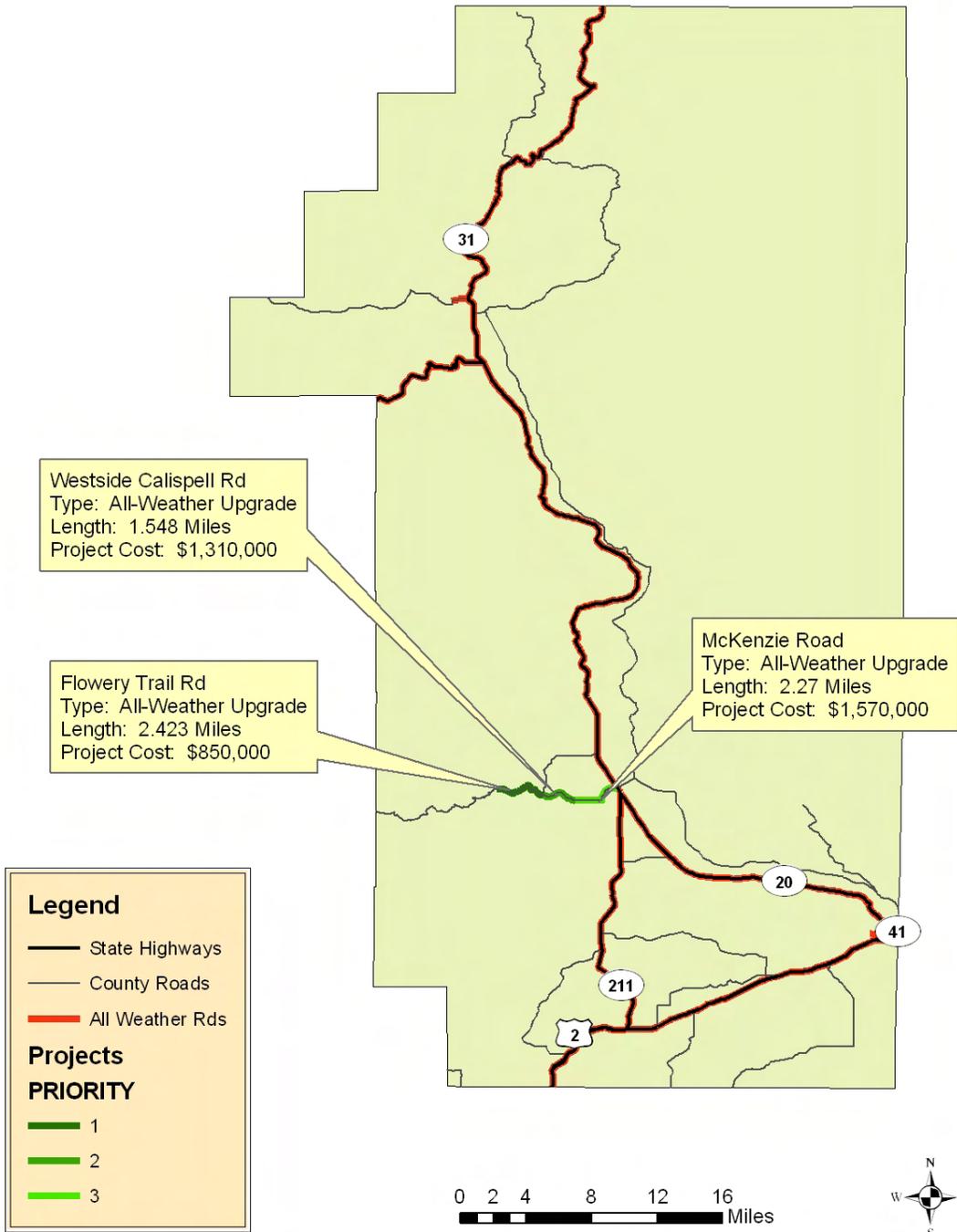
Pacific County Transportation Projects



Pend Oreille County

Pend Oreille County has proposed three freight transportation projects that, when combined, will connect an all weather road from the City of Chewelah (US 395) to the town of Usk (SR 20). The Flowery Trail Road improvement is the top priority and will improve 2.423 miles of road for an estimated \$850,000. The Westside Calispell Road project is estimated to cost \$1,310,000 for an improvement of 1.548 miles. The third priority freight improvement project is 2.27 miles of McKenzie Road for an estimated cost of \$1.57 million.

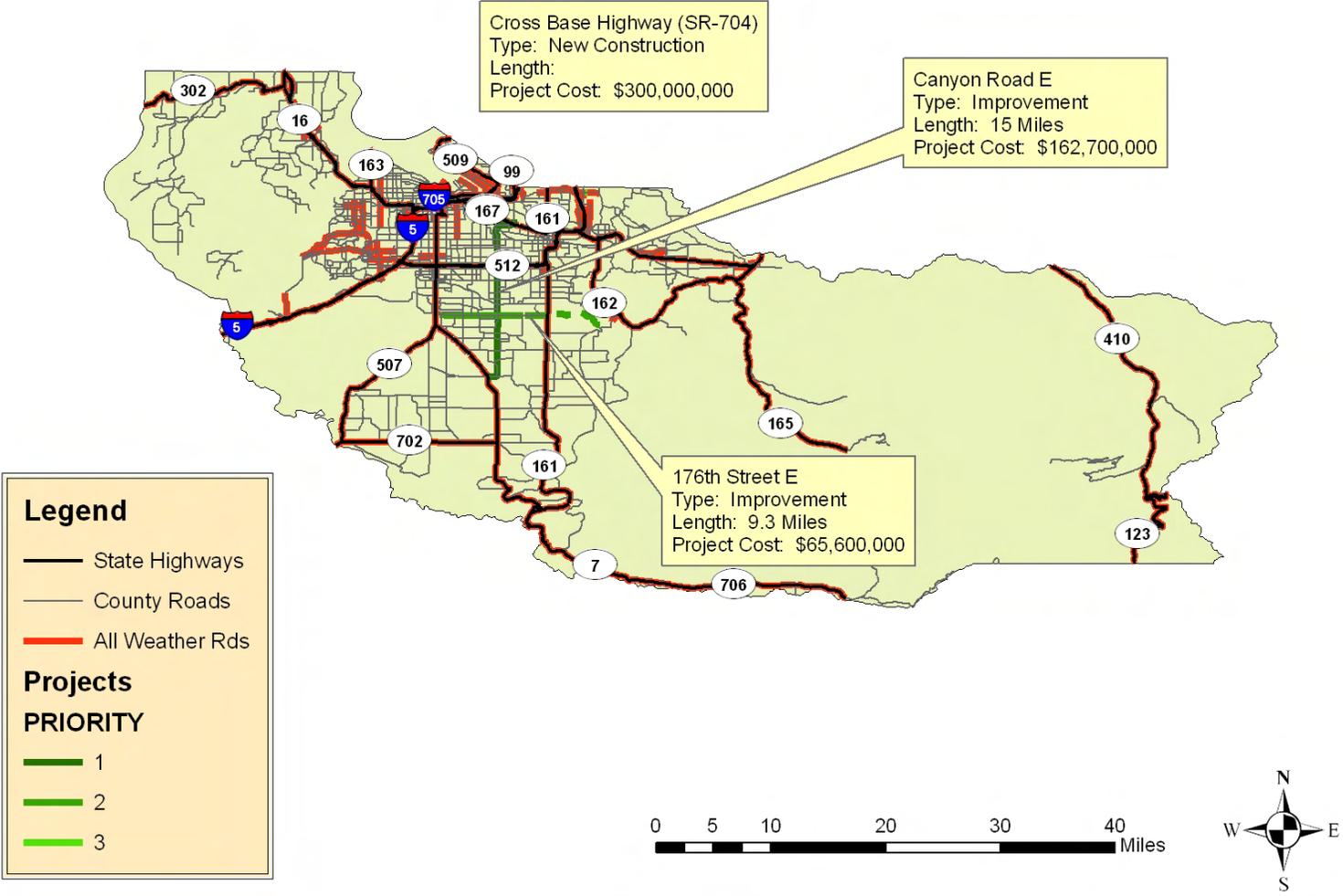
Pend Oreille County Transportation Projects



Pierce County

The top transportation project for Pierce County is the Cross Base Highway (SR-704) for an estimated cost of \$300 million. This is followed by an improvement of 15 miles of the Canyon Road E corridor from SR 7 to the Fife City limits at an estimated cost of \$162.7 million. The third transportation improvement project is 9.3 miles of the 176th Street E corridor from SR 7 to the Orting City limits at an estimated cost of \$65.6 million.

Pierce County Transportation Projects

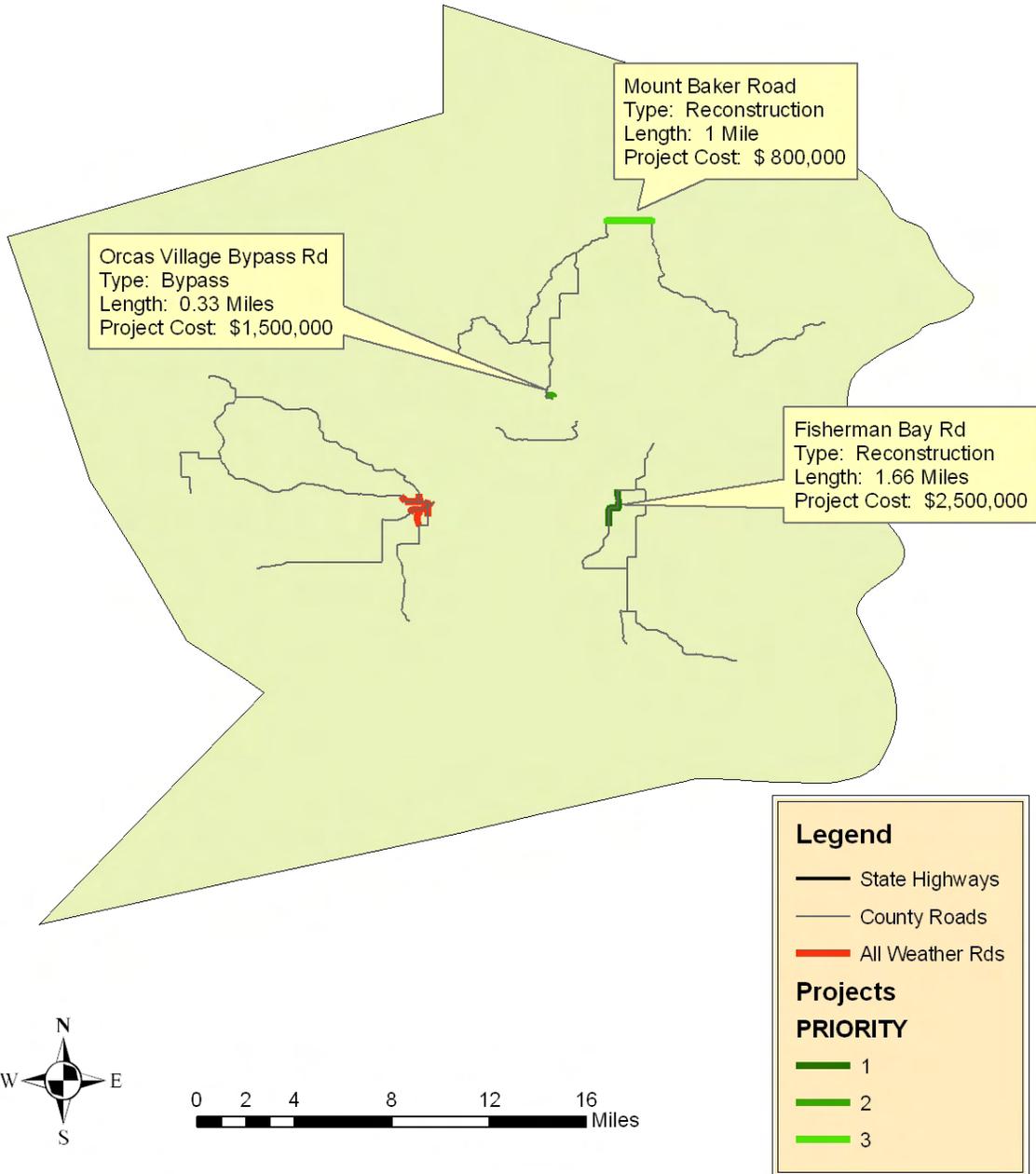


San Juan County

The principle freight transportation improvement project for San Juan County is the reconstruction of 1.66 miles of Fisherman Bay Road for an estimated \$2.5 million. The second highest priority project is the creation of a bypass road around Orcas Village. This 0.33 mile project is estimated to cost \$1.5 million. The third highest priority project for San Juan County is the improvement of Mount Baker Road for an estimated cost of \$800,000.

The only all weather roads in San Juan County serve the city of Friday Harbor.

San Juan County Transportation Projects



Skagit County

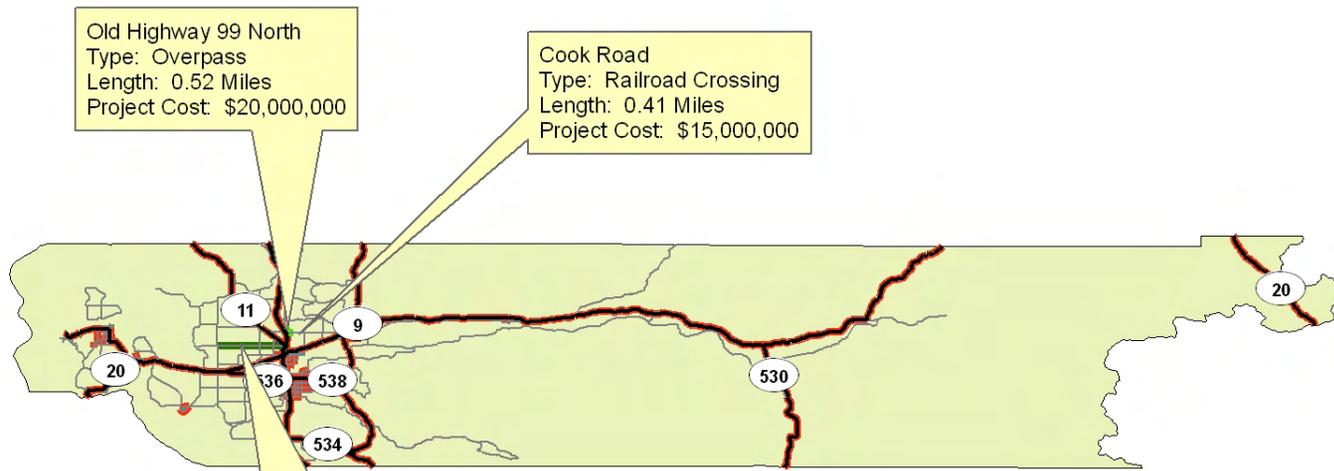
The top transportation project identified by Skagit County was the Josh Wilson Freight Mobility Improvement Project. This project would start at SR 11 and end at Farm-to-Market Road for a total length of 4.88 miles at an estimated cost of \$15 million.

The second priority freight mobility improvement project in Skagit County is the construction of a wooden overpass over the rail line on Old Highway 99 North. The project is only 0.52 miles in length and is estimated to cost \$20 million.

The third priority transportation project is the Cook Road Freight Mobility Improvement Project. This project would start at Old Highway 99 North and end at the bridge east of Green Road for a total length of 0.41 miles. This would encompass the railroad crossing just east of Highway 99 North and is expected to cost \$15 million.

In addition to the various state routes throughout the county, Skagit County has all weather road networks in many of the cities in the western part of the county including Anacortes, Burlington, La Conner, Mount Vernon and Sedro-Wooley.

Skagit County Transportation Projects



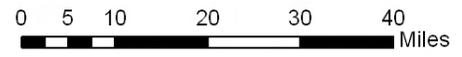
Legend

- State Highways
- County Roads
- All Weather Rds

Projects

PRIORITY

- 1
- 2
- 3

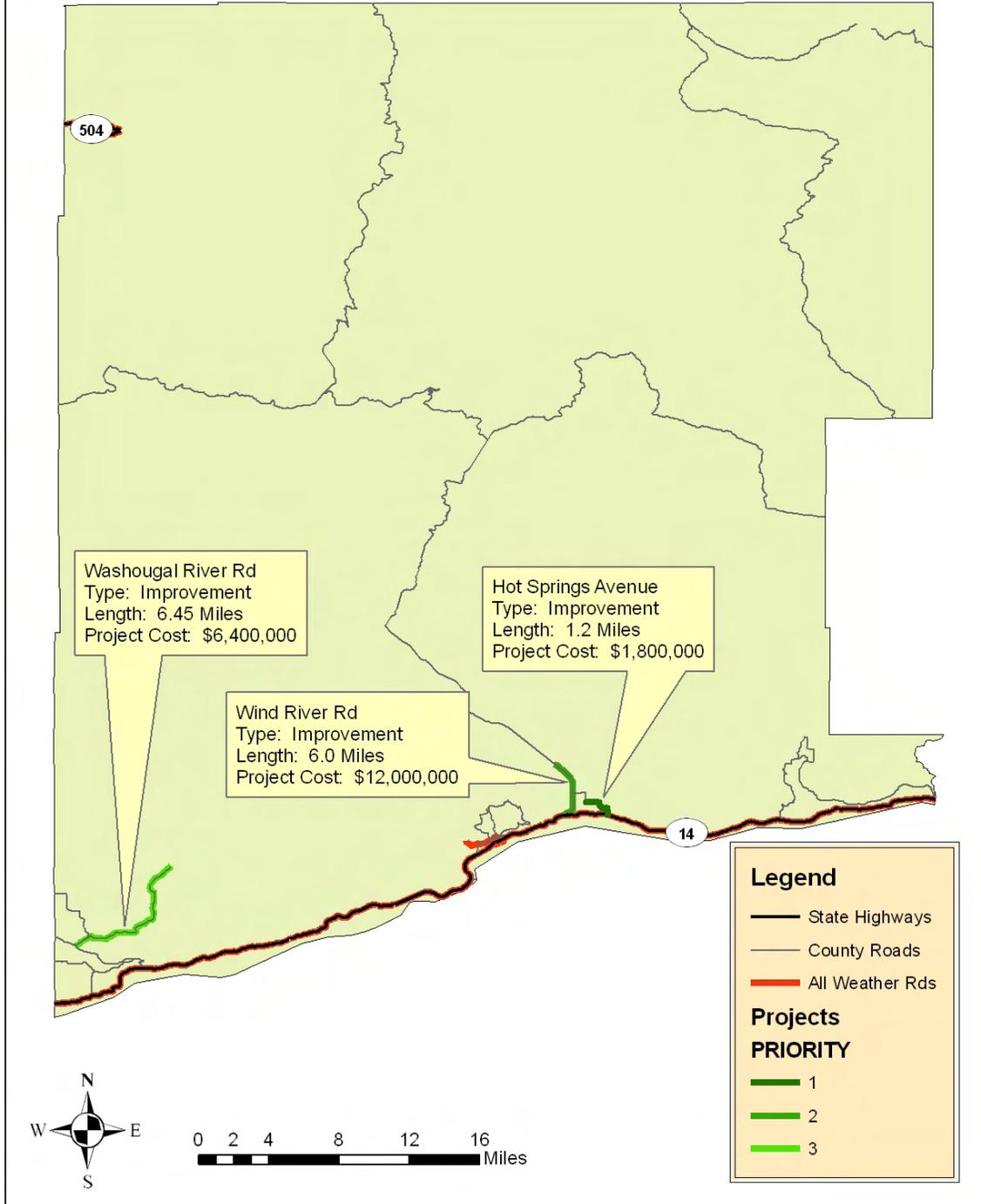


Skamania County

Skamania County reported three county roads for freight transportation improvements. The top priority is 1.2 miles of Hot Springs Ave. at a estimated cost of \$1.8 million. The second priority project is 6 miles of Wind River Road at Old Man Pass for an estimated cost of \$12 million. The improvement of 6.45 miles of Washougal River Road is the third priority and is expected to cost \$6,400,000.

The only non-state route all weather roads in Skamania County are in the city of Stevenson.

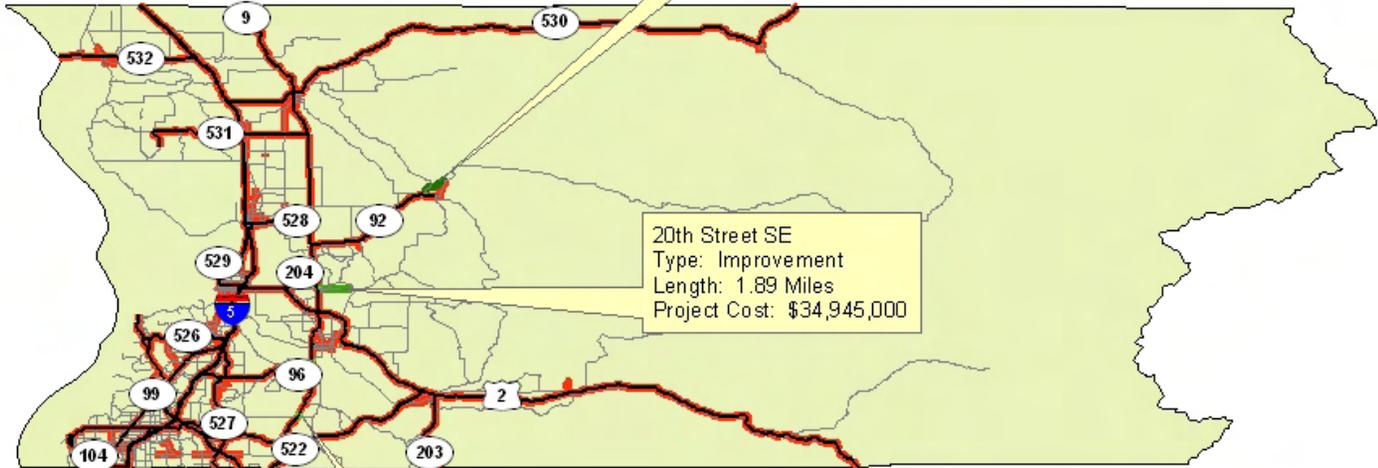
Skamania County Transportation Projects



Snohomish County

The top priority freight improvement transportation project proposed by Snohomish County was the construction of Granite Falls Alternate Route. The project is 2.1 miles in length and estimated to cost \$18.355 million. The second priority freight project for Snohomish County is the improvement of 1.89 miles of 20th Street SE connecting with US 2. This project is estimated to cost \$34.945 million. The third priority freight improvement transportation project for Snohomish County is the improvement of four intersections on SR 9. This project is estimated to cost \$48.708 million.

Snohomish County Transportation Projects



Granite Falls Alternate Route
 Type: Alternate Route
 Length: 2.1 Miles
 Project Cost: \$18,355,000

20th Street SE
 Type: Improvement
 Length: 1.89 Miles
 Project Cost: \$34,945,000

SR 9
 Type: Intersections
 Length: 0.1 Miles
 Project Cost: \$48,708,000

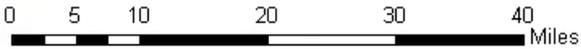
Legend

- State Highways
- County Roads
- All Weather Rds

Projects

PRIORITY

- 1
- 2
- 3



Spokane County

The top priority transportation project identified by Spokane County was the improvement of 8.16 miles of Bigelow Gulch & Forker Roads for an estimated cost of \$54 million. Bigelow Gulch Road is a narrow, two-lane, east-west principal arterial in the north-central portion of Spokane County that intersects with Forker Road and carries traffic to and from the cities of Spokane and Spokane Valley. This corridor carries over 10,000 vehicles per day including over 2,000 large trucks making it a T-2 FGTS route.

The second highest transportation project submitted by Spokane County is the reconstruction of 13.12 miles of Prairie View Road for an estimated cost of \$16 million. Prairie View Road is a major collector in the south-central portion of the county that connects US 195 and SR 27 through the towns and grain storage facilities of Fairfield and Waverly. The completion of an interchange with US 195 is an important component of this project in order to provide a safe intersection for hundreds of grain haulers during the harvest season.

The third top transportation project for Spokane County is a large freight rail and highway grade separation project called the "Bridging of the Valley." This project is being jointly developed with Kootenai County, Idaho and includes the construction of a total of 20 Rail/Highway grade separations, consolidation and construction of 42 miles of BNSF RR and UPRR and abandonment of the UPRR across the eastern portion of the Spokane Valley and northern Idaho resulting in elimination of 72 at grade rail crossings. Two at grade crossing will be constructed or modified in the cities of Spokane and Spokane Valley. The total cost including rail improvements is approximately \$207 million in Washington State including \$74 million on county arterial and/or rail grade separation work. This project is to construct the Idaho Road separation at an estimated cost of \$12.2 million.

Spokane County Transportation Projects



Legend

- State Highways
- County Roads

Projects

PRIORITY

- 1
- 2
- 3
- All Weather Rds

Prairie View Rd
 Type: Interchange / Improvement
 Length: 13.12 Miles
 Project Cost: \$16,000,000

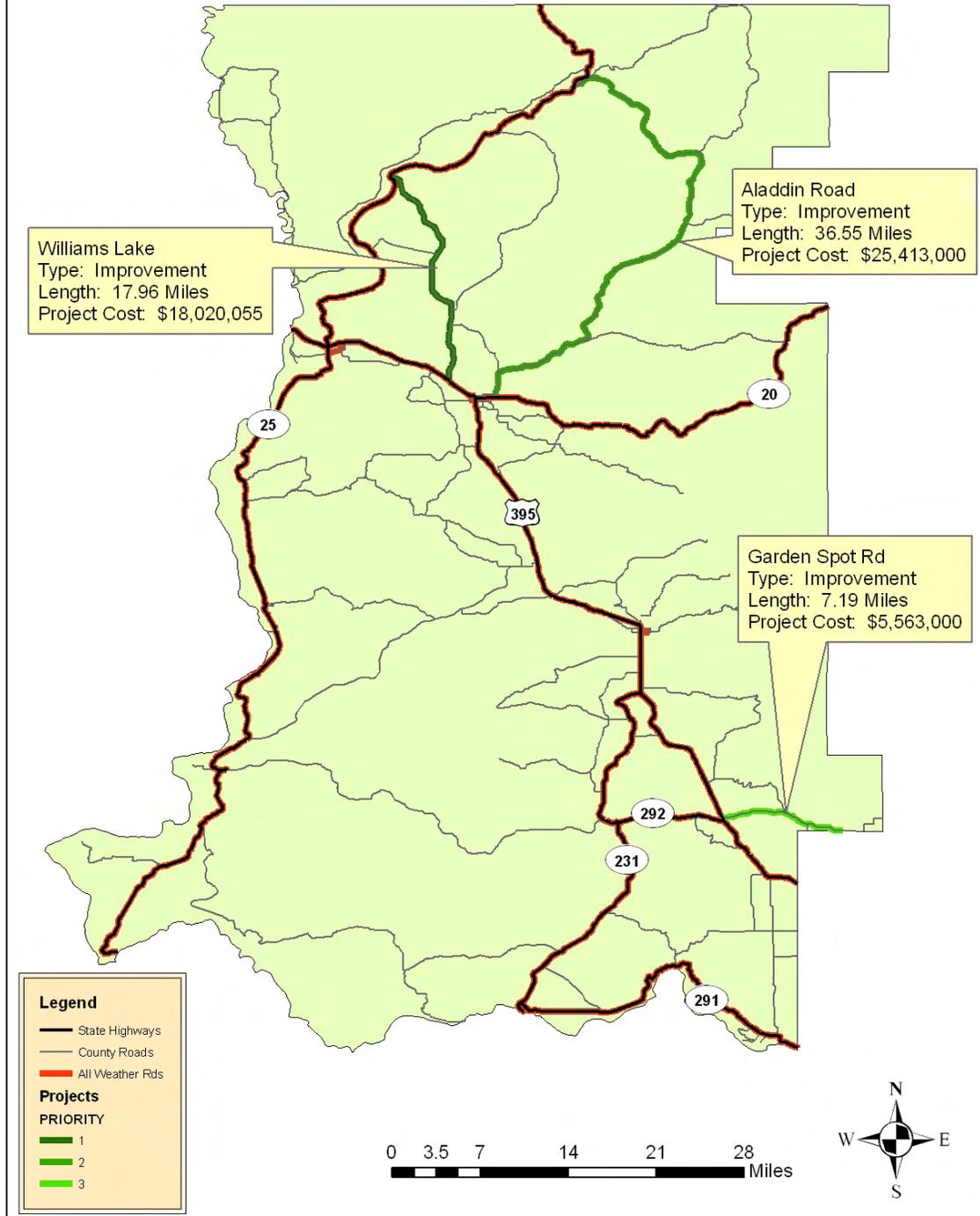


Stevens County

Stevens County identified three projects for improvement on the heaviest traveled freight routes in order of significance. The top priority project was nearly 18 miles of Williams Lake Road for an estimated cost of \$18.020 million. The second priority freight improvement project was 36.55 miles of Aladdin Road for an estimated cost of \$25.413 million. The third priority project was 7.19 miles of Garden Spot Road for an estimated \$5.563 million.

Stevens County does not have many all weather roads that are not state routes. There are some all weather roads that serve the cities of Chewelah, Colville, Kettle Falls and Northport. The proposed transportation projects would significantly increase the amount of all weather coverage in the county.

Stevens County Transportation Projects



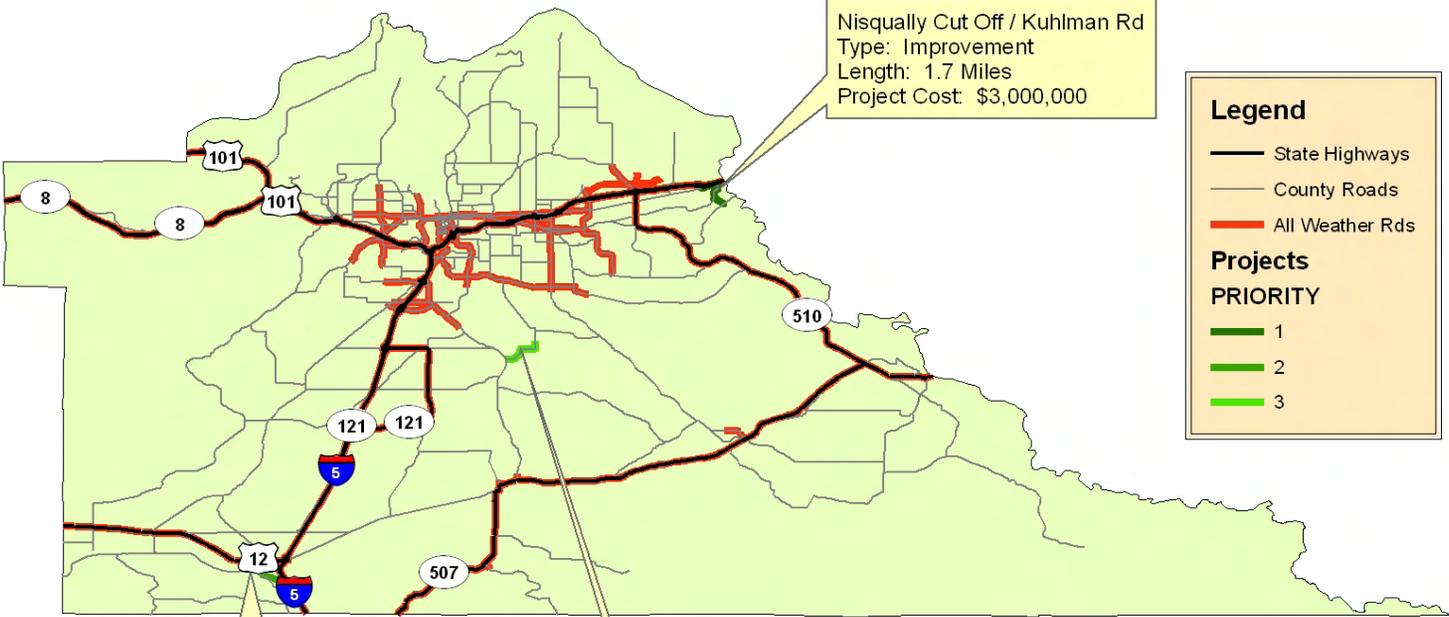
Thurston County

The highest priority freight improvement project submitted by Thurston County was the improvement of 1.7 miles of Nisqually Cut-Off / Kuhlman Road for an estimated cost of \$3 million. This freight route accesses much of the Portland cement, concrete and aggregate sources for asphalt in the county as well as the agriculture of the Nisqually Valley. This road is presently a narrow two lane facility with many curves and no shoulders. The native material is river silt deposit with poor truck carrying capacity. Traffic volumes are around 5,000 ADT with approximately 10 percent trucks, depending on the construction season and the nature of the construction contracts using the gravel source.

The second most important transportation project identified by Thurston County was the improvement of 2.6 miles of Grand Mound Road for an estimated cost of \$14 million. This project is an urban growth area of the county in the vicinity of the I-5 and SR 12 interchange where an improvement district recently completed water and sewer facilities. This area is scheduled for considerable growth with current projections calling for additional vehicle lanes of travel as well as non-motorized facilities. Currently the traffic volumes are approximately 7,000 ADT with more than 10 percent trucks.

The third priority freight improvement project selected by Thurston County is 1.7 miles of Rich Road for an estimated cost of \$3 million. Rich Road is an important east-west connector south of the urban growth areas of Olympia, Tumwater and Lacey. Because of the Deschutes River and related wetlands there are few roads in this area. The road will be difficult to build due to creek/wetland crossing and existing sharp curves. The traffic volumes are around 3,000 ADT with truck traffic representing about nine percent of the total traffic.

Thurston County Transportation Projects



Nisqually Cut Off / Kuhlman Rd
 Type: Improvement
 Length: 1.7 Miles
 Project Cost: \$3,000,000

Legend

- State Highways
- County Roads
- All Weather Rds

Projects

PRIORITY

- 1
- 2
- 3

Grand Mound Road
 Type: Improvement
 Length: 2.6 Miles
 Project Cost: \$14,000,000

Rich Road
 Type: Improvement
 Length: 1.7 Miles
 Project Cost: \$3,000,000



Wahkiakum County

The top priority for Wahkiakum County is expanding the interstate ferry landing area on SR 409 to facilitate turning movements by freight vehicles. The project's estimated cost is \$749,000 for 0.1 miles.

The second highest priority transportation project for the county is improvement of Elochoman Valley Road (formerly SR 407) 0.5 miles between milepost 10.7 to 11.2. This is the single most important log hauling route on the County road system in the county. The project is estimated to cost \$605,000.

The third top priority transportation project for the county is the improvement of Ingalls Road. This road is an important link in the freight and goods system for the county. Log trucks utilizing Middle Valley or East Valley Roads are unable to turn westbound onto SR 4 from the intersection of Skamokawa. Improvement of Ingalls Road would provide a time saving and safer alternate route for westbound freight onto SR 4. The length of the project is approximately 1.6 miles with an estimated cost of \$781,000.

Wahkiakum County Transportation Projects



Legend

- State Rds
- County Rds
- All Weather Rds

Projects

PRIORITY

- 1
- 2
- 3

County Ferry Landing
Type: Expansion
Length: 0.1 Miles
Project Cost: \$749,000

Ingalls Rd
Type: Improvement
Length: 1.6 Miles
Project Cost: \$781,000

Elochoman Valley Rd
Type: Improvement
Length: 0.5 Miles
Project Cost: \$605,000



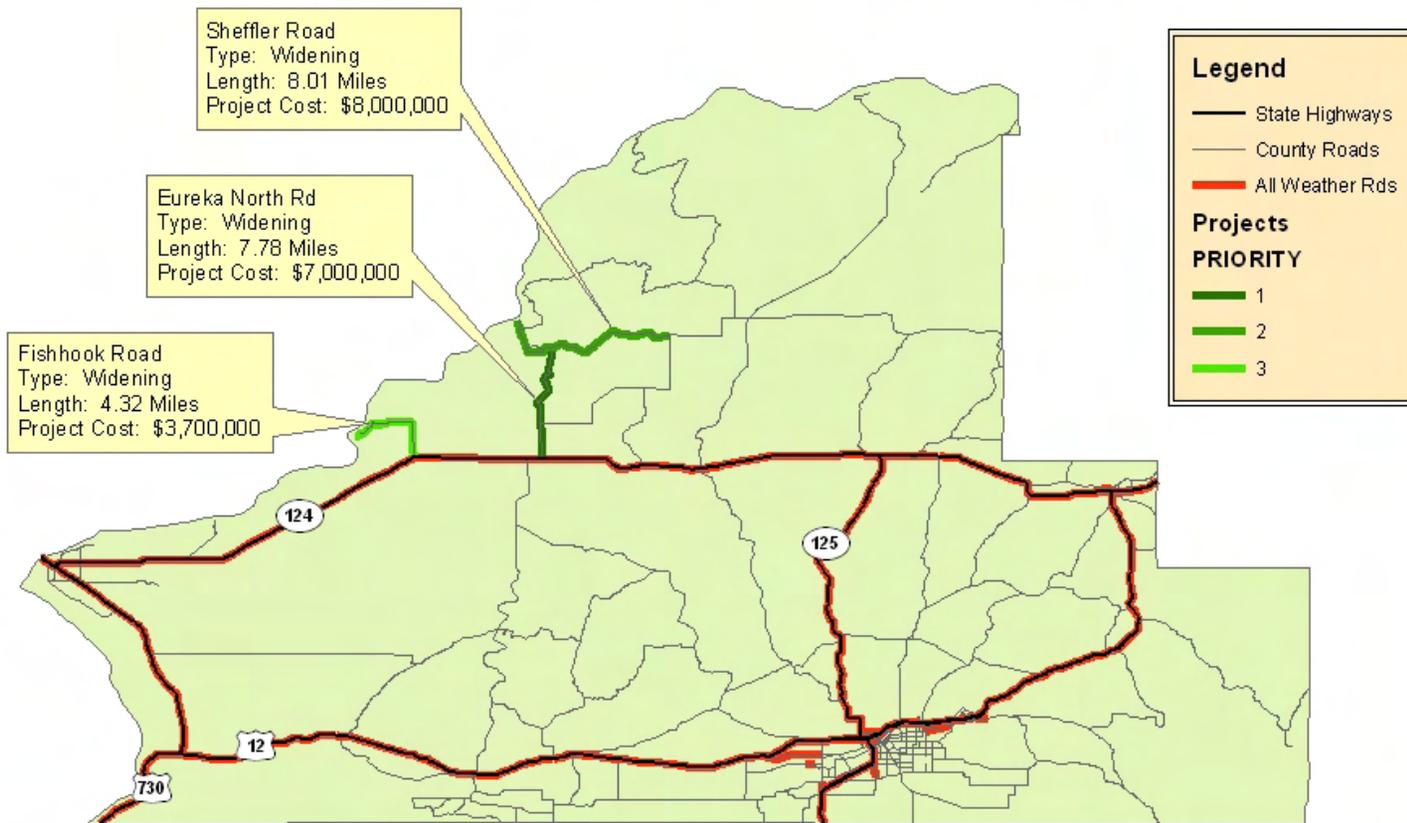
Walla Walla County

The highest priority freight improvement project for Walla Walla County is the widening and re-surfacing of 7.78 miles of Eureka North Road. The project is estimated to cost \$7 million. Currently this freight route accommodates truck traffic hauling wheat to the Snake River. It would be widened to a 32 ft. paved width consisting of 12 ft. lanes and 4 ft. shoulders. Several large cuts and fills would be needed to improve this road to current standards. An additional right of way would be required to accommodate the wider road and to meet clear zone purposes.

The next highest priority freight improvement project for Walla Walla County is the widening and re-paving of eight miles of Sheffler Road. The project is estimated to cost \$8 million. This freight route accommodates truck traffic hauling wheat to barges at the elevators. Poor horizontal and vertical realignments would require some large cuts to provide for drainage and to meet current standards. The proposed road would be widened to a 32 ft. paved width consisting of 12 ft. lanes and 4 ft. shoulders. An additional right of way would be required to accommodate the wider road and to meet clear zone purposes.

The third most important transportation improvement project for the county would be the widening and re-paving of 4.32 miles of Fishhook Road. This project is estimated to cost \$3.7 million. Fishhook road connects to the Snake River and accommodates truck traffic all year long. The proposed road would be widened to a 32 ft. paved width consisting of 12 ft. lanes and 4 ft. shoulders. A portion of the road to the Snake River would require improvements to the horizontal and vertical alignments. An additional right of way would be required to accommodate the wider road and to meet clear zone purposes.

Walla Walla County Transportation Projects



Whatcom County

The top priority transportation project in Whatcom County is the reconstruction of 2.5 miles of Kickerville Road from Henry Road to Grandview. The project will widen lanes and add shoulders bringing the road up to all weather status at an estimated cost of \$4 million.

The second priority for Whatcom County is the reconstruction of two miles of Siper Road from SR 9 to Hopewell Road. This project will also widen lanes and add shoulders where there previously were none. The estimated cost of \$3.5 million will bring the road up to all weather status.

The third priority transportation project for Whatcom County is the re-construction of three miles of road and a new bridge across the Nooksack River linking Grandview (SR 548 to the west) to Pole (SR 544 to the east), estimated to cost \$20 million. The cost of the total project of additional road segments, reconstruct current road segments and regulatory items is estimated to cost between \$50-\$70 million.

Whatcom County Transportation Projects

Kickerville Road
Type: Reconstruction
Length: 2.5 Miles
Project Cost: \$4,000,000

Grandview Road
Type: Bridge Construction
Length: 3.0 Miles
Project Cost: \$50 to 70 million

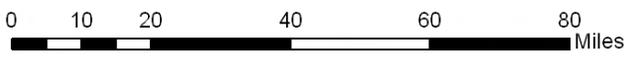
Siper Road
Type: Reconstruction
Length: 2 Miles
Project Cost: \$3,500,000

Legend

- State Highways
- County Roads
- All Weather Rds

Projects PRIORITY

- 1
- 2
- 3



Whitman County

Whitman County reported three freight improvement projects that are currently seasonally restricted highways. The top priority for the county was the reconstruction of 11.56 miles of Alмота Road. The project is estimated to cost \$11.83 million. The second priority for the county was the complete reconstruction of 18 miles of Lancaster Road for an estimated \$8.3 million. The third priority project was the complete reconstruction of 2.3 miles of Country Club Road for an estimated cost of \$3 million.

Whitman County Transportation Projects

Legend

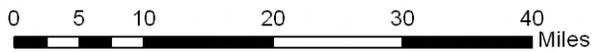
- State Highways
- County Roads

Projects

PRIORITY

- 1
- 2
- 3

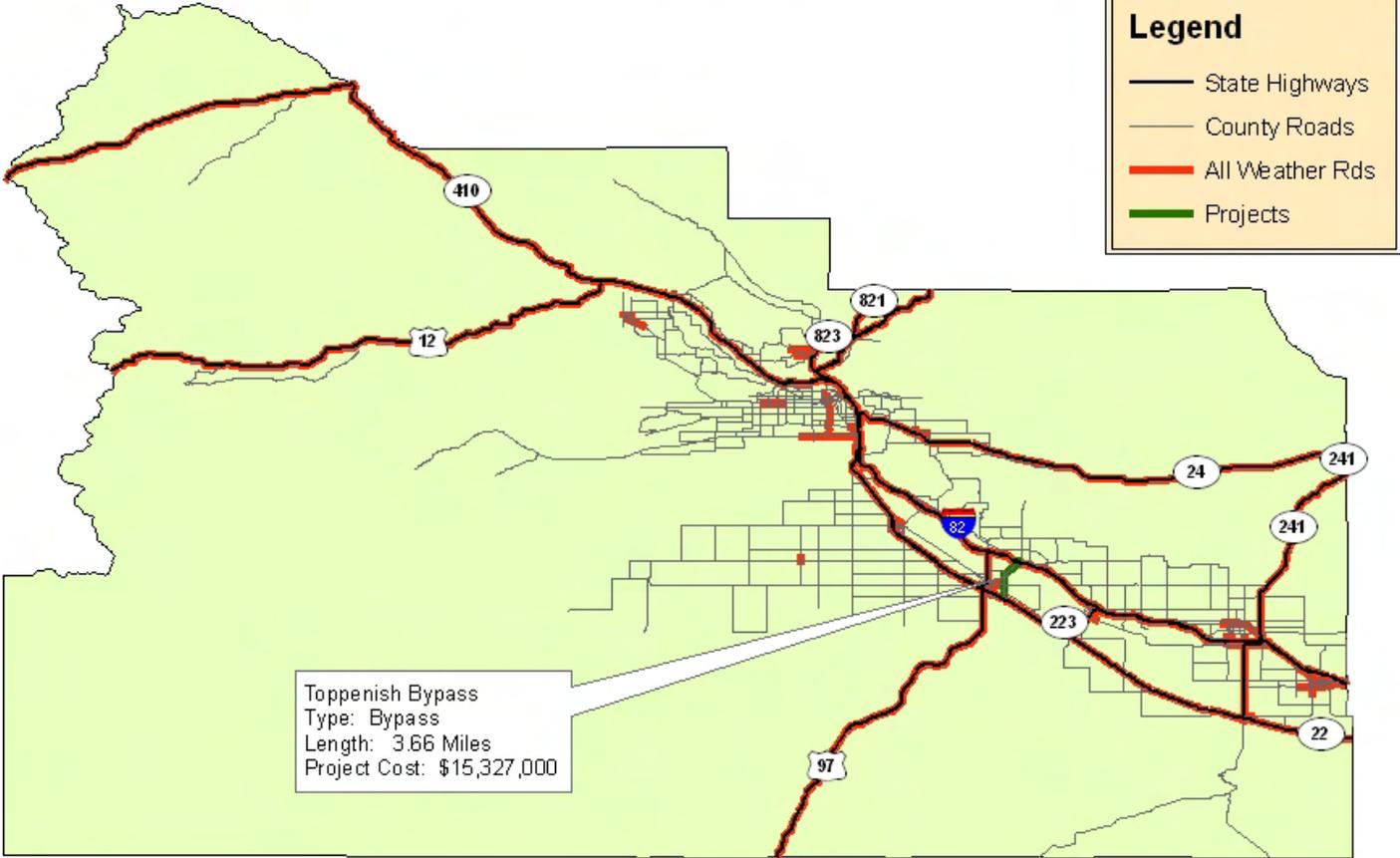
All Weather Rds



Yakima County

The primary freight improvement transportation project provided by Yakima County is the construction of a freight bypass for the city of Toppenish. This 3.66 mile project estimated to cost \$15.327 million includes the construction of a rural arterial roadway (12' lanes, 8' shoulders) between Interstate 82 (Exit 54) to State Route 97 (at Larue Road) utilizing all or part of the East Larue Road, North Meyers Road (both county) and "L" Street (City of Toppenish). This project will remove freight truck traffic from the Toppenish's western business zone (along Elm Street,) elementary and middle schools as they navigate the existing SR 22 route between I-82 and SR 97. The North Meyers route will convert from a Truck Route Classification of T-4 to a Classification T-3.

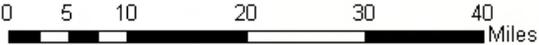
Yakima County Transportation Project



Legend

- State Highways
- County Roads
- All Weather Rds
- Projects

Toppenish Bypass
Type: Bypass
Length: 3.66 Miles
Project Cost: \$15,327,000



WSDOT Regional Analysis

The above analysis and presentation of county level project information, relative to all weather roads and the transportation network provides very detailed county level information. However, the transportation and freight system does not stop at county (or state) borders and therefore requires a much broader perspective for effective/efficient policy planning. The following section evaluates all counties comprising each WSDOT region in order to identify county projects that may be mutually beneficial to the region or likewise recognize regional gaps in project prioritization.

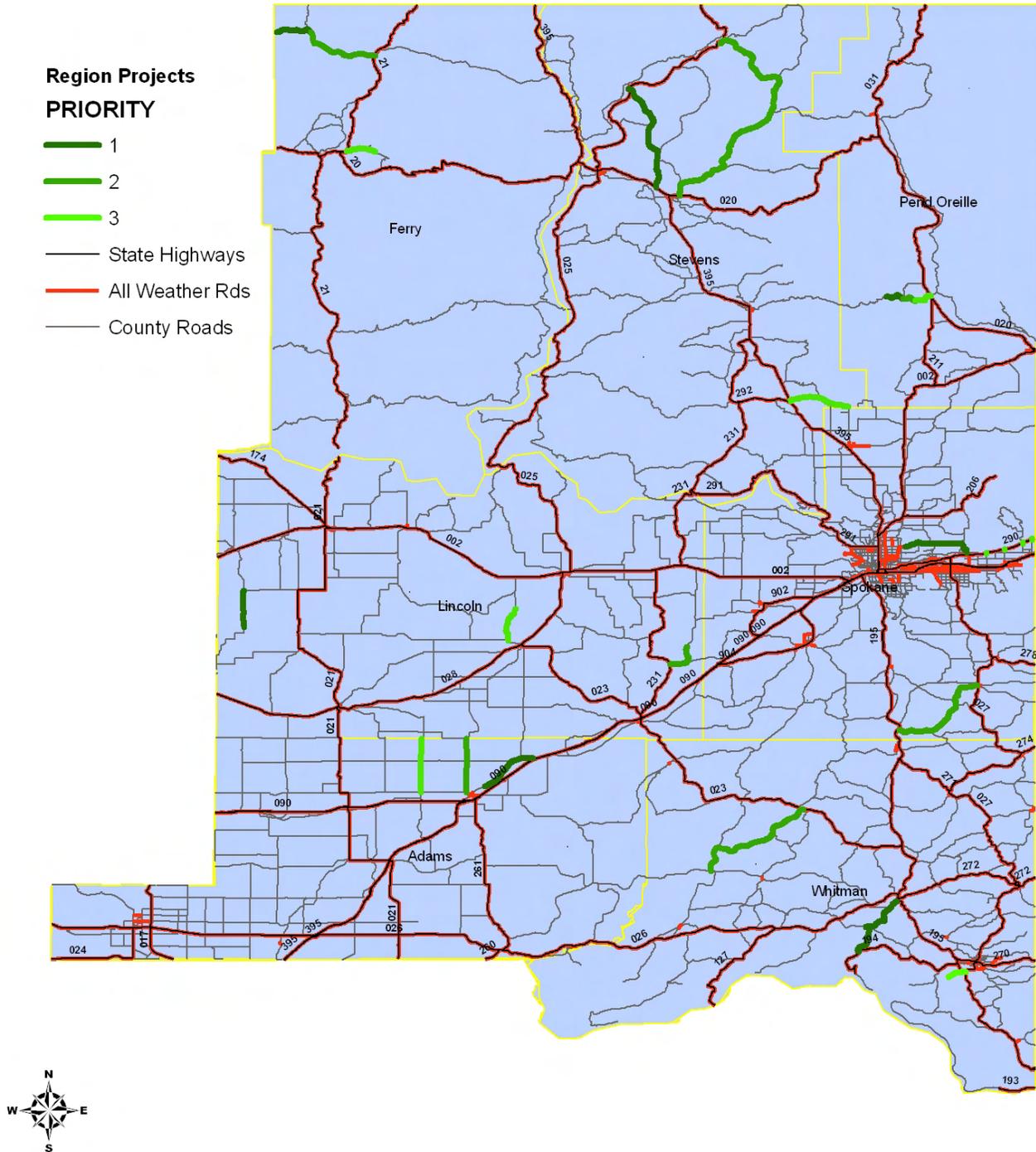
Eastern Region

The Eastern region is comprised of seven counties including Ferry, Stevens, Pend Oreille, Lincoln, Spokane, Adams (most of Adams) and Whitman counties (see graphic on following page). The region represents rural, semi-urban and urban cities/counties. Many of the individual county transportation projects appear to have no connectivity with neighboring counties, as is evident from the regional map. Two counties that do share a border, Ferry and Okanogan have priority projects that would result in an all weather road between Curlew (Ferry county) and Wauconda (Okanogan county), thereby increasing all weather access between two counties and two different WSDOT regions (Eastern and North Central). Also, the second highest priority project in Spokane county would result in improved all weather access between Spokane county and Whitman county, going from Fairfield (Spokane county) to just north of Rosalia (Whitman county). Other county projects throughout the Eastern region appear to be interior to individual counties. The second and third priority project in Adams county would result in an all weather road that stops at the Adams-Lincoln county border.

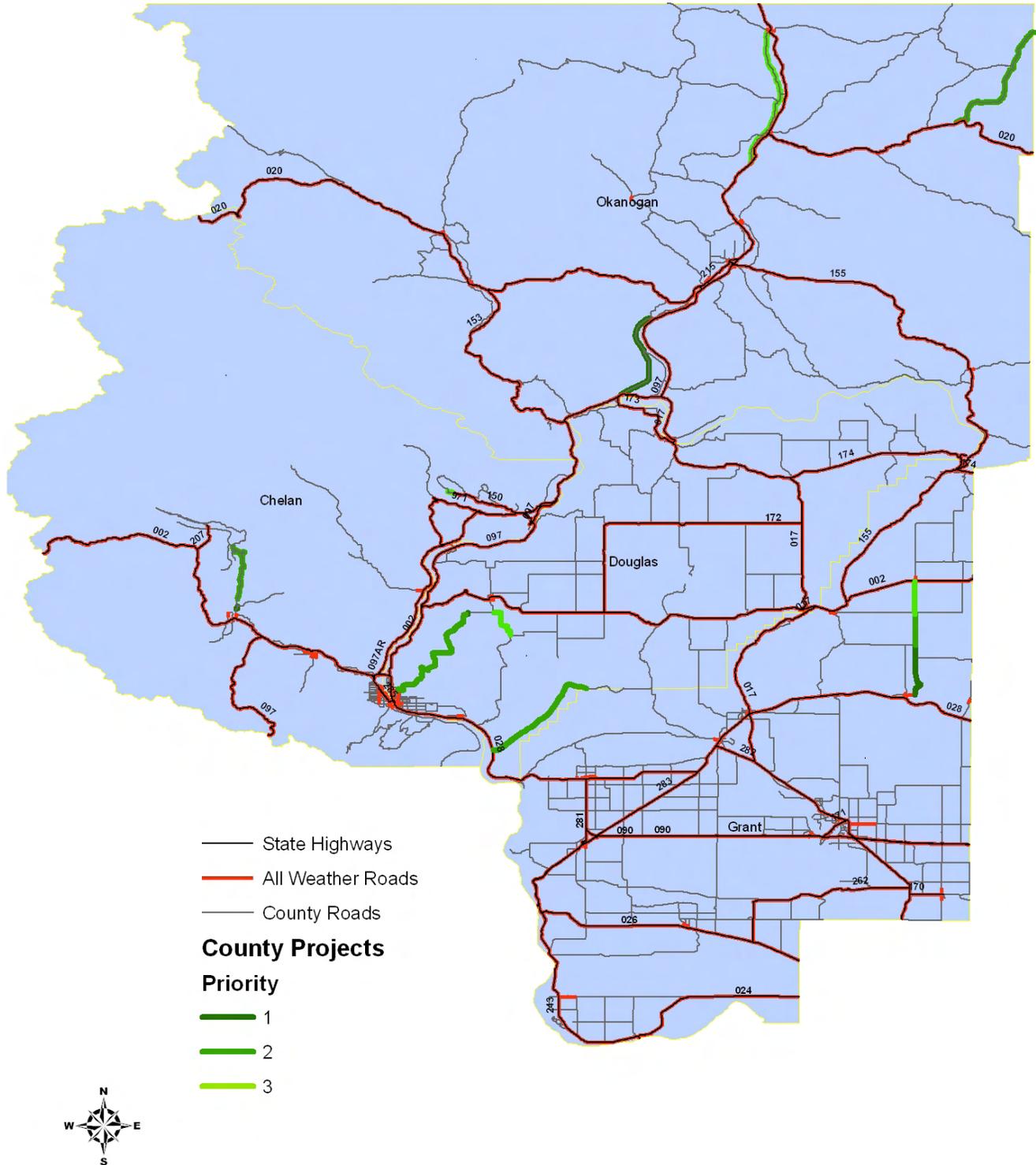
North Central Region

The North Central region consists of Okanogan, Chelan, Douglas and Grant counties. This four county region represents a very large geographical area in the north central portion of Washington which is predominately rural and sparsely populated. The identified county projects for this region are mostly at locations that are interior to each county. However, two of the three projects in southern Douglas county improve all weather road access to both Chelan and Grant counties. The primary project for Douglas county is an all weather road upgrade for the county highway between US 2 and the Grant county border, but does not continue into Ephrata in Grant county. Two of the three county projects in Okanogan county do improve connectivity with Douglas and Ferry county.

Eastern Region All Weather Roads / County Projects



North Central All Weather Roads / County Projects



South Central Region

Eight counties comprise the South Central WSDOT region, including Kittitas, Yakima, Benton, Franklin, Walla Walla, Columbia, Garfield and Asotin. The South Central region represents both rural and semi-urban areas, including the cities of Ellensburg, Yakima, the Tri-Cities and Clarkston. The county projects for this region appear to have very little connectivity across county borders. County projects in Kittitas, Yakima, Asotin, Garfield and Columbia counties are not near county boundaries, but rather concentrated in the interior regions. The three county projects for Walla Walla are located in the north-western edge of the county and do not connect with all-weather roads in neighboring Franklin county. This freight corridor supports grain shipments accessing barge terminals at Sheffler, whereas those projects for Franklin County all involve improving all weather highway access into the Pasco area from the north.

Northwest Region

The Northwest region of Washington is comprised of six counties represented by Whatcom, Skagit, Snohomish, King, Island and San Juan counties and varies from highly urbanized to rural areas. This region also has no individual county projects that extend to the county borders or improve transportation system connectivity or all weather road status across counties. King and Skagit counties each have projects that are concentrated in a small geographic area, whereas Whatcom and Snohomish counties each have three projects spread across different regions of each county. It appears from this regional map that connectivity between counties for all weather upgrade projects are minimal, given the existing state and local all weather road network in the Northwest region.

South West Region

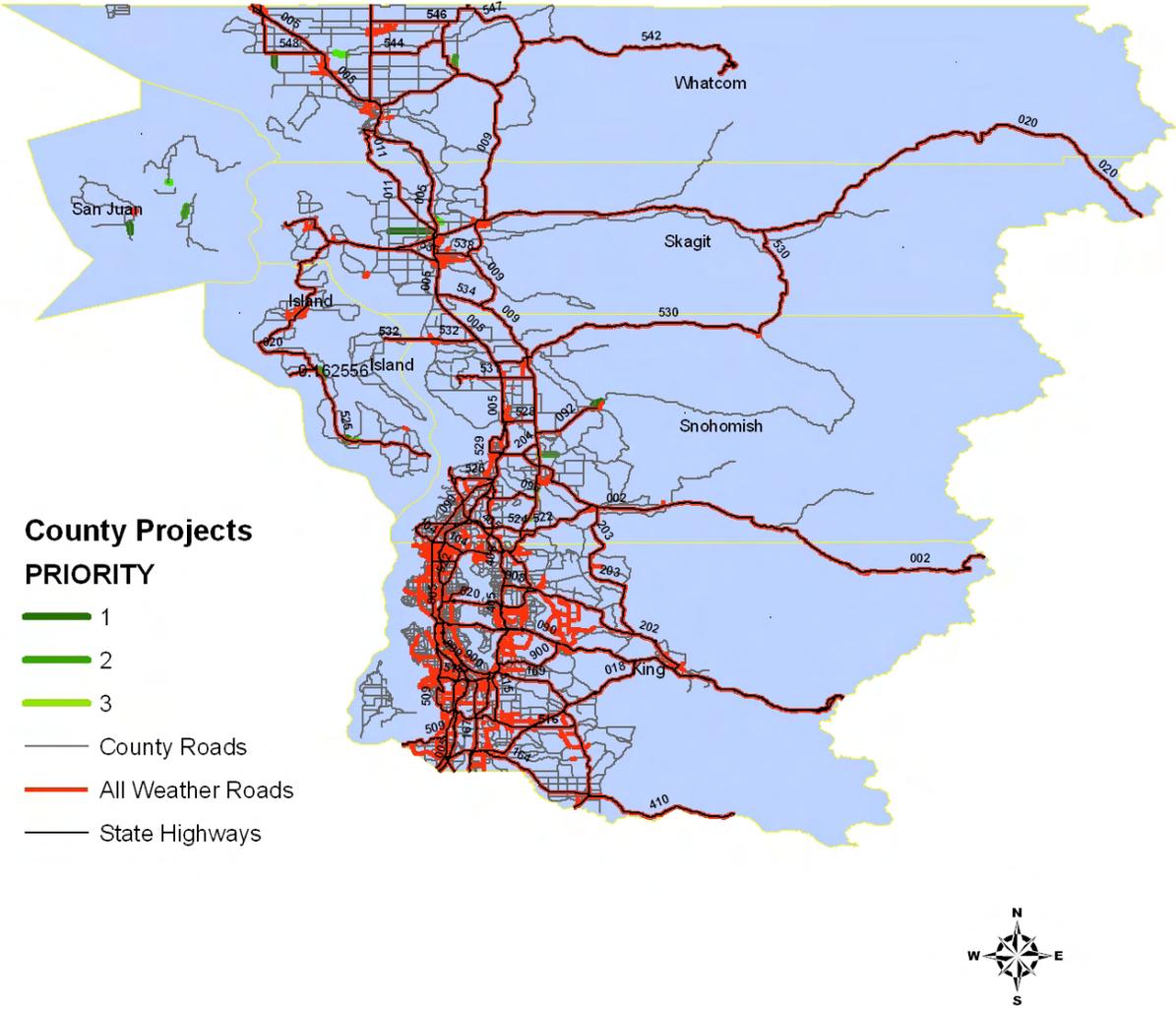
The seven county region of Pacific, Lewis, Wahkiakum, Cowlitz, Skamania, Clark and Klickitat counties comprise the South West WSDOT region. County projects in Klickitat improve all weather road coverage in the Gilmer, Glenwood and Trout Lake areas of the Conboy Lake National Wildlife Refuge that connects with state highway 141 in the western edge of the county. All weather road status of SR141 ends where Klickitat and Skamania meet, primarily due to the elevation level of the highway at this point. The third most important project in Skamania county does improve all weather designation in the southwestern corner of the county, but does not continue or link with all weather roads in Clark county. No other county projects in this region share borders with neighboring counties.

Olympic Region

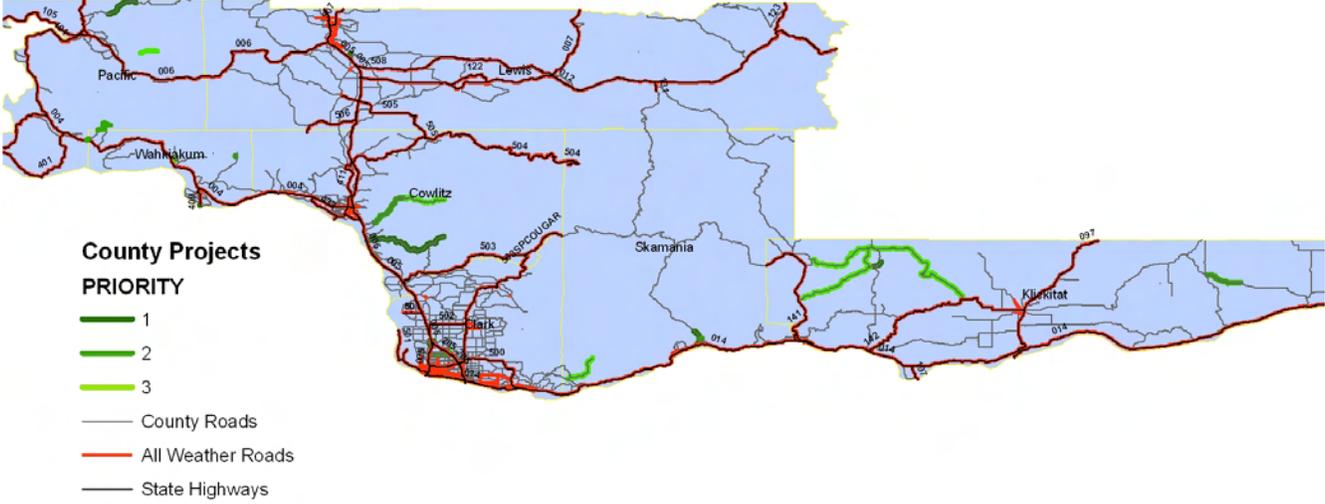
The Olympic region includes the seven counties of Clallam, Jefferson, Grays Harbor, Mason, Kitsap, Thurston and Pierce counties of western Washington. The majority of projects from this region likewise do not extend to the county borders, except for those in Mason county. Two of the three projects identified by Mason county improve all weather status on roads in

the southwestern corner of the county, but connect to highways in Grays Harbor that are not all weather designated highways.

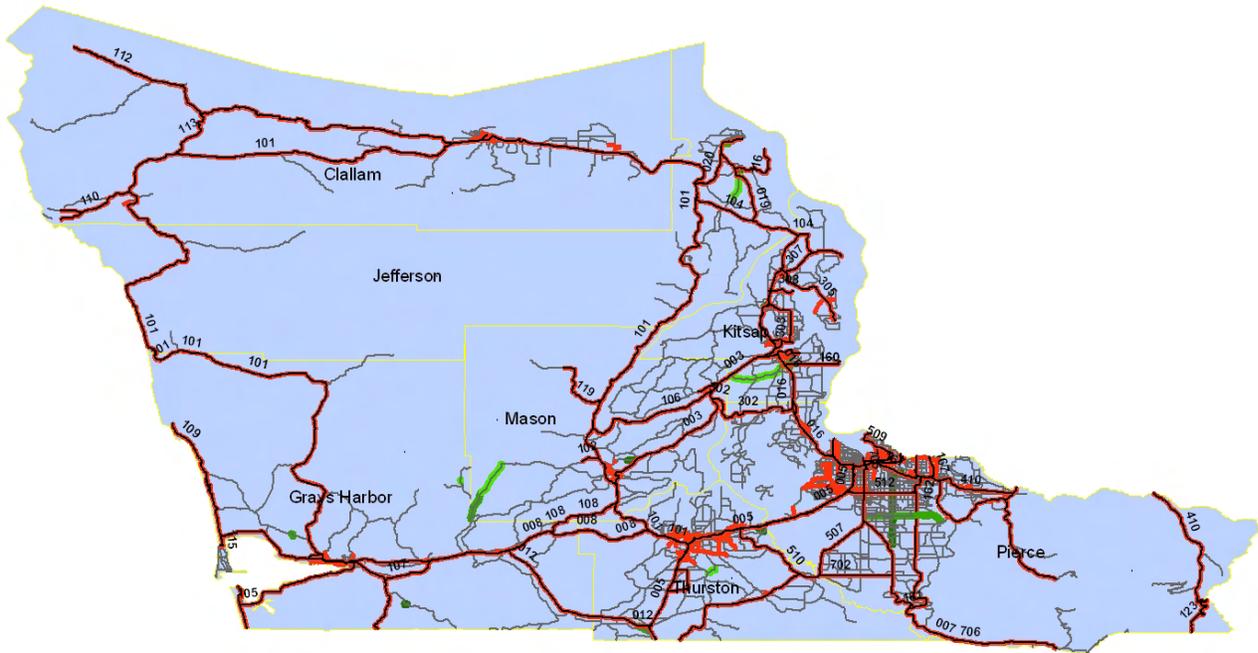
Northwest Region All Weather Roads / County Projects



Southwest Region All Weather Roads / County Projects



Olympic Region All Weather Roads / County Projects



County Projects

PRIORITY

-  1
-  2
-  3
-  County Roads
-  All Weather Roads
-  State Highways



SUMMARY

The primary objective of this study was to collect and organize information from individual counties throughout Washington State such that system-wide freight mobility issues or transportation system inefficiencies from county to county may be better identified and addressed. By assessing specific transportation infrastructure priorities on a county basis (a maximum of three projects per county) and placing that information in the context of the entire statewide system (using GIS), possible regional freight chokepoints or inefficiencies can be identified and ultimately addressed. This initial analysis resulted in the identification of approximately 1.5 billion (that will have to be updated periodically with new county estimates) in county financial requirements to achieve all weather road status.

Furthermore, this report supports and reinforces the FHWA Freight Management and Operations and BTS information of shipments by mode for 2002 which indicates nationally trucks carry 58.2 percent of all commercial freight tonnage with 63.7 percent of the total commodity value. In Washington, this results in trucks carrying 159.6 million tons of freight which accounted for 61 percent of all the freight moved valued at \$89.6 billion. Moreover, incoming truck crossings at the Washington – Canadian border have increased by over 39 percent from 1995 to 2000.

These areas of emphasis are further supported by the recently adopted Washington Transportation Plan, which notes that growers cannot get produce off their farms for up to two months a year due to weight restrictions on County roads in eastern Washington. Agriculture employed more than 87,000 people in Washington in 2002, 80 percent of whom work in eastern Washington. Transportation infrastructure is critical to getting agriculture products to market. Weather related constraints on freight routes argue strongly for developing a statewide core of all weather county road systems with an initial targeted investment of \$200 million, which is suggested in the WTP. This proposed \$200 million investment would establish a program, define criteria for selecting key routes and county roads,

prioritize projects and make an investment in the design and construction of the highest priority projects.

The amount of funding suggested will require the larger cost projects to be divided into smaller cost segments or be supplemented with other funding sources. The inability of Washington State producers to meet buyers' requirements because of weight limitations on roadways causes a loss of customers and ultimately a loss to the state's competitive advantage and economy. This increase in the level of truck freight at the state and national level and the indications that it's going to continue to increase significantly, provides a clear message that we must have our highway/road infrastructure in a condition that will allow these freight movements to continue all year without restriction, and thereby support our regional, state and national economy.

In addition to the projects provided by 39 Washington Counties and graphically presented on individual maps, the collection of counties comprising each WSDOT region is also presented to identify system-wide gaps or inefficiencies that may inadvertently occur.

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United States Department of Transportation (WSDOT)
Bureau of Transportation Statistics (BTS)

USDOT: Federal Highway Administration (FHWA)

APPENDIX A

County	Description	Priority	Cost	Length	Total
Adams	Danekas to I-90	1	\$ 2,899,000	7.73	
Adams	Marcellus Rd.	2	\$ 3,375,000	9.00	
Adams	Paha-Packard Rd	3	\$ 3,375,000	9.00	\$ 9,649,000
Asotin	Fleshman/SR129 Interchange	1	\$ 5,250,000	0.10	
Asotin	Crاند Ronde Rd	2	\$ 10,000,000	11.00	
Asotin	Asotin Creek	3	\$ 7,000,000	9.00	\$ 22,250,000
Benton	County Rd 397	1	\$ 3,800,000	2.89	
Benton	Travis Rd.	2	\$ 600,000	0.25	
Benton	Clodfelter Rd.	3	\$ 2,500,000	1.80	\$ 6,900,000
Chelan	Chumstick Hwy (1)	1	\$ 1,600,000	0.25	
Chelan	Chumstick Hwy (2)	2	\$ 13,000,000	10.25	
Chelan	Manson Truck Bypass	3	\$ 1,500,000	0.66	\$ 16,100,000
Clallam	Old Olympic Hwy	1	\$ 5,772,000	1.57	
Clallam	Edgewood Dr	2	\$ 1,173,900	0.88	
Clallam	Hoko Ozette Rd	3	\$ 1,261,000	1.01	\$ 8,206,900
Clark	Salmon Crk Interchange	1	\$ 40,000,000	1.00	
Clark	NE 88th St	2	\$ 21,900,000	2.90	
Clark	NE 72nd Ave	3	\$ 9,500,000	0.80	\$ 71,400,000
Columbia	Kellogg Hollow 1	1	\$ 3,300,000	7.80	
Columbia	Kellogg Hollow 2	2	\$ 2,200,000	5.31	
Columbia	Patit Rd	3	\$ 1,500,000	2.67	\$ 7,000,000
Cowlitz	Kalama River Rd	1	\$ 2,132,500	17.06	
Cowlitz	Rose Valley Rd 1	2	\$ 1,173,750	9.39	
Cowlitz	Rose Valley Rd 2	3	\$ 3,630,000	7.26	\$ 6,936,250
Douglas	Badger Mtn Rd	1	\$ 8,000,000	17.00	
Douglas	Palisades Rd	2	\$ 16,000,000	18.53	
Douglas	Waterville North Rd	3	\$ 7,800,000	13.90	\$ 31,800,000
Ferry	Toroda Creek Rd	1	\$ 2,400,000	4.40	
Ferry	Kettle River Rd	2	\$ 3,300,000	9.30	
Ferry	Old Kettle Falls Rd	3	\$ 1,200,000	3.50	\$ 6,900,000
Franklin	Glade North Rd	1	\$ 9,295,000	18.59	
Franklin	Pasco Kahlotus Hwy	2	\$ 14,000,000	34.87	
Franklin	Road 68 North	3	\$ 11,500,000	28.56	\$ 34,795,000
Garfield	Lower Deadman Rd 1	1	\$ 1,500,000	1.78	
Garfield	Lower Deadman Rd 2	2	\$ 2,000,000	3.37	
Garfield	North Deadman Rd	3	\$ 2,500,000	4.33	\$ 6,000,000
Grant	Wilson Creek to 31NE	1	\$ 1,770,000	8.03	
Grant	31 to 36 NE	2	\$ 1,220,000	4.87	
Grant	36NE to Hartline	3	\$ 1,064,000	5.90	\$ 4,054,000
Grays Harbor	N. River Rd	1	\$ 2,500,000	0.70	
Grays Harbor	Ocean Beach Rd	2	\$ 700,000	0.40	
Grays Harbor	Boundary Rd	3	\$ 700,000	0.30	\$ 3,900,000
Island	Cameron Rd	1	\$ 1,500,000	0.50	
Island	New Rd	2	\$ 2,500,000	1.20	
Island	Main St. Freeland	3	\$ 1,600,000	1.00	\$ 5,600,000
Jefferson	Chimacum Rd	1	\$ 1,500,000	0.50	
Jefferson	Island Mill Rd	2	\$ 2,500,000	1.20	
Jefferson	Center Rd	3	\$ 1,600,000	1.00	\$ 5,600,000

County	Description	Priority	Cost	Length	Total
King	South Park Bridge	1	\$ 150,000,000		
King		2			
King		3			\$ 150,000,000
Kitsap	Waaga Way Extension	1	\$ 4,345,000	0.73	
Kitsap	Bethel Rd	2	\$ 19,830,000	1.78	
Kitsap	Lake Flora	3	\$ 14,000,000	8.13	\$ 38,175,000
Kittitas	Teanaway Rd.	1	\$ 14,700,000	11.60	
Kittitas		2			
Kittitas		3			\$ 14,700,000
Klickitat	Lakeside Rd	1	\$ 680,000	2.20	
Klickitat	Hale Rd	2	\$ 1,255,000	6.27	
Klickitat	County Wide Overlay	3	\$ 10,250,000	29.57	\$ 12,185,000
Lewis	Rush Road	1	\$ 2,500,000	0.63	
Lewis		2			
Lewis		3			\$ 2,500,000
Lincoln	Kiner Rd	1	\$ 2,200,000	6.00	
Lincoln	Waukon Rd	2	\$ 2,000,000	4.58	
Lincoln	Rocklyn Rd	3	\$ 2,100,000	5.50	\$ 6,300,000
Mason	Johns Prairie Rd	1	\$ 1,420,000	0.93	
Mason	Matlock Brady Phase I	2	\$ 2,850,000	5.26	
Mason	Matlock Brady Phase II	3	\$ 3,620,000	6.67	\$ 7,890,000
Okanogan	Old 97	1	\$ 7,425,000	9.90	
Okanogan	Torada Creek Rd	2	\$ 15,416,000	19.27	
Okanogan	Hwy 7	3	\$ 16,432,500	21.91	\$ 39,273,500
Pacific	Smith Creek Rd	1	\$ 10,000,000	9.00	
Pacific	Salmon Creek Rd	2	\$ 3,000,000	3.41	
Pacific	Mill Creek Rd	3	\$ 1,500,000	2.10	\$ 14,500,000
Pend Oreille	Flowery Trail Rd	1	\$ 850,000	2.42	
Pend Oreille	Westside Calispell Rd	2	\$ 1,310,000	1.54	
Pend Oreille	McKenzie Rd	3	\$ 1,570,000	2.27	\$ 3,730,000
Pierce	Cross Base Hwy	1	\$ 300,000,000		
Pierce	Canyon Road E	2	\$ 162,700,000	15.00	
Pierce	176th Street E	3	\$ 65,600,000	9.30	\$ 528,300,000
San Juan	Fisherman Bay Rd	1	\$ 2,500,000	1.66	
San Juan	Orcas Village Bypass	2	\$ 1,500,000	0.33	
San Juan	Mount Baker Rd	3	\$ 800,000	1.00	\$ 4,800,000
Skagit	Josh Wilson Freight Mobility	1	\$ 15,000,000	4.88	
Skagit	Old Hwy 99 North	2	\$ 20,000,000	0.52	
Skagit	Cook Road Freight Mobility	3	\$ 15,000,000	0.41	\$ 50,000,000
Skamania	Hot Springs Ave	1	\$ 1,800,000	1.20	
Skamania	Wind River Rd	2	\$ 12,000,000	6.00	
Skamania	Washougal River Rd	3	\$ 6,400,000	6.45	\$ 20,200,000
Snohomish	Granite Falls Alt. Rt	1	\$ 18,355,000	2.10	
Snohomish	20th St. SE	2	\$ 34,945,000	1.89	
Snohomish	SR9 Intersection	3	\$ 48,708,000	0.10	\$ 102,008,000
Spokane	Bigelow Gulch / Forker Rd	1	\$ 54,000,000	8.16	
Spokane	Prairie View Rd	2	\$ 16,000,000	13.12	
Spokane	Bridging the Valley (Idaho Rd)	3	\$ 12,200,000	0.10	\$ 82,200,000
Stevens	Williams Lake	1	\$ 18,020,055	17.96	
Stevens	Aladdin Rd	2	\$ 25,413,000	36.55	
Stevens	Garden Spot Rd	3	\$ 5,563,000	7.19	\$ 48,996,055

County	Description	Priority	Cost	Length	Total
Thurston	Nisqually Cut Off / Kuhlman	1	\$ 3,000,000	1.70	
Thurston	Grand Mound Rd	2	\$ 14,000,000	2.60	
Thurston	Rich Rd	3	\$ 3,000,000	1.70	\$ 20,000,000
Wahkiakum	County Ferry Landing	1	\$ 749,000	0.10	
Wahkiakum	Elochoman Valley Rd	2	\$ 605,000	0.50	
Wahkiakum	Ingalls Rd	3	\$ 781,000	1.60	\$ 2,135,000
Walla Walla	Eureka North Rd	1	\$ 7,000,000	7.78	
Walla Walla	Sheffler Rd	2	\$ 8,000,000	8.01	
Walla Walla	FishHook Rd	3	\$ 3,700,000	4.32	\$ 18,700,000
Whatcom	Kickerville Rd	1	\$ 4,000,000	2.50	
Whatcom	Siper Rd	2	\$ 3,500,000	2.00	
Whatcom	Grandview-Pole Connector	3	\$ 20,000,000	3.00	\$ 27,500,000
Whitman	Almota Rd	1	\$ 11,830,000	11.56	
Whitman	Lancaster Rd	2	\$ 8,300,000	6.70	
Whitman	Country Club Rd	3	\$ 3,000,000	2.30	\$ 23,130,000
Yakima	Toppenish Bypass	1	\$ 15,327,000	3.66	
Yakima		2			
Yakima		3			\$ 15,327,000
Total					\$ 1,479,640,705