

## ▶ Plan Framework

This chapter provides background information about the Washington Transportation Plan (WTP) contents, summarizes how it was prepared, and provides an orientation on where to find key information.

This plan is the result of data analysis and stakeholder collaboration intended to address transportation challenges facing Washington’s citizens and businesses. The WTP also fulfills federal and state requirements for a balanced and comprehensive transportation plan based on policy adopted by the Governor, the State Legislature, and the U.S. Congress.

▶ **“When I think of transportation, I think of safety, economic development, and a legacy for our children.”**

**Christine Gregoire**  
*Governor*

### **Purpose of the Plan**

The primary purpose of the WTP is to guide transportation policy and investment decisions at all levels throughout the state. The WTP is also created to fulfill federal and state planning requirements.

As required by state law, this document has been prepared by the Washington State Transportation Commission. The Washington State Department of Transportation staff collaborated with the Commission in the preparation of the WTP and related materials. This update of the Washington Transportation Plan has taken place over a two-year period through a comprehensive planning process involving public agencies, advocacy groups, citizens, and robust data and policy analysis.

**Federal and State Requirements**

The federal requirements for this document are codified in the United States Code of Federal Regulations, Title 23, Section 135, subsection (e) states that:

“Each State shall develop a long-range transportation plan, with a minimum 20-year forecast period, for all areas of the State, that provides for the development and implementation of the intermodal transportation system of the State.”

Washington State Statutes, RCW 47.06.030  
Transportation policy plan, provides the state requirements for this document:

“The commission shall develop a state transportation policy plan that (1) establishes a vision and goals for the development of the statewide transportation system consistent with the state’s growth management goals, (2) identifies significant statewide transportation policy issues, and (3) recommends statewide transportation policies and strategies to the legislature to fulfill the requirements.

The department shall develop a statewide multimodal transportation plan under RCW47.01.071 conformance with federal requirements, to ensure the continued mobility of people and goods across the state in a safe, cost-effective manner. The statewide multimodal transportation plan shall consist of:

- (1) A state-owned facilities component, which shall guide state investment for state highways, including bicycle and pedestrian facilities and state ferries; and
- (2) A state-interest component, which shall define the state interest in aviation, marine ports and navigation, freight rail, intercity passenger rail, bicycle transportation and pedestrian walkways and public transportation, and recommend actions in coordination with appropriate public and private transportation providers to ensure that the state interest in these transportation modes is met.”

**The Planning Process**

Planning the statewide transportation system has been carefully undertaken, as the task is vital to the well being of the state, our citizens’ quality of life, and the state’s economic vitality.

The data analysis of the WTP is structured by issues that focus on core outcomes and future benefits desired. The

long-range plan recognizes the inter-connectedness of the different modes and the key issues. This approach draws attention to the multiple benefits that programs and projects deliver.

▶ “I appreciate the efforts to have this plan driven by factual data as opposed to what we think we know about our transportation system.”

**Page Scott**  
Director,  
Yakima Valley Conference of Governments

**Phase 1: Analysis and Assessment of Conditions**

Early on, the Commission employed a framework for the WTP using these strategic issues. Being strategic from the onset means that the Plan is not a universe of all conceivable needs, but rather a methodical approach to investing where the benefits will be the greatest. The Department of Transportation identified nine issues in order to systematically assess the State’s needs. These nine key issues are:

- Preservation
- Safety
- Strong Economy and Good Jobs
- Moving Freight
- Transportation Access
- System Efficiencies
- Bottlenecks and Chokepoints
- Building Future Visions
- Health and the Environment

**Phase 2: Prioritizing the Needs**

The Commission addressed the needs identified during the assessment of the key issues by defining the Five Investment Guidelines. To determine the most beneficial investments, the Commission prioritized the investment targets to establish the highest priorities.

**Establishing Investment Priorities**

The Commission considered existing policy and issue-based data analysis, and decided to create the WTP around the Five Investment Guidelines.

▶ **Prioritized Investment Guidelines**

1. Preservation
2. Safety
3. Economic Vitality
4. Mobility
5. Environmental Quality and Health

The Five Investment Guidelines are the key to the Washington Transportation Plan. The Commission used these guidelines to select investment targets, which are described and structured in terms of these guidelines. The investments considered to be the High Priorities are presented in this plan, followed by the Remaining Priorities.

## **The Organization of the WTP:**

### **Executive Summary**

#### **Part I. Introduction**

The first part of the Plan is provided by the Washington Transportation Commission and introduces the reader to the plan's underlying context.

#### **Part II. The Plan for the Future**

Part II of the plan analyzes, assesses, and recommends solutions to challenges for the future of transportation in Washington State.

##### ***Chapter A. Plan Framework***

This section explains how the document is organized. It also provides guidance for obtaining additional and related information on-line for further in-depth research into planning process.

##### ***Chapter B. The Challenge***

This chapter presents data and analysis conducted during the initial planning process. The statistics and information in this section describe current conditions and projected changes in the transportation system over the next 20 years. The result is a forecast for Washington's future transportation needs.

##### ***Chapter C. Transportation Investments Underway***

This chapter provides a detailed assessment of the investments currently underway and the benefits yielded. The investment targets described in this chapter are those that are already addressing the needs identified in Chapter A. The funding and implementation of these investment targets is the result of the successful passage of the Transportation Partnership Act and the Nickel Package by the Governor and the legislature.

##### ***Chapter D. Unfunded High Priorities***

This chapter provides a detailed assessment of the strategic investment targets the Commission found to be the most critical and effective. These investment targets are prioritized into High Priorities and Remaining Priorities. The process of prioritization considered the benefits yielded, the Five Investment Guidelines, and existing state law and Commission policies.

##### ***Chapter E. Policy Recommendations***

This chapter contains recommendations for policies and strategies necessary to efficiently carry out the implementation of this plan. It identifies gaps in existing state law where further definition of the state's role is needed.

##### ***Chapter F. Measuring Progress***

This chapter provides a sample of the measurements in place, as well as recommendations for additional measurements that provide a mechanism for evaluating the effectiveness of the WTP.

#### **Part III. Focus on Transportation**

This part of the plan provides a discussion of important factors influencing Washington's future and describes the plan's role in the context of these issues. This part describes the variables influencing transportation planning and policy. Policy development is an ongoing process, as these issues are resolved the will play a role in further implementation of the WTP.

##### ***Chapter A. Funding and Financing***

This chapter presents a detailed discussion of financial costs and funding sources and mechanisms necessary to implement the identified targeted investments and make the most of Washington's transportation system.

##### ***Chapter B. Policy Studies and Plans***

This chapter presents a discussion of policy studies and plans directly related to this plan.

##### ***Chapter C. Governance and Partnerships***

This chapter presents a discussion of the governmental programs and relationships that are critical to the effectiveness of the plan's implementation.

##### ***Chapter D. Transportation and Land Use***

This chapter presents a detailed discussion of the relationship between land use and transportation; an ongoing and elusive puzzle that is the most complex and influential variable of transportation planning.

**Do you want additional Information?**

Additional Information on the WTP, resources, related documents, and full issue reports are on-line at the following website:

[www.wsdot.wa.gov/planning/wtp](http://www.wsdot.wa.gov/planning/wtp)

From this website you can access detailed information and data used in the planning process through a link to the Data Library.

## ▶ The Challenge

This chapter includes data and analysis conducted during the WTP update process.

Whether you choose to travel by car, bus, train, bicycle, airplane, or on foot, Washington’s statewide transportation system affects you both directly and indirectly. When too many people try to travel to the same locations at the same time, the transportation system becomes congested and drivers become frustrated. When congestion causes you to be late to pick up a child from daycare, it costs you money. When parts and merchandise are late to manufacturers and stores, profits are lost. When we can’t walk or ride a bicycle safely, the health of our communities suffers. If you can’t drive because of age, illness, or other reasons, you may not have access to a job, education, medical care, and social interaction. Transportation is an integral part of our state’s social fabric.

Washington State’s population continues to grow. This is driving an ever increasing demand for transportation systems necessary to support a desirable quality of life, jobs, and economic growth in all parts of the state, and to maintain Washington State’s competitiveness in a global economy. Meeting this demand will require Washington State to continue building a multimodal program based upon prioritized strategic investment strategies and stable funding sources.

The information in this chapter is organized around Five Investment Guidelines:

- Ⓟ Preservation
- Ⓢ Safety
- ⓔⓋ Economic Vitality
- Ⓜ Mobility
- ⓔⓆ Environmental Quality and Health

The value of Washington’s existing transportation systems stems from past investments. Many previous investments constructed system additions, such as the construction of the Interstate System, the building of a bridge where none existed before, or the construction of a rail line. Over time the demands placed upon these facilities have reached a point where routine maintenance activities and costs cannot keep pace. As a result, there are backlogs of significant transportation work that far exceed available revenues. Investments must now be prioritized to cover the many needs with the limited funds available. Future returns depend on fact-based investment decisions to maximize benefits to the economy, our communities, and the environment. Financial constraints limit the ability of the state to make all the needed improvements. The investment needs have been prioritized so that the most important and effective investments are made first.

The statistics and information in this section describe the current condition of the transportation system. Discussion of these conditions is integrated with projected changes and demands for the next 20 years.

The end result is a forecast for Washington State’s future transportation needs. This chapter provides the foundation for the following chapters, which address how to meet the challenges presented here through targeted investments.

▶ “The Washington State Transportation Plan is not about the politically correct recitation of modal completeness. It’s about the cross-cutting themes that animate our transportation policy goals and choices.”

**Doug MacDonald**  
**Secretary of Transportation**

## The Challenge: Preservation

▶ As our transportation facilities age, a regular schedule of rehabilitation, reconstruction, and replacement is needed to keep system components usable, to reduce maintenance costs, and to address changes in design and performance standards. Lack of system preservation and rehabilitation produces a downward spiral. Short-term savings from deferred action become dramatically greater costs later. Deteriorating infrastructure is often invisible to the public, so generating support for funding rehabilitation and reconstruction is difficult.

### The System is Aging

While specific transportation investment needs vary across Washington State, preserving the existing transportation systems is an important issue statewide, regardless of mode, jurisdiction, or region. In fact, there is no more fundamental transportation investment than system preservation—keeping the physical infrastructure in safe and efficient operating condition.

This point was underscored during the development of the WTP as the Transportation Commission received feedback from the Tribal Transportation Planning Organization, San Juan County Commissioners, and Washington State’s fourteen Regional Transportation Planning Organizations. Transportation facilities in Washington are aging and need attention.



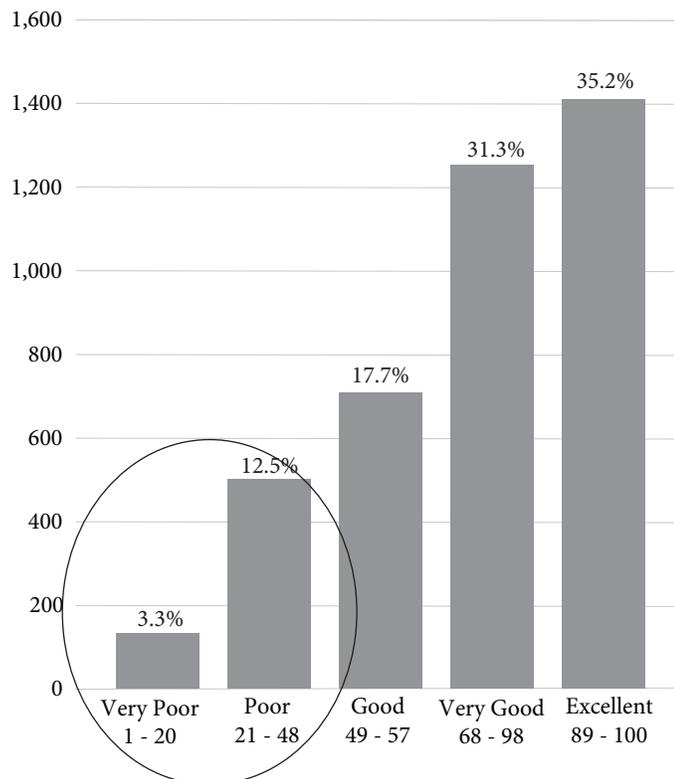
Timing of investments is important to achieve lowest life-cycle cost: the point in an asset’s expected duration when it can no longer serve its function without greater costs and risks to related parts.

This is the same problem homeowners face when deciding when to replace a house’s roofing. The roofing needs to be replaced before a leak causes so much deterioration that other more costly repairs are necessary, such as reconstructing damaged trusses, replacing the living room ceiling, or replacing water damaged insulation.

### Keeping Roadways Serviceable

Several types of road surfaces exist and coexist on Washington State’s roadways, including brick, gravel, dirt, asphalt, and concrete. Each surface type has unique functional benefits and costs. Rising costs for construction materials have required increasingly strategic approaches to selecting the most cost effective surface type. One of the challenges is that many Washington State highways are aging more quickly than they can be rehabilitated, resulting in an increase in deteriorated conditions. A new line of thinking that is becoming common practice is to apply the most cost effective surface treatment at the time of resurfacing, for example, a roadway that is concrete or hot mix asphalt, may not remain so in the future.

Figure II-1  
City Roadway Conditions (Lane Miles)

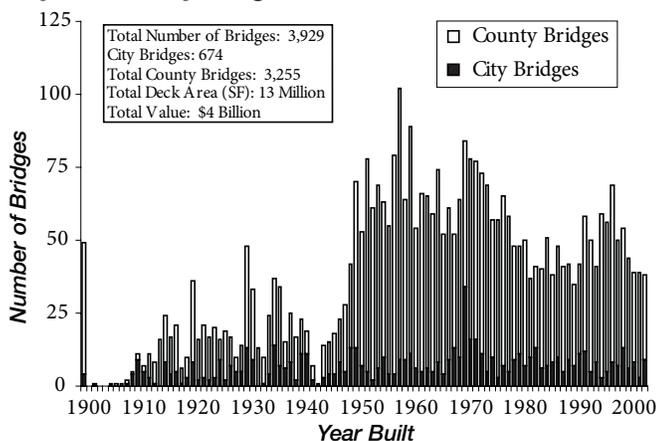


Source: WSDOT Highways & Local Programs

**City, County, and Tribal Roads, and Bridges**

Other jurisdictions face large shortfalls in preserving their pavements and bridges. City, county, and tribal transportation funding is being squeezed by revenue reductions, growing needs of other government services, and competing needs for transportation system expansion. Recent analysis indicates that 16percent of city roadways have poor or very poor pavement condition. At current funding levels for repair and rehabilitation, this percentage will grow.

Figure II-2  
City and County Bridges



Source: WSDOT Bridge Data

\*Note: 1900 includes year built unknown

A recent survey of tribes in Washington State reported that the current conditions and needs of tribal roads statewide are not fully inventoried. As a result, the full scope of roadway preservation needs within existing reservation boundaries cannot be estimated.

Figure II-3  
Washington's Roadway System

Miles of Roads and Vehicle Miles Traveled (2004)

|                                  | Centerline Lines <sup>1</sup> | Lane Miles <sup>2</sup> | Daily Vehicle Miles Traveled | Amount of Traffic Carried |
|----------------------------------|-------------------------------|-------------------------|------------------------------|---------------------------|
| <b>State Highways</b>            |                               |                         |                              |                           |
| Interstate Highways              | 764                           | 4,751                   | 41,763,000                   | 27.5%                     |
| Rural Highways                   | 5,267                         | 11,335                  | 18,731,000                   | 12.3%                     |
| Urban Highways                   | 1,015                         | 3,917                   | 25,728,000                   | 16.9%                     |
| <b>Total</b>                     | <b>7,046</b>                  | <b>20,003</b>           | <b>86,222,000</b>            | <b>56.7%</b>              |
| <b>County Roads</b>              |                               |                         |                              |                           |
| Rural Highways and Roads         | 35,007                        | 70,014                  | 11,288,000                   | 7.4%                      |
| Urban Highways and Roads         | 1,656                         | 4,043                   | 9,335,000                    | 6.1%                      |
| Urban Local Streets              | 3,170                         | 6,339                   | 2,821,000                    | 1.9%                      |
| <b>Total</b>                     | <b>39,833</b>                 | <b>80,396</b>           | <b>23,444,000</b>            | <b>15.4%</b>              |
| <b>City Streets</b>              |                               |                         |                              |                           |
| Rural Roads                      | 2,374                         | 4,747                   | 536,000                      | 0.4%                      |
| Urban Streets                    | 3,416                         | 9,038                   | 31,310,000                   | 20.6%                     |
| Urban Local Streets              | 10,472                        | 20,943                  | 9,126,000                    | 6.0%                      |
| <b>Total</b>                     | <b>16,262</b>                 | <b>34,728</b>           | <b>40,972,000</b>            | <b>26.9%</b>              |
| <b>Other Public Roads</b>        |                               |                         |                              |                           |
| Other State Roads <sup>3</sup>   | 10,825                        | 21,649                  | 876,000                      | 0.6%                      |
| Other Federal Roads <sup>3</sup> | 7,193                         | 14,386                  | 545,000                      | 0.4%                      |
| Tribal Roads                     | 58                            | 116                     | 4,000                        | 0.0%                      |
| Port District Roads              | 3                             | 5                       | 54,000                       | 0.0%                      |
| <b>Total</b>                     | <b>18,079</b>                 | <b>36,156</b>           | <b>1,479,000</b>             | <b>1.0%</b>               |
| <b>Total Statewide Miles</b>     | <b>81,220</b>                 | <b>171,283</b>          | <b>152,117,000</b>           | <b>100.0%</b>             |

<sup>1</sup> Centerline miles count total miles of road but do not take lanes into account. A one-mile length of four lanes on I-5 measures the same as one-mile length of two lanes on SR-101. Both equal one centerline mile

<sup>2</sup> Lane miles count lanes including ramps, special use lanes, bike lanes, HOV lanes, etc. A one-mile length of four lanes on I-5 equals four lane miles.

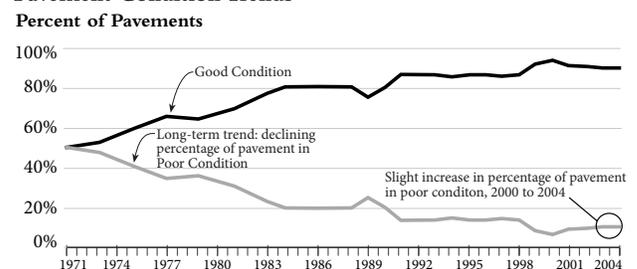
<sup>3</sup> Other roads include forest service and other service roads.

Source: WSDOT Transportation Data Office

**State Highway Pavements**

The Department of Transportation has made progress to reduce the backlog of needed resurfacing of highway pavements, and is thereby approaching lowest life-cycle cost for the entire system. However, concrete pavements pose different, more costly problems.

Figure II-4  
Pavement Condition Trends



Source: WSDOT Materials Lab

The ratio of highway miles classified in poor and good condition has steadily shifted over time. The majority of state highway pavements are currently in good condition and a minority are in poor condition. However, a significant number and percentage of lane miles are rated as “poor” and have critical improvement needs. Most interstate highways are paved with Portland

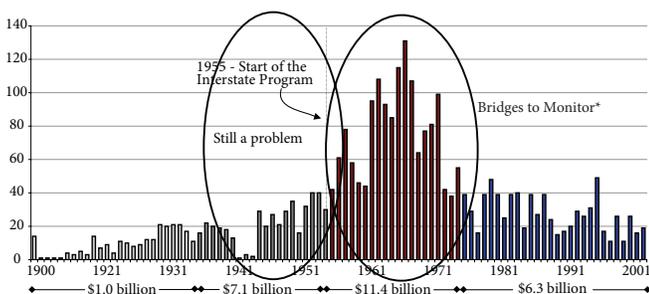
Cement Concrete Pavement (PCCP), including high-volume urban areas and those with heavy truck traffic. Many of the more than 2,400 lane miles of Washington State highways were built thirty or more years ago, and have endured many years of increasing traffic volumes. They are now disproportionately represented among pavements rated in poor condition, and will continue to deteriorate without attention in the near future.

Although current funding allocations are adequate to cover asphalt and chip seal repaving needs, funding falls far short of the growing concrete pavement rehabilitation needs.

**Bridges in Washington**

Washington State has many state and local bridges. On state highways alone, there are 3,534 structures with a total of 44.3 million square feet of bridge deck area. All levels of government have made much progress on bridge rehabilitation, but aging bridges represent a growing problem that must be monitored closely. Many bridges in Washington State have served transportation needs for far longer than their builders anticipated—a testament to good engineering and durable materials. These same bridges, however, will not last indefinitely. Bridges that are vulnerable to scour and earthquakes are of special concern. Bridges that are structurally sound but which have different traffic patterns than the designers intended are an emerging concern. Some of these bridges are among our oldest, have narrow lanes, narrow or no shoulders, and provide poor pedestrian or bicycle access.

Figure II-5  
**Bridge Inventory by Year of Construction and Replacement Costs 2004 Dollars**



\*May last longer than assumed life cycle of 50 years  
 Source: WSDOT Bridge and Structures Office

**Washington State Ferries**

Washington State operates the largest ferry fleet in the nation, with 24 passenger-vehicle and 4 passenger-only vessels. Current funding assumptions for the next 10 years show the Washington State Ferries meeting short-term targets for both vessel and terminal preservation. This includes the replacement of 4 vessels.

The Steel Electric Class ferries have been in service since 1927. These vessels carry 40-65 vehicles. Since 1927 these vessels have been updated; however, they are reaching the end of their useful lives. The vessels are relatively slow and small in comparison to the newer Issaquah Class ferries which carry 90-120 vehicles, that have been put in service since the 1980s; and the Jumbo Mark II Class ferries, which carry over 200 vehicles and were put in service in the 1990s.

Terminals for the ferry system have been expanded and updated over the course of the past 60 years where the newer larger vessel classes have been put into service. However, as the older, smaller Steel Electric Class ferries are replaced with newer larger class vessels, older harbor and terminal facilities throughout the Puget Sound service area will need to be modified to accommodate them.

The planned procurement and replacements for the ferry system are detailed in the Appendix. Current funding assumptions for the next ten years show the Washington State Ferries meeting short-term targets for both vessel and terminal preservation, including the replacement of four vessels in operation since 1927. Further vessel replacement beyond the ten-year period is unfunded.

**Local Ferries**

There are four county-operated ferries in Washington State that have needs for vessel and terminal asset preservation. They are located in and operated by Pierce, Skagit, Wahkiakum, and Whatcom counties.

**Weigh Stations**

Vehicle weight is a critical factor in determining the life expectancy of roadways and bridges. Inspection and legal weight enforcement activities at weigh stations help maximize roadway life and extend the time between rehabilitation and replacement activities. Weigh station sites also need to be rehabilitated and expanded to keep up with the growth in truck usage across the state.

Figure II-6  
Weigh Stations in Washington



Source: WSDOT Commercial Vehicle Information Systems and Networks (CVISN)

Weigh-in-Motion is one of the technological improvements being deployed across Washington State. The Commercial Vehicle Information Systems and Networks (CVISN) transponder program allows trucks to bypass weigh stations by electronically verifying a truck’s legal weight and credentials as it continues along the roadway at freeway speeds. The use of this technology expedites the weighing process, reducing travel delays for freight companies, and reducing the congestion cause by merging freight vehicles on the freeway system.

▶ “Southwest Washington Regional Transportation Council appreciates WSDOT’s leadership in building a plan that incorporates the individual regional needs while at the same time reflecting statewide transportation policies and needs.”

**Dean Lookingbill**  
Director, Southwest Regional Transportation Council

**Safety Rest Areas**

Safety rest areas provide travelers with a place to rest, to get tourist information about nearby communities, and to refresh themselves. In Washington State, most safety rest areas were built when the interstate highway system was constructed. These facilities continue to age and must be brought up to new standards and codes when replaced. In many cases the existing facility and the utilities must be completely rebuilt.

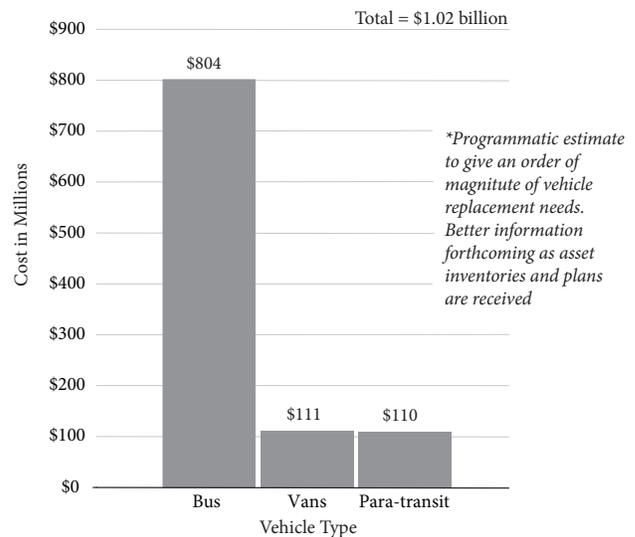
**Culverts**

Culverts carry water under and along roadways. Recent culvert failures due to corrosion and roadway settlement highlight the need for an inventory and condition survey to help determine the level of future investment necessary to prevent roadways from collapsing.

**Public Transportation Systems**

Transit asset preservation needs include funding stability for bus fleet replacement, park and ride lot preservation needs, and operating needs, including expensive demand-responsive service operations.

Figure II-7  
10-Year Cycle of Bus Fleet Replacement  
Cost in Millions for Current Fleets



Source: WSDOT Summary of Public Transportation - 2002 and King County Metro average estimates for vehicle cost

### **Aviation**

Washington State's commercial and general aviation airports need additional paving, lighting, and navigation aids. An important issue is the need to preserve airport sites and their operations from encroachment by incompatible land use development.

Federal funding is available for airports within the National Plan of Integrated Airport Systems (NPIAS). The largest impact occurs at smaller community airports that do not qualify for federal grants. A reduction in pavement condition has increased safety risks and increased reconstruction and replacement pavement costs. In 2005, the WSDOT Aviation Division completed evaluating airport facility pavement conditions. Their final recommendations are due in the summer of 2006.

### **Railroads**

Most short line railroads are owned by private operators, making information about system condition difficult to compile. Indications are that short line rail tracks are facing large rehabilitation needs that may be at least partly unfunded. Worsening track conditions could lead to further abandonment of short line railroad freight lines.

Although the mainline BNSF and UP systems are well-maintained, innovation and urban development have strained parts of the system and require substantial investment to maintain capacity and mobility. As one example, innovation in multi-modal container shipping, now allows trains to carry two containers atop each other – but one of the two tunnels under the Cascades is too small for those trains. And, as more areas of the state urbanize, crossings that once were rural roads may now be busy arterials requiring grade separation.

Probably the most serious preservation issue in rail transport is the fate of underutilized and abandoned rail lines – whether Class I or short line roads. While some have been converted into trails, other segments that are seldom or no longer used are valuable transportation resources that should be preserved.

### **Electrical Systems**

Many transportation-related electrical systems across the state that support state highway systems are more than 40 years old and will need complete replacement in the coming 20 years.

Especially critical are those information-gathering and traffic-management systems that help to operate the highway system and provide real-time information to travelers so they can make better decisions about whether, when, and by what routes to travel. These systems are primarily electrical, involving computer technology that ages quickly, and are expected to require replacement at least twice in the coming 20 years.

## The Challenge: Safety

▶ All types of collisions on Washington State’s roadways increased 45 percent from 1980 to 2002. During this time period there was also an increase in the number of people driving and the miles they drove. In spite of the progress to improve highways, approximately 600 people die in collisions in Washington State each year—an unacceptable number (see Figure II-8).

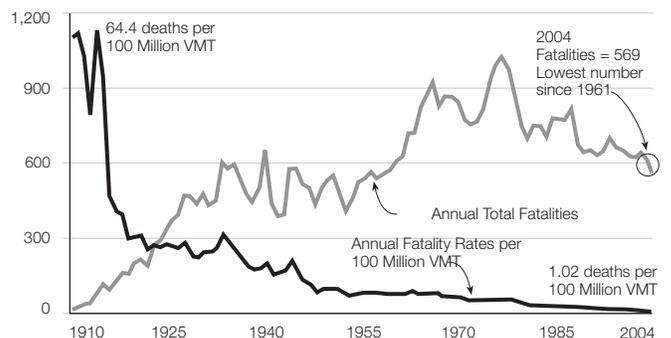
The societal cost of motor vehicle collisions in Washington State for all roadways (state, county, city, tribal, and federal) is estimated at \$5.3 billion annually. Although disabling and fatal collisions make up only 2.3 percent of the total number of collisions, they account for 56 percent of the total societal costs.

Safety for the traveling public is the state’s highest priority. The Washington State Patrol, the State Department of Licensing, the Washington State Traffic Safety Commission, local law enforcement agencies, and the State Department of Transportation work collaboratively to increase traveler safety on the state’s transportation system through education programs and enforcement campaigns. Significant emphasis is placed on roadway design at all jurisdictional levels statewide, resulting in projects that reduce fatalities and disabling injuries caused by collisions. Emphasis is also placed on improving regulations, increasing interagency collaboration, and promoting ongoing research aimed at finding ways to make our transportation system safer. As connections to state routes increase, the collision rate



also rises. By actively regulating, consolidating, relocating and eliminating connections, roadway safety increases. Access management enhances economic vitality, the movement of freight and goods, and the movement of people.

Figure II-8  
**Washington Motor Vehicle Total Fatalities and Fatality Rates**  
1910-2004



Source: WSDOT Transportation Data Office

### The Washington State Patrol

The Washington State Patrol put a program targeting aggressive driving into place Memorial Day weekend, 1998. The Aggressive Driving Apprehension Team targets the reduction of DUIs, incidents of aggressive driving and dangerous speeding, and the increase in seatbelt compliance. The Patrol has also adopted the philosophy of Problem Oriented Public Safety, which is focused on developing working partnerships among the Patrol, citizens, and other stakeholders.

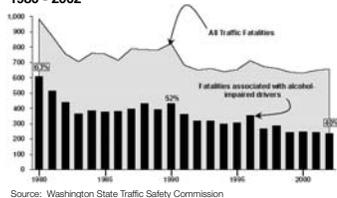
**The Department of Licensing**

The Washington State Department of Licensing Motorcycle Safety Program works to improve motorcycle safety through rider training programs and public information campaigns. The program is use-funded through a fee on motorcycle permits and endorsements, and student tuition for courses.

**The Washington State Traffic Safety Commission**

The Washington State Traffic Safety Commission has developed safety programs to target unsafe behaviors. The programs include: Click it or Ticket, to address seatbelt use; The Child Passenger Safety Program to increase compliance with Washington State child restraint laws; the Youth Traffic Safety Program to provide traffic safety advocates the ability to work with teen drivers to improve traffic safety; and the School Zone Safety Program to save lives and prevent serious injuries in and around schools in Washington State.

Figure II-9  
Trend in rate of Driver Alcohol Impairment Associated with Motor Vehicle Fatalities in Washington State 1980 - 2002



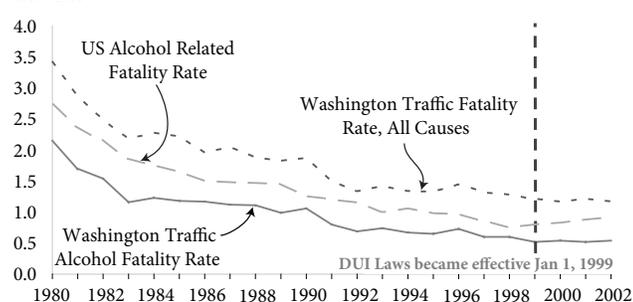
Source: Washington State Traffic Safety Commission

**The Strategic Highway Safety Plan**

The Washington State Department of Transportation has developed the Strategic Highway Safety Plan, Target Zero. The

plan’s mission is to identify Washington State’s traffic safety needs and guide investment decisions to achieve significant reductions in fatalities and serious injuries on all public roads. The vision for this plan is that Washington State will achieve a transportation system that has zero traffic deaths and zero disabling injuries by

Figure II-10  
**Alcohol-Related Traffic Fatalities**  
Comparison of Washington’s Public Roadway Fatality Rate And Alcohol-Related Fatalities Per Million VMT 1980 - 2002



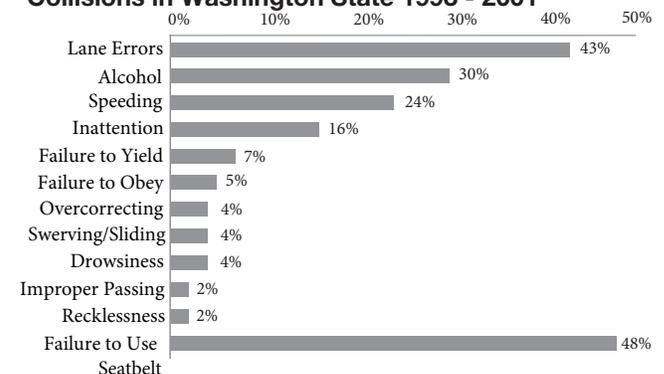
Source: WSDOT Transportation Data Office

the year 2030. In order to achieve Target Zero, the state must experience 24 fewer fatalities each year for the next 25 years.

Technological advances, such as better crash-worthiness of vehicles and crash-avoidance technologies, have increased safety for motorists. Yet crashes are the leading cause of death in the United States for people from age 3 to 33. Sharply reducing fatalities and severe injuries will require more than better vehicle and road engineering.

Targeted education and law enforcement measures are necessary to reduce the human behavioral causes of severe collisions, such as speeding, reckless driving, and alcohol or drug impairment. These measures will also target the use of safety devices such as motorcycle helmets and seatbelts.

Figure II-11  
**Driver Errors and Behaviors Associated with Fatal Collisions in Washington State 1993 - 2001**



Source: WSDOT Transportation Data Office

**Behavior is a strong factor**

One of the largest contributors to fatal collisions is driving while intoxicated. Impaired drivers are involved in approximately 40 percent of all the fatal collisions in Washington State. Despite an increased focus on reducing numbers of impaired drivers, the rate of alcohol involvement in fatalities remains high.

Dangerous drivers, including aggressive and drowsy drivers, also contribute to fatalities. Included in this group are drivers that weave in and out of traffic, flash their lights, tailgate, street race, drive too fast for conditions, or fall asleep at the wheel. Young drivers (16-20 years old) have a higher fatal collision rate than any other age group. Legislation passed in July 2001 established the requirement of 50 hours of supervised behind-the-wheel driving time for drivers under the age of 18 before they can obtain a license. Early statistics

collected after the law took effect show about a 30 percent drop in the number of fatalities and disabling injuries for 16- and 17- year-old drivers.

New strategies and policies will be needed to address aging driver safety needs as Washington State's population ages.

### **Roadway Factors Affect Collisions**

At many locations in Washington State there are opportunities to design and construct roadway improvements that will make roads safer for travelers. Some of these opportunities are part of major road construction projects that help relieve congestion and improve safety. Sometimes safety improvements are smaller scale projects like widened or strengthened shoulders or additional roadway width that provides room for turning lanes.

Roadway safety projects may focus on the following types of improvements:

- Reducing head-on and across-median crashes
- Improving design and operation of highway intersections
- Recurring congestion related crashes
- Reducing bicycle and pedestrian crashes
- Reducing speed limits to fit changing uses and conditions impacting the roadway

### **Roadside Factors Affect Collision Severity**

Roadside safety addresses the adjacent area outside of the roadway. It is an important component of total highway design because about one quarter of all fatal and disabling collisions involve fixed objects on the roadside. Roadside safety projects focus on reducing severe and fatal injuries associated with run-off-the-road crashes.

There are numerous reasons why vehicles leave the roadway. Regardless of reason, a forgiving roadside can reduce the seriousness of the consequences. From a safety perspective, the ideal highway has roadsides and median areas that are flat and unobstructed by hazards.

Elements such as side slopes, fixed objects, and water are potential hazards that a vehicle might encounter when it leaves the roadway. These hazards present varying degrees of danger to the vehicle and its occupants.

The affordable and prudent mitigative measures to be taken, therefore, depend on the identified hazard, the probability of a crash occurring, the likely severity, and

the available resources.

### **Aviation**

Air transportation is one of the safest modes of transportation. Nationwide, the number of general aviation accidents per year has been steadily decreasing. In recent years the number of accidents nationwide is 6.40 accidents per 100,000 hours flown and 1.41 fatal accidents per 100,000 miles. However, Washington State ranked 7th in the nation with the highest number of accidents. Weather is one of the leading causes of accidents for general aviation aircraft.

### **Washington State Ferries**

Washington State Ferries has a strong safety record in both its marine and terminal operations. It operates 28 vessels on 10 routes and carries over 25 million passengers annually. The United States Coast Guard sets safety standards for vessels and crew licensing. In 2002, there were 100 reported injuries to passengers on ferries—all of them minor in nature. There were 33 reported injuries at terminals—all minor in nature.

### **Bicycle and Pedestrian Safety**

The combination of driver actions, pedestrian actions, and the built environment continue to influence pedestrian fatality rates. Roughly one-third of the auto-pedestrian accident fatalities that occurred between 1999 and 2004 involved alcohol or drugs.

- In 21 percent of the cases, the pedestrian was under the influence of alcohol or drugs
- In 7 percent of the cases, the driver was under the influence of alcohol or drugs
- In 2 percent of the cases, both driver and pedestrian were under the influence of alcohol or drugs

Lack of roadway crossing opportunities places pedestrians at risk for serious injury and continues to be of concern. We can reduce this risk by implementing roadway improvements and pedestrian crossing safety programs at schools and other pedestrian access locations.

For cyclists, 52 percent of fatal collisions with motor vehicles occurred while the cyclist was riding in a roadway. Causes of these collisions included situations such as a driver following too closely or exceeding safe speeds or a bicyclist being hit by an opening car door while riding next to parked cars.

## The Challenge: Economic Vitality

▶ Washington State’s economy and quality of life depend on a transportation system that functions well. Transportation connects people to jobs, family, medical care, education, recreation, and goods needed for daily life. Roadways, airports, ferries, transit, water ports, and railways are all necessary for a strong economy, providing access to businesses, jobs, and world markets, as well as moving freight and commerce. As with other basic infrastructure that supports our society—such as water or electricity—society may take the transportation system for granted until problems arise that affect individuals.

Washington is among our nation’s most beautiful and diverse states. From most locations, a three hour drive takes you to a large variety of different regions offering incredible commercial, recreational, and cultural opportunities and scenic vistas.

The same geographic and natural qualities that attract tourists also lure and retain the highly skilled workforce vital to our economy. The agricultural, tourism, freight movement, aerospace, and information technology industries that power our economy also depend on a safe and reliable transportation system.



### Washington State’s Economic Structure

The structure of Washington’s economy is shifting:

- Population and, therefore, travel demand will grow, but these trends will be felt unevenly around the state.
- The continued growth of information technology will bring major societal and economic changes that are likely to affect the ways people and businesses use transportation.
- The continued expansion and globalization of trade will increase the growth of the freight industry and, therefore, demands on the transportation system.

### Transportation’s Relationship to the Economy

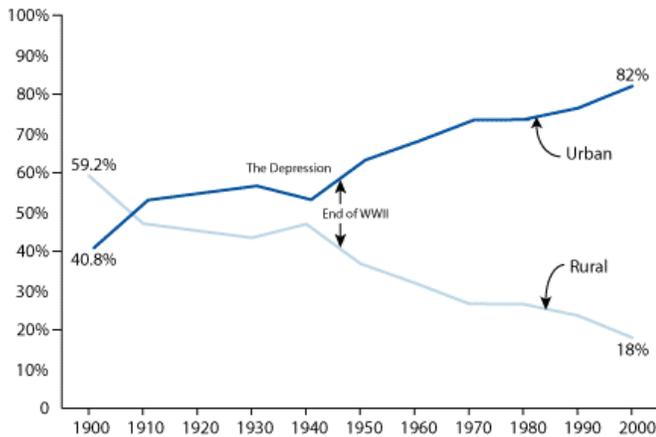
Transportation contributes to Washington’s economy in three key ways.

- Moving freight and goods
- Moving people
- Reducing societal costs through safer travel

**Washington State Population Trends and Forecasts  
Urban Growth Continues**

Since the development of industrial centers near the turn of the last century (1880s to early 1900s) population has become concentrated and distributed into urban and rural areas. The graph below displays the divergent trends in urban and rural population since 1900.

Figure II-12  
**Population Growth in Relation to the State's Metropolitan Areas**

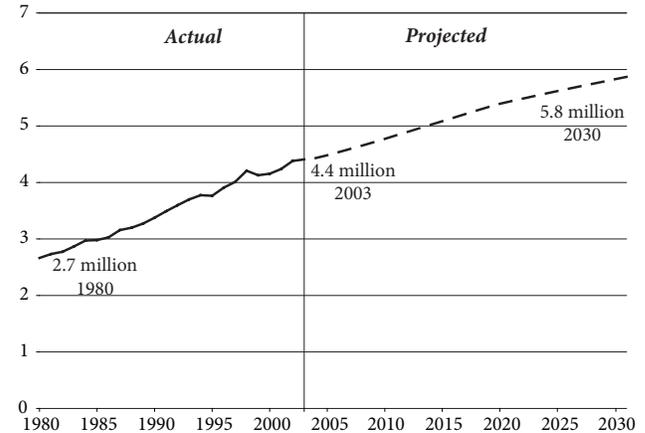


Source: U.S. Census

The history of Washington State's population distribution is fairly straightforward. From the late 1800s to very early 1900s more people lived in rural areas than urban centers in Washington State. Most people worked on farms or made a living from the natural resources of the state. This trend reversed by 1910 and the difference in population concentration has continued to widen. In 1910, the population was divided into 53 percent urban and 47 percent rural. By 2000, the population division was 82 percent urban and 18 percent rural.

It is expected that Washington State's population growth over the next twenty years will continue to follow the shift as illustrated above. As a result, the density of urban areas will continue to increase, creating challenges in maintaining an efficient transportation system and mitigating congestion. Alternatives to single occupant vehicle transportation are key to managing the demands placed upon the transportation system in these areas. Public transit, the Commute Trip Reduction program, and walking and biking facilities provide alternative modes of travel, relieve demand on highway systems, and reduce congestion, as well as increase sustainability of the transportation system.

Figure II-13  
**Growth in the Number of Licensed Drivers in millions**

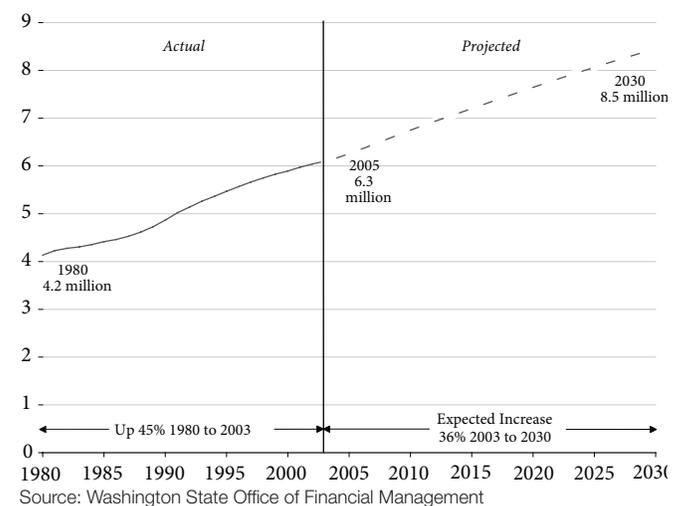


Note: Forecast assumed to be 72 percent of the population  
Source: Washington State Department of Transportation, Economics Branch, WSDOT's Finance and Administration Division

The number of licensed drivers in Washington increased from 2.7 million in 1980 to 4.4 million in 2003, an overall increase of 66 percent, or an annual average increase of 2.9 percent. In 2003, 72.1 percent of the population held a valid driver's license, an increase from 65.9 percent in 1980. This upward trend is expected to continue, increasing the number of licensed drivers to nearly 6 million by 2030.

The forecasted increases in population and in the number of licensed drivers combined with the shifting concentration of this growth to urban areas will increase the strain on transportation facilities and services.

Figure II-14  
**Washington State Total Population**

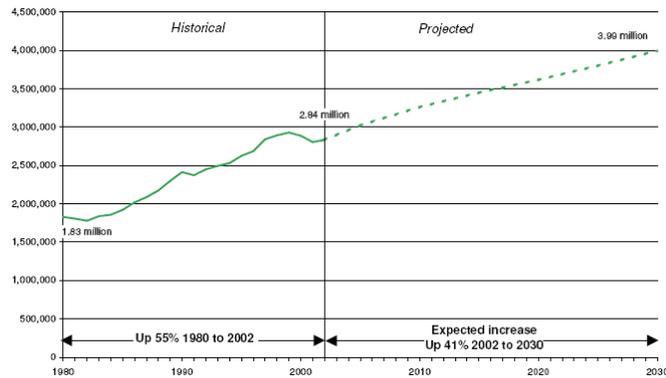


Source: Washington State Office of Financial Management

**Washington State's Economic Trends and Forecasts**

From 1980 to 2002, the number of jobs in Washington State grew from 1.83 million to 2.84 million, an average annual growth rate of 2 percent. Between 2002 and 2030, 1,158,214 jobs are expected to be added to the state's economy. Employment in the state is expected to increase at an average annual rate of 1.2 percent, from 2.84 million in 2002 to 3.99 million by 2030.

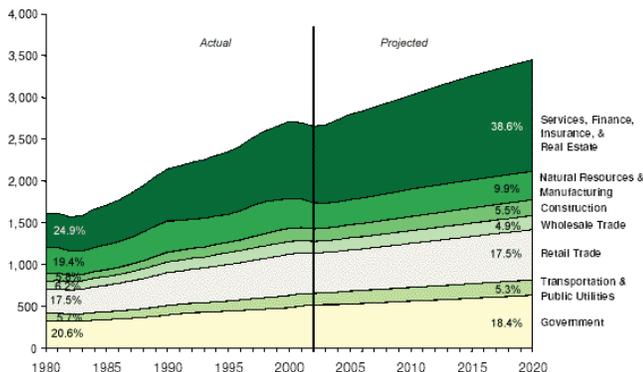
Figure II-15  
**Growth in Employment: 1980 to 2002 and 2002 to 2030**



Source: Table 3-1, 2003 Long Term Economic and Labor Force Forecast for Washington, Office of Financial Management & Employment Security Department

From 1980 to 2002, the number of jobs for Washington State (excluding agricultural employment) grew from 1.61 million to 2.65 million, an average annual growth rate of 2 percent. It is expected that 779,900 jobs will be added to Washington's economy between 2002 and 2020. This represents an average annual growth rate of 1.3 percent, bringing the state's total number of jobs from 2.65 million in 2002 to 3.45 million by 2020.

Figure II-16  
**Growth in Non-agricultural Employment: 1980 to 2002 and 2002 to 2020, thousands of jobs**

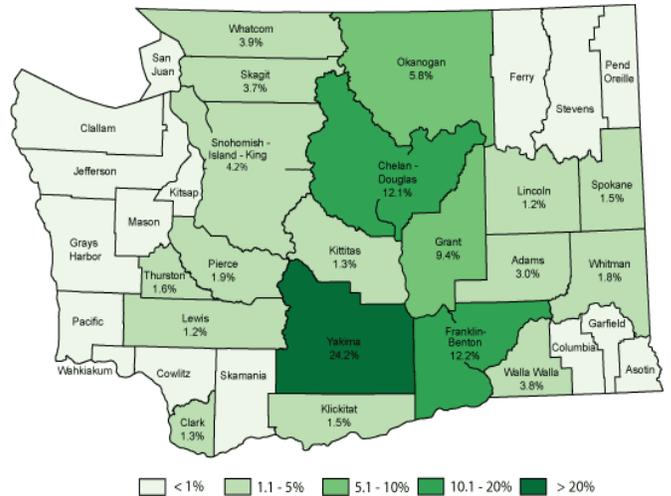


Source: Table 3-1, 2003 Long Term Economic and Labor Force Forecast for Washington, Office of Financial Management & Employment Security Department

**Agricultural Employment: 2002**

Agriculture employed more than 87,000 people in Washington State in 2002, representing three percent of all state employment. Eighty percent of all agricultural employment is located in Eastern Washington. Yakima County alone accounts for 24 percent of the entire statewide agricultural employment.

Figure II-17  
**County Percentage of Total Agricultural Employment\* Washington State, 2002**



\*Percentage not shown for areas with less than 1.0 percent of state total.

Source: Washington State Employment Security Department

The combined growth in population, households, licensed drivers, and jobs compound the number of daily trips, increasing the demand and stress on the existing transportation infrastructure.

► “Encourage the continued vitality of the Columbia River/Snake River transportation system and coastal ports which support the communities in five counties allowing access to the world markets for local and foreign products.”

**Cowlitz-Wahkiakum Council of Governments Regional Transportation Plan 2003-2022**

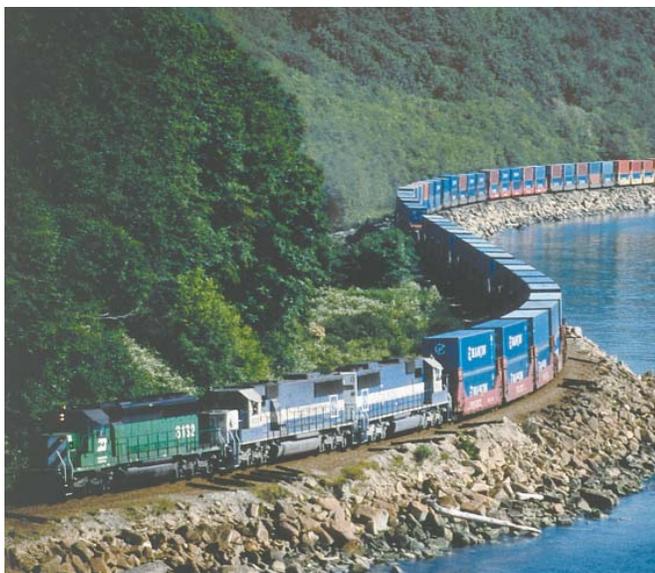
**Moving Freight and Goods**

- ▶ Three components of Washington State’s freight system:
  - Global Gateways – International and National Trade Flows Through Washington
  - Made in Washington – Regional Economies Rely on the Freight System
  - Delivering Goods to You – The Retail and Wholesale Distribution System

The three components of Washington State’s freight system support our national and state economies, support national defense, directly sustain hundreds of thousands of jobs, and distribute the necessities of life to every resident of the state everyday.

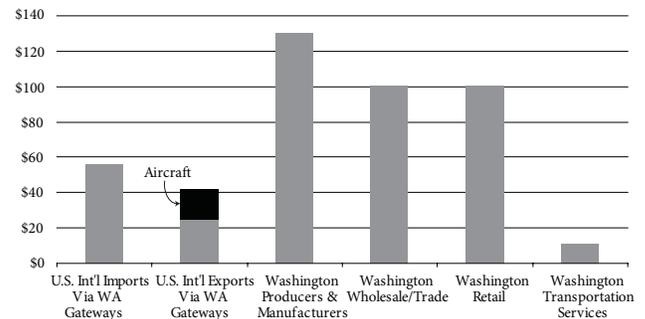
First, Washington State is a gateway state, connecting Asian trade flows to the U.S. economy, Alaska to the Lower 48, and Canada to the U.S. West Coast. About 70 percent of international goods entering Washington gateways continue on to the larger U.S. market. 30 percent become part of Washington State’s manufactured output or are distributed in our retail system.

Second, our own state’s manufacturers and farmers rely on the freight system to transport Washington-made products to local customers, to the big U.S. markets in California and on the east coast, and worldwide. Washington State’s producers generate wealth and jobs in every region in the state.



Finally, Washington State’s distribution system is a fundamental local utility, since without it our citizens would have nothing to eat, nothing to wear, nothing to read, no spare parts, no fuel for their cars and no heat for their homes. In other words, the state’s economy would no longer function.

**Figure II-18**  
Washington State  
Value of Freight Shipments (2004: Billions of Dollars)

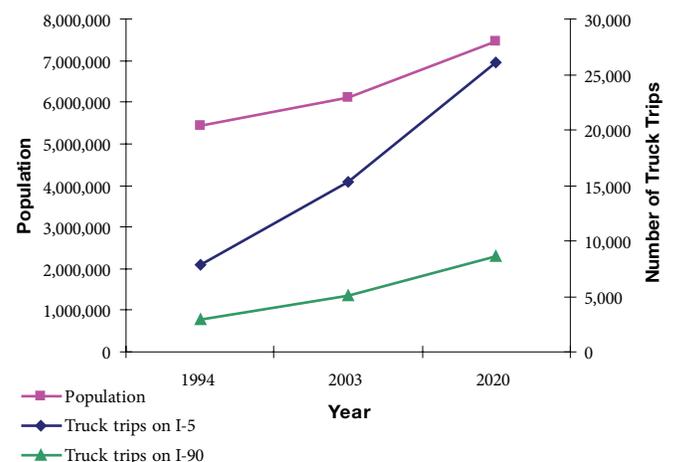


Source: WSDOT Freight Office

**Freight Volumes are Growing**

Globalization, competitive industry trends, and new technologies are pushing freight volumes up twice as fast as Washington State’s overall population and traffic growth, as shown in Figure II-11. Without strategic investment by the public sector, our natural population growth, intensified by these three trends, will choke international trade flows through the state, undermine regional economies, and spill over into competition for road capacity in congested metropolitan centers. With strategic investment, Washington State will continue to compete.

**Figure II-19**  
Washington Population vs. Truck Trips on I-5 and I-90



Source: WSDOT Freight Office



**The Fuel Distribution System**

By far, Washington State’s largest waterborne import is crude oil from Alaska, shipped to the state’s refineries. Refined products, gas, diesel, and jet fuel, then move by pipeline or barge to distribution centers and are trucked to gas stations. Washington State’s citizens and industries consume 17.6 million gallons of petroleum per day, making the state’s consumption 17th in the United States, and consumption is growing. However, the Olympic Pipe Line, currently operating at close to 100 percent capacity, has no plans to add capacity in the state.

▶ “If we make the right investments in transportation, we will create millions of jobs here at home, we’ll make our businesses and workers more productive and we’ll lay the foundation for our future economic growth.”

**Honorable Patty Murray**  
*United States Senator*  
*Speech to Former US Transportation Secretary Norm Mineta*  
*March 9, 2004*

**Made in Washington – Regional Economies Rely on the Freight System**



Our state’s regions have built strong and distinct economies based on industry and agriculture. Over 550,000 jobs in regional manufacturing, agriculture, construction, and forestry depend on Washington State’s freight system and accounted for \$130.32 billion, or 28 percent of all state gross business revenues in 2004. Transportation is especially important for Washington State agriculture because the state produces about three times as much food and, for some commodities, up to twenty times as much on a tonnage basis as it consumes. Washington State is separated by long distances from the majority of the nation’s consumers. More efficient freight systems will help Washington manufacturers compete in the larger West Coast market.

▶ “Of great importance to Washington and other northwest states is the continued viability and reliability of Snoqualmie Pass (I-90) as the primary freight route over the Cascade Mountains to the Ports of Seattle and Tacoma.”

**Benton-Franklin-Walla Walla RTPO**  
*Regional Transportation Plan*  
*2006 Update*

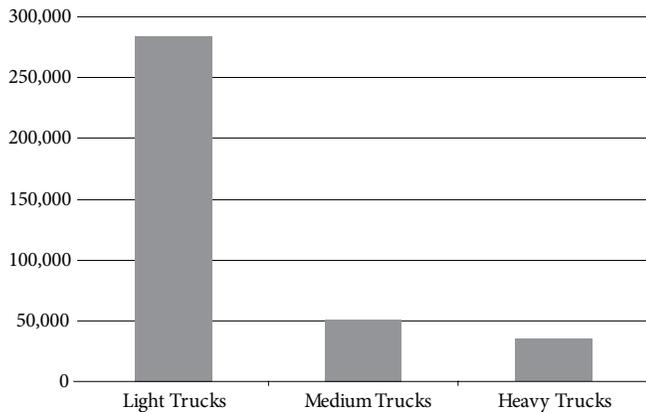
**Industry Trends**

Competitive pressure to cut inventories at every step in the manufacturing chain is reshaping industrial supply chains and causing more frequent freight shipments. The Boeing Company, employing 53,000 in Central Puget Sound, is Washington State’s largest manufacturer with \$22.4 billion in airplane revenues in 2003. Boeing’s dependence on the state’s freight system will become even greater as it sets new levels of efficiency in the manufacturing of the new 7E7 Dreamliner. Although Boeing has historically made planes from up to a million smaller pieces and shipped them by truck, train, and boat, its new strategy to gain efficiency is based on major component assembly. Fewer parts, with more frequent deliveries, will support their just-in-time inventory reduction strategy.

Cost-cutting inventory reduction strategies are also underway at thousands of other mid-market manufacturers and producers around the state. For example, a Vancouver food production plant receives up to 50 truckloads of fresh potatoes each week from growers in the Columbia Basin. The plant keeps just enough potatoes on hand for one eight-hour shift; if the potatoes do not arrive on time, the plant cannot run. A one million-square-foot semiconductor foundry in East Clark County can’t function without fast and reliable air cargo; if a tool is delayed overnight in the supply chain from Taiwan, the plant will shut down and idle 1,000 employees. Farmers ship vegetable produce over 200 miles from Prosser to a major wholesale distributor chain in Central Puget Sound and are required to deliver within 15 minutes of their scheduled appointment.

These competitive trends are repeated in thousands of manufacturing plants, construction sites, agricultural growers and processors, and distributor facilities in Spokane, Bellingham, TriCities. Across the state driving logistics practices toward perfect flow that puts more trucks on the road, more frequently, with ever-shorter delivery windows.

Figure II-21  
**Most Commercial Trucks Licensed in Washington State Are Light Weight**



Source: Washington State Department of Licensing, Agency Computer Services

**Regional Industries Need Access to Customer Markets**

Spokane regional manufacturers and health care system practitioners, and Eastern Washington agricultural growers and processors all cite severe winter weather closures on Interstate 90 at Snoqualmie Pass as Eastern Washington’s top freight priority. They ship to customers in Central Puget Sound, so reducing delays on Interstate 5 from Everett to Olympia comes in a close second.

Northwest and Southwest Washington manufacturers and trucking firms are also shipping to the Central Puget Sound region, so they put fixing the Interstate 5 corridor at the top of the list.

The Columbia Basin/North Central Washington agricultural center leads the nation in apple and potato production. Apples and potatoes must be shipped in refrigerated trucks or rail cars; 90 percent are trucked to market. Continued refrigerated truck shortages are likely due to seasonal peak demand and an ongoing pull from other U.S. regions for refrigerated capacity.

**Washington State’s Economy is Diverse  
 Aerospace and Technology**

Washington State is the United States’ largest exporter within the aerospace industry. This industry produces over 50 percent of the state’s \$35 billion in exports.

There are more than 500 companies in the state with a link to the aerospace industry. They represent every segment of the industry, including engineering services, commercial and general aviation, and military and space applications.

Since 1988, total high-tech employment has fluctuated with the economic cycles of the aerospace industry, while non-aerospace high-tech employment showed steady growth during that same period.

Regionally, an interesting shift is occurring in technology job growth. Established technology-rich communities like Seattle, Vancouver, and Spokane saw a drop in technology jobs over the last two years, while Bellingham, the TriCities, and Bremerton all exhibited strong technology job growth.

Technology industries account directly for more than 12 percent of Washington State’s total employment. Washington State retains a highly educated workforce, critical to the technology industry, and ranking twelfth in the nation.

**Manufacturing**

In 2003, Washington State’s manufacturers grossed \$88.3 billion, 21.3 percent of the total state gross business income. This sector employed more than 285,000 workers in 2002 (11 percent of Washington’s jobs). Employment in the manufacturing sector has been down since 1998 mainly due to a downturn in the aerospace industry. Washington State is expected to see an average growth rate of 0.4 percent in manufacturing employment through 2030.

▶ The three cities with the highest concentration of aerospace firms in the world are: (1) Seattle, Washington, (2) Toulouse, France, and (3) Montreal, Canada.

*Source: Washington State Department of Community, Trade & Economic Development*

While remaining relatively steady in the number of jobs, manufacturing employment is expected to drop from 19.4 percent to 9.9 percent of all non-agricultural employment between 1980 and 2020. Even with this drop in share, manufacturing will grow, but more slowly than other non-agricultural jobs.

**Forest Products and Paper**

As the nation’s largest exporter of forest products, Washington State boasts a prime location on the Pacific Coast, with abundant forest resources, and key port facilities to maintain its competitive edge in the world market.

Japan is the largest importer of Washington State forest products. Pulp and paper exports in Washington Statewide total \$1.1 billion. Washington is the largest softwood lumber producer in the United States, exporting \$495 million of softwood lumber to domestic and international markets. According to a 2004 Washington State Department of Community, Trade and Economic Development report on forest products in Washington:

- Forest products manufacturing is projected to grow by 1 percent per year through 2007 and 0.9 percent per year through 2012. In 2003, logging employed 5,497 workers and forest products and manufacturing employed 17,573 workers.
- Pulp and paper sectors employed an estimated 14,600 Washingtonians in 2002.
- An economic assessment of the global market for forest products estimated that near-term consumption is projected to increase from 328 million to 874 million cubic yards over the next 20 years.

**Forest Products in Washington State**

The forest products industry is one of Washington State's key industrial clusters. In combination with a strong resource base, Washington State's historical tie to the forest products industry results in and relies upon an infrastructure of roads, rail, and ports.

**Agriculture**

Agriculture is big business in Washington and employs about 3 percent of our total workforce. In

Figure II-22

**Washington's top five commodities accounted for two-thirds of the state's agricultural receipts in 2002**

| Commodity            | Value of Receipts<br>Thousand \$ | Percent of State<br>Total<br>Farm Receipts | Percent of<br>U.S. Value |
|----------------------|----------------------------------|--|--------------------------|
| 1. Apples            | 977,508                          | 18.8                                       | 63.6                     |
| 2. Dairy Products    | 671,040                          | 12.9                                       | 3.3                      |
| 3. Cattle and calves | 614,385                          | 11.8                                       | 1.6                      |
| 4. Potatoes          | 478,166                          | 9.2  | 15.8                     |
| 5. Wheat             | 475,718                          | 9.1  | 8.6                      |

Source: U.S. Department of Agriculture  
Washington Agricultural Statistics Service

2002, Washington produced \$5.6 billion in food and agricultural products, ranking ninth nationally and is the number one producer of eleven crops.

Agriculture employed more than 87,000 people in

Washington in 2002, 80 percent of whom work in Eastern Washington. Yakima County alone accounts for 24 percent of statewide agricultural employment. Transportation infrastructure is critical to getting agricultural products to market.

The total annual economic impact of Washington's wine industry is \$3 billion. Washington State is focused on the premium wine market segment (wines sold for \$8 per bottle and higher). Washington is considered to be the second largest premium wine producer in the



United States and is home to more than 400 wineries supplied by over 350 local growers. Together, they produce an estimated \$685 million in retail value. The wine industry employs about 14,000 people, earning more than \$466 million in wages in 2004.

**Challenges in Rail Capacity Impact Washington's Economy**

Freight demand for use of the Washington State rail system is growing. The mainline rail carriers are approaching or exceeding designed capacity on many of their primary routes. Washington's small- and medium-sized businesses that ship wheat, apples, and potatoes, and industrial and wood products by rail are struggling to adapt to a new, fundamental change in the Burlington Northern Santa Fe (BNSF) Railway's and Union Pacific (UP) Railroad's business models. Rail volumes have soared across the country in the past five years so slots are at a premium.

This market change, while highly profitable to the railroads, is straining railroad capacity causing Class 1 (mainline) railroads to employ more unit trains and shift to a "hook and haul" system whereby they haul large volumes of cars from a common origin to a common destination. That eliminates short haul collection and distribution for the mainline railroads which is a time consuming and costly operation. Instead they will rely on trucks or short lines to provide those services connecting with the mainline railroads through "transload facilities".

Unit trains are usually, but not always, longer trains which when they reach 8000 foot length require certain infrastructure changes so that they can be efficiently handled. Such unit trains have long been routine for the handling of international containers from ports which in effect are transload facilities. Car load agricultural or industrial shippers that cannot load large numbers of cars at their facilities are learning that they may need to gain access to transload facilities in order to remain competitive.

Shortline railroads in Washington State could be used to pick up small rail car lots and aggregate them for the mainline railroads. However, shortline railroads that don't have an anchor high-volume customer, and have a lot of track miles to maintain (the national standard cost of track maintenance is \$6,000 to \$8,000 per mile per year) and high investment capital needs due to poor track condition, will require ongoing capital and possibly operational assistance.

### **Delivering Goods to You – The Retail and Wholesale Distribution System**

Distribution is a critical component of the freight system, as it produces up to 80 percent of all truck trips in metropolitan areas and serves the retail, wholesale, and business services sectors. These sectors supported 1,690,000 jobs and accounted for \$268 billion in 2004 gross business revenues, equal to 54 percent of total state revenues. An enormous variety of goods are handled on this system; food and groceries, fuel, pharmaceuticals and medical supplies, retail stock; office supplies and documents; garbage, construction materials, and equipment.

### **Local Distribution Relies on Fast and Reliable Service**

Distribution companies must provide fast and ubiquitous service that is reliable under all conditions. FedEx and UPS drivers do not go home until every package is delivered. Hospital patients cannot wait for drug deliveries. Washington's modern service economy depends on speed of delivery through the freight system.

The most common method of distributing goods is by truck from large distribution centers to stores and businesses. When those trucks run into congestion, companies compensate for delays by sending more trucks out on the road, causing even more congestion.

### **Final Distribution of Goods is by Truck**

Land use costs are also causing higher truck volumes.

For example, in response to increased consumer demand for a wider variety of food products, grocers are increasing overall store size and shelf space. But back-storage space doesn't generate sales, so modern grocery stores are reducing expensive, non-productive storage space. This requires more frequent deliveries in smaller quantities; one Seattle specialty grocery store, for example, receives 375 truck deliveries per week.

New technologies enable companies to track more and more trucks, balance their inventories and capital usage, while managing very tight delivery windows. For example, high-tech logistics services of leading delivery companies allow them to track inventory on the Internet no matter which warehouse, truck, or other location holds their products. By implication, the greatest increase in overall truck volumes will be seen in many more, smaller trucks on the roads.

**Moving People**

**Tourism and Recreation**

Transportation has a clear, obvious link to the tourism industry. Several statewide services and programs that support tourism and recreation include infrastructure such as highways, airports, ferries, passenger rail, safety rest areas, and viewpoints. Traveler information services include highway signing of destinations and businesses, roadside interpretation, maps and other traveler information including traffic cameras, interactive communications, and publications.

Some important components of the transportation system specifically serving tourism and recreation are bicycle touring routes, the state ferry system, aviation, and more than 3,500 miles of scenic byways.

**Bicycling Touring Routes**

Bicycle touring is an important component of the state’s economy. It is growing in popularity and becoming an important component of the state’s economy, especially for smaller coastal communities. WSDOT estimates that bicycle touring generates about \$4 million each year in revenue for businesses in Washington including lodging, meals, and related activities.

**Aviation**

Washington State’s system of 139 airports generated 171,311 jobs, over \$4 billion in wages, and over \$18.5 billion in annual sales output according to the 2001 Aviation Forecast and Economic Analysis Study. Aviation plays a major role in the state’s economy and, while airports facilitate commerce, they also serve as economic engines and their direct, indirect, and induced benefits accrue throughout the rest of the community as well.

**Scenic Byways**

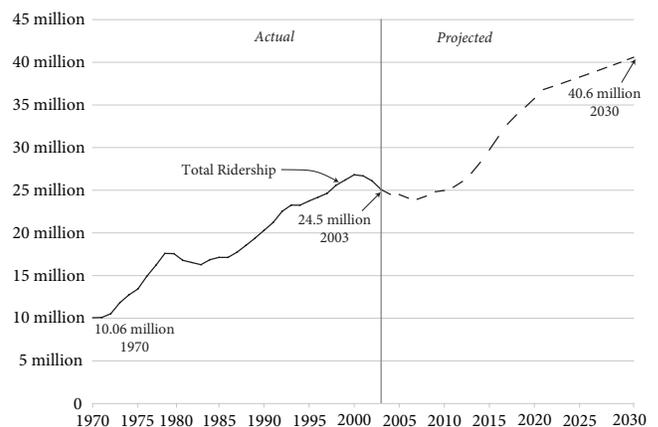
Washington State’s scenic byways serve as tourist destinations. Fifty-six percent of Americans participate in driving for pleasure in rural or natural areas. In 2002, travelers in Washington State spent \$11.2 billion, supporting 139,000 jobs. (Source: USDA Forest Service. 2002 National Survey on Recreation and Environment).



**The Ferry System**

Washington State Ferries link Central Puget Sound with the Olympic Peninsula and Vancouver Island. The ferry system itself is a tourist attraction. In 1980 total ferry ridership was 16.7 million; by 2002 it increased by 50 percent to 25.1 million. These volumes are projected to continue to increase to 43.4 million riders by 2020.

Figure II-20  
**Ferry Ridership Will Continue to Grow**



Source: WSDOT Ferries and Berk and Associates Policy and Management Consultants

## The Challenge: Mobility

▶ In Washington State, the growth in travel demand has outpaced expansion of transportation system capacity. This imbalance of demand and capacity occurs in virtually every mode of transportation: at our airports, on our rail lines, and especially on our roadways.

Congestion in the form of vehicle delay reduces the capacity of roadways by up to 50 percent.

Getting the highest possible performance from our existing transportation investments, from basic maintenance and operations activities to the application of sophisticated technologies means people and goods move more reliably and predictably on the system.

As travel demand grows, the imbalance between roadway demand and capacity will also grow. The roadway capacity in the major urban areas built has been consumed. The primary effects will be increased congestion, longer travel times, leading to reduced productivity, higher costs for goods and services, and the significant burden of time lost to congestion in people's lives.

Implementing the vision of the WTP is founded on the principle that long-range planning is an essential on-going process that relies upon data and periodic analysis over many years. Given that Washington State's population and demand for transportation of all kinds is still growing, it is important to think today about shaping the future of transportation systems, even beyond the 20-year time span of this WTP.

Access to transportation is the passport to independent living. For residents and visitors in Washington State, and for people with special transportation needs in particular, accessible transportation presents many challenges. Transportation should not be a barrier to full participation in the community and the economy.

Improved accountability is essential. Local, regional, and state transportation providers must base infrastructure investments on performance measurement and performance-based decision making to ensure the right projects are delivered when needed, and to maintain the public's confidence in government's ability to meet their needs.

Moving away from the historical practice of taxing to build our way out of congestion or to satisfy the demands of growth, this 20-year plan warns that as we grow, we must grow smarter and be more innovative; there is not enough state or local money and land to build our way out of congestion. Stable transportation funding is needed to provide certainty in plans and programs and prevent expensive, inefficient project delays. Stable funding supports the economy and local land use decisions.

Innovative financing, public-private partnerships, and tolling of facilities for funding or system management purposes, will provide additional resources of new funding.

▶ By 2025, without substantial new capacity or significant changes that affect how and when we travel, users of Washington State's transportation system will experience:

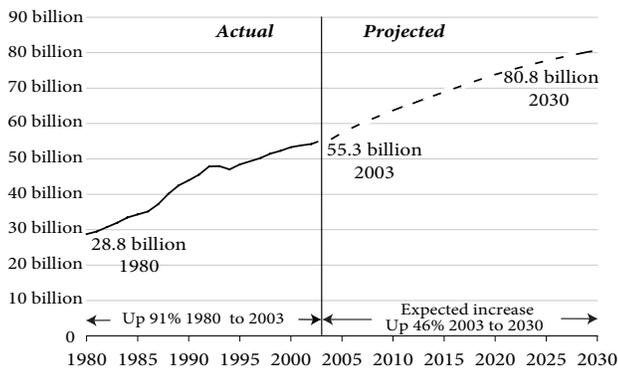
- Increased delay
- Longer travel times
- Reduced system efficiency
- Reduced economic productivity
- Higher consumer costs
- Time lost

**The Demand-Capacity Imbalance—  
Mobility Challenges in Washington State**

A key issue for this plan is that transportation demand is growing, and the imbalance between demand and capacity of the system will continue to grow, leading to more congestion. Achieving a better balance between demand for the system and capacity of the system will require methods to:

- Maintain flow of traffic
- Maximize throughput
- Improve productivity

Figure II-21  
**Vehicle Miles Traveled Will Continue to Grow**



Source: WSDOT Transportation Data Office

Congestion occurs mostly in the urban areas, especially in Central Puget Sound, Vancouver, and Spokane. (Ninety-two percent of all delay on highways occurs in these areas.) Congestion causes lost productivity. Maximum freeway throughput of about 2,000 vehicles per hour occurs at speeds of 45-50 mph. Throughput drops dramatically when traffic volumes force speeds to drop below 50 mph. The capacity of the roadway decreases as much as 50 percent with congestion.

**How did we get in this situation?**

There are several reasons:

- More people are driving and people are driving more.
- Capacity expansion has not kept up with the pace of population and travel demand growth, resulting in an imbalance between demand and capacity.
- Most travelers are auto dependent due to the lack of population and employment density, which is essential to make alternative travel options more viable.

**The Future of Transportation in Washington State**

The Washington State economy has grown and is projected to continue to grow, adding approximately 2,000,000 people and 900,000 jobs by the year 2025. The three major urban areas will experience 69 percent of the population growth and 79 percent of the employment growth.

Projected population and employment growth will translate into substantial increases in travel and demand for transportation systems and services. Computer models project that a total of 45 million more vehicle miles of travel (VMT) per day will occur in the state’s three major urban areas. Within Central Puget Sound, daily VMT is forecast to increase by nearly 60 percent by 2025. In Vancouver daily VMT is forecast to increase by 62 percent, and in Spokane by 30 percent.

Unless substantial new capacity is created through various methods, projected population and job growth will add even more pressure to the already strained system.

Creating more usable capacity on our transportation system will include:

- Ramp metering, incident response, and high occupancy vehicle lanes to improve flow on the system
- Commute trip reduction programs, better local networks, and transit oriented development provide alternatives to travelling on congested highways
- Basic maintenance and operations are the cornerstones of keeping the system moving
- Increasing demand management programs, which can increase roadway capacity by 23 percent to 45 percent

▶ “Essential to the success of the Spokane area, is the ability to develop a transportation system that can sustain growth and development in a manner that is financially affordable, environmentally friendly and provide the quality of life that Spokane residents expect.”

**Spokane Regional Transportation Council**  
2025 Regional Transportation Plan

**Transportation Access**

People who can't or don't drive face difficulties getting to work, school, and medical care. Personal mobility means having transportation services available that can take you where you need to travel, when you want to travel, being informed about the services, knowing how to use them, being able to use them, and having the means to pay for them.

“Persons with special transportation needs” are defined in RCW 81.66.010(4) as: “those persons, including their personal attendants, who because of physical or mental disability, income status, or age are unable to transport themselves or to purchase appropriate transportation.” Persons with special transportation needs fall into four broad groups.

According to the 2000 U.S. Census in Washington State: Elderly people make up 11.2 percent of the population; 17.5 percent of the population report some type of disability; 25.7 percent of the population is under 18; and 10.6 percent of the population have incomes below the poverty level.

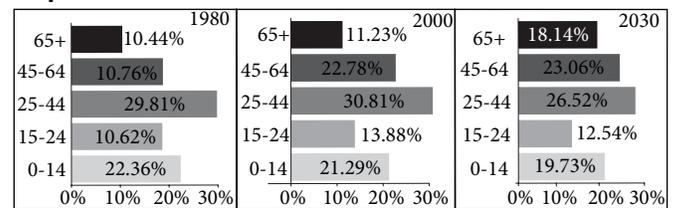
In addition, we recognize that other areas will require attention. Strengthened regional partnerships and collaboration will be required to provide regional investments to fund, build, operate, and maintain additional transportation services and facilities. Such investments will be tailored to promote regional economies and improve quality of life, promote goods movement to and through ports and border crossings, and support programs aimed at developing the state's economic clusters.

**Washington's Elderly Population is Growing**

The elderly are a growing share of the population. As people age, many give up driving. Seventeen percent of Washington States's population over 65 does not drive. Of those who do still drive, many are driving more and at an older age than previous generations. Many people are choosing to continue living in areas where driving is essential and public transit service is not available or is difficult to use. The growing proportion of elderly people, especially those over 85 years of age, will increase the demand for demand-responsive public transportation. The growing number of older drivers also requires special roadway safety features such signs that are easier to read and clearer striping.



Figure II-22  
**Changing Age Mix in Total Washington State Population 1980-2030**



Source: WA State Office of Financial Management; U.S. Census

**Persons with Disabilities in Washington State**

It is difficult to know how many people in Washington State with disabilities also have special transportation needs. We do know that the 2000 U.S. Census identified 1 million people with disabilities in Washington State. Not all people with disabilities also need special transportation services.

In Washington State, more than 60,000 people with disabilities receive assistance from the Department of Health and Human Services. According to the National Health Information Statistical Database, in Washington State, people with sensory limitations severe enough to affect everyday life make up about 5 percent of the adult population. In addition, about 228,000 people have physical disabilities that affect their ability to walk and get around outside the home.

**Washington State's Children**

From 1990 to 2000, the number of people age 19 and under increased 20.5 percent and now account for nearly 28 percent of the total state population. More than 1 million children attend schools in Washington State. State funding covers only 65 percent of the school districts' transportation costs. Transportation for

child care and after school programs is often limited, particularly for children living in rural communities. Homeless children have a number of transportation difficulties, particularly when transitioning from temporary housing locations.

**Washington State’s Low Income Population**

In 2002, 1.16 million people with low incomes were assisted by the Department of Social and Health Services, totaling \$2.45 billion in assistance. The cost of transportation is growing, and low-income residents spend a higher percentage of their income on transportation than others. The sharp rise in fuel prices beginning in 2005 has increased the burden on people with low-incomes. Low-income people in most rural areas typically do not have access to public transportation services. Low income groups

▶ “Transportation to basic service providers is essential for our region’s disabled, low income and senior citizens.”

*Kelly Scalf, Transportation Director, Rural Resources Northeast Washington Regional Transportation Plan*

are a significant and growing part of our population. Addressing the transportation needs of these people affects all of us, either directly or indirectly.

**Transportation Challenges in Rural Areas**

The economic viability of rural communities often revolves around the ability of people in these communities to maintain access to urban centers for shopping, banking, social activities, medical appointments, and other services. In rural areas, access is normally provided by car. With limited options and long distances, providing transportation access to people who cannot drive is a challenge.

**Intercity Services**

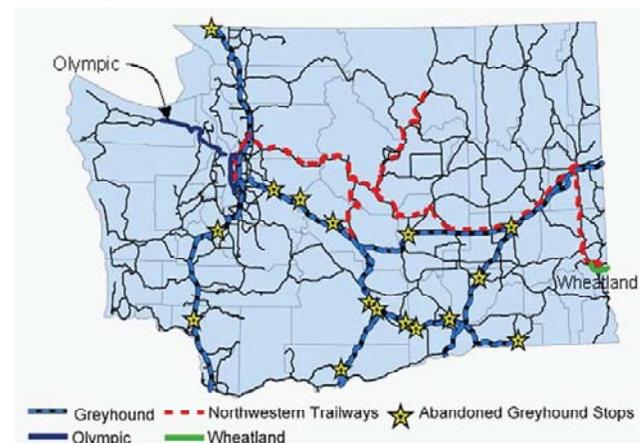
A network of public and private services provides intercity connections. As private providers change services, smaller rural communities often lose access to national intercity connections. Gaps in programs and funding leave many of Washington State’s citizens without access to transportation for basic necessities, personal business, education, and recreation. This is particularly true in rural and suburban areas outside of areas served by public transportation.

Private intercity bus companies are abandoning service to small communities throughout Washington. In summer 2004, Greyhound cancelled service in 21

mostly rural communities. Greyhound routes and abandoned service stops are shown in the following map. Without access to transportation, many residents will not be able to leave their communities.

As the population ages and more individuals with transportation disabilities remain active members of the community and workforce, the costs associated with providing accessible transportation is expected to increase. In 2003, spending by transit agencies comprised more than two-thirds of public funds spent on transportation access.

**Intercity Bus Service**

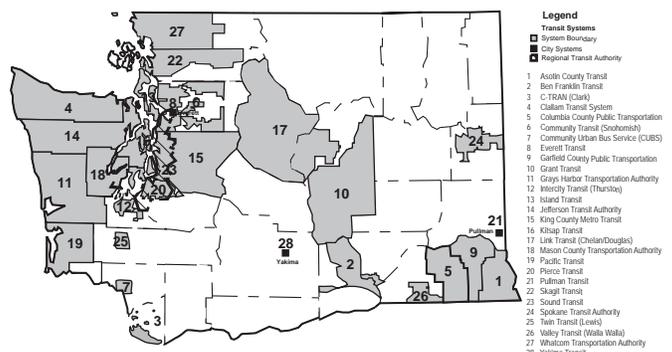


Source: WSDOT Public Transportation & Rail Division

**Agency Council on Coordinated Transportation**

The Washington State Legislature created the Agency Council on Coordinated Transportation (ACCT) in 1998. ACCT’s purpose is to increase transportation access through coordinated transportation services statewide. Significant local, state, federal, and private money is spent on providing a variety of transportation services. Coordination is critically important as it leverages all public and private funds together to improve effectiveness of all these services, reduces duplication and unnecessary service trips, and makes it easier for users to access essential services.

**Washington State Public Transportation Transit Authorities**



Source: WSDOT Public Transportation & Rail Division

**System Efficiencies**

Operating our roadways for maximum throughput is the key to getting the most out of the system. For most roadways, basic day-to-day and seasonal maintenance activities such as snow plowing, picking up debris, controlling vegetation, and pothole patching, are the activities, needed to keep the road available for optimal use. When more people use the roadway, congestion occurs and more sophisticated operating activities are needed to optimize use.

Uncoordinated patterns of development also create more daily trips at greater distances, making transportation systems less efficient. Travelers expect reliability, efficiency, and predictability in the transportation system. Several factors contribute to system inefficiency, including congestion caused by too much traffic, collisions reducing available lanes, roadway design, weather conditions, uncoordinated bus or ferry schedules, unsynchronized traffic signals, and driver behavior itself.

**Efficiencies of Public Transportation**

Public transportation plays a critical role in supporting the efficient movement of people, particularly on regional corridors throughout the state. In 2004, Washington State residents took over 170 million total trips on public transportation. Transit agencies are increasing the level of service to target the diverse needs of their riders by investing in high capacity transit options, bus rapid transit, and improved travel options to keep people moving during WSDOT’s many construction projects. Other transit systems are offering more options for commuting by expanding their vanpool programs, online travel information, multiple mode schedule information, and coordinated ITS projects.

▶ “Develop and implement ITS to create safer roads and better informed travelers through technologies such as congestion monitoring; automatic accident alert systems; on-board navigation; and weighing and inspection of commercial vehicles in motion.”

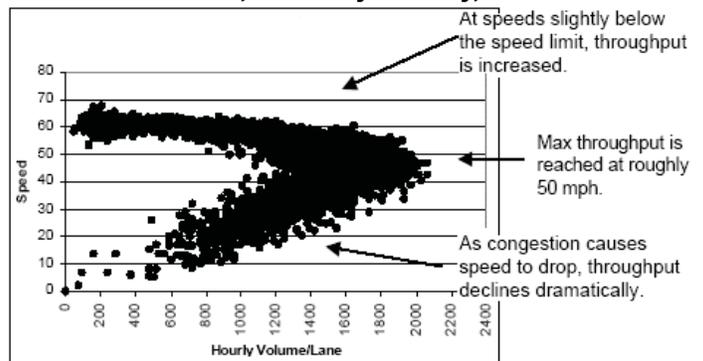
**Intelligent Transportation Systems in Whatcom County**  
*Whatcom Council of Governments*

**Making Choices About How to Get There**

In addition, major projects underway are improving commuter and intercity rail, developing light rail, and extending the High Occupancy Vehicle (HOV) system. Each of these areas will enhance the efficiency and capacity of the public transportation network.

Each roadway has an optimal capacity where throughput (number of vehicles per hour) is at its highest. Traffic volume at given speeds influences vehicle throughput. In this example, the maximum throughput is about 2,000 vehicles per lane per hour and, at this rate, traffic is flowing at about 45 to 50 miles per hour. If demand increases further, speeds slow and throughput actually drops to less than one-half the maximum throughput. This means that under unmanaged congested conditions, the capacity of a roadway is actually less than if flow were maintained at a steady 45 to 50 miles per hour. Knowing how roadways operate can lead to strategies aimed at managing flow and trying to prevent traffic from dropping “below the curve.”

Figure II-25  
**I-405 NB@24th NE, Weekdays in May, 2001**



Source: WSDOT Loop detector data

Figure II-25 shows how maximum throughput (an accounting of people or vehicles passing a certain point in a given amount of time) is achieved at speeds between 45 to 50 miles per hour. As more vehicles are gathered together and congestion occurs, speeds drop dramatically and throughput decreases significantly.

As roadway congestion increases, Intelligent Transportation Systems (ITS) can be used to maintain vehicle throughput. We now use technology to maintain throughput such as ramp metering, traveler information, incident response, border crossing technology, weather responsiveness based on prediction tools, commercial vehicle information systems and networks, and coordinated signals. Additionally, an access management program that is supported at the highest levels of government will help Washington State deal with the increased demands the future will place on the transportation system. Access management enhances system efficiencies, helps reduce bottlenecks and chokepoints, and is part of building our state's future vision.

In current and future construction areas, surveillance cameras and driver information will be used to monitor corridor traffic and potentially reroute trips to non-congested corridors.

The viability of corridor rail service is driven by several key factors. Based on research recently conducted by the American Association of State Highway and Transportation Officials (AASHTO), approximately 81 percent of all intercity trips greater than 100 miles do not extend beyond 500 miles. Corridor rail service of 500 miles or less, with frequent daily departures and travel times of several hours or less between major population centers, can eliminate the need to travel on congested highways, as well as to and from airports located in suburban areas. Corridor rail service can also provide transportation to communities not served by regional air carriers, help relieve aircraft congestion at major airports, and can become an attractive mode of transport for business travelers and those taking single-day round trips.

**Truck Operations**

Trucks must be weighed, inspected, and registered for travel in Washington State. Stopping at truck scales



and ports of entry can inconvenience and delay truck shipments. Advanced technology such as commercial vehicle information systems and networks and weigh-in-motion technologies can improve efficiency and reduce the time spent at the scales in most cases.

**Managed Lanes**

Special use lanes, such as HOV lanes for carpools, vanpools, and buses have been used successfully to maintain throughput over all lanes. HOV lanes improve the efficiency of the system by carrying up to three times as many people than adjacent lanes during peak traffic periods. HOV lanes move approximately 32 percent of the people on all freeways in only 18 percent of the vehicles during the rush hours. They have been so successful that they are now becoming congested. In the future, other types of managed lanes, perhaps toll lanes with variable pricing which still prioritize HOV's, will improve the efficiency of travel.

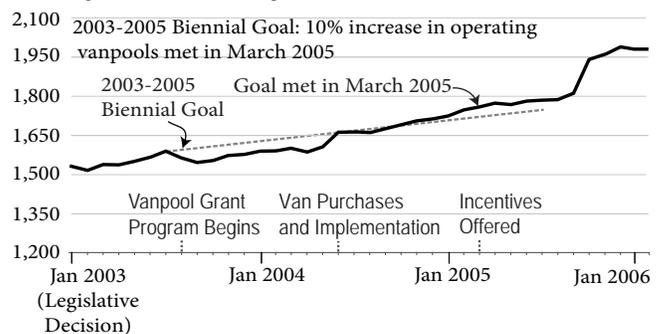
Figure II-26  
2006 HOV Lanes

| HOV Lane Miles                         | Lane Miles |
|--|------------|
| HOV Lane Miles Funded for Construction | 58         |
| HOV Lane Miles Planned                 | 44         |
| HOV Lane Miles Open to Traffic         | 205        |
| <b>Total</b>                           | <b>307</b> |

Source: WSDOT System Analysis & Program Development

The increasing utilization of vanpools in Washington is facilitated by the increase in HOV lanes, these programs concurrently benefit one another, maximizing the efficiency of both.

Figure II-27  
Public Vanpools Operating in Washington  
January 2003 to February 2006



Source: WSDOT Vanpool Database

**Bottlenecks and Chokepoints**

The growing demand-capacity imbalance affects citizens’ daily lives and almost every sector of economic activity. Commutes to work on congested roadways are time-consuming and often aggravating. Non-work trips, too, must be planned to avoid congestion or with extra time allowed when the system is not reliable. Freight delivery becomes slower and less reliable. Air pollution is exacerbated by cars and trucks stuck in traffic. Even rural areas that never see traffic jams are penalized when highway congestion associated with urban areas delays agricultural products reaching ports and customers.

**Delay Occurs Mostly in Urban Areas**

Projected growth in travel will be concentrated in Puget Sound, Spokane, and Vancouver. Ninety-two percent of all delay on Washington State highways occurs in these areas. Without methods to supply more capacity, either by operating more efficiently or by building more lanes, the gap between demand and capacity will grow wider.

Delay is more prevalent in urban areas with the greatest delay found in the Central Puget Sound area. The total delay across the state is estimated to be more than 365,000 hours per weekday and represents about \$1.6 billion annually in lost time.

**Congestion Actually Reduces Capacity**

There are locations on the system where system geometry and traffic patterns contribute to congestion and reduce throughput capacity. These are called bottlenecks and chokepoints. Targeted capital investments at these locations would be less expensive than full corridor build-outs, but could deliver significant delay savings and restored productivity. Corridor completion and expansion in certain locations are higher cost ways to address the demand-capacity imbalance.

- New or major corridor expansion will need to be considered in the future
- The entire system is interconnected and all parts play a role in improving the demand-capacity imbalance

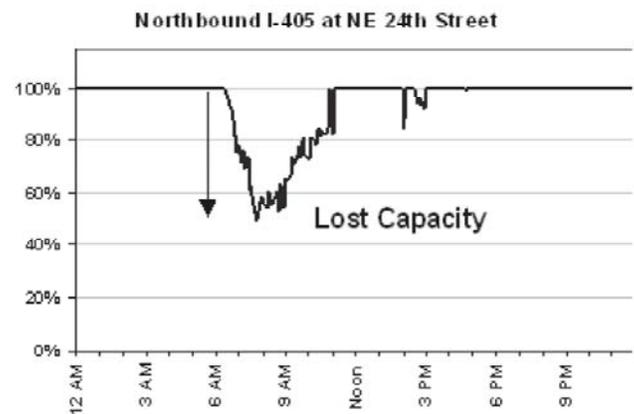
▶ “Transportation improvements and programs must be focused on establishing a more balanced transportation system, shifting emphasis from movement of vehicles to movement of people and goods. A balanced system provides travel options that include choices for private vehicles, public transit, ride sharing, walking, biking and various freight modes.”

**Destination 2030**  
Puget Sound Regional Council

Efficiency loss can be seen more clearly in the graph below. On a section of I-405 during the morning commute, the throughput lost due to congestion was equal to nearly half the highway’s capacity. In other words, at the very time when the capacity was most needed, the equivalent of one whole lane (out of two general-purpose lanes) was lost to congestion. These efficiency losses often occur at bottleneck and chokepoint locations, which can severely hinder the entire system’s performance.

Figure II-28

**Percent of Lane Capacity Lost Due to Delay**



Source: WSDOT Urban Corridors Office

**Causes of Delay**

Bottlenecks and chokepoints are typically locations on the system where design of the highway or traffic patterns contribute to congestion. Examples of these include:

- locations on the highway where three lanes in one direction drop to two lanes
- where the distance from the freeway exit to the local road is not very long and cannot accommodate queues longer than several vehicles
- where multiple lanes merge and changing lanes is not restricted. This creates unpredictable lane change movements. Roadway examples include the Kirkland crawl on I-405, the Southcenter Hill climb on I-5, SR 18 between I-5 at Federal Way and SR 167 at Auburn, the Renton S-curves on I-405, US 2 near Monroe, and interchanges such as I-5/I-90 in Seattle, I-405/I-90 in Bellevue, and I-5/SR 16 in Tacoma
- in addition, weather can cause congestion or affect the passability of a roadway creating a bottleneck or chokepoint. Avalanche control on I-90 at Snoqualmie Pass and county roadways closed due to spring thaw restrictions are examples of weather-related bottlenecks and chokepoints

### Building Future Visions

Long-range transportation planning is essential to lay the groundwork to meet the forecasted needs for the future. The construction of the interstate system took decades to plan and construct. Today, environmental regulations, and the need for partnerships and innovative financing lengthen the time necessary to build projects as compared to 50 years ago. Implementing the vision of the WTP is founded on the principle that long-range planning is an essential ongoing process, that relies upon data and periodic analysis over many years.

### The Interstate— A Long Term Project

The planning for Interstate 82 began in the late 50s after the signing of the Federal-Aid Highway Act of 1956. The planning process for this highway extended over a period of 12 years. Construction, which began in October, 1968, took only 2 years and 9 months.

#### ▶ Building Future Visions—

Today's planning efforts should help shape visions of a transportation system for the future

The duration of time between conception and utilization of the bridges required a combined 15-year period of time, just one example of the need for a future vision when planning.



*Fred G. Redmon Memorial Bridges over Selah Creek on I-82 Connecting Ellensburg to Yakima, in Eastern Washington*

The Fred G. Redmon Memorial Bridges over Selah Creek on Interstate 82 were the longest single span concrete arch bridges in North America at the time of their completion in June 1971. The total length of each of the dual bridges is 1,336 feet and the central spans are 549 feet. The bridges were the focus of several

magazine and newspaper articles while they were under construction due to the significance of this engineering accomplishment. The Fred G. Redmon Memorial Bridges over Selah Creek have now been in use for over 35 years.

### Major Roadway Capacity Expansions

With the population and job growth experienced in the past 20 years, Washington State's roadway capacity is inadequate to meet the growing demand, and future growth is likely to match or even outpace this historical pattern. WSDOT's highway system plan has identified over \$30 billion of unfunded capacity expansion needs on state highways, and regional plans have identified large additional expansion needs on city and county arterials.

Not all increases in demand can be served solely by expanding this highway system. Other methods must be developed and may include some of the following targets.

### Adding New Systems

New technologies that are only now being refined or invented will expand system capacity, increase system efficiency, and provide alternatives to driving. These new systems must not only support growth in our population, they must also contribute to our economy by making transportation more efficient.

Examples of new systems include:

### High Capacity Transit

A high capacity transit vision is starting to unfold in Washington State. Supporting this high capacity transit vision is the 300-mile HOV lane system in the Puget Sound region, with over 200 miles already constructed within congested freeway corridors. This HOV system is supported by a broad network of park and ride lots, an extensive vanpool fleet, and demand management programs aimed at encouraging transit alternatives. Transit-oriented developments—land uses that provide densities, mixed uses, and pedestrian facilities to build a walk-to-market for transit have been built in Bellevue, Issaquah, DuPont, Vancouver, and throughout the city of Seattle, and are being planned along light rail and other transit corridors.

### **Intelligent Transportation Systems— Smart Vehicles and Smart Roads**

Intelligent Transportation Systems (ITS) technology is rapidly evolving and includes such things as smart vehicles and smart roadways. Newer vehicles entering the marketplace are “smart” in that they can sense the location of other vehicles on the road and activate variable cruise control and collision avoidance systems. Vehicles such as these, all communicating directly with each other, will safely travel at close distances and high speeds, improving current highway system efficiency. Vehicles outfitted with smart technologies are starting to enter the marketplace.

There are also ITS technologies designed to meet the special needs of truckers. Roadside weigh stations have traditionally performed a number of inspection and enforcement functions, but waiting in line for these services adds time (and therefore expense) to the trucker’s trip. The Commercial Vehicle Information Systems and Networks (CVISN) and Weigh-In-Motion (WIM) systems weigh each truck as it passes a sensor. At the same time, trucks equipped with an Automatic Vehicle Identification (AVI) transponder electronically transmit essential safety rating credentials, weight, size, and other information to the weigh stations. If no problems appear to monitoring staff, the truck can bypass the station and continue down the highway.

Technologies that integrate vehicles with the roadway on which they are traveling take system management to the next level. Electronic signals exchanged between vehicles and the roadway mean real-time traffic information can be used to manage the flow of traffic, helping to maximize throughput and minimize potential for collisions. Why is this so important? The Congestion Relief Analysis for the Central Puget Sound estimates current delay at 285,500 hours daily, with future delay based on a growth scenario with transit emphasis of 715,000 hours per day. The report estimates that just applying traffic system management measures including optimizing signal coordination and transit sign priority would reduce delay nearly 35,000 hours per day. This represents a 4.8 percent reduction in delay. It is not unrealistic to think that Vehicle Infrastructure Integration could double this reduction.

### **Tolling for System Management**

New tolling strategies show promise as a means to both affect the level of system use and increase financial support for transportation projects, especially in congested corridors. Four primary concepts include:

- System-wide tolling, where fees are based on actual road use throughout the entire system. “Dynamic Pricing” (or variable pricing based on demand) is an example. When many cars try to use the same road at the same time, the ability to drive in a free-flowing lane at a reasonable speed increases in value. Variable tolling, or value pricing, can serve to allow only enough cars to use a lane to optimize capacity and speed. Drive during peak demand, pay a peak price. Pricing of theatre tickets and utility rates operate on this principle. Value pricing can spread the demand to allow more vehicles to flow at higher speeds overall.
- Segment tolling, such as traditional, limited-access toll roads, toll bridges, or toll express lanes. Advances in electronic toll collection now provide for “at speed” (no tollbooth) collection of tolls.
- Cordon tolling, where all drivers are charged a toll when entering an area such as a downtown central business district.
- High Occupancy/Toll (HOT) lanes, where drivers of single-occupant vehicles can choose to pay to use HOV lanes when and where there is available capacity. Twenty-one different projects using or studying HOT lane applications are currently underway in the United States, including a pilot project on SR167 here in Washington State.

### **Future Technologies**

Much discussion occurs on how technologies will continue to shape our transportation system now and over the next 20 years. Exploring innovative ideas is critical to creating solutions for future demands on the system

## The Challenge: Environmental Quality and Health



Transportation systems touch many complex health and environmental issues: citizen and community health, land use, natural ecosystems, species protection, and climate change.

Transportation systems not only facilitate how we move from place to place, but play an important role in the health of communities. Research shows that automobile-oriented land uses, such as those that created automobile dependency, can limit transportation options, discourage physical activity, and adversely affect air quality, water quality, and safety. Increasingly, Washington State communities are developing transportation infrastructure that improves health and, at the same time, provides benefits such as improved economic vitality and protected and enhanced natural resources.

The creation and operation of transportation systems can affect public health and the natural environment in many direct and indirect ways that are interrelated. The WTP recognizes that environmental compliance—and in many cases environmental enhancement above and beyond compliance—is part of the way new transportation construction projects are designed. Today, these projects carefully consider ways to:

- Treat stormwater by removing sediments and metals
- Protect the quality of groundwater

- Control erosion of banks and reduce surface run-off
- Provide fish passage and enhance habitat connections
- Replace and improve wetland and roadside functions
- Protect cultural and historic resources
- Minimize air pollution

The WTP addresses further improvements as well as broader initiatives to improve the transportation system's environmental interaction and performance. It also recognizes the state's effort to invest in projects along the existing highway system that are not connected to areas undergoing new highway construction. These stand-alone projects are funded to:

- Remove culverts that keep fish from reaching upstream habitat
- Reduce highway noise in areas not addressed by past construction projects
- Repair stormwater facilities
- Strengthen stretches of highway that suffer repeated flooding or streambank erosion

This section highlights emerging trends and opportunities for improving environmental quality and community health when investing in transportation infrastructure.

The most obvious and often the most significant environmental impacts are associated with roadway construction. These include habitat loss and fragmentation, habitat disturbance, erosion and sedimentation. Operation and maintenance activities can also have impacts caused by continued disturbance, pollutants, and the spread of invasive plant and animal species. Though an individual transportation project may have little or no impact, or may provide for mitigation, over time the cumulative impacts of numerous transportation projects and increased development can impact human health by stressing water quality and air quality with emissions, roadway runoff, and the increase in impervious surfaces. Over the past decade, transportation agencies at all levels have come a long way toward aligning with community goals for a clean and healthy environment while meeting their transportation needs.

For example, today's highway and ferry terminal construction projects integrate environmental components into project design, budget, construction and operation. Major investments are made to avoid or replace wetlands, control erosion, protect cultural resources and stormwater in response to specific permit requirements as well as best practices that demonstrate our environmental commitment.

In addition, investments are made to upgrade structures and facilities that were built before the standards we use today were developed. These retrofit projects remove barriers to fish and repair failing stormwater systems.

Public discussion of emerging issues, advances in scientific knowledge, and evolving practices provide information on additional needs and priorities.

The public health profession has a renewed interest and concern related to transportation. Public health research in recent years has shown that:

- Children's walking trips to school have declined by 40 percent since 1977, and children between the ages of 5 and 15 make only 10–12 percent of their school trips by walking or riding bicycles.
- Nearly one-third of our nation's children and adolescents are overweight or at risk of becoming overweight. This proportion has more than doubled over the past 20 years.
- One-half of all trips are less than three miles in length, most of them are made by car
- People walking and biking on the road face disproportionately high risks, accounting for thirteen percent of all traffic deaths.

### ▶ Washington Provides Grant Funding for Pedestrian and Bicycle Projects

The Washington State Legislature included \$74 million over the next 16 years to support pedestrian and bicycle safety projects, such as pedestrian and bicycle paths, sidewalks, safe routes to school, and transit. The Pedestrian & Bicycle Safety program will address the nearly 400 statewide fatalities and injury collisions involving pedestrians and bicyclists each year.

The purpose of the Pedestrian and Bicycle Safety program is to aid public agencies in funding cost-effective projects that improve pedestrian and bicycle safety through engineering, education, and enforcement. Eligible projects may address the following:

**A. Engineering improvements** – Projects may include items such as:

- Improving intersections by providing: curb extensions, lighting, raised median, crosswalk enhancements, signs, signals, and mid-block crossing treatments
- Completing bicycle lanes and sidewalks
- Constructing bicycle and pedestrian paths
- Providing safe routes to transit
- Providing pedestrian and bicycle safety improvements for at-risk groups (children, the elderly, and people with disabilities)

**B. Education efforts** – Projects may include items such as:

- Implementation of educational curricula
- Distribution of educational materials
- Development of promotional programs for walking and biking

**C. Enforcement efforts** – Projects may include items such as:

- Additional law enforcement or necessary equipment for enforcement activities
- Vehicle speed feedback signs
- Neighborhood watch programs
- Photo enforcement

The rapid increase in obesity, diabetes, and asthma among children and adults in Washington State is a growing concern. Statistics from the Centers for Disease Control show that obesity trends among adults in Washington State have increased from less than 10 percent in 1991 to over 20 percent today. Personal transportation choices, the perceived limitations on personal mobility, and in some cases the lack of transportation alternatives have been implicated as contributing factors to these disturbing trends.

Of course, many factors contribute to improving the health of a community. The WTP focuses on how transportation in general and integrated project delivery specifically can contribute to community health. The WTP does not speak to public health programs in the traditional sense, but focuses on collaborative design solutions for improving transportation connections within communities. In response to these trends and research, several Washington communities have identified and benchmarked community health indicators that often include transportation measures such as the number of people walking and bicycling. Pedestrian and bicycling activity is a common measure of community health because this measure reflects many different aspects including safety, security, economic vitality, public health, and the quality of the natural environment. Other indicators of healthy communities include:

- available and affordable housing;
- mixture of land use;
- strong community leadership;
- innovative neighborhood design;
- interconnected pedestrian and bicycle facilities;
- economic development initiatives;
- creative stormwater management;
- healthy wetland areas; and
- improved air quality.

Collaborative partnerships to develop and implement transportation systems are improving the way people live and work together by increasing access to transportation services and the way we share information about travel. A comprehensive approach to designing transportation systems considers the compatibility of each project with community character and values, the environment, and the unique needs and desires of the community.

The ability to plan, participate in planning efforts, or develop a community’s transportation future depends on having trained planning staff. This is a key issue for many of Washington state’s tribes, small cities, and counties that lack funding for such planning capacity.

**Stormwater Runoff**

Stormwater management is an important opportunity for improved transportation planning and project design to meet community needs. Many areas of the state are struggling with stormwater management costs due to additional impervious surface, flooding, and water quality violations.

Figure II-29  
**Typical Sources of Pollutants in Urban Runoff**

|                     | Highways | Residential | Commercial/<br>Industrial |
|---------------------|----------|-------------|---------------------------|
| Phosphorus          | 4%       | 39%         | 53%                       |
| Hydrocarbons        | 16%      | 28%         | 54%                       |
| Copper              | 9%       | 10%         | 79%                       |
| Suspended Sediments | 7%       | 44%         | 44%                       |

Source: NPDES Municipal Stormwater Permit Application, Volume I, Portland OR Metropolitan Area, May 1993

To improve safety, roadways are designed to carry stormwater off the pavement. However, when stormwater flows off roads and through roadway drainage systems, it carries pollutants originating from motor vehicles, the atmosphere, and other sources into bodies of surface water. Sediments and pollutants (nutrients, oil, grease, and metals) are carried into rivers and streams, affecting water quality.

▶ “The quality and condition of the transportation system have an impact on the quality of life, which impacts a business’s or individual’s choice to locate in the region.”

**Wenatchee Valley Transportation Council**  
*Confluence 2025 A Strategic Transportation Plan for the Wenatchee Valley.*

Research conducted at both the national and state level suggests opportunities to reduce the negative impacts of stormwater using a combination of regional- and site-level techniques to prevent, treat, and store runoff and associated pollutants. Many of these practices use low-impact development methods such as rain gardens, bio-retention areas, and grass swales. Others go further by changing design practices to maximize existing infrastructure by focusing development, reducing parking, and narrowing streets.

Controlling the amount of runoff flow is also important, as high flood flows can damage habitat, property, and transportation infrastructure. Managing stormwater flow from new transportation facilities is achieved through the use of runoff treatment and retention, and flow control technologies and methods. However, most of the existing highway stormwater outfalls were built prior to the 1995 stormwater regulations and have no treatment facilities. To date, only 4,000 of these outfall locations have been inventoried, and an estimated 14,000–20,000 additional locations on the state system alone need to be inventoried in order to prioritize outfalls for retrofit projects. Data for stormwater outfalls on most city streets and county roads is inadequate to prioritize them for retrofit projects.

Urban vegetation, landscaped stormwater infiltration areas, and green riparian corridors can form a network of hydraulic controls and maximize roadside function. If both regional- and site-level stormwater management techniques are used, they can not only restore natural hydrologic functioning, but also provide air purification, improve traffic safety, enhance the road's aesthetic character, instill civic pride, and improve the visual quality of the corridor. Today's focus is on inventorying outfalls and investigating the performance of stormwater treatment solutions using Best Management Practices (BMPs).

The ability of the various solutions to remove pollutants from stormwater and control runoff varies. Transportation agencies are learning a lot about the performance of various practices in use statewide. Stormwater monitoring helps transportation agencies and regulators evaluate the effectiveness of treatment facilities and helps match the right design approach to each unique situation. For example, WSDOT's research has shown that grass-lined swales are very economical and can reduce most pollutants from the runoff. Working with the Department of Ecology and other agencies will result in acceptable approaches to managing stormwater and flow control more broadly within a watershed. Expanding the menu of available stormwater management techniques helps build connections between transportation investments and other community goals such as landscape design, tree canopy replacement, and watershed initiatives.

### **Protecting Habitat and Wetlands**

Washington State has a wide diversity of habitats that support more than 650 native fish and wildlife species. As the human population increases and our human footprint expands, added pressure is placed on natural systems that, in many cases, are already heavily stressed.

Roads can fragment fish and wildlife habitat for fish and wildlife and restrict the movement of wildlife along waterways and across landscapes. Salmon and other fish species need access to freshwater habitat for spawning and juvenile rearing. Undersized road culverts act as barriers, blocking fish from habitat.

Correcting fish passage barriers like roadway culverts is one of the most effective ways to improve streams and fish habitat conditions.

Well-designed roads can provide safe wildlife connections and, at the same time, help reduce vehicle collisions with wildlife. On average, our state reports 1,200 wildlife related collisions resulting in 134 human injuries per year. In 2004, five people died from vehicle collisions with wildlife.

With the right information, tools, and policies, these issues can be addressed early in corridor planning and project design. As a result, we can sustain healthy habitats and biological diversity, build safer roads, and reduce collisions.

**Fish Passage Barrier Removal Projects 2006**

| Project Location (milepost)                | Project Actions to Improve Fish Passage  |
|--|--|
| U.S. 2 near Stevens Pass (70.21)           | Replace an existing 11-foot metal culvert at Mill Creek with a 38-foot, bottomless plate arch culvert                                  |
| SR 20 at Methow Valley near Twisp (205.82) | Replace two four-foot round pipes and a six-foot box culvert with a new 26-foot box culvert at Beaver Creek                            |
| SR 20 at Methow Valley near Twisp (206.87) | Replace two three-foot culverts at Frazer Creek with a 15-foot, three-sided structure  |
| SR 112 at Bear Creek near Joyce (54.35)    | Replace a six-foot-wide box culvert with an 18-foot-wide, three-sided concrete structure   |
| SR 112 near Clallam Bay (24.91)            | Replace two three-foot round culverts on a Physt River tributary with a 14-foot-wide concrete box                                      |
| SR 142 at Snyder Canyon Creek (13.4)       | Remove the existing concrete apron on the box culvert, and replace with a well-graded stream-bed to simulate natural stream conditions |
| SR 142 at Bowman Creek (20.2)              | Remove a 12-foot box culvert and replace with a 60-foot bridge   |

Source: WSDOT Environmental Services Office

**Habitat Connectivity and State Highways**

As we plan for the next 20 years, careful analysis is needed to determine the highest priority investments. Connectivity, habitat data, and inventories and plans, (where available) need to be better integrated into transportation planning and design. At the same time, existing retrofit programs for fish passage and recurring streambank washout need more dedicated funding.

Watershed based mitigation provides excellent opportunities for wetland protection and replacement, and connecting habitat areas and corridors. This will require collaboration and coordination to address barriers and plan for long-term system improvements. A watershed approach involves assessing the needs and improvement opportunities for an entire watershed beyond the immediate area of the construction project. In some watersheds, water quality protection and habitat conservation and enhancement will benefit more from investments in stormwater and wetland needs away from the highway than spot mitigation along the highway.



**BEFORE**  
SR 20 near Mazama, Little Boulder Creek: A ten-foot culvert with a six foot drop created a fish passage barrier.



**AFTER**  
A new 26-foot wide culvert replacement on Little Boulder Creek contains no drop and restores fish passage.

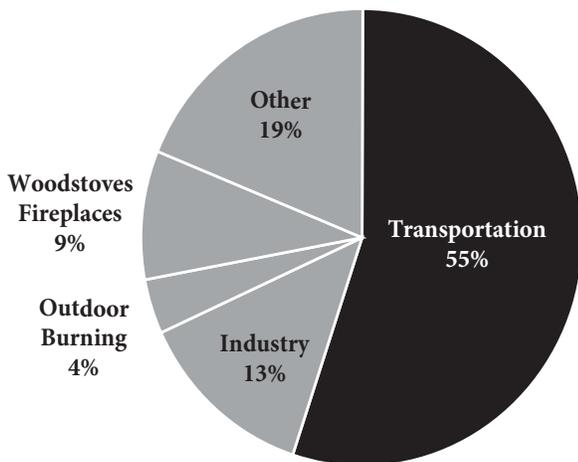


WSDOT works with the Department of Fish and Wildlife (WDFW) to inventory, identify, and prioritize fish passage barriers that should be removed along the state highway system. WSDOT and WDFW have identified 1,500 fish passage barriers among more than 6,000 stream crossings on state-owned highways. To date, WSDOT has removed 180 of these barriers and gained more than 411 miles of stream habitat for fish use. The effort to fix barriers continues and is a high priority. In addition, a strategy to address fish passage barriers on tribal, county, and city roads is needed.

**Air Quality**

Air pollution comes from many different sources including industry, transportation, and agriculture. It is estimated that transportation-related sources (mostly privately-owned vehicles) are responsible for more than half of the emissions of the six regulated air pollutants in Washington State. These pollutants include carbon monoxide, ground level ozone, inhalable particulate matter, lead, nitrogen dioxide, and sulfur oxides. The concentration of these six air pollutants is measured against national standards.

**Sources of Six Regulated Air Pollutants**

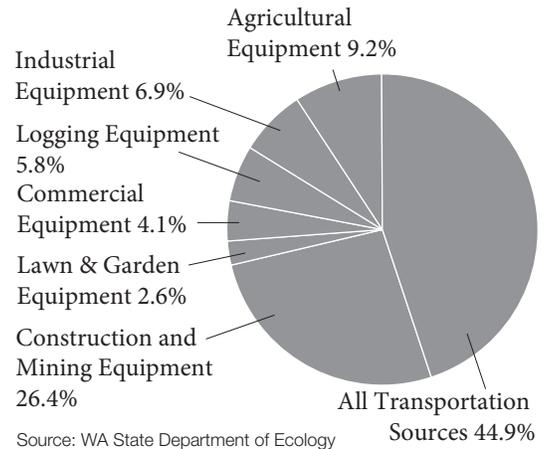


Source: WA State Department of Ecology 2001 2nd Edition Revised 8/19/2004

Other hazardous pollutants, generally referred to as air toxics, are not regulated. Some air toxics are related to transportation and are known or suspected to cause cancer or have other serious health effects. Health effects from diesel exhaust and inhalable soot are of great concern to the public health community.

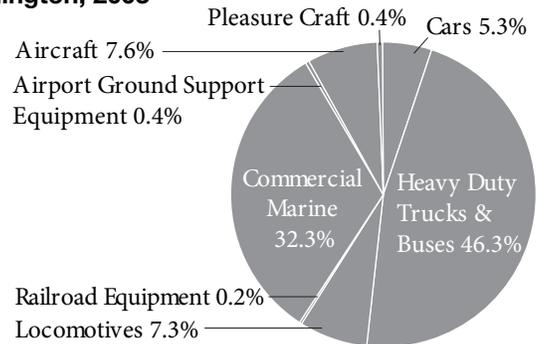
There are seven categories for measuring diesel soot. According to the Western Regional Air Partnership Regional Haze 2003 Emission Inventory and the Washington State Department of Ecology, transportation-related emissions make up 44.9 percent of the total diesel soot-related emissions in Washington State. Heavy-duty trucks and buses make up almost half of the transportation-related emissions, though the single largest contributor to diesel soot is construction and mining equipment, which releases 26.4 percent of all diesel soot emissions in the state.

Figure II-31 Sources of Diesel Soot in Washington, 2003



Source: WA State Department of Ecology

Figure II-32 Transportation Related Soot Emissions in Washington, 2003



Source: WA State Department of Ecology

Many federal and state regulations govern air quality. Similarly, Metropolitan Planning Organizations adopt transportation policies that support air pollution control efforts at the regional and local levels. As required by federal law, Metropolitan Planning Organizations track how transportation improvements will impact air quality as they develop and implement their Regional Transportation Plans.

### Reducing Greenhouse Gas Emissions

In 2006, the Washington State Legislature, with Governor Gregoire's endorsement, passed legislation that recognizes the importance of more stringent emission standards for new vehicles. The legislature acknowledged that:

- Motor vehicles contribute approximately 55 percent of total greenhouse gas emissions in Washington State.
- Reducing greenhouse gas emissions from transportation sources is a necessity.
- Other sectors of government are taking steps to reduce greenhouse gas emissions.
- Implementing an emission credits program in the future may require a federal, state, or regional comprehensive regulatory structure.

In 2005 and 2006, the legislature passed bills aimed at reducing greenhouse gas emissions in other ways, including requirements for the use and production of renewable fuels. These include:

- A tax break for hybrid vehicle purchases in 2009 and 2010.
- Requirements for energy savings from consumer products not covered under national programs.
- Tax reductions for manufacturers of solar energy systems and components.
- A requirement that buildings belonging to Washington State and all buildings receiving state construction funding receive "green building" certification.
- A tax rebate for individuals and businesses that generate energy from wind, solar power, or biodigesters.
- A requirement that most diesel fuel sold in Washington State contain at least two percent biodiesel. Also, gasoline must contain at least two percent ethanol.
- A requirement that state agencies increase biodiesel usage to 20 percent by June 1, 2009. This will create a better market for agricultural production of fuel oils while reducing diesel toxics and greenhouse gas emissions.
- The Washington State Department of Transportation is required to increase the amount of biodiesel use when feasible.
- The Energy Freedom Program will provide low interest loans for biodiesel processing and infrastructure development in order to produce sufficient quantities of biofuels in Washington State to meet the requirements and the growing demand.

Since 2002, Washington State leadership has focused on environmental issues related to climate change. Governor Gregoire continues to support executive orders addressing sustainability that were issued during former-governor Locke's administration, including the Phase-Out of Persistent Toxic Chemicals in Washington, and establish Sustainability Goals for State Operations and Measure Sustainable Practices.

### Climate Change

Burning of fossil fuels, largely from transportation and energy production, produces greenhouse gases. While greenhouse gases occur in nature, those produced by transportation and other human activities trap heat and enhance the greenhouse effect that is regulated by the atmosphere. Mounting empirical scientific evidence suggests that human activities are likely to contribute to global warming from this increase in greenhouse gases.

Many scientists cite evidence that the average global surface temperature has increased by approximately one degree Fahrenheit over the past century, with accelerated warming during the last two decades. This change is important to consider since it is based on glacial cycles, the rate and intensity of human activities that exacerbate global warming, and the length of time greenhouse gases remain in the atmosphere.

WSDOT, in partnership with other state agencies, continues to provide leadership in the state's response to reducing greenhouse gasses and related efforts.



## ▶ Transportation Investments Underway

### Phase I of the WTP Spurs Investments

In 2004 when the update of the WTP began, the Transportation Commission believed that the long-range plan should provide bold direction for future investments. At a major WTP public outreach event in October 2004 the late Ruth Fisher, former Chair of the House Transportation Committee and then Transportation Commission member, proclaimed that in 2005 the Commission would do just that.

In 2005, the Transportation Commission submitted a budget proposal submitted to the legislature that was based on early findings from the WTP data analyses and stakeholder input collected in Phase I of the WTP update process. This chapter describes where existing transportation funds are targeted for projects and programs identified by the WTP and how recent funding decisions by the legislature and the Governor clearly define priorities for the WTP and currently available revenues.

In the past several years, the Governor and the legislature have provided critical investments that will move us far down the path to achieving our vision. State leadership added to programs and projects already funded from prior sources and the 2003 “Nickel” funding package with the 2005 Transportation Partnership Act (TPA). The TPA provides bold direction for future transportation investments in Washington State. These actions were affirmed by the defeat of I-912, an initiative that would have repealed key investments of the 2005 Transportation Partnership Act.



▶ “When I think of transportation, I think of safety, economic development, and a legacy for our children.”

**Christine Gregoire, Governor**

**2005 Transportation Tax Package Overview**

The 16-year expenditure plan in the TPA, will solve some of Washington State's most critical transportation needs. More than 270 projects will be funded that will make roads and bridges safer and ease choke points in the system.

Taken altogether, these programs make significant steps toward achieving the vision within the 20-year period of the Statewide Long-Range Transportation Plan, 2007-2026. The package includes:

- Gas tax increase of 9.5 cents phased in over four years - \$5.5 billion
- Vehicle weight fee on passenger cars - \$908 million
- Light truck weight fee increase - \$436 million
- Annual motor home fee of \$75 - \$130 million

**Preservation of At-Risk Structures - 30 projects**

Thirty existing bridges will be rehabilitated or replaced. The work will extend the lifetime of the bridges to ensure they continue to meet daily needs, withstand stream erosion, and stand up to severe earthquakes.

**Safety Investments - 106 projects**

Safety investments will fund projects statewide focusing on locations with frequent collisions including run off-the-road or median crossover dangers. Strategies include:

- Remove fixed objects on the roadside
- Install new or upgrade obsolete guardrail
- Replace at grade intersections with interchanges to reduce roadside collisions
- Build passing lanes to reduce risks of head on collisions
- Illuminate county road intersections to minimize the number of night time accidents
- Widen roads to allow for correction of driver error or inattention.
- Construct sidewalks and pedestrian bridges and install pedestrian signals to reduce traffic risks to children and adults.

These projects will provide the following performance outcomes:

- Fix problems at 52 specific high collision locations and corridors
- Install 73 miles of cable median barrier to protect motorists from crossover accidents on multi-lane highways
- Add approximately 25 lane miles of new roadway
- Reduce the number of injury collisions in the affected areas by approximately 25 percent, approximately 1,100 injuries per year.

**Choke Points and Congestion - 69 projects**

This funding package addresses bottlenecks and chokepoints on the statewide highway system statewide to improve the flow of traffic by adding lanes, improving interchanges, and constructing High Occupancy Vehicle (HOV) lanes. These projects will also reduce the number of accidents now, and the potential for future increases in the number of accidents. This list of projects includes work on I-5 that needs to be completed before starting construction on the Alaskan Way Viaduct and the SR 520 Corridor in order to minimize traffic disruptions during construction.

These projects will provide the following performance outcomes:

- Fix problems at 48 high collision locations and corridors
- Add approximately 125 new lane miles of roadway
- Reduce the number of injury collisions by approximately 2000 per year
- Replace 27 older bridges

**Multi Modal Improvements - 8 projects**

Eight projects will improve Amtrak *Cascades* passenger rail service to:

- Support better on-time performance
- Reduce travel times between cities
- Provide greater track capacity at King Street Station
- Upgrade state-owned train equipment

**Environmental - 21 projects, plus funding for future fish passage barrier removal**

Twenty-one projects will target environmental issues created by historic roadway construction. These include:

- Fix old, badly-designed culverts that prevent fish from migrating to and from their spawning areas
- Fix slide and erosion areas that require repeated, stream-changing repairs
- Build new stormwater runoff controls to improve the water quality of roadway runoff as it enters our state's wetlands, streams, and water bodies
- Build walls to reduce freeway noise in neighborhoods

**Freight Mobility and Economic - 35 projects**

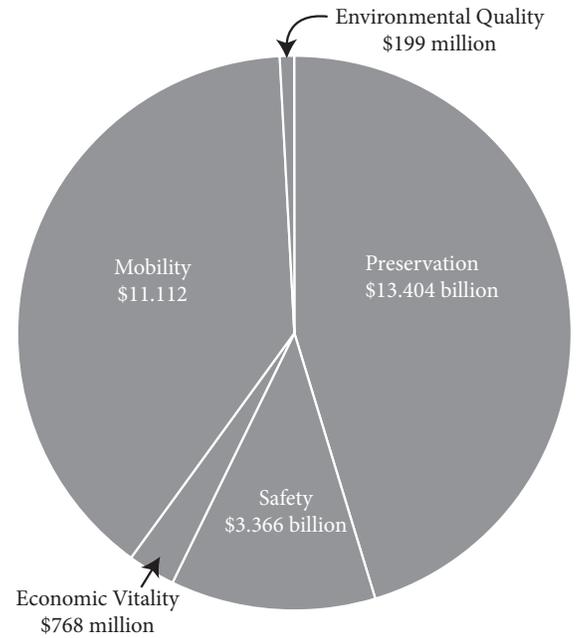
These projects replace six bridges and make other improvements to assist freight transportation on our state highways, local roadways, and rail systems.

**Statewide Strategic Transportation Targets**

The sources of funds for the investments identified in the WTP are illustrated in the bar chart below. Over the next 16 years, existing sources will provide \$30.5 billion for investments in a variety of transportation services and facilities. The appropriation of these funds to each of the five investment guidelines is illustrated in the pie chart to the right.

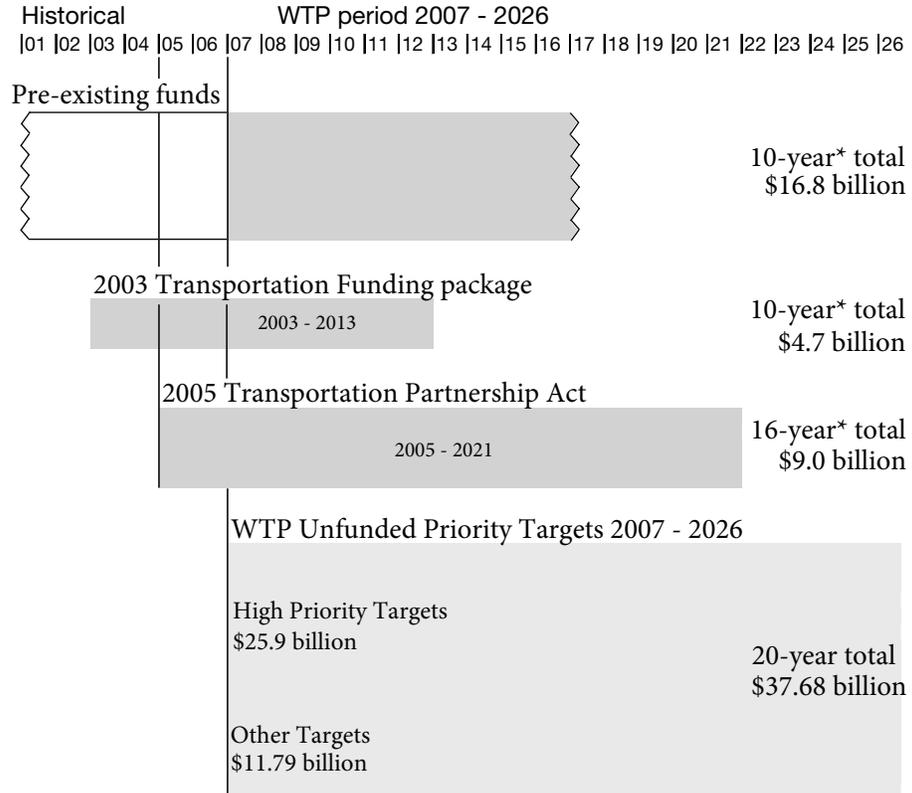
Also included in this section are featured projects that are examples of the types of investments that are occurring statewide. Refer to the appendices for a map of all the funded projects.

Funded Amounts aligned to WTP Investment Guideline



Source: WSDOT; compiled by the Transportation Planning Office

Figure II-34  
**WTP Priority Investments and Current Funding**  
 20-Year Outlook – 2005 dollars



Source: WSDOT Gray Notebook and Transportation Planning Office

\* A 10-year total is shown for pre-existing funds because the Transportation Commission proposes and the Legislature typically enacts a 10-year investment program. The 2003 and 2005 funding packages were enacted for the periods specified.

## Preservation—\$13.4 billion

### Highway Preservation

- Eliminate the backlog of past-due asphalt pavement projects and maintain a lowest life-cycle cost schedule for these pavements—\$1.9 billion
- Maintain chip seal paving at the lowest life-cycle cost—\$165 million
- Strengthen pavement structure where warranted due to heavy truck loads, including intersections—\$70 million
- Rehabilitate high priority interstate concrete pavements—\$590 million
- Rehabilitate high priority non-interstate highway concrete pavements—\$18 million

### Bridge Preservation

#### Replace seismically vulnerable and/or aging structures

- Strengthen 172 seismically-vulnerable bridges in the highest risk zones and interstate bridges in moderate risk zones—\$187 million
- Preserve the Alaskan Way Viaduct (\$2 billion) and the SR 520 Floating Bridge (\$500 million). The state’s share of preserving these structures is funded; a regional contribution is pending

- Preserve the I-5 Columbia River Crossing—preliminary engineering and environmental impact statement (EIS) are funded (\$55 million); construction is not funded
- Modernize narrow and aging bridges (timber, restricted, and bridges less than 22 feet wide)—\$1.07 billion
- Prevent catastrophic failure of highway bridges due to scour—\$30 million
- Preserve general bridges, including painting, deck protection, movable systems, and other repairs—\$360 million.

### Other Highway Facility Preservation

- Preserve safety rest areas, primarily sewer, water systems, and building rehabilitation or replacement—\$35 million
- Preserve highway electrical and drainage systems—\$324 million
- Preserve weigh stations—\$60 million
- Replace aging maintenance facilities—\$104 million
- Stabilize slopes adjacent to highways in high and moderate risk areas—\$200 million

## SR 99 Aurora Bridge Seismic Retrofit



**Total Project Cost:**  
\$9.7 million

**Start Date:** July 2003      **Open to Public:** July 2005

**Sources of Funding:**  
**State**      \$9.7 Million

**Project Partners:**  
Washington State Department of Transportation (WSDOT)

**Preservation- Replace seismically vulnerable bridges**



The Aurora Bridge in Seattle is located in a seismic high risk zone, where it could experience serious horizontal movement during an earthquake. (Refer to the Seismic Zone Map in the Appendix.) The Aurora Bridge stretches just over 6,000 feet, and is heavily used by over 100,000 cars a day. As part of WSDOT’s statewide Seismic Retrofit Project, this preservation effort brings the Aurora Bridge to current earthquake standards, which will allow the Aurora Bridge to resist a magnitude 7.5 (Richter scale) earthquake.

The base isolation retrofit uses spherical steel surfaces called friction pendulum isolation bearings to separate the span supports from the bridge structure. The bearings allow the foundation and the bridge structure to move independently, resulting in less earthquake damage to the overall bridge.

## Preservation Investments Underway—Continued

### Transit Preservation

- Preserve transit system capital—\$30 million
- Preserve public transportation transit system—\$21 million

### Local Roadway Preservation

- Preserve county roads and ferries—\$850 million
- Preserve, maintain, and operate city streets—\$2.6 billion
- Preserve city and county bridges—\$32 million

### Ferry Preservation

- Preserve state ferry vessels and terminals—\$2.171 billion

### Airport Preservation

- Maintain public-use general-aviation airport pavements (runways, taxiways, and aprons) at lowest lifecycle cost (excluding SeaTac International Airport)—\$32 million

### Outcome and Benefits

Collectively, all the currently funded investments will:

- Yield reductions in travel times
- Increase safety and efficiency
- Reduce operating and maintenance costs
- Preserve the sound operation, safety, and efficiency of the existing transportation system.

## Monroe Street Bridge Rehabilitation



**Total Project Cost:**  
\$18.2 Million

**Start Date:**  
March 2002

**Open to Public:**  
September 2005

**Sources of Funding:**

|                |                |
|----------------|----------------|
| <b>Federal</b> | \$12.5 Million |
| <b>State</b>   | \$2.0 Million  |
| <b>Local</b>   | \$3.7 Million  |

**Participating Agencies and Organizations:**

Federal funds administered by Washington State Department of Transportation  
 Transportation Improvement Board  
 City of Spokane  
 Spokane Transit

**Preservation- Replace aging bridges**



The concrete arch Monroe Street Bridge has linked north and south Spokane since 1910. When constructed, it was the largest concrete arch bridge in the U.S. and third largest in the world. After nearly a century of use, the bridge was showing signs of wear. A major structural restoration and replacement project was undertaken. Community input was incorporated into the project.

Nearly the entire structure, except for the three main support pillars and large arches, were removed and replaced. The three main support pillars were cleaned and sealed. New support arches, road deck, and sidewalks, restored historic street lighting, traffic barriers, and a stormwater collection and treatment system were installed. A promenade along Spokane Falls was also constructed.

As a result of the bridge's historic preservation and environmental, pedestrian, and bicycle improvements, the project received the 2006 Historic Restoration and Preservation Award from the Washington State Chapter of the American Public Works Association.

## Tommy Thompson Trail



**Total Project Cost:**  
\$1.77 Million

**Start Date:** June 1994      **Open to Public:** August 2005

**Sources of Funding:**  
**Washington Wildlife and Recreation Program:** \$406,950  
**Skagit County Real Estate Excise Tax:** \$35,000  
**Surface Transportation Program:** \$370,847

**Project Partners:**  
 City of Anacortes, Interagency Committee for Outdoor Recreation, Skagit County, FHWA funds administered by WSDOT  
**Preservation Recreation**



The Tommy Thompson Trail is a 3.3-mile long, twelve-foot wide paved pathway from downtown Anacortes to Marches Point. The trail is built along the waterfront and includes a causeway and trestle crossing of Fidalgo Bay. The trail was built on a former railroad right of way.

The project was undertaken to provide a scenic recreational opportunity for the citizens of Anacortes. The twelve year, phased project gained widespread community support and enjoys a broad-based popularity.

The project team included community leaders, city staff, the Mayor's office, and the City Council.

## Alderwood Manor Heritage Park



**Total Project Cost:**  
\$1.85 Million

**Start Date:** November 2002      **Open to Public:** April 2004

**Sources of Funding:**  
**Federal:** \$0.5 Million  
**State:** \$50,000  
**Local:** \$1.3 Million

**Project Partners:**  
 Federal Highway Administration  
 Washington State Department of Transportation  
 Washington State Historical Society  
 Alderwood Manor Heritage Association  
 Sno-Isle Genealogical Society  
 Snohomish County Tourist Bureau  
 Snohomish County Master Gardeners

**Preservation-Historic/Tourism**



Before

After

Heritage Park is a historic preservation project that provided a place for the community and tourists to experience the history of the Alderwood Manor area.

The \$1.5 million project began November 2002. Project benefits included fulfilling the local need for historic preservation, providing educational programs to raise heritage awareness, and promoting tourism.

The park features a visitor information center, Heritage Resource Center, Genealogy Research Library, and interurban trolley tours. The community has donated hundreds of volunteer hours, personalized bricks, bronze sculptures, and trolley accessories.

## Safety—\$3.36 billion

### Highway Safety

- Improve safety at locations identified by collision history—\$450 million
- Improve safety based on risk factors similar to locations with high collision history—\$774 million  
Examples include: crossover protection on multi-lane roads, centerline rumble strips on rural two-lane roads, passing lanes, and intersection improvements in urban and rural areas
- Implement interstate standards—\$140 million  
Bring interstate up to current federal safety standards in targeted locations
- Implement behavioral programs such as educational campaigns to reduce drunk driving and enforcement efforts to stop aggressive drivers—\$260 million
- Make low-cost enhancements—\$44 million
- Assess vulnerability of highway infrastructure security and implement strategies—\$1.4 million
- Assess highway security vulnerability—\$39 million

### Pedestrian and Bicycle Safety

- Improve state highways, city streets, and county roads—\$75 million

### Safety Rest Areas

- Construct three new safety rest areas to get tired drivers off the road—\$5.3 million

### County Road Safety

- Reduce collisions on rural two-lane roadways—\$20 million

### City Street Safety

- Improve known collision locations on state routes in larger cities—\$200 million
- Improve known collision locations on city streets—\$10 million
- Improve pedestrian and bicycle safety and mobility—\$75 million
- Improve railroad trespassing prevention—\$120,000

## Maplewild Avenue SW Earthquake Repair



**Total Project Cost:**  
\$5.86 Million

**Start Date:**  
May 2004

**Open to Public:**  
May 2005

### Sources of Funding:

|                       |                |
|-----------------------|----------------|
| <b>Federal</b>        | \$4.55 Million |
| <b>State</b>          | \$302,300      |
| <b>City of Burien</b> | \$698,000      |

### Participating Agencies and Organizations:

Federal funds administered by Washington State Department of Transportation  
Transportation Improvement Board  
City of Burien

### Safety-City Streets



Before

After

The February 2001 Nisqually Earthquake heavily damaged Maplewild Avenue SW in Burien. The quake compacted and shifted the loose fill under the roadbed causing a 1-foot deep, 6-8 foot-wide 600 foot long void under the downhill lane.

An extensive community communication plan involving the immediate residents and commuters who used Maplewild Avenue SW led the effort to support this project. The enhanced project design and successful construction resulted in a satisfied community.

As a result of the project team's community efforts, as well as effective project management, the project finished under budget, on time, and received the 2006 National Award from the American Public Works Association.

**General Aviation Safety**

- Provide better weather information systems to pilots—\$4.5 million
- Remove air space obstructions—\$8.6 million

**State Ferry System Safety**

- Address security infrastructure, emergency management communications, environmental protection management, hazard abatement, and toxic waste disposal for the State Ferry System—\$39 million

**Other State Programs Improving Safety**

The following three strategies are discussed under System Efficiencies but also have safety benefits. Refer to that section of the plan for funding levels.

- Address Intelligent Transportation Systems initiatives
- Implement the Incident Response Program
- Re-program traffic signal timing and invest in other traffic operations

**Outcome and Benefits**

When completed, these investments will yield the following benefits to the state transportation system:

- Reduce the incidence and risk of fatal and disabling collisions caused by behaviors such as: Driving Under the Influence (DUI) of alcohol or drugs, failure to use seatbelts, and aggressive driving
- Separate cross traffic, provide safe passing zones, and improve intersections
- Reduce congestion related collisions
- Reduce \$2.4 billion each biennium in societal costs due to collisions on state highways and county roads, \$1.6 billion each biennium in societal costs due to collisions in larger cities, and \$4.3 billion each biennium in societal costs due to collisions in smaller cities
- Address safety at the ends of airport runways and establish a program to address encroachment within the runway protection zones

**US-97A Entiat Park Entrance Turn Lanes**



**Total Project Cost:**  
\$124,000

**Start Date:**  
April 2004

**Open to Public:**  
May 2004

**Open to Public:**  
May 2004

**Sources of Funding:**  
**State** \$124,000

**Project Partners:**  
Washington State Department of Transportation

**Safety- Rural Roads**



Before

After

US 97A was selected as a Washington Traffic Safety Commission Safety Corridor Project from 1999 through 2001 due to the high number of fatal and disabling collisions on the route, particularly at the intersection of Entiat Park entrance/Shearson St. and US 97A.

Construction of new northbound and southbound left-turn lanes on US 97A at the Entiat Park/Shearson St. intersection in the City of Entiat provides a safer intersection that results in reduced rear-end and side-impact collisions. The new left-turn lanes provide storage for traffic waiting to turn into Entiat Park or onto Shearson St. An illumination system was added to improve nighttime visibility. Congestion should decrease by channeling vehicles out of the through lanes while they wait to turn.

## Sleater-Kinney Bicycle Tunnel



**Total Project Cost:**  
\$1.9 million

**Start Date:**  
June 2001

**Open to Public:**  
December 2001

**Sources of Funding:**  
**State**

\$1.9 Million

**Project Partners:**

City of Lacey  
Washington State Department of Transportation (WSDOT)

**Safety-Pedestrian and Bicycle**



The Sleater-Kinney Bicycle/Pedestrian tunnel connects the City of Lacey with a bicycle/pedestrian trail that parallels I-5 to the state capital campus area in Olympia. This project was a collaborative effort between the City of Lacey and WSDOT. The tunnel eliminated a dangerous at-grade crossing of Sleater-Kinney Road, and was integrated into the local and regional trail system.

Landscaping was blended with surrounding native vegetation. Interior tunnel walls have decorative tiles depicting local area trees and water features. State of the art tunnel lighting was also installed.

The Sleater-Kinney Bicycle Tunnel is maintained by the City of Lacey. It received the Ron Rowe Community Improvement Award, given by the Lacey Rotary Club, in 2002.

## Olympic Discovery Trail



**Total Project Cost:**  
\$1.1 Million

**Start Date:**  
May 2002

**Open to Public:**  
October 2002

**Sources of Funding:**

**State** \$967,000  
**Local** \$133,000

**Project Partners:**

City of Sequim  
Federal funds administered by Washington State Department of Transportation (WSDOT).

**Safety-Pedestrian and Bicycle**



The Olympic Discovery Trail is a walking/biking trail that will connect the cities of Sequim and Port Angeles. The project was funded through the 1998 TEA-21 High Priority Projects Fund and administered by WSDOT Highways and Local Programs.

The asphalt-paved trail is 8 feet wide, with 2-foot wide gravel shoulders and is mostly separated from street traffic. The trail goes through the entire city limits of Sequim and connects schools and parks, and will connect the downtowns of Sequim and Port Angeles.

The project included landscaping and information kiosks along the trail. The trail also includes artwork. The trail project preserved the historic Johnson Creek Train Trestle and utilized it as part of the trail. The Peninsula Trails Coalition members provided many volunteer hours on the trestle restoration.

## Economic Vitality— \$768 million

### Strong Economy Investments—\$3.3 million

- Address response planning and preparation underway for the 2010 Vancouver, BC, Olympics. This will assist travelers going to the Olympics and facilitate commerce in the region during and after the events—\$3.3 million

A variety of agencies and people, under the Governor’s 2010 Task Force, are collaborating with British Columbia to show support for and assist in preparations for the upcoming 2010 Winter Olympic Games in Vancouver, BC. Washington State’s transportation system is expected to carry many additional travelers during the Olympic Games.

## SR 18 Weyerhaeuser Way - SR 167 Truck Climbing Lanes



**Total Project Cost:**  
\$ 20.6 Million

**Start Date:**  
September 2003

**Open to Public:**  
October 2005

**Sources of Funding:**

|              |                |
|--------------|----------------|
| <b>State</b> | \$20.6 Million |
| <b>Local</b> | \$37,000       |

**Project Partners:**

Washington State Department of Transportation

**Economic Vitality- Freight Movement**



During construction



Nearing completion

Commercial uphill traffic on westbound SR 18 between I-5 and SR 167 caused slowdowns along this heavily traveled corridor. Large trucks were having difficulty maintaining highway speeds, which caused back ups.

A new westbound lane was added to reduce congestion and allow faster-moving traffic to pass large trucks and maintain highway speeds. The project also widened the existing Peasley Canyon overcrossing to accommodate the new lane and shoulder.

Additional project features included new signs to improve safety and new cameras and traffic data counters that provide additional information to the traveling public.

**Moving Freight Investments—\$765.15 million**

- Address freight constraints on the most heavily used north-south corridor (Seattle to Portland)—\$200 million.
- Address freight constraints on main line rail through a study of rail capacity and system needs—\$1.15 million.
- Provide ongoing funding for regional economic development freight projects and mitigation of impacts to the freight system—\$114 million
- Continue build-out of commercial vehicle information systems and networks (CVISN) weigh-in-motion (WIM) technologies—\$63 million
- Reduce severe weather closures on the major east-west freight corridor: I-90 from Hyak to Keechelus Dam—\$387 million
- Fully implement existing Incident Response Program (This target also appears in the System Efficiencies section; it is shown here to emphasize its importance to freight movement.)

Users of the statewide system benefit from minimizing delay to commercial vehicles, reducing safety hazards, reducing congestion for all vehicles, improving air quality by reducing vehicle idling (especially large trucks), and

protecting state highways from overweight and illegal vehicles all benefit users of the statewide transportation system. Investing in freight movement contributes to economic growth, employment, and the state and local tax base, while reducing the cost of international export of Washington State goods. Further improvements from investment in these areas will include preservation of rail yards in metropolitan areas.

**Outcome and Benefits**

When completed, these investments will yield benefits to the statewide transportation system that will improve the movement of manufactured, retail, and agricultural goods and support Washington’s role as a global gateway. Implementation of these investments will:

- Strengthen regional economies and growth in freight industries
- Improve all-weather accessibility over Snoqualmie Pass
- Address main line rail freight constraints through a strategic plan and direction
- Provide a more reliable and efficient statewide transportation system so businesses can meet customer delivery requirements.

**SR-240 TriCities Additional Lanes**



**Total Project Cost:**  
\$59.5 million

**Start Date:**  
December 2003

**Open to Public:**  
Stevens Blvd.-Yakima Bridge Dec. 2005  
I-182 Richland Wye Interchange Oct. 2007

**Sources of Funding:**  
**State** \$59.5 Million

**Participating Agencies and Organizations:**  
Washington State Department of Transportation (WSDOT)

**Economic Vitality- Congestion Relief**



**Before** **After**  
This project constructs additional lanes on SR 240 between Richland and Kennewick, linking I-182 with the US Department of Energy’s Hanford site, and local commercial and industrial areas.

SR 240 is a vital commuting route for the TriCities area, which is experiencing increasingly heavy traffic volumes. The roadway currently carries 54,000 commuters every day and is projected to reach 110,000 by 2025. Further development of the Hanford Facility is adding over 6,000 daily commuters.

The additional lanes will increase capacity, decrease congestion, create better connections to existing roads, and encourage the use of alternate modes of transportation by improving pedestrian/bicycle connections.

This project will lengthen the existing pedestrian/bicycle corridor. This will complete another link in the Columbia River Trail system.

## Scenic Byways Program



**Total Project Cost:**  
\$1,500,938

**Sources of Funding:**  
**Federal FFY 05 Grants** \$815,256  
**Federal FFY 06 Grants** \$685,682

**Project Partners:**  
 Federal funds administered by Washington State Department of Transportation  
 Statewide Scenic Byway Grassroots Organizers

**Economic Vitality- Strengthening Regional Economies**



In 1967, Washington was one of the first states to establish a system of scenic byways. Presently, there are 61 routes in the system. Scenic byways pass through the varied terrain of our state reflecting the natural, cultural, and historic landscapes of Washington. Using federal, state, and local matching funds, improvements such as safety rest areas, interpretive signs, visitor centers, trails and historic preservation projects assist communities along these byways to expand tourist and recreational opportunities.

Two of Washington State's byways have been designated as All American Roads. These are SR 410 Chinook Pass Scenic Byway and SR 20 and SR 31 The International Selkirk Loop.

Four of Washington State's byways are designated as National Scenic Byways: I-90 Mountains to the Sound Greenway, SR 112 Strait of Juan de Fuca Highway; SR 17 and SR 155 Coulee Corridor, and US 2 The Stevens Pass Greenway.

## Badger Mountain Road



**Total Project Cost:**  
\$6.5 Million

**Start Date:** Summer 2003  
**Open to Public:** Fall 2004

**Sources of Funding:**  
**Federal** \$1.5 Million  
**State** \$4.5 Million  
**Douglas County** \$0.5 Million

**Project Partners:**  
 Federal funds administered by Washington State Department of Transportation  
 Douglas County  
 Country Road Administration Board

**Economic Vitality- Farm to Market Roads**



**Before** **After**  
 Badger Mountain Road is a county road largely used to transport Waterville Plateau agricultural products to markets and shipping centers in the Wenatchee Valley area.

The project reconstructed a five-mile section of roadway between the Wenatchee Valley urban center and the plateau. Roadway geometrics, safety enhancements, and a reduction of ongoing maintenance costs led to improved roadway design. The project was a model of efficiency, effort, collaboration, and innovation during planning, design, and construction. The success of the project was a function of shared objectives by, and collaborative efforts between, Douglas County and the contractor.

The project's benefits to the community were recognized by the major stakeholders. In addition, the Washington State Department of Transportation and the Federal Highways Administration selected the Douglas County Badger Mountain Road Project to receive the Award of Excellence for Best County Project.

## Port of Walla Walla Railex Project



**Total Project Cost:**  
\$8 Million

**Start Date:**  
January 2006

**Open to Use:**  
Scheduled Fall 2006

**Sources of Funding:**

|                            |               |
|----------------------------|---------------|
| <b>Federal</b>             | \$1.5 Million |
| <b>State</b>               | \$3.5 Million |
| <b>Grants</b>              | \$0.9 Million |
| <b>Port of Walla Walla</b> | \$1.7 Million |
| <b>Walla Walla County</b>  | \$0.4 Million |

**Project Partners:**

Railex  
 Union Pacific Railroad  
 Washington State Department of Transportation (WSDOT)  
 Port of Walla Walla  
 Walla Walla County

**Mobility- Farm to Market Freight Rail**



Railex under construction



Rail loop under construction

The project involves construction of a loop track to provide rail access to the Railex company’s new distribution center on Port of Walla Walla property near Wallula. This project is a cooperative venture with Union Pacific and Railex that will provide timely rail service.

Washington State produce will be loaded onto a weekly train with 55 refrigerated rail cars for direct shipment to a facility in New York for distribution to East Coast markets. This will result in lower shipping costs for Washington State growers and will preserve state highways by removing 10,000 truck loads from the roadways each year.

The Port of Walla Walla will use the new facility to attract new businesses, which can use the loop track for their shipping needs.

## Donald-Wapato Road



**Total Project Cost:**  
\$9.1 Million

**Start Date:**  
July 2003

**Open to Public:**  
December 2004

**Sources of Funding:**

|                |               |
|----------------|---------------|
| <b>Federal</b> | \$6.7 Million |
| <b>State</b>   | \$1.1 Million |
| <b>Tribal</b>  | \$3.0 Million |

**Project Partners:**

Federal Highway Administration (FHWA)  
 Washington State Department of Transportation (WSDOT)  
 Yakima County  
 Yakama Nation

**Mobility- Farm to Market Roads**



Before



After

The Donald–Wapato Road contained three 50-year-old bridges that were structurally deficient and functionally obsolete. Due to load restrictions on these bridges, heavy vehicles serving markets, schools, and warehouses in the City of Wapato had to use alternate routes to access I-82.

The best economic solution to re-establish the link was to build a new bridge. This required the development of several strong partnerships, consisting of local, tribal, and federal agencies, in order to address substantial environmental challenges and project funding. It also required extensive coordination with National Oceanic and Atmospheric Administration (NOAA) fisheries to comply with the Endangered Species Act.

The finished project re-established a key farm-to-market route, a city-to-city connection, and vital transportation links from the City of Wapato to I-82

The project received the Director’s Award of Excellence.

## Mobility—\$11.112 billion

### Transportation Access Investments—\$696.3 million

#### Public Transportation Access

- Support the Agency Council on Coordinated Transportation to foster coalitions of transportation providers—\$3.8 million. This represents only part of the funding needed. Additional needs are shown in Unfunded High Priorities.
- Assist non-profit providers in areas with limited transit service with rural mobility grants—\$140 million. Additional needs are in shown in Unfunded High Priorities.
- Assist transit agencies in providing intercity connecting service—\$16 million. These funds also support intercity bus service planning to identify deficiencies in the system.
- Assist transit agencies in providing on-demand (Dial-a-Ride) service—\$490 million.
- Assist transit agencies in providing service on their fixed routes to those with special needs—\$47 million. Additional needs are shown in Unfunded Targets.

#### Outcome and Benefits

When completed, these investments will yield the following benefits to the state transportation system:

- Improve people’s access to jobs, medical care, education, and communities throughout the state.

### System Efficiencies Investments—\$7.81 billion

- Maintain and operate the existing highway—\$2.9 billion
- Operate current network of Intelligent Transportation Systems (ITS) including variable message signs and weather information—\$427 million
- Implement ITS capital projects such as transportation management centers, including commercial vehicle information systems and networks—\$54 million
- Implement traffic management center operations, freeway operations, tunnel operations, radio operations, and traffic signal operations—\$170 million
- Implement Incident Response and service patrols on state highways—\$85 million
- Continue construction of high occupancy vehicle (HOV) lanes in the Puget Sound area—\$30 million
- Maintain and operate existing facilities such as safety rest areas—\$316 million
- Maintain ferry system operations at base level of service—\$3.39 billion
- Construct 16 passenger rail projects to improve on-time performance, create additional rail line capacity, improve stations, and extend the life of state-owned train sets—\$302.2 million
- Fund (partially) commute trip reduction (CTR) including performance grants—\$7.2 million
- Fund (partially) the trip reduction performance program—\$15 million

## Colville Confederated Tribes Elders Van Project

Colville Reservation



**Total Project Cost:**  
\$118,000

**Start Date:**  
June 2004

**Open to Public:**  
September 2004

**Sources of Funding:**  
**State** \$118,000

**Project Partners:**  
Colville Confederated Tribes  
Washington State Department of  
Transportation (WSDOT)

#### Mobility-Rural Access



WSDOT awarded \$118,800 in grant funds to the Colville Confederated Tribes for their Omak, Keller, and Inchelium Elders Van Project. After receiving this rural mobility grant from WSDOT in 2003-2005 for a new elders van in Nespelem, the tribes applied for grant funding for three new vehicles to use in other districts of the Colville Indian Reservation. Omak received a 12-passenger wheelchair-accessible minibus. Keller and Inchelium will receive heavy duty 10- to 15-passenger wheelchair accessible vans that will withstand the rough roads in their area.

The new vans will allow members with limited mobility to become more active in their communities, providing transportation to meals, cultural activities, appointments, and other basic services. The vans are replacing older high-mileage vehicles and improve the safety and reliability of public transportation on the reservation.

- Implement park and ride policy development and construction grants—\$30 million
- Improve current Commute Trip Reduction tax credits program—\$45 million
- Implement Commute Trip Reduction public education and marketing—\$2 million
- Implement commute options vanpool enhancement grant program—\$15 million
- Fund (partially) transit service expansion—\$25 million

- Improving passenger rail can not only improve the reliability and timeliness of rail travel, but can help to entice people off the highways, making the roadway system more efficient.
- Improve basic access for people who can not or do not drive, and invest in public transportation.
- Help provide incentives for reducing the number of trips and the overall number of single occupant vehicles on the highway system through Commute Trip Reduction and Commute Options programs. This means that throughput will increase, allowing travelers to get to their destinations sooner.

**Outcome and Benefits**

When completed, these funded investments will yield the following benefits to the statewide transportation system:

- Improve use of technologies such as Intelligent Transportation Systems and Traffic Management Centers, which can yield improvements by targeting specific areas where there is delay. Having access to this type of information helps travelers make key decisions about which route to travel to avoid a delay.
- Improve the ferry system to make better use of the facilities we have, while expanding on the frequency of service and increasing vessel capacity. This will allow shorter waiting times at the ferry dock and more predictable sailings.

## Anacortes Multi-Modal Terminal



**Total Project Cost:**  
\$64.4 million

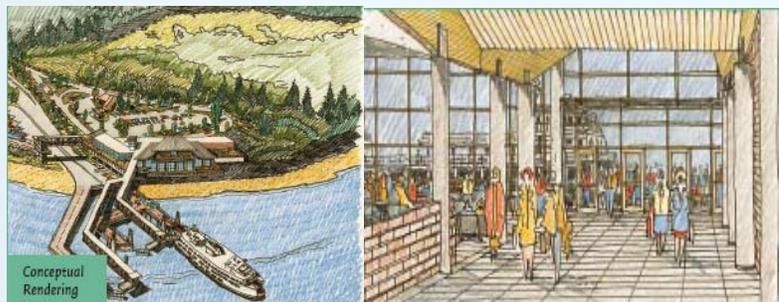
**Start Date:** Terminal construction expected to begin in 2007

**Open to Public:**  
Parking lot open. Site design concepts available by late Spring 2006.

**Sources of Funding:**  
**State** 2003 Legislative Funding  
\$64.4 million

**Project Partners:**  
Washington State Department of Transportation (WSDOT)

**Mobility- Ferry Service Improvements**



The Anacortes Multi-modal Terminal will provide expanded ferry service facilities, replacing the existing facility that was constructed in 1960. The new facility will include improved safety and access for passengers and vehicles from SR 20, as well as provide connections with many modes of travel.

An additional ferry slip will improve the efficiency of ferry maintenance and operations. The new facility includes loading improvements for pedestrians, bicycles, and persons with limited mobility. The new facility will also meet new required security features.

**Bottlenecks and Chokepoints Investments—\$1.89 billion**

- Address specific bottlenecks and chokepoints on highways around the state—\$850 million
- Make improvements to vessels and terminals to maintain base level of service—\$452 million
- Fund expanded operations to approach or exceed Transportation Commission level-of-service standards. Expanded operations are dependent on approval of \$2 million (unfunded) for vessel and terminal improvements listed under Bottlenecks and Chokepoints High Priorities and another \$436 million (unfunded) under Bottlenecks and Chokepoints Medium Priorities, in addition to the investments needed to maintain base level of service—\$448 million

**Outcome and Benefits**

When completed, these funded investments will yield the following benefits to the state transportation system:

- Eliminate or reduce congestion at specific highway bottlenecks and chokepoints
- Improve levels of service by adding capacity and reducing wait times for expansion of ferry service and terminal throughput capacity

**Building Future Visions Targets Currently Funded—\$2.55 million**

- Continue Transportation Commission Tolling Study currently underway—\$2 million
- Continue statewide air transportation capacity and demand study (Phase I and part of Phase II)—\$1.05 million

**Outcome and Benefits**

When completed, these funded investments will yield benefits to the statewide transportation system including: Complete defined implementation approach for recommended HOV investments

- Complete defined implementation approach for recommended tolling practices
- Increase awareness of statewide aviation needs
- Define implementation approach investment recommendations

**Stanwood Station**



**Total Project Cost:**  
\$5.0 Million

**Start Date:** May 2006      **Open to Public:** August 2007 (est.)

**Sources of Funding:**  
**State**      \$5.0 Million

**Project Partners:**  
Design Stanwood  
City of Stanwood  
Washington State Department of Transportation (WSDOT)  
BNSF Railway  
Amtrak

**Mobility- Passenger Rail Expansion**



In 2006, the Washington State Legislature provided WSDOT with \$5 million to construct a new train station platform in the City of Stanwood. The new station platform will provide a new Amtrak Cascades stop where the residents will have access to passenger trains.

The new platform will be constructed close to where the original historic depot was located. The platform will be 750 feet long and 18 feet wide and meet accessibility standards.

When completed, the project will provide rail access to the regional and national network for the people of Stanwood. Additionally, the new platform will also provide inter-modal transportation connections with local transit provider Community Transit, increasing transportation accessibility options for residents in northwest Snohomish County.

## Tacoma Link Light Rail



**Total Project Cost:**  
\$80.4 Million

**Start Date:**  
December 2001

**Opened to Public:**  
August 2003

**Sources of Funding:**  
Sound Transit

**Project Partners:**  
City of Tacoma  
Pierce County  
Sound Transit

**Mobility- Public Transit Access**



Tacoma Link light rail is a 1.6-mile line running between the Tacoma Dome Station and downtown Tacoma. Link serves the University of Washington's Tacoma campus, the Washington State History Museum, the Museum of Glass, the Tacoma Convention Center, downtown offices, and the Broadway Theater District.

At the Tacoma Dome Station, the regional transportation hub, Link connects to Sounder commuter train service, and local and regional buses operated by Sound Transit, Pierce Transit, and Intercity Transit.

Tacoma Link's five stations are served by modern 66-foot-long air-conditioned streetcars. Tacoma Link rides are free of charge and the line has carried over 2 million riders since service began in August 2003.

## I-5 Federal Way Transit Center Access Improvement



**Total Project Cost:**  
\$32.6 million

**Start Date:**  
Sept. 2004

**Open to Public:**  
February 2006

**Sources of Funding:**  
Sound Transit

**Participating Agencies and Organizations:**  
Sound Transit  
Washington State Department of Transportation (WSDOT)

**Mobility- Elimination of Bottlenecks & Chokepoints**



During Construction



After

The new direct-access ramps are part of Sound Transit's overall program to reduce travel times for bus riders and improve traffic flow for all commuters in the area. WSDOT teamed up with Sound Transit to build direct-access ramps across I-5 to and from the new Federal Way Transit Center.

These new ramps allow transit, vanpools and carpools direct access between the transit center and the HOV lanes on I-5. These vehicles no longer have to weave across three lanes of traffic to enter and exit the highway, which benefits drivers in the remaining general-purpose lanes who no longer have to navigate around these vehicles. This improves traffic flow at the S. 320th Street SW freeway entrance.

## Environmental Quality— \$198.6 million

### Health and the Environment Investments

- Remove fish passage barriers caused by state highways—\$100 million
- Address the most urgent locations where stream banks fail and threaten highways—\$52 million
- Install noise barriers at 11 locations around the state—\$38 million
- Install stormwater treatment retrofits at 8 locations (significant unmet needs remain)—\$8 million
- Develop stormwater treatment practices at airports—\$190,000
- Address wildlife hazards at or adjacent to airports—\$380,000

### Outcome and Benefits

When completed, these funded investments will yield benefits to the state transportation system including:

- Connect fish to stream habitats critical to their life cycles and enhance salmon and trout survival
- Continue efforts to bring state highways up to post-1977 noise standards; improve or maintain property values and quality of life for residents near highways
- Improve stormwater management on highways and airports
- Reduce maintenance costs for recurring repairs while addressing natural stream processes
- Improve safety of aviation travel and prevent unnecessary wildlife death

## U.S. 12 Integrated Vegetation Management



**Total Project Cost:**  
\$ 92,619

**Start Date:**  
January 2005

**Open to Public:**  
June 2005

**Sources of Funding:**  
**State**

\$0.9 Million

**Project Partners:**

Port of Walla Walla  
Washington State Department of Transportation (WSDOT)  
Columbia School District  
US Army Corps of Engineers  
US Bureau of Reclamation

**Environmental Quality- Reduction of herbicide use, sustainable practices**



Before



After

Roadside maintenance must achieve many goals including maintaining safe sight distance for the travelling public, filtering storm water, stabilizing slopes, buffering environmentally sensitive areas, and controlling noxious weeds. WSDOT uses Integrated Vegetation Management (IVM) techniques which includes revegetation in disturbed areas with carefully selected native plant species. This results in lower maintenance and self-sustaining roadside plant communities.

The US 12 Phase II project involved revegetating the roadside shoulders with native plants instead of placing rocks, which require vegetation control with herbicides. The use of native vegetation along roadsides reduces herbicide use significantly.

IVM plans are being developed and implemented statewide. These plans are intended to provide information and guidance for maintenance practices of naturally self-sustaining plant communities.

# State Route 106 Skobob Creek Fish Passage



**Total Project Cost:**  
\$1.7 Million

**Start Date:**  
July 2005

**Open to Public:**  
December 2005

**Sources of Funding:**

|                           |               |
|---------------------------|---------------|
| <b>State</b>              | \$1.7 Million |
| <b>Other Agency Funds</b> | \$1,599       |
| <b>Qwest</b>              | \$1,599       |

**Project Partners:**

- Hood Canal Salmon Enhancement Group
- Skokomish Tribal Nation
- Washington State Department of Transportation (WSDOT)
- Qwest

**Environmental Quality-Improvement of habitat**



Before



After

This project was a cooperative effort between the Hood Canal Salmon Enhancement Group, the Skokomish Tribal Nation, and WSDOT. Skobob Creek crossing, located on the Skokomish Indian Reservation, was identified as a fish passage barrier. The project replaced a 6' X 6' culvert at the crossing on SR 106 with a bridge that improved fish passage and stream flow during storm events.

SR 106 flooded six-times in 1997. More recently, the creek flooded in 2003. The project improved the safety of SR 106 by reducing the impacts of flooding events, providing safer highway travel throughout the year.

The project also restored Skobob Creek channel at the crossing to a natural fish-friendly condition. In addition, the project benefits more than 500 acres of wetlands.

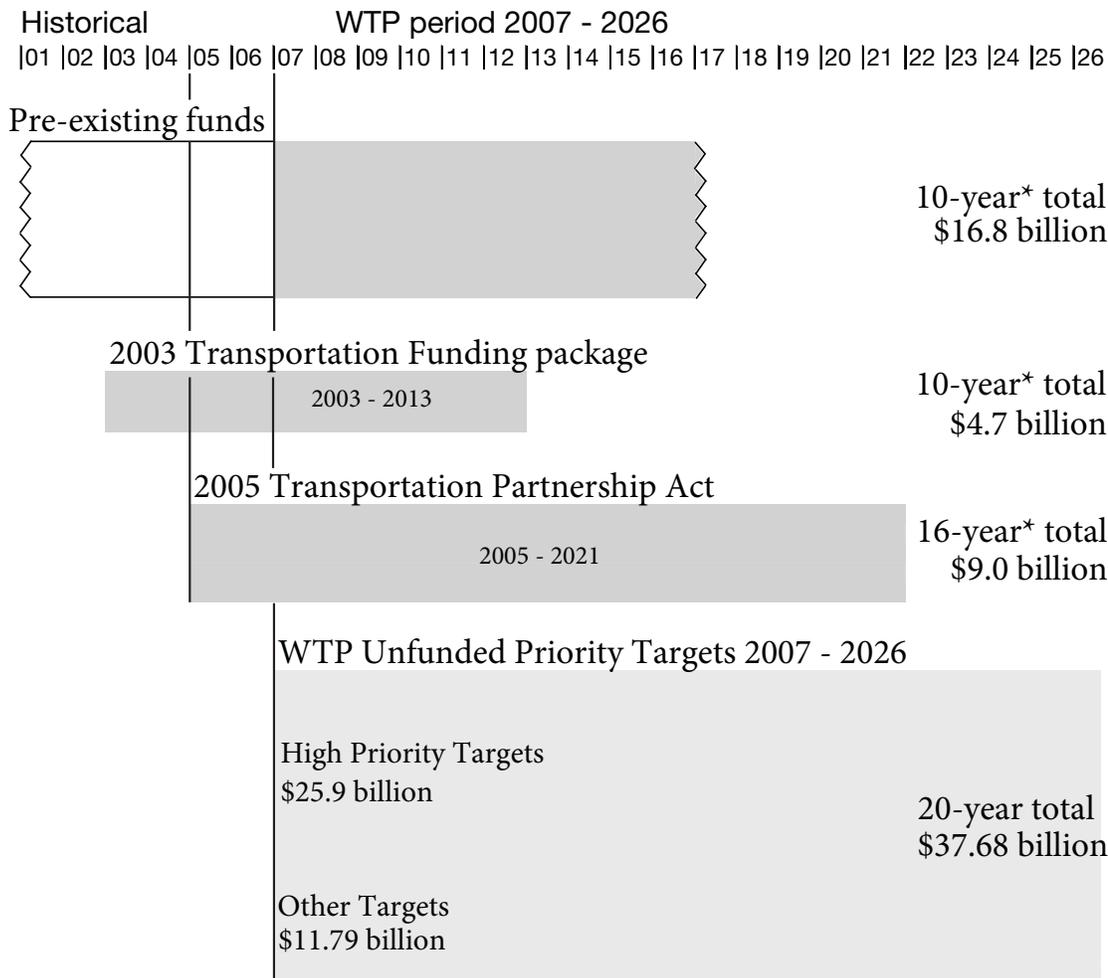
**Statewide Strategic Transportation Targets**

As previously mentioned, over the past few years Governor Gregoire and the legislature have identified critical transportation investments that will move Washington far down the path to achieving the statewide vision and goals detailed in this plan. These actions were affirmed by the defeat of Initiative 912. If passed, I-912 would have repealed the key strategic transportation investments of the 2005 Transportation Partnership Act.

Although many critical investments have secured funding, many more transportation targets are still in need of funding. The following chapter, Unfunded High Priorities, presents these proposed high priority transportation investments and their funding needs.

The bar chart below provides an illustration of the existing funding sources as well as the additional needs for the next twenty years.

Figure II-34  
**WTP Priority Investments and Current Funding**  
**20-Year Outlook—2005 dollars**



Source: WSDOT Gray Notebook and Transportation Planning Office

\* A 10-year total is shown for pre-existing funds because the Transportation Commission proposes and the Legislature typically enacts a 10-year investment program. The 2003 and 2005 funding packages were enacted for the periods specified.



## Unfunded High Priorities

This chapter is the WTP's approach to meeting the challenges identified in the previous chapters. The approach is strategic—make targeted, prioritized investments to achieve the greatest benefits attainable with limited funding.

We must make wise investments to preserve our transportation system and keep it functioning safely and effectively. We must ensure that the system has the connectivity and continuity needed to address ever-increasing demands for travel and options for travel. We will also need new and innovative mechanisms for financing that will sustain transportation revenue requirements in coming years.

In addition, we recognize that other areas will require attention. Strengthened regional partnerships and collaboration will be required to provide regional investments to fund, build, operate, and maintain additional transportation services and facilities. Such investments will be tailored to promote regional economies and improve the quality of life, promote goods movement to and through ports and border crossings, and support programs aimed at developing the state's economic clusters across all modes.

### **Making Strategic Choices is Critical**

Beginning in 2004, through a series of outreach efforts and conversations with transportation professionals, stakeholders, and the public, 85 transportation program options were described as strategic needs. A diverse group of agencies, associations, and entities that are responsible for Washington State's Transportation System initially identified these needs. The Washington Transportation Plan recognizes that the need for continued investment in our infrastructure and services remains paramount even with the recent boosts in project funding. Totalling nearly 38 billion dollars (2005 dollars), these 85 unfunded program options are critical to address statewide transportation needs over the next 20 years.

Recognizing that securing revenue at this significant level was not probable over 20 years, the Transportation Commission prioritized the needs into high, medium, and low priorities. The evaluation of each program investment option considered the feedback collected from regional transportation planning organizations, cities, counties, tribes, and various organizations and associations, as well as people who use or have an interest in the statewide transportation system.

### High Priorities

The list of high priority programs totals approximately \$26 billion dollars (2005 dollars). These high priorities were compared to the 20-year vision of the WTP to set the policy framework for future investments and define five areas where emphasis should be placed when additional revenue is available. Each high priority program was assigned to one of the prioritized investment guidelines.

The WTP confirms that most, if not all, of the transportation investments have multiple benefits. For example, ramp meters can smooth traffic flow, reduce congestion, increase throughput, and improve safety, while leading to improved economic productivity. A new passing lane increases freight mobility while enhancing the recreational experience for visitors traveling a scenic byway, both contributing to economic vitality and safety. Most investment in preservation of existing infrastructure also address the other priorities by improving safety, economic viability, mobility, and the environment.

In addition, all projects consider environmental issues and nearly all projects improve environmental conditions through collaborative design or mitigation. Environmental issues are considered to be a core part of the planning, design, engineering, and project delivery processes, even when the primary project scope is to improve safety or enhance system efficiencies. Improved accountability is essential.

Local, regional, and state transportation providers must base infrastructure investments on performance measurements and performance-based decision-making. This will ensure the right projects are delivered when needed and maintain the public's confidence in government's ability to meet their needs. Stable transportation funding is needed to provide sound plans and programs and to prevent expensive, inefficient project starts/stops/starts. Stable funding also supports the economy and local land use decisions. Innovative financing, public-private partnerships, and toll facilities or system management approaches will provide additional funding capacity and system management tools.

### 20-year Transportation Vision

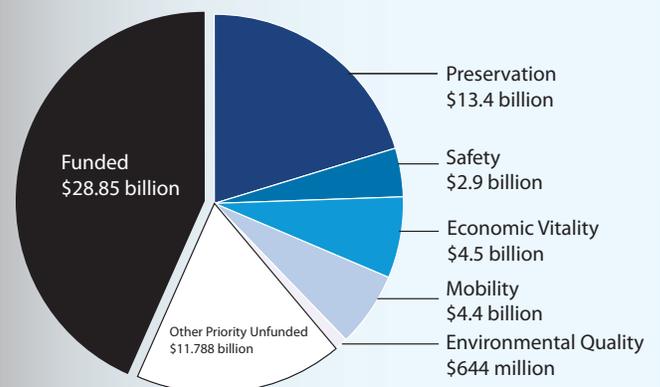
Washington's transportation system should serve our citizens' safety and mobility, the state's economic productivity, our communities' livability, and our ecosystem's viability.

### Prioritized Investment Guidelines

- 1. Preservation**—Preserve and extend prior investments in existing transportation facilities and the services they provide to people and commerce. (P)
- 2. Safety**—Target construction projects, enforcement and education to save lives, reduce injuries, and protect property. (S)
- 3. Economic Vitality**—Improve freight movement and support economic sectors that rely on the transportation system, such as agriculture, tourism, and manufacturing. (EV)
- 4. Mobility**—Facilitate movement of people and goods to contribute to a strong economy and a better quality of life for citizens. (M)
- 5. Environmental Quality and Health**—Bring benefits to the environment and our citizens' health by improving the existing transportation infrastructure. (EQ)

**20-Year Transportation Investment Needs**  
\$67 Billion (2005 dollars)

*Unfunded High Priorities  
By Investment Guideline*





*Wenatchee—August 2, 2006*

### Public Comment Validates and Reshapes the WTP

Public comment collected in July and August 2006 validated and strengthened the key messages of the WTP. On the following pages the unfunded high priorities are grouped by investment guideline.

The following issues are discussed for each investment guideline:

- Recommended program investment levels
- Desired outcomes and benefits
- A comparison of the investments underway and the unfunded needs
- Key issues identified during the public comment period



*Vancouver—August 22, 2006*

Overall, validation and support for the vision statement and the investment guidelines were frequently mentioned by the public. While not all comments indicated agreement with the high priorities, strong support for preservation and safety as the foremost priorities was evident throughout public comment received.



*Mt. Vernon—August 24, 2006*

▶ **“The Washington Transportation Plan establishes the strategic direction for future transportation investments, shaped by the input from people across the state that use or share the responsibility for delivering the statewide system.”**

Washington Transportation Commission

## Preservation—\$13.379 billion

### Highway Pavement Preservation—\$483.5 million

- Rehabilitate concrete pavement on interstate routes—\$483.5 million (P) (EV) (M)

### Highway Bridge Preservation—\$6.8 billion

- Retrofit seismically vulnerable bridges in lower risk zones—\$650 million (P) (S) (EV) (M)
- Replace major seismically vulnerable and aging bridges and replace seismically vulnerable bridges on remaining critical highway corridors:
  - Alaskan Way Viaduct and SR 520 Floating Bridge—\$4.8 billion (P) (S) (EV) (M)
  - I-5 Columbia River crossing—\$750 million (P) (S) (EV) (M)
- Replace city and county short-span and high-cost bridges—\$645 million (P) (S) (EV) (M)

### Other Facility Preservation—\$6.05 billion

- Preserve electrical systems and drainage facilities—\$50 million (P) (S) (EV) (M)
- Preserve, maintain, and operate city streets—\$6 billion (P) (EV) (M)

#### Investment Benefits

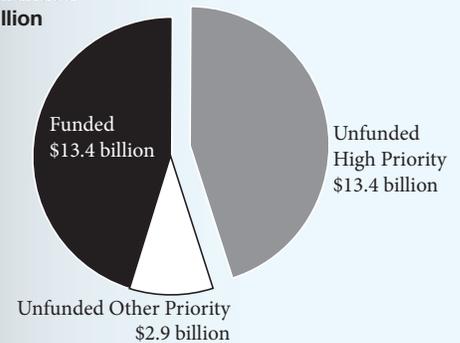
- Extend the service life of the highway system, which leads to increased efficiency, safety, and delay reduction
- Eliminate city street maintenance and preservation backlog
- Extend the service life of bridges in the local road network

► **Preservation**—Invest to preserve and extend prior investments in the transportation systems we have today and the services they provide to people and commerce.

#### Legend:

- (P) Preservation
- (S) Safety
- (EV) Economic Vitality
- (M) Mobility
- (EQ) Environmental Quality and Health

**Preservation  
Total Unfunded  
\$16.3 billion**



#### Public Comment Highlights

- Preserving the system is important at all jurisdictional levels and for all modes.
- Preservation of county roads should be of higher priority.
- Investments on state highways benefit communities where the highway also serves a mainstreet function.
- Cities make investments on state highways with non-state dollars.

*Note: All estimates in 2005 dollars*

## Safety—\$2.921 billion\*

### Highway Safety—\$620.6 million

- Improve state highway safety by reducing risk on rural two-lane highways by providing passing lanes, intersection improvements, and new interchanges or overpasses—\$275 million (S) (EV) (M)
- Continue bringing interstate highways up to current safety standards—\$100 million (S) (EV) (M)
- Address impaired, seatbelt use, aggressive driving, and motorcycle safety by providing behavioral programs—\$210 million (S) (EV) (M)
- Make small-scale safety enhancements on state highways, including warning signs, ramp signal coordination, rumble strips, vehicle detection loops, and collision data reporting—\$35.6 million (S) (EV) (M)

### Local Road Safety Improvements—\$2.3 billion

- Improve rural two-lane county road safety by implementing low-cost safety improvements—\$200 million (S) (EV) (M)
- Improve safety by addressing accident locations on city streets—\$800 million (S) (EV) (M)
- In larger cities, improve safety on city streets that are state routes by addressing accident locations and corridors—\$1.3 billion (S) (EV) (M)

#### Investment Benefits

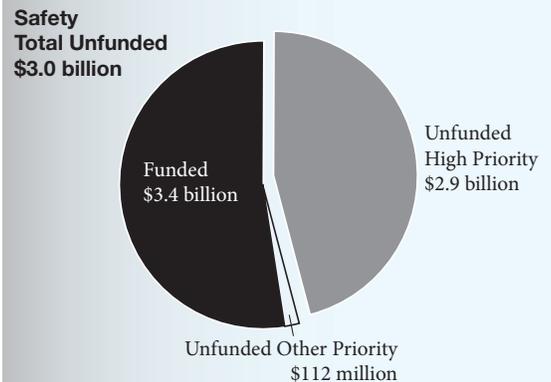
Reduce societal costs of collisions on the interstate system, state highways, county roads, and city streets by:

- Separating cross traffic
- Providing safe passing zones
- Improving intersections
- Reducing the incidence and risk of collisions on the interstate
- Reducing fatal and disabling collisions related to behaviors such as driving under the influence, failure to properly use seat belts, and aggressive driving

▶ **Safety**—Invest in key safety targets to save lives, reduce injuries, and protect property.

#### Legend:

- (P) Preservation
- (S) Safety
- (EV) Economic Vitality
- (M) Mobility
- (EQ) Environmental Quality and Health



#### Public Comment Highlights

- ▶ Safety is paramount.
- ▶ The goal of zero deaths is admirable, but difficult to achieve because driver behavior is a challenge to control.
- ▶ Having access to transportation services for medical appointments is a personal safety issue.

\*Note: All estimates in 2005 dollars

## Economic Vitality—\$4.504 billion

### Address Freight Constraints in the I-5 corridor—\$3.46 billion

- Complete missing links on the major north-south freight corridor system—\$3.46 billion (S) (EV) (M)
- Replace vulnerable and failing structures critical to freight movement (Funding needs associated with this target appear in the Preservation discussion.)

### Freight Rail

- Support growth in east-west main line rail capacity and port-rail connections, and preserve metro rail yards. Cost is unknown and will be examined in the Transportation Commission’s Rail Study (P) (S) (EV) (M)

### Weather-Related Constraints on Freight Routes—\$1 billion

- Reduce severe-weather closures and eliminate low-clearance structures on major east-west highway freight corridors (I-90 at Snoqualmie Pass)—\$813 million (EV) (M)
- Develop a statewide core all-weather county road system—\$200 million (EV) (M)

### Technology for Freight Movement—\$31 million

- Complete the Commercial Vehicle Information Systems and Networks (CVISN) / Weigh-in-Motion (WIM) system—\$31 million (S) (EV) (M) (EQ)
- Continuously improve traffic management and incident response

#### Investment Benefits

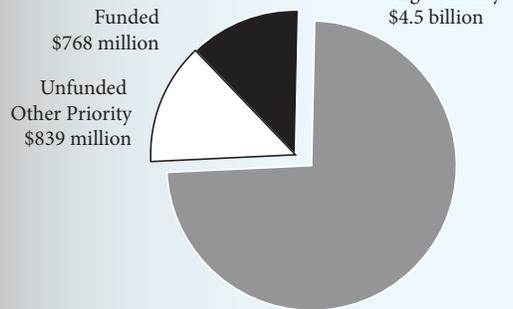
- Support our state’s growing economy, improve safety, maintain freight access to major markets and seaports, lower business costs, and sustain jobs in manufacturing, agribusiness, construction, warehousing, and transportation.
- Complete the north-south freight corridor to ensure intrastate market access and connectivity.
- Relieve congestion in the Puget Sound region by improving I-5 and creating better access for freight.
- Ensure freight rail capacity is able to accommodate future demand and remain a viable option for the movement of goods.
- Prevent increased congestion on alternative corridors and support growth of regional and national trade.
- Reduce severe-weather closures on Snoqualmie Pass and other major east-west highway freight corridors.
- Ensure that Washington State agricultural growers and processors, manufacturers and timber/lumber businesses, and freight-dependent industries can ship products to market year-round and support the state’s ability to remain competitive.
- Reduce travel delay, safety hazards, and congestion for commercial vehicles and minimize air quality impacts from vehicle idling, while ensuring the state’s highway system is protected from overweight and illegal vehicles.

▶ **Economic Vitality**—Invest in ways to improve freight movement and support economic sectors that rely on the transportation system.

#### Legend:

- (P) Preservation
- (S) Safety
- (EV) Economic Vitality
- (M) Mobility
- (EQ) Environmental Quality and Health

**Economic Vitality  
Total Unfunded  
\$5.34 billion**



#### Public Comment Highlights

- ▶ Keeping I-90 open year-round is important to eastern and western Washington.
- ▶ All-weather roads are important.
- ▶ Statewide, high interest in the outcome of the rail study.

*Note: All estimates in 2005 dollars*

The movement of freight is a key issue in the WTP. The need for a statewide system of all-weather roads was voiced at numerous freight summits, meetings with shippers, manufacturers, growers, ports, and other businesses. Up to two months per year, Washington State agricultural growers and processors, manufacturers, and timber/lumber businesses can not ship their products to market due to weight restrictions on county roads. In a global marketplace, the inability of Washington State producers to meet buyers' requirements causes loss of customers and, ultimately loss of the state's competitive advantage.

### Establishing a Network of County All-Weather Roads

*The proposed \$200 million investment level would establish the program, define criteria for selecting key routes on county roads, prioritize projects, and begin investment in the design and construction of the highest priority projects.*

## Mobility—\$4.446 billion

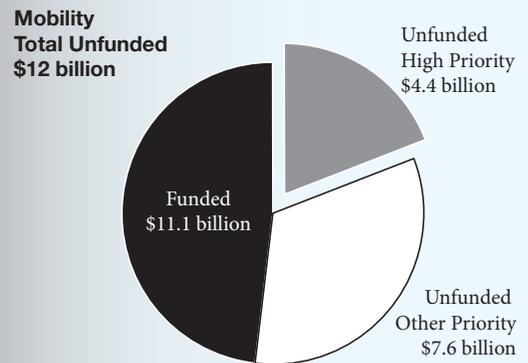
### Transportation Access—\$890 million

- Distribute operating funds to transit agencies for special needs transportation in order to maintain fixed-route bus service—\$860 million (EV) (M)
- Support the Agency Council on Coordinated Transportation's performance measurement activities and re-establish support for community coalitions of providers—\$30 million (EV) (M)

#### Investment Benefits

- Maintain the current level of special needs transportation service without diminishing fixed-route service
- Increase access to jobs, medical care, education, and communities for people who cannot or do not drive
- Increase numbers of people with access to intercity bus service

► **Mobility**—Invest in ways to improve the movement of people and goods to contribute to a strong economy and better quality of life for our citizens.



#### Public Comment Highlights

- More emphasis on inter- and intra-city public transportation.
- Increased funding for public transportation is key to mobility.

*Note: All estimates in 2005 dollars*

## Mobility—\$4.446 billion (continued)

### System Efficiencies—\$1.56 billion

- Address increased maintenance and operations responsibilities with additions to the highway system—\$292 million (S) (EV) (M)
- Add maintenance facilities to support the increased need for maintenance and operations of highway system additions—\$2.1 million (S) (EV) (M)
- Add traffic management centers at high-volume locations to improve throughput and increase real-time travel information—\$16.3 million (S) (EV) (M)
- Integrate, maintain, and operate new technology—\$68 million (S) (EV) (M)
- Complete the 10-year ITS plan (capital and operations, but not security)—\$600 million (S) (EV) (M)
- Address the incident response shortfall—\$8 million (S) (EV) (M)
- Expand the commute trip reduction tax credit program, increasing the number of small employers in the program—\$20 million (EV) (M)
- Complete the Puget Sound high occupancy vehicle (HOV) lanes to reduce travel delay and increase travel-time reliability for transit and carpools—\$550 million (EV) (M)

### Bottlenecks and Chokepoints—\$2 billion

- Reduce or eliminate bottlenecks and chokepoints at over 200 locations on highways around the state—\$2 billion (EV) (M)

#### Investment Benefits

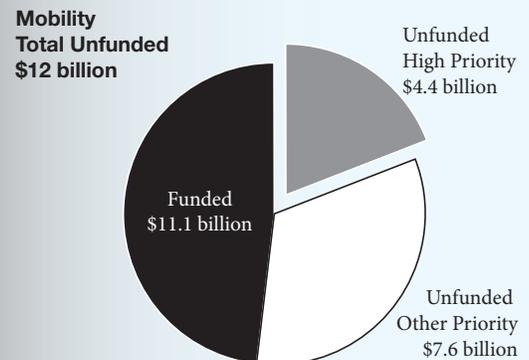
- Maximize safety, mobility, and the throughput capacity of the highways
- Improve traffic management and increase traveler information and incident response service
- Encourage more employers to create programs that reduce drive-alone commuting
- Increase travel-time reliability for all lanes
- Ensure that maintenance and operations keeps pace with the expansion of the transportation system

Note: All estimates in 2005 dollars

► **Mobility**—Invest in ways to improve the movement of people and goods to contribute to a strong economy and better quality of life for our citizens.

#### Legend:

- (P) Preservation
- (S) Safety
- (EV) Economic Vitality
- (M) Mobility
- (EQ) Environmental Quality and Health



#### Public Comment Highlights:

- Interest in intercity passenger rail statewide was voiced repeatedly. Increased frequency and more stations are both needed for medical, business, and recreational travel.
- Regardless of the traffic volumes in each community, when residents experience increases in congestion, their expectations of system performance are not met.
- Coordinated planning for all modes should anticipate growth and future congestion statewide using advanced technology to shape solutions that are multimodal.

## Environmental Quality and Health —\$644 million

- Provide enhanced tribal transportation planning capacity, to increase staff levels and to provide technical resources, data collection, and analysis to tribes—\$11 million (S) (EV) (M) (EQ)
- Add sidewalks and trails between destinations in communities—\$75 million (EQ)
- Remove nearly 900 remaining fish passage barriers created by state highways—\$188 million (S) (M) (EQ)
- Complete the inventory of stormwater facilities on the state highway system to develop a strategic implementation plan, and begin retrofit installations at selected locations—\$340 million (EQ)
- Retrofit existing state highway shoulders and medians as part of the Integrated Vegetation Management program to improve filtration of stormwater runoff and establish desired vegetation—\$30 million (EQ)

### Investment Benefits

- Improve tribal ability to plan needed transportation facilities
- Increase safety, access, and mobility for walkers and bicyclists and increase opportunities for physical activity
- Improve streams for fish habitat and watershed performance, improve fish passage, habitat connectivity, and water quality
- Improve water quality of runoff, improve performance of highway drainage facilities, and reduce damage to the highway system
- Decrease maintenance costs and herbicide use, reduce weeds and invasive species on roadsides, and improve water quality, while reducing runoff volumes by filtering contaminants

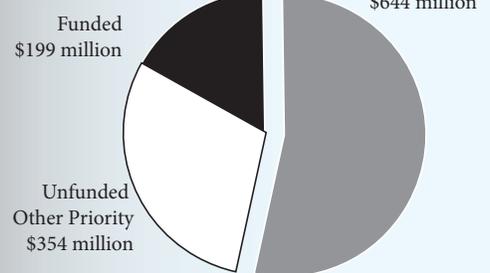
Note: All estimates in 2005 dollars

► **Environmental Quality and Health**—Invest in transportation improvements that provide benefits to the environment and to our citizens' health.

#### Legend:

- (P) Preservation
- (S) Safety
- (EV) Economic Vitality
- (M) Mobility
- (EQ) Environmental Quality and Health

**Environmental Quality**  
Total Unfunded  
\$998 million



### Public Comment Highlights

- More attention should be given to improving air quality and to the topic of global warming.
- Healthy communities are critical to Washington's sustainable future. Transportation investments should link communities to increase personal mobility and to encourage walking and bicycling.
- Fish passage barriers exist on the local roadway network in the same watersheds as barrier removal efforts on state highways and are also connected to overall habitat health.

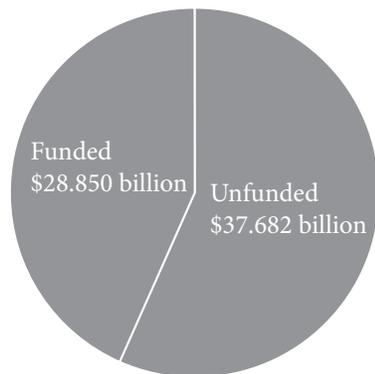
## Remaining Unfunded Priorities

The Unfunded High Priorities described on the preceding pages are the core of the WTP. This section includes those program targets that the Transportation Commission prioritized as medium or lower priorities. Many of these proposed targets are either related to current Commission studies, determined to need further data, or were simply not considered the most strategic investments needing immediate attention.

Because future revenue increases will require increasingly creative financing solutions and demand the most strategic approach to garnering legislative, gubernatorial, and citizen support, not all program targets can be high priorities.

The medium and lower priorities should be reviewed further in the next two to five years, following Figure II-35

### WTP Funded and Unfunded Amounts

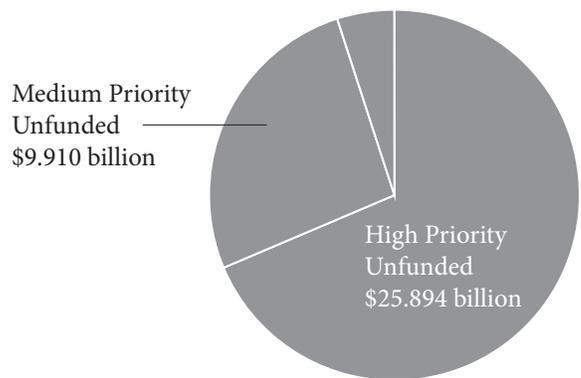


Source: WSDOT Transportation Planning Office

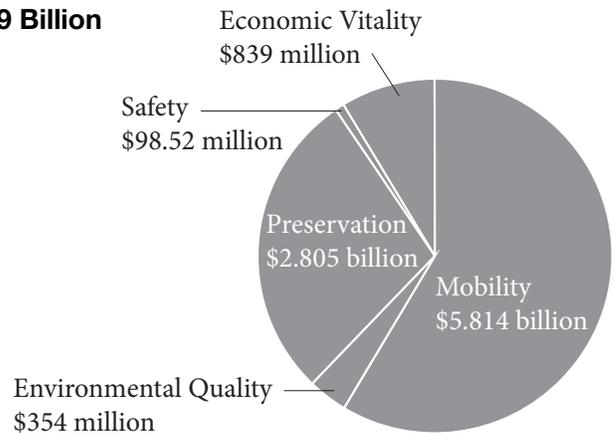
completion of the studies.

The chart above shows the relationship between the funded and unfunded program targets over the next 20 years. The chart to the right, at the top, shows the distribution of the all the program targets considered, grouped by high, medium, and lower priority ranking. The medium and lower priorities are grouped by the five investment guidelines as shown in the remaining charts to the right.

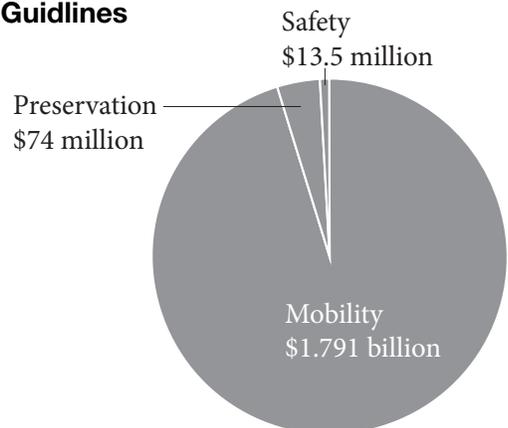
Figure II-36  
High, Medium and Lower Priority Unfunded



Medium Priority Unfunded Investment Guidelines  
\$9.9 Billion



Lower Priority Unfunded Investment Guidelines  
\$1.9 Billion



Source: WSDOT Transportation Planning Office

**UNFUNDED MEDIUM PRIORITIES****Preservation—\$2.805 billion**

- Rehabilitate concrete pavement on non-interstate—\$18 million
- Replace and rehabilitate to extend the service life of safety rest areas—\$15 million
- Replace aging support facilities such as maintenance sheds—\$181 million
- Preserve county roads and ferries—\$41 million
- Replace transit system bus capital—\$2 billion
- Address capital needs of public transit for new vehicles and equipment and replace facilities—\$550 million

**Safety—\$98.52 million**

- Provide better weather information to pilots—\$150,000
- Prevent railroad trespassing by installing fencing and signage and other methods (The dollar amount necessary for this target is unknown until completion of the rail study.)
- Improve air transportation safety and airport operations by restricting the encroachment of obstructions within airport runway approach and departure areas and other critical airspace surfaces—\$8.17 million
- Improve state highway infrastructure security by enhancing or establishing surveillance systems and reinforcing of bridges and structures—\$25 million
- Complete the highway security vulnerability assessment to identify additional security needs and guide implementation—\$50 million
- Add safety rest areas and make other necessary interstate system improvements to reduce driver fatigue and related collisions—\$15.2 million

**Economic Vitality—\$839 million**

- Prepare and respond to events of statewide significance such as the 2010 Vancouver Olympics—\$44.26 million
- Mitigate regional economic development and freight systems—\$793 million
- Study the benefits of a public-private truck-toll highway from Central Puget Sound to the Oregon border (possibly an extension of I-5)—\$500,000
- Create a plan for freight system security and restoration of service—\$175,000
- Study fuel pipeline capacity and distribution alternatives—\$750,000
- Develop a diesel emission reduction strategy for freight transportation—\$110,000

**Mobility—\$5.814 billion**

- Improve services for special needs populations in both rural and urban areas through demonstration projects—\$20 million
- Expand the existing web-based information system to enable people to plan detailed itineraries between communities throughout Washington and into Oregon—\$8 million
- Fund remaining needs for rural mobility grants to assist non-profit providers in areas of the state with limited transit service—\$364 million
- Connect communities and rural areas to urban centers with bus service—\$32 million
- Improve capacity at five ferry terminals: Clinton, Edmonds, Tahlequah, Seattle, and Southworth, and construct four new ferry vessels—\$520 million
- Connect urban area local corridors that span several jurisdictions—\$150 million
- Address a backlog of maintenance and operations facility upkeep to extend the life of facilities, reduce maintenance costs, and increase efficiency of operations based at these locations—\$208 million
- Address travel demand management and commute trip reduction needs—Currently unknown, data expected to be available in late 2006
- Expand the trip reduction performance program (part of Commute Trip Reduction) to fund cost-effective projects, implement recommendations to improve the program, and provide technical support to grant recipients—\$20 million
- Implement a park-and-ride program in coordination with transit systems, including alleviating overcrowding at existing lots, providing safety and security, and accommodating growing demand—\$200 million
- Provide incentives and support for local jurisdictions to develop Growth and Transportation Efficiency Centers, as employers located in these areas tend to have higher levels of trip reduction—\$32 million
- Provide additional funds for Commute Trip Reduction County Support to help counties experiencing highway congestion integrate regional and local plans to reduce solo-driving commute trips—\$25 million

- Educate the public and use marketing to increase travelers' use of commute options for Commute Trip Reduction—\$10 million
- Purchase more vans for the vanpool enhancement program—\$45.9 million
- Develop and sustain a vanpool rideshare incentive program, using vanpool financial incentives and technical assistance—\$12.5 million
- Conduct a statewide air transportation capacity and demand study (remainder of Phase II and Phase III of the study)—\$500,000
- Extend the state highway system, expand the corridors, improve interstate capacity, and complete non-interstate corridors—\$2.25 billion
- Develop interstate capacity projects in conjunction with the update of the highway system plan—\$2 billion

**Environmental Quality and Health—\$354 million**

- Fix locations on state highways with recurring maintenance activities such as stream bank failures, which will reduce maintenance costs and protect the existing highway, reduce the risk of flooding, and improve habitat for important fish species—\$98 million
- Complete noise retrofit at the 60 remaining locations on state highways where high noise levels are present—\$205 million
- Increase habitat connectivity by providing safe highway crossing opportunities for wildlife migrations—\$50 million
- Complete the Cities and Counties Inventory and assessment of fish passage barriers, stormwater retrofits, habitat connectivity, and other environmental needs—\$1 million

**Benefits include**

- Extend service life of safety rest areas, lower the cost of operating and maintaining them, accommodate user demand, and increase energy efficiency.
- Reduce rail-trespasser fatalities.
- Increase highway security by focusing on the most vulnerable areas first.
- Reduce driver fatigue and related collisions.
- Assist travelers in reaching the 2010 Olympic Winter Games provide for positive visitor experiences before, during, and after the games, to support later recreational visits to Washington.

- Ensure balanced and continued economic growth for our state's distinct regions, as international trade and main line rail traffic grows. Optimize truck movements in metropolitan and local areas. Clarify the state's role regarding financial support of short line freight rail.
- Analyze the benefits of alternative options for adding capacity from Central Puget Sound to the Oregon border (truck-toll highway) to address long-range needs for freight capacity.
- Conduct a fuel pipeline capacity and distribution alternatives study to analyze fuel distribution constraints and the feasibility of the removal of obstructions.
- Ensure that there is a plan for timely restoration of freight service in the event of a major security disruption or natural disaster to prevent negative short-term and long-term impacts to Washington State's economy.
- Identify strategies and solutions that minimize the negative air quality impacts of freight-related diesel emissions.
- Improve maintenance and incident response on highways to provide greater safety, mobility, and reliability of the transportation system.
- Improve mobility for people and goods.
- Maintain current service standards on the ferry system.
- Improve service and reduce wait times for ferry travelers.
- Improve mobility and access on the local transportation network.
- Increased awareness of statewide aviation needs
- Reduce delay, improve travel time reliability, and increase capacity. Increase the capacity of the interstates by reducing the worst delay locations, reducing the next level of delay locations, and reducing the lower-level delay locations.
- Improve streams for fish habitat, increase potential for salmon recovery, and improve wildlife habitat and connectivity.
- Reduce the use of herbicides, presence of noxious weeds, and improve water quality

**UNFUNDED LOWER PRIORITIES****Preservation—\$74 million**

- Maintain airport pavements at lowest life-cycle cost for those rural airports that are not part of the National Plan of Integrated Airport Systems. A large backlog in general aviation airport runway pavement projects is threatening the viability of many rural general aviation airports. Full preservation needs and costs will be developed as part of the Aviation System Plan update that is currently underway—\$74 million

**Safety—\$13.5 million**

- Institute an all-weather airport access program to include the installation of airport weather reporting equipment, development of instrument approaches, and installation of navigation aids and data communication systems—\$13.5 million

**Mobility—\$1.791 billion**

- Assist transit agencies to provide additional and new on-demand (Dial-a-Ride) service—\$1 billion
- Provide Amtrak *Cascades* intercity passenger rail service—\$471.7 million
- Analyze the Regional Mobility Grant Program for transit expansion.
- Provide Amtrak *Cascades* intercity passenger rail service. The long-range plan for intercity passenger rail service includes major construction projects and new train equipment to achieve long-range service goals, which will increase intercity passenger rail capacity—\$319 million

(The Transportation Commission is currently conducting a rail study. Findings from this study will provide further information on priority consideration of this target.)

**Benefits include**

- Increasing safety and operational efficiency of the transportation system as well as expanding economic development opportunities in many rural areas of the state.
- Provides increased safety during adverse weather conditions, increased accessibility to airports, and increased economic opportunities.
- Serves unmet needs for on-demand transit service.
- Improved passenger rail services and greater system efficiency on congested corridors. This means that travelers will have increased options for travel and they should notice increased reliability in trip duration and arrival times.



 **Policy Recommendations**

Phase I of the plan development included an assessment of existing state and federal planning laws and existing Transportation Commission policies. This set of directives was the benchmark against which the proposed needs were evaluated. For the most part it was determined that existing policy guidance provides clear expectations and affords implementation strategies leading to success. In selected areas where either innovative investment concepts or programs were proposed, it was determined that existing policy is insufficient to guide future investment decisions.

This section of the plan is a summary of gaps in transportation investment policy guidance, where it does not provide sufficient direction to address a problem, direct investment options, or guide program outcomes. Adoption and implementation of the recommendations in this chapter of the plan will provide momentum to establish the necessary guidance for improving strategic transportation investment decisions in the future.

- The Commission recommends that the state's role in making specific transportation investments be clarified or defined.
- In addition the Commission recommends that data collection and further study is needed in several areas to better understand the problems.
- It is recognized that all existing Transportation Commission policies will be evaluated in the near future in light of changes to the Commission's roles and responsibilities as a result of state legislation in 2005 and 2006. The evaluation process is planned to include updating, consolidating, and editing to make these policies more effective tools to guide Washington State's transportation future.

## Key Policy Recommendations

In addition to the strategic priorities outlined, the Transportation Commission makes several policy recommendations in the WTP. Some of the most critical are:

### Funding

- Identify strategies and methods to provide sustainable revenue sources for transportation.
- The state ferry finance study should identify the target percentage of system operating costs to be recovered from farebox revenues, with identifiable, sustainable sources of funding flows to cover the balance of operating expenses as well as the system's long-term capital needs.
- Develop a policy that defines the state's role and level of investment in public transportation.

### Safety

Identify cost effective ways in which the state and local agencies responsible for safety on highways, streets, and roads can coordinate their efforts to achieve statewide safety goals in a comprehensive manner.

### Basic Access

Develop a policy that defines the state's role and level of investment in public transportation for those who do not or cannot drive.

### Congestion Relief

Develop a state policy and strategy to maximize traffic flows on the state's most congested highways. Assess the cost and benefits of expanding transit systems as a means of improving the overall utilization of street and road capacity.

### Transportation and the Economy

To identify the contributions to the different regions and economies of the state, measure the impacts and benefits of transportation investments and define the state's role in making investments, considering cost and benefit trade-offs. Identify the transportation system elements that are critical to maintaining and improving Washington's global competitiveness.

### Land Use and Transportation

Improve concurrency between transportation and land use decisions to ensure complementary development of land with transportation infrastructure. Clarify the state and local responsibilities and options for addressing highway congestion that are driven by local permitting decisions.

### Reduce Reliance on Fossil Fuels

Further develop a state policy on alternative fuel development and use that could include the identification of possible regulatory and tax structures. Also, identify opportunities and strategies for addressing the growing demand for alternative fuels.

### Rural Economic Vitality

Improve farm-to-market access by investing in rail improvements and/or defining the state's role in establishing and funding a year-round, statewide, core all-weather road system in rural areas.

### Emergency Preparedness

Clarify the role of state and local governments in providing personal mobility and freight service in the event of a major disruption to the transportation system or in case of unanticipated catastrophic events.

# Preservation

## Existing Commission Policies

- Protect our investments by keeping transportation infrastructure in sound operating condition.
- Emphasize infrastructure preservation and maintenance as the priority in funding transportation programs.
- Use lowest life-cycle cost methodology to determine the appropriate schedule for upkeep.

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Ample policy exists to allow for preservation investments at all jurisdictional levels to continue as funding is available. In this situation, the WTP finds that what is needed is not more policy direction, but additional funding to keep pace with prevailing wage laws, and escalating costs of construction materials and fuel, as well as the increasing demand for limited materials.

The WTP recognizes that much policy debate has occurred in the past two decades about the best way to invest in maintenance, preservation, and improvement of the entire system. The final report of the Blue Ribbon Commission on Transportation made a determination in Recommendation Five, that studded tire damage to the system should be addressed by either phasing them out or establishing a surcharge for their use. In 2001 heavy weight studs were prohibited. In 2004, the Washington State Transportation Commission passed a resolution to request that the legislature outlaw all studded tires. Thus far, legislation has not passed to this effect.

Damage to roadway surfaces increases proportionately as the weight of vehicles increase. Imposing weight restrictions on vulnerable surfaces (certain bridges and pavements) assists in extending the service life of that transportation asset.

These preservation issues will continue to be discussed in future legislative sessions. Operational practices will reflect future changes to policy as they are enacted.

# Safety

## Existing Commission Policies

- Improve safety through continuous reduction in the societal cost of accidents.
- Emphasize traveler safety and security as a primary consideration in the planning, designing, constructing, maintaining, and operating of all transportation systems.
- Support comprehensive transportation safety programs that target improving operator behavior and vehicle design and condition.

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| Action   | Outcome   |
|--|---|
| <p><b>Strategic Highway Safety Plan</b></p> <p>Federal, state, and local agencies, and private organizations have been consulted and have contributed to the development of the Strategic Highway Safety Plan. This plan provides a comprehensive framework of specific goals, objectives, and strategies for reducing traffic fatalities and serious injuries. The Washington Transportation Plan recognizes the recommendations of the Strategic Highway Safety Plan as the necessary policy and action strategies to address the long-range safety needs of Washington State.</p> | <p>Reduction in fatalities and injuries resulting from automobile collisions.</p> |

### Improve Safety Data and Sharing

In cooperation with those involved in current efforts to produce the Statewide Highway Safety Plan, the Department of Transportation should implement a traffic records strategic plan to decrease paper usage by keeping electronic records; develop the Emergency Management System registry; improve data detail and location accuracy; improve statewide collision data; and design new law enforcement traffic collision reports and citizen reports.

Increase amount of safety data available for analysis. Increase analysis capacity. Improve safety-related data at various jurisdiction levels. Use improved safety data to target system improvements.

**Safety Continued**

| <b>Action</b>   | <b>Outcome</b>  |
|---|---|
| <p><b>Aviation Study</b></p> <p>The General Aviation (GA) Airport Weather Safety Feasibility Study will determine needed weather-related improvements to airports.</p>  | <p>Determine needed weather-related improvements to GA airports, to make airports safer, and more effective.</p>  |
| <p><b>Address Truck Parking Capacity on State Highways</b></p> <p>The Department of Transportation, in cooperation with the Washington State Patrol, the industry (trucking and truck stop providers), and the RTPOs should recommend options for defining the state's role and appropriate investment, if any, in providing adequate, safe, and legal areas near state highways where commercial truckers can park and rest. The WSDOT 2005 Truck Parking Study should provide information to develop an action plan for this process.</p> | <p>An action plan to address how best to provide truck parking and rest areas, determine the various stakeholders' roles and responsibilities, and identify where truck parking and rest areas are needed most.</p> <p>It is the goal of this action plan to provide safe and legal areas for commercial truck drivers to park so that drivers can take federally-mandated rests during long drives and decrease truck driver fatigue. Decrease the number of trucks parked illegally in undesirable and unsafe areas, such as weigh stations, chain up/down areas, highway ramps and shoulders, and local streets and parking lots by providing additional safe and legal parking capacity. Improve safety on highways and local roads. Increase transportation security. Decrease environmental impacts of truck parking and idling. Support for interstate commerce.</p> |

# Economic Vitality

## Existing Commission Policies

- Support the economy through reduced barriers to the movement of people, products, and information.
- Support investments in freight transportation services and infrastructure that maintain Washington State’s competitive geographic advantage for world and domestic trade, and contribute to the economic productivity of the state.
- Value the movement of freight and people equitably.
- To the degree possible, streamline laws and regulations impacting freight transportation to allow ease of compliance and coordinated administration among jurisdictions.
- Support transportation investment that contributes to economic development.
- Support those aspects of the transportation system that enhance tourism.
- Develop good connections across interstate and international borders.

| Action  | Outcome   |
|---|---|
| <p><b>Statewide core all-weather county road network</b></p> <p>The Transportation Commission should recommend a policy regarding the state’s role in establishing and funding a statewide core all-weather county road system. Develop a process to identify and prioritize investments that will minimize the economic impacts of freeze- and- or thaw-related road closures on freight dependent industries, by identifying the most critical routes affected by freeze-and-thaw winter conditions through working with cities and counties, as well as freight stakeholders and associations, the Freight Mobility Strategic Investment Board, Transportation Improvement Board, County Road Administration Board, Washington State Association of Counties, and the Washington Department of Transportation.</p> | <p>Connect businesses and industries to the state highway system so they can ship and receive products year-round. Prioritize investments to provide maximum benefit for affected industries and regional economies. Support the state’s job base in agribusiness, manufacturing, construction, and natural resource-based sectors.</p> |

## Economic Vitality Continued

| Action   | Outcome  |
|--|--|
| <b>Regional Economic Development</b>   |  |
| <p>The Department of Transportation should work with cities, counties, tribes, the Washington State Department of Community Trade and Economic Development, and local economic development councils, regional agencies, and the private sector to evaluate the economy and the economic development impacts of transportation infrastructure and services. The Department should also develop performance measures and rating criteria, so that future project selection can provide the best return on investment for growing Washington State’s economy, and implement existing Transportation Commission policies.</p>  | <p>Improved coordination of future capital funds will promote investments in job-producing private development and help expand the tax base for other necessary public services and facilities. Improved understanding of how transportation contributes to regional economies.</p>  |
| <b>Economic Sectors and Clusters</b>   |  |
| <p>In response to “The Next Washington” Economic Plan from the Governor, the Department of Transportation should work with the Washington State Department of Community, Trade and Economic Development, cities, counties, tribes, and the private sector to:</p> <ul style="list-style-type: none"> <li>• Determine a way to measure transportation investment outcomes and identify investments that contribute to regional economies. Identify the dependencies of various clusters on the transportation system.</li> <li>• Identify the transportation system elements critical to maintaining and improving the performance and global competitiveness of these clusters.</li> <li>• Determine the state’s share of transportation investments to meet these needs.</li> <li>• Develop and implement a strategy to improve support for tourism as transportation investments are planned and built by increasing access to Washington State’s heritage and recreational assets.</li> </ul> | <p>Transportation contributes to achieving the goals identified in Washington State’s economic plan. A clear understanding of how transportation benefits Washington State’s economy; enhanced global competitiveness of Washington State’s transportation-reliant industry clusters; maximized opportunities for transportation investment partnerships with cluster industries; alignment of agency missions and common goals to increase effectiveness of state government investment. Development of a basis for measuring economic benefits of transportation investments.</p> <p>Increased communication between the tourism sector, scenic byways, and state agencies through a structured event such as a scenic byway summit.</p> |
| <b>Emergency Preparedness and System Disruption Plan</b>   |  |
| <p>Clarify the state’s role in ensuring timely restoration of freight service in the event of a major disruption to the transportation system. Working with all levels of transportation providers, develop a strategic plan for timely restoration of service that prioritizes freight transportation needs based on economic and quality of life impacts.</p>  | <p>Plan and practice the state’s response to high-impact and unpredictable events that would critically affect the freight transportation system serving Washington State. Minimize negative short-term and long-term impacts to the state’s economic vitality and quality of life.</p>  |

| Action  | Outcome  |
|---|--|
| <b>Develop and sustain economic growth</b>  |  |
| <p>Clarify the state’s role in helping regional economies make capital investments in freight systems to develop and sustain economic growth. Support an ongoing, appropriate level of funding for regional economic development freight projects, port and intermodal access improvements, grade separations, short line rail improvements, and truck route programs to optimize truck movements in metro areas.</p> | <p>Provide incentives to help communities within a region prioritize desired freight improvements.</p> <p>Assist communities in developing and sustaining economic growth through investments in regional freight systems. Improve port and intermodal access. Mitigate the impact of growth in freight rail volumes on Washington State communities. Provide incentives to optimize truck movements in congested urban areas.</p> |
| <b>Fuel Distribution and Pipeline Capacity</b>  |  |
| <p>Determine the state’s role in ensuring that fuel distribution and pipeline capacity alternatives meet Washington State’s long-term demand.</p> <p>Analyze the constraints and develop a strategy to remove obstructions so that the market can respond to increasing demand.</p>   | <p>Support the state’s long-term economic vitality by ensuring that fuel is efficiently supplied to Washington State citizens and businesses. Respond to increasing demand for fuel, when there is no plan to increase pipeline or refinery capacity in the state.</p>   |
| <b>Main Line Rail</b>   |  |
| <p>Following the completion of the Transportation Commission Rail Study, determine the state’s role in enhancing main line freight rail capacity.</p> <p>Develop a main line rail strategic plan to implement policy direction contained in the recommendations from the Transportation Commission Rail Study.</p>  | <p>Add main line rail capacity to support growth in international trade and regional economies. Improve safety. Maximize system capacity and eliminate or reduce bottlenecks. Improve the freight- passenger train interface and prevent future conflicts of service. Mitigate the impact of growth in freight rail volumes on Washington State communities.</p>   |

## Economic Vitality Continued

| Action  | Outcome   |
|---|---|
| <b>Short Line Rail</b>  |   |
| <p>Following the completion of the Transportation Commission Rail Study, the Department of Transportation—in cooperation with rail operators, shippers, and the Freight Mobility Strategic Investment Board—should develop business-based policies for management of state-owned rail assets and define criteria for future investments in short line railroads.</p> <p>Develop a strategic business plan to implement policies and address the viability of the short line railroad system in Washington, to include an analysis of:</p> <ul style="list-style-type: none"> <li>• Ability of short line railroads to support regional economic development, with a comparison of the opportunity costs for alternate investments.</li> <li>• Freight market trends that impact short line railroad viability.</li> <li>• Track conditions and the cost of improvements required to operate the lines safely and efficiently.</li> <li>• Impacts on county roads and the highway system if short line and/or branch lines aren't viable. Separate analysis to be done for each low-volume, at-risk branch line.</li> <li>• Commitment of main line rail service at a level sufficient to attract targeted customers.</li> </ul> | <p>Clarify the state's role regarding financial support of short line freight railroads, and develop methods to fully assess the economic impact of such investments. Focus limited public resources on the most productive investment proposals. Support the development of regional economies and national and international trade.</p> <p>Selection of short line freight rail projects is linked to achieving maximum investment potential.</p> |
| <b>Columbia-Snake River Trade Corridor:</b>   |   |
| <p>Define a policy to ensure the long-term viability of the Columbia-Snake River trade corridor. In partnership with other responsible federal and state agencies, take a leadership role to ensure sound management of the locks, jetties, and main channel.</p> <p>Develop and implement a strategic plan (in coordination with the U.S. Army Corps of Engineers dredging and lock maintenance plan) to dredge, maintain locks and jetties, and deepen the Columbia River channel down river.</p>   | <p>Prevent closure or decreased efficiency of the Columbia-Snake River trade corridor for waterborne traffic. Maintain navigation infrastructure to accommodate increasingly larger ships and growing inland barge movements. Support economic growth by providing Washington State agribusiness and U.S. grain shippers with efficient access to world markets. Avoid increased freight traffic on Columbia Gorge highways and rail lines.</p>     |
| <b>Events of Statewide Significance</b>   |   |
| <p><b>2010 Olympics</b>—Participation in the Governor's 2010 Winter Olympics Task Force to seek grant funding, deliver priority projects, align project schedule to reduce travel delays, document successful projects, and share outcomes.</p>   | <p>Enhanced traveler experience for visitors to the state during the Vancouver Winter Olympics; return trips to Washington state after the Olympics, increasing tourism's contribution to the state economy.</p>  |

# Mobility

## Existing Commission Policies

- Make customer service primary.
- Consider, and implement where appropriate, operational changes that improve efficiency before expanding the existing transportation system.
- Operate transportation systems to work reliably and responsibly for the customer.
- Incorporate long-term operations needs in capital investment decisions.
- Promote the use of advanced technologies to improve system efficiency and service.
- Consider system operations a separate budget category with high priority for funding.
- Aggressively pursue access management to protect operations of existing and future systems.
- Identify and preserve vital transportation corridors and sites for future transportation uses.
- Support regions in adopting different and regionally-appropriate mobility strategies.
- Promote modal connections to provide seamless travel to the customer.
- Provide mobility for people with special needs.
- Use cost-benefit methodologies as key determinants in selecting mobility projects.
- Provide viable mobility choices for the customer and expand the system to accommodate growth.
- Recognize that there will be congestion on the system and the ability to control congestion by expansion of the system is limited due to funding and other considerations. Promote land management, telecommunications, and other innovative technologies as viable mobility options to reduce the impact of congestion on all system users. Support limited strategic expansions to accommodate growth and reduce congestion when possible.
- Recognize that the primary mode of travel for Washington State citizens will continue to be the private automobile, but provide citizens with mobility choices which include, at a minimum, some forms of public transportation.

| Action  | Outcome   |
|---|---|
| <p><b>Aviation</b></p> <p>Address long-term passenger, cargo, and airport capacity and facility needs.</p> <p>Complete a statewide airport capacity and facilities study by July 2006, conduct a market assessment of aviation demand, needs, and forecasted needs for the next 25 years by July 2007. Governor-appointed commission to develop recommendations on long-term needs for commercial and general aviation airports by July 2009.</p> | <p>Identify gaps and deficiencies within the air transportation system and provide recommendations on how to address future long-term passenger, air cargo, and airport facility needs.</p> |

**Mobility Continued**

| <b>Action</b>   | <b>Outcome</b>   |
|---|--|
| <b>Aviation</b>   |  |
| <p>The Department of Transportation should complete the aviation system plan with classification of airports and performance standards.</p> | <p>The study will focus on 139 commercial and general aviation airports within the state, with emphasis on commercial aviation. The purpose of the study is to understand what capacity currently exists in aviation facilities and what will be needed to meet future demands for air transportation and increased economic opportunities. The study will also assist in promoting the effective use of federal, state, regional, and local aviation resources. High-speed passenger rail will also be evaluated as part of the study.</p> <p>See Part 3 for details on all phases of this study and plan update.</p> <p>Schedule: Underway—Targeted completion:<br/>                     Phase 1—completed on September 30, 2006<br/>                     Phase 2—July 1, 2007<br/>                     Phase 3—July 1, 2009</p> |

**Washington State Ferries**

The Department of Transportation should recommend a policy to the Governor for Washington State Ferries service options for reconfiguration needed to meet increasing demand.

The Washington Transportation Plan will result in strategic system improvements to increase capacity and reduce delay. As part of its System Plan update within the framework of the Washington Transportation Plan, Washington State Ferries (WSF) is assessing and defining options for ferry service reconfiguration to meet increasing travel demand.

Schedule: The Draft Ferry System Plan public comment review period ended on July 31, 2006. The final plan is expected to be adopted in early 2007.

## Mobility Continued

| Action   | Outcome  |
|--|--|
| <p><b>System Tolling Study</b></p> <p>The Transportation Commission is currently conducting a comprehensive tolling study that is expected to develop a policy framework to address eight key questions on tolling:</p> <ol style="list-style-type: none"> <li>1. What role can tolling play in developing and managing Washington’s transportation system?</li> <li>2. How should Washington decide which parts of the system to toll or price?</li> <li>3. What rules should govern the use of toll revenue?</li> <li>4. What rules should govern setting toll rates?</li> <li>5. What is the most appropriate governance and organizational structure?</li> <li>6. How do technology and toll operations influence toll policy?</li> <li>7. How do equity, fairness, and uniformity issues influence toll policy?</li> <li>8. What are the implications of alternative toll policies at the Tacoma Narrows Bridge?</li> </ol> | <p>Provide guidance for when to use tolling as a tool to increase transportation system performance and reliability. Establish a single user experience “one device, one phone number, one statement.”</p> <p>Note: Further information about the details of this study is included in Part 3.</p> <p>Schedule: Underway—Adopted on September 19, 2006.</p>  |
| <p><b>Future Funding</b></p> <p>In cooperation with the Governor’s Office, the Department of Revenue, and the Office of Financial Management, the Department of Transportation should propose options for a transportation funding strategy based on alternative fuels.</p>  | <p>New source of transportation funding, to offset a portion of revenues lost annually by reduction in fuel consumption by fuel efficient vehicles.</p>  |
| <p><b>Passenger Rail</b></p> <p>Update strategy for intercity passenger rail system expansion (Statewide Rail Capacity and Needs Analysis).</p>  | <p>Improve consistency between available funding and expansion plans. Critical system expansion and operation improvements identified and future investments justified by benefits.</p>  |
| <p><b>Intercity Transportation and Basic Access</b></p> <p>Define as policy the state’s role and the level of state investment in public transportation service to provide basic access and intercity transportation.</p>  | <p>Clarify the state role for intercity transportation investment. Improve connections between rural and urban centers. Intercity transportation provides a vital link between rural communities and urban areas. This will provide a framework that can be used to develop programs that address basic connectivity between communities, define goals for connecting rural areas to urban service centers, and reduce rural isolation. The policy will also provide the local communities and service providers a clear vision of the state’s interest in intercity transportation, and allow these partners to participate in meeting the needs.</p> |

**Mobility Continued**

| <b>Action</b>   | <b>Outcome</b>   |
|---|--|
| <b>Corridor Efficiency</b>  |  |
| <p>The Department of Transportation, in cooperation with Washington State Transit Association and others, should develop a strategy for closer integration between roadway and transit operations, including exploring innovative approaches to access management</p>   | <p>Public transportation improves the efficiency of the highway system by moving more people with fewer vehicles, improves person throughput on congested corridors, and provides travel options beyond a single occupancy vehicle.</p>  |
| <i>Travel Conservation Approaches</i>   |  |
| <p>The Department of Transportation should identify needed policy adjustments to ensure continued effectiveness of the high occupancy vehicle (HOV) system.</p>   | <p>More efficient movement of roadway system for increased capacity, improved air quality, and improved travel times and reliability.</p>  |
| <i>Park-and-Ride Lots for Corridor Efficiency</i>   |  |
| <p>Demand for parking at lots in congested corridors is high and many facilities are at or over capacity. The lack of available parking along these critical highways affects the efficiency of the highway system. The Department of Transportation’s Office of Transit Mobility, in cooperation with the Washington State Transit Association and others, should develop a strategy for determining the state role in park-and-ride facilities, particularly lots that improve highway efficiency on congested corridors.</p> | <p>Park-and-ride lots strategically located on key highway corridors are integral to improving the efficiency of the system. The facilities work in conjunction with other highway system investments including HOV lanes and direct access ramps.</p> <p>Development and implementation of a park-and-ride policy will help define the role of the state and improve the efficiency of our transportation system. This policy will serve as a guide for a long-term park-and-ride lot program. Prevent loss of existing park-and-ride lots. Add capacity where most needed.</p> |

**New Technologies and Alternative Fuels**

Work closely with the Governor’s Office, the Washington State Department of Community, Trade and Economic Development, and the Department of Ecology to develop a strategy to adapt to the demand for alternative vehicles and fuels.

Adapt the transportation system to serve evolving needs. The transportation system is based on sustainable fuel supplies.

## Environmental Quality and Health

### Commission Policies

- Meet environmental responsibilities.
- Minimize, and avoid when practical, air, water, and noise pollution; energy usage; use of hazardous materials; flood impacts; and impacts on wetlands and heritage resources from transportation activities.
- When practical, and consistent with other priorities, protect, restore, and enhance fish and wildlife habitats and wetlands impacted by transportation facilities.
- Coordinate and take the lead in partnering with other agencies on environmental issues affecting transportation to reduce costs and increase effectiveness.
- Transportation plans and actions will support and encourage partnering with local communities to achieve our mutual interests in promoting livable communities.

| Action   | Outcome   |
|--|---|
| <p><b>Tribal Consultation</b></p> <p>The Department of Transportation and the Regional Transportation Planning Organizations should work together to improve implementation of the Centennial Accord and create additional guidance for tribal consultation for transportation planning.</p> | <p>Improved communication will identify issues early in project development so that project teams can reduce conflict or delay.</p> |

## Environmental Quality and Health Continued

| Action  | Outcome  |
|---|--|
| <b>Path and Trails</b>  |  |
| <p>The Department of Transportation should work with the Interagency Committee for Outdoor Recreation and the Regional Transportation Planning Organizations to develop a strategy for path and trail investments, similar to state pedestrian program investments.</p>   | <p>Improve safety and mobility for pedestrians and bicyclists. Improve coordination between local comprehensive plans and the WTP.</p>   |
| <b>Healthy Communities</b>  |  |
| <p>The Department of Transportation should coordinate with the Growth Management Services Division of the Department of Community, Trade and Economic Development. The two departments should convene a task force to identify sources and ways of pooling funds in order to support local governments seeking assistance in addressing the Growth Management Act requirement to include a pedestrian and bicycle component in comprehensive plans.</p> | <p>Pedestrian and bicycle facilities and network constructed to provide for safe and healthy transportation options through walking and biking.</p>  |
| <b>Emissions Reduction</b>  |  |
| <p>Working with the Department of Ecology, Metropolitan Planning Organizations, and the Federal Highway Administration, the Department of Transportation should refine policy regarding the state's position and appropriate role in reducing freight-related diesel emissions.</p>   | <p>Reduce adverse side effects of diesel-related emissions, including air pollution and health risks. Prioritize the numerous strategies and technologies that may help reduce harmful emissions. Ensure continued support of an efficient freight transportation system, where strategies and programs enhance industry and carrier needs. Reduce toxic emissions. Improve fuel efficiency.</p> |
| <p>Identify strategies and solutions that minimize adverse air quality impacts of freight-related diesel emissions, while ensuring continued freight mobility and support of freight dependent industries. Develop a program and pilot structure based on the strategic plan and its policy direction. Coordinate with regional, state, and national groups to refine strategies and advance pilot projects in Washington.</p>                          |  |



 **Measuring Progress**

In Washington, statewide transportation performance is not uniformly measured across modes or jurisdictions. State, federal, tribal, and local entities each collect data about system condition and performance in a manner that meets their needs. Washington State lacks a coordinated and comprehensive transportation performance reporting process. Following passage of the recent transportation investment packages, accountability to the public has never been more important.

This section provides a series of examples taken from various editions of the Gray Notebook to illustrate how the Washington State Department of Transportation measures system performance. The current reporting model is a strong platform on which to build a transportation plan approach to statewide performance reporting. The Transportation Commission proposes to convene a study team to focus on performance reporting. The Transportation Commission also recognizes the importance of the Governor's Priorities of Government and their relation to the long-range statewide transportation plan.

The Transportation Commission recommends that consideration be given to addressing performance measures with regard to all of the investment guidelines. Discussions should focus on the appropriate data to collect to determine how the following goals can be achieved:

- **Transportation Access**—Provide effective and affordable mobility options for citizens without access to an automobile or without the ability to drive, especially in isolated areas.
- **Bottlenecks and Chokepoints**—Invest in new facilities and system assets that address the most severely congested locations.
- **Economic Vitality**—Invest in new facilities and system assets that strengthen the state's economic vitality and support family-wage jobs.
- **Moving Freight**— Invest in the specific needs to move goods as part of the state's transportation system.
- **Building Future Visions**—Today's planning efforts should help shape visions of the transportation system for the future.

## Performance and Accountability

The Washington Transportation Plan recognizes and correlates with the Governor's Priorities of Government.

The Priorities of Government are the statewide approach used by the Governor to identify results as the basis for budget decision-making. This approach facilitates strategic thinking and uses performance evidence to make investment choices for maximum benefits.

The Priorities of Government performance goals establish expectations that shape transportation investments, project design, and accountability at all jurisdictional levels.

The statewide transportation system contributes primarily to three Priorities of Government:

- **Improve economic vitality of business and individuals**
- **Improve statewide mobility of people, goods, information, and energy**
- **Improve safety of people and property**

## Measuring the Performance of the State-Owned Transportation System

Since March 2001, the Department of Transportation has been tracking a variety of performance and accountability measures for review by the public, the Transportation Commission, the Legislature, the Governor, and others. These measures are reported in *Measures, Markers, and Mileposts*, also called the Gray Notebook. It provides in-depth reviews of agency and transportation system performance.

The Gray Notebook is organized into two main sections. The Beige Pages report on the delivery of the projects funded by the 2003 Transportation Funding Package, the 2005 Transportation Funding Package, and pre-existing funds. The White Pages describe key agency functions and provide regularly updated system and program performance information.

The Gray Notebook is published quarterly in February, May, August, and November. The current edition and archived past editions are available online at: [www.wsdot.wa.gov/accountability](http://www.wsdot.wa.gov/accountability). An annual goal is established for specific programs and issues and then reported on periodically. For some issues the data is reported quarterly and for others there is an annual cycle.

The Gray Notebook is primarily focused on those parts of the state's transportation system owned and operated by the Department of Transportation. The WTP recommends that this performance measurement approach needs to be expanded to include other components of what is truly an integrated system.

The following pages highlight a few goals that support the vision of the WTP that are currently being measured on a periodic basis in the Gray Notebook.



**Preservation—**

Ensure that today’s transportation systems will continue to serve us into the future

**How do we know Washington State’s transportation systems are being preserved?**

The investments made in our transportation system, both historically and in the future, are vital to the quality of life in our state, as well as the efficiency of day-to-day business and operations of our society as a whole. The critical nature of this system and the high expenses incurred through maintenance and operations require foresight and planning to preserve the system. It is necessary to maintain the Lowest Life Cycle Cost in order to provide the most economical investments and protect taxpayer dollars. Pavements and bridges are the most costly investments in our statewide transportation system. Therefore, their preservation is critical to the sustainability of the operation and the expenses incurred by the system.

**State Highway Pavement**

The Department of Transportation has been rating pavement condition since 1969, using Lowest Life Cycle Cost (LLCC) analysis to manage pavements for preservation. The principles behind LLCC are that if rehabilitation is done too early, pavement life is wasted; if rehabilitation is done too late, additional costly repair work may be required, especially if the underlying structure is compromised. The department continually looks for ways to strike the best balance between these two basic principles.

**State Bridges**

The state benchmark law established a goal of no structurally deficient bridges, and for safety retrofits to be performed on state bridges with the highest seismic risk levels. The Department of Transportation tracks bridge condition using the Bridge Management System (BMS) to achieve optimum service life. The structural deficiency rating is based on inspection findings. At the same time, some bridges are simply more important and more expensive than others. BMS considers the cost-effectiveness of several feasible corrective actions for any given bridge deficiency and provides cost-effective indices for each potential action in various time periods.

**Goal**

- ▶ Maintain interstate and state highways so that none are in “poor” condition—(0 percent)
- ▶ No bridges in the state are to be structurally deficient—(95 percent of bridges are in at least “fair” structural condition)

**Performance Measure**

- ▶ Percent of miles in “poor” condition
- ▶ Percent of bridges in at least “fair” structural condition

**Highlights of Gray Notebook Preservation Measures**

**Bridge Structural Conditions Ratings**

| Category | Description   | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|----------|---|------|------|------|------|------|------|
| Good     | A range from no problems to some minor deterioration of structural elements   | 84%  | 85%  | 87%  | 86%  | 87%  | 89%  |
| Fair     | All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling or scour.   | 11%  | 11%  | 10%  | 11%  | 10%  | 9%   |
| Poor     | Advanced deficiencies such as section loss, deterioration, cracking, spalling, scour or seriously affected primary structural components. Bridges rated in poor condition may be posted with truck weight restrictions. | 5%   | 4%   | 3%   | 3%   | 3%   | 2%   |

Source: WSDOT Bridge Office  
 Gray Notebook Edition 22, page 85

The condition rating shown above is based on the structural sufficiency standards established in the Federal Highway Administration’s “Recording and Coding Guide for the Structural Inventory and Appraisal of the Nation’s Bridges.” This structural rating relates to the evaluation of bridge superstructure, deck, substructure, structural adequacy, and waterway adequacy.



Bridges rated as “poor” may have structural deficiencies that restrict the weight and type of truck traffic allowed. No bridge currently rated as “poor” is unsafe for public travel. Any bridge determined to be unsafe is closed to traffic. In 2004 and 2005, The Department of Transportation did not close any bridges due to unsafe conditions.

The Department of Transportation policy is to maintain 95 percent of its bridges at a structural condition of at least fair, meaning all primary structural elements are sound. Since 2000, there has been a slow but steady increase of bridges in the “good” category. In 2004, 3 percent of bridges showed a condition rating of “poor,” and in 2005, only 2 percent were rated as “poor.” The department credits this improvement to preventative measures such as structural or scour repair, painting, or bridge deck overlays that are keeping some of the “fair” bridges from declining into the “poor” category, and the building of new bridges in the “good” category.

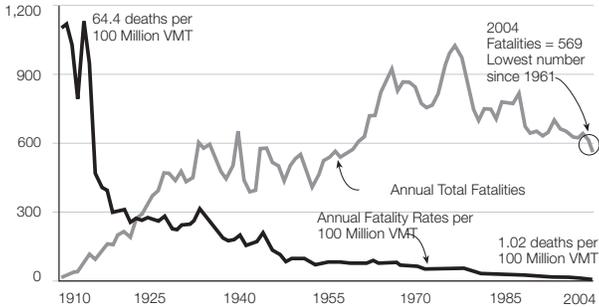
▶ **Safety—**  
 Make transportation infrastructure and facilities throughout the state safer and more secure for their users.

▶ “The region’s top priorities remain safety, efficiency and preservation of the existing transportation system.”

*Thurston Regional Planning Council  
 2025 Regional Transportation Plan*

**How do we know things are safer?**

Figure II-6  
**Washington Motor Vehicle Total Fatalities and Fatality Rates**  
 1910-2004



Source: WSDOT Transportation Data Office

The benchmark law established a goal to improve safety. While many criteria and measures are used to track safety on the state transportation system, the Transportation Commission and the Department of Transportation use the state motor vehicle fatality rate to determine progress. The 2004 fatality rate was 1.02 deaths per 100 million vehicle miles traveled (VMT) on all Washington State roadways, while the total fatality count shows 567 people killed in motor vehicle collisions and two people killed in bicyclist/pedestrian fatalities where a moving motor vehicle was not involved.

**Goal**

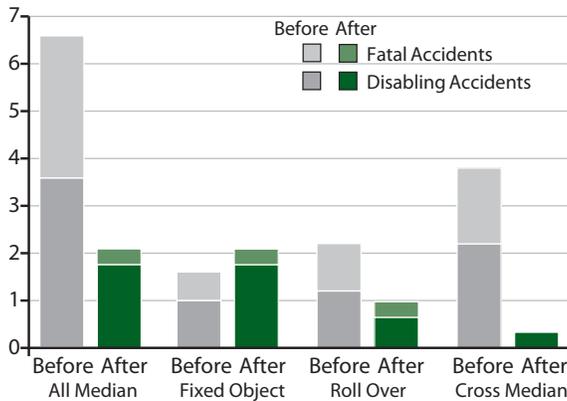
- ▶ Reduce the annual number of fatalities statewide
- ▶ Reduce the severity of collisions statewide
- ▶ Reduce collisions (fatal and disabling) caused by driver behaviors including seatbelt use and driving under the influence (DUI)

**Measure**

- ▶ Annual number of fatal collisions
- ▶ Frequency and severity of disabling collisions in areas where cable median barrier has been installed (before and after)
- ▶ Number of collisions related to driver behavior

Highlights of Gray Notebook Safety Measures

Figure II-39  
**Severe Collisions**  
*Before and After Cable Median Barrier Installation*  
**Annual Fatal and Disabling Collisions and Median Collision Type**



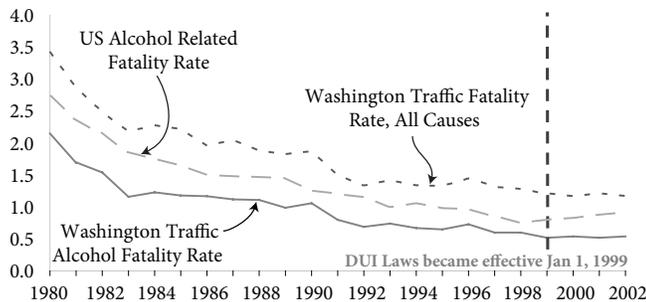
Source: WSDOT Engineering and Regional Operations Division; as taken from the WSDOT *Gray Notebook* Published December 2003

**Before and After  
 Reductions in Severe Collisions**

While total collisions in the study areas, I-5 in Everett, Vancouver, and Fife, nearly doubled (from 45 to 100, including collisions with property damage only), the number of severe collisions (fatal and disabling) decreased significantly. This resulted in a societal benefit of cable median barriers calculated to be \$420,000 per mile annually. A breakout of the types of severe collisions is shown in the graph to the left (graph does not include “property damage only” collisions.)

*The data on the left was normalized and represents 12 months before and 12 months after the project.*

Figure II-10  
**Alcohol-Related Traffic Fatalities**  
**Comparison of Washington's Public Roadway Fatality Rate**  
**And Alcohol-Related Fatalities Per Million VMT**  
 1980 - 2002



Source: WSDOT Transportation Data Office

**Alcohol-Related Fatalities on Public Roadways**

From 1998 to 2002, alcohol-related deaths per 100 million miles driven dropped 11 percent overall from 0.60 to 0.54 per 100 million miles driven in Washington State.

A package of drunk-driving laws, enacted in 1998, lowered the blood alcohol intoxication threshold from 0.10 to 0.08 percent, and provided for automatic loss of license for drunk driving. These legislative steps, together with increased State Patrol emphasis on stopping drunk drivers, are credited with the decrease in alcohol related deaths. Other measures in Washington State include increased use of ignition interlock devices (a device attached to the car’s ignition system that requires the driver to blow into the device before starting the car - if alcohol is detected the car won’t start), and a crackdown on deferred prosecutions.

**How do we know Washington State’s transportation systems are being operated most efficiently?**

The efficient operation of Washington State’s transportation system is assessed by measuring the reduction of the greatest contributors of congestion. In Washington State, the greatest source of congestion is accidents. Reduction in the number of accidents and the average clearance time for accidents provides the best measurement of our progress in improving the efficiency of the system.

**Mobility—System Efficiencies**

Optimize the efficient operation of our current transportation facilities and those we develop in the future

**Commute Trip Reduction (CTR) Program**

In the decade from 1990 to 2000, the percentage of drive-alone commute trips in Washington State decreased slightly from 73.9 percent to 73.3 percent. Washington and Oregon were the only states where the percentage of people driving alone to work decreased

**Goal**

- ▶ Reduce delay time caused by incidents on state highways by providing Incident Response Teams
- ▶ Reduce congestion by reducing the number of single-passenger commute trips through the Commute Trip Reduction program

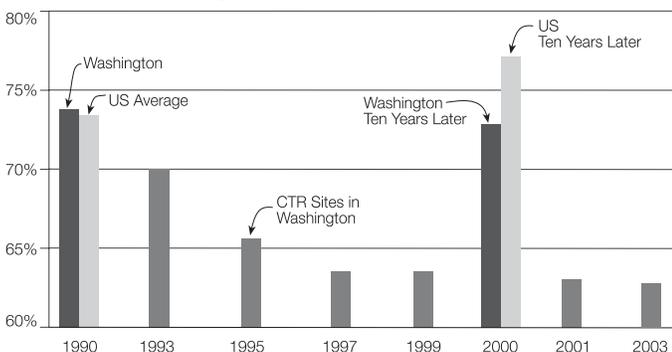
**Measure**

- ▶ Actual overall clearance times
- ▶ Rate of drive alone trips

**What We Measure Today**

Figure II-40

**Comparing Drive-Along Rates: CTR Sites, Washington and U.S.**



This graph compares reductions in the drive-alone commuting rates within the eight counties that began participating in CTR in 1993. The 2000 Census data is for residents of the eight counties. The CTR data applies to the 525 worksites that have participated continuously since 1993. Source: Transportation Demand Management Office

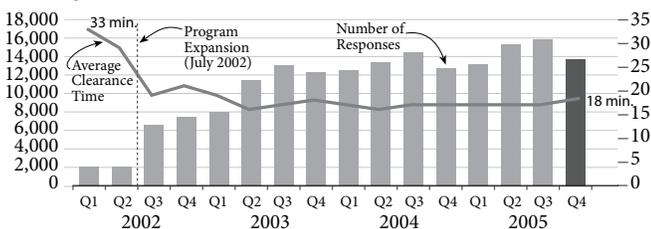
during the decade. Nationally, drive-alone commuting increased 3.4 percent during the same period.

In comparison, since 1993 the drive-alone rate at work sites in the CTR Program decreased even more than the state average. The drive-alone rate at these sites dropped from 69.7 percent in 1993 to 62.8 percent in 2003, a decrease of nearly ten percent.

Figure II-41

**Number of Responses and Overall Average Clearance Time**

January 2002 - December 2005



Source: WSDOT Incident Response Tracking System

Note: Program-wide data is available since January 2002. Prior to Q3 of 2003, number of responses by IRT are shown. From Q3-2003, responses by Registered Tow Truck Operators and WSP Cadets have been reported in the total.

**Overall Clearance Time**

During the fourth quarter of 2005 (October – December), WSDOT Incident Response team members responded to 13,705 incidents. This was down 14 percent from last quarter’s summertime peak of 15,881 responses. However, when compared with the same period in 2004, the number of incidents continues to increase consistent with a steady upward trend since program expansion in 2002 (as shown in the bar chart below). The average clearance time for all responses to incidents was 18 minutes. An incident also tends to invite rubbernecking and gawking, which can suddenly slow traffic down, and may result in a secondary incident.

▶ **Mobility—Bottlenecks and Chokepoints**  
Invest in new facilities and system assets that help address the most severely congested corridors

**Goal**

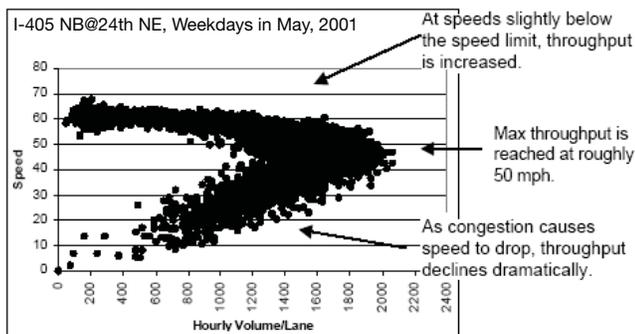
- ▶ Reduce peak travel times
- ▶ Reduce number of slow traffic days
- ▶ Reduce amount of lost throughput efficiency

**Measure**

- ▶ Peak travel times
- ▶ Number of slow traffic days
- ▶ Amount of lost throughput efficiency

**Highlights of Gray Notebook Mobility Measures**

Figure II-42  
Minimal congestion maximizes throughput

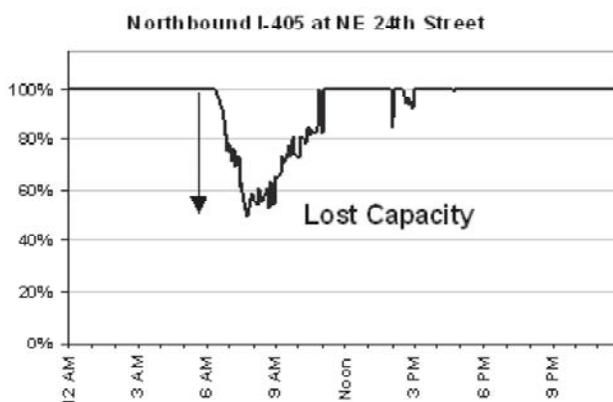


Source: WSDOT

For most roadways, basic day-to-day maintenance activities, such as snow plowing, picking up debris, controlling vegetation, and patching potholes, are the activities needed to keep the road available for optimal use. Each roadway has an optimal capacity where throughput is maximized. The scatter graph to the left, where each dot represents a specific moment's observation of speed and throughput, is typical for a freeway and represents real data from I-405. It shows maximum throughput at about 2000 vehicles per lane per hour.

Maximum freeway throughput should typically be achieved when freeway traffic is flowing at about 45 mph. System throughput drops dramatically when traffic volume forces speeds to drop below 40 mph, as shown by the scatter graph.

Figure II-28  
Percent of Lane Capacity Lost Due to Delay



Source: WSDOT Urban Corridors Office

The Productivity Lost Due to Delay graph (left) shows that during the peak period on I-405 at NE 24th Street, congestion reduces the throughput of the two general-purpose lanes in Renton to the capacity of one free-flowing lane.

WSDOT's goal is to work toward improving productivity of the system by investing in opportunities that provide optimal throughput. WSDOT currently has about 20 projects scheduled for construction in the 2005-2007 biennium that are designed to improve productivity of the system.



**Environmental Quality**

Develop, implement, and use transportation investments in ways that promote energy conservation, enhance healthy communities, and protect the environment

**How do we know health and the environment in Washington State are protected and cared for?**

Vegetation management for the Department of Transportation’s 100,000 acres of roadside must meet operational, safety, environmental, and aesthetic objectives. Management techniques include soils amendment, planting, hand weeding, mowing, tree maintenance, and herbicide application. Herbicide use is a sensitive issue for many citizens, drawing special attention to the importance of Integrated Vegetation Management (IVM).

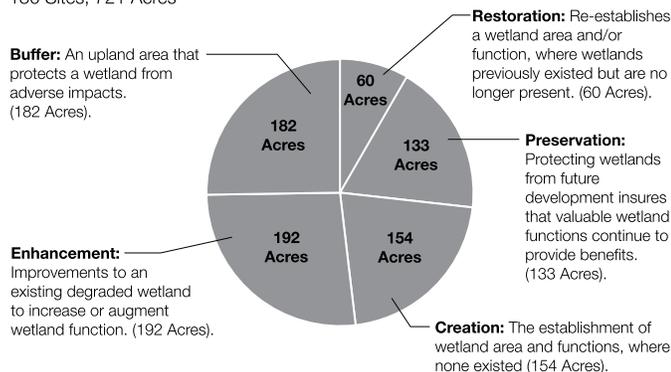
| <b>Goal</b>  | <b>Performance Measure</b>   |
|--|--|
| ▶ Improve streams for fish habitat conditions by removing fish passage barriers                                    | ▶ Number of fish passage barriers removed  |
| ▶ Manage roadsides to achieve better operation and environmental outcomes through Integrated Vegetation Management | ▶ Percent reduction in the use of herbicides<br>Control of noxious weeds<br>Achievement of greater slope stability<br>Preservation of sight distance |
| ▶ Mitigate for unavoidable wetlands loss with replacement wetlands to achieve zero net loss of wetlands            | ▶ Percentage of successful replacement wetlands<br>Percent net loss of wetlands  |

Figure II-43

**WSDOT Replacement Wetlands, 1988-2005<sup>1</sup>**

**Total Acreage of Wetland Projects**

130 Sites, 721 Acres



Source: WSDOT Environmental Services Office

**Types of Wetland Mitigation**

When transportation projects cause unavoidable wetland impacts, wetlands are enhanced, restored, created, or preserved to achieve a no-net-loss policy. The Department of Transportation has a total of 130 replacement wetland sites (721 acres). Monitoring was initiated on four new sites in 2004. Two of these sites were created wetlands, one involved both creation and enhancement of wetlands, and one involved wetland enhancement only. These sites add more than 25 acres to the state’s inventory of replaced wetland acreage.

### Highlights of Gray Notebook Environmental Measures

#### Fish Passage Barrier Removal Projects on Highways Moose Creek under SR 530 at milepost 44 near Darrington in Snohomish County



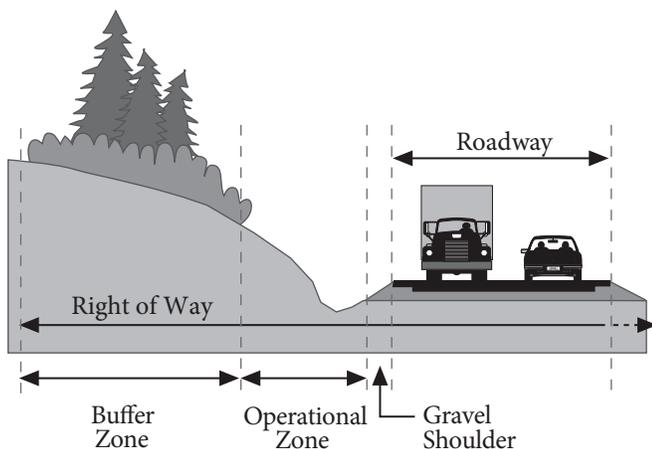
**Before**  
Two corrugated steel culverts are too high and too steep to provide adequate passage

**After**  
New Bottomless culvert replaces the two round steel culverts, eliminating the barrier

#### 2001-2003 Goals Accomplished

The goals for the fish passage barrier removal program during the 2001-03 biennium were to inventory 400 miles of highway and construct 16 fish passage retrofit/replacement projects. These goals were exceeded. An additional 441 miles have been inventoried as of June 30, 2003, and all 16 fish passage projects were successfully constructed. The inventory work is a huge effort and, at present staffing levels, will take a number of years to complete for WSDOT's 7,000-plus miles of highway. The inventory goal for 2003-2005 was an additional 700 miles, which was met and surpassed by 500 miles. As of March 2005, the inventory had been completed on 3,405 miles of state routes, or 48 percent of the total highway system. Fourteen fish passage barrier projects were completed in the 2003-2005 biennium.

#### Integrated Vegetative Management (IVM) of Highway Roadside



#### Gravel Shoulder –Vegetation Free Area

Maintained with herbicides where necessary to allow surface water drainage off the pavement into the ditch.

#### Operational Zone – Grass or Small Trees and Shrubs

Maintained through mowing to allow visibility of signs and traffic at interchanges and curves. Large trees are also removed for safety in case vehicles leave the road. Herbicides are used very selectively for control of noxious weeds and, sometimes, for brush control.

#### Buffer Zone – Natural/Native Vegetation

Wherever possible, the roadside is designed and maintained with native and/or low maintenance vegetation. The IVM approach encourages stable self-sustaining vegetation with limited use of mowing, herbicides, tree removal, and other methods as necessary.