Better: Using American Recovery and Reinvestment Act funding to meet critical priorities and create jobs

The Governor and the State Legislature allocated the state's $340 million in federal stimulus funds for state highways to 40 individual projects and two programmatic funding buckets to address safety needs. These dollars are expected to support more than 3,700 direct, indirect, and induced jobs across the state. In addition to assuring that funds were distributed to areas most impacted by the recession, high priority, unfunded projects were targeted. Low cost, proven technologies that include cable median barriers and rumble strips were also identified as funding priorities.

Recovery Act-funded highway projects

As of August 11, 2009; projects by jurisdiction; dollars in millions

	State	Local	Total
Contracts awarded / Under construction	26	104	130
Projects completed	2	6	8
Recovery Act dollars provided	$340	$152.1	$492.1
Recovery Act dollars obligated to date	$244.6	$126.8	$371.4

Data Source: WSDOT Project Control & Reporting Office, Highways and Local Programs Office.

Preservation

Pavement Rehabilitation WSDOT is spending $133.3 million on preservation projects which will rehabilitate 195 lane miles of hot mix asphalt, 158 lane-miles of chip seal pavement, 52 lane-miles of Portland cement concrete, and dowel-bar retrofit 23 lane-miles of concrete. The American Association of State Highway and Transportation Officials cites that the costs per lane mile for reconstruction after 25 years can be more than three times the cost of preservation work over the same 25 years and can extend the expected life of service of the road for another 18 years.

Benefits include:

■ **Preserve a key economic corridor**
The Recovery Act will preserve stretches of I-90, which carries over 35 million tons of freight travel annually, with an estimated annual value of cargo crossing the pass of $79.6 billion.

■ **Dowel bar retrofits** It is estimated this technique can add 10-15 years to the life of 30 year old concrete highways. The cost for dowel bar retrofitting is approximately $600,000 per lane mile as compared to roughly $2.5 million per lane mile for complete concrete rehabilitation.

■ **Reduce the pavement backlog** This funding will reduce the pavement backlog by over 14% beyond what was funded in the 2009-11 transportation budget. Most significantly, it will reduce the concrete backlog by an additional 36%, reducing the number of past due miles from 264 to 169 (56% reduction).

Bridge Painting WSDOT is painting the 80-year-old, one-mile long Lewis and Clark Bridge, which carries an average of 21,000 vehicles per day between Oregon and Washington. Since its last painting in 1984, the protective coating on the bridge has deteriorated, exposing the steel to the weather and causing rust and corrosion. Phases 1 and 2 will clean and paint piers and bridge towers. Phase 3, set to begin in 2010, will paint the superstructure of the bridge above the roadway. This $47 million phase of construction will include $12.5 million in Recovery Act funding. WSDOT is negotiating with ODOT to match the $12.5 million contribution with an additional $12.5 million.

Benefit Protective paint coatings are essential to prevent corrosion that reduce the steel's capacity to carry truck loads. Bridges that are not painted in time and become too old for an overcoat require full paint removal down to bare metal before repainting. This typically carries a cost that is 20-30% of a bridge's replacement cost.

Congestion relief

A top priority in the Recovery Act was assuring that key projects that would otherwise have been delayed due to funding shortfalls could move forward.

The Recovery Act provided $180 million to assure that five large mobility projects and an economic development project in Yakima stayed on schedule.

■ **I-405 Corridor**

- NE 8th St to SR 520 Braided Ramps, which would have been delayed by one year, is expected to reduce congestion by four to six hours a day on northbound I-405 in Bellevue near the I-405/SR 520 interchange.

- NE 195th St to SR 527, which would have been pushed out to July 2011, is expected to increase speeds by 25 to 30 mph during peak periods.

■ **I-5/Port of Tacoma Road to King County – Add HOV lanes**

Widening I-5 for HOV lanes in each direction between the Port of Tacoma Road and the King/Pierce County line, which will help alleviate congestion along this busy segment of I-5.

Safety

Included in the $14.8 million in Recovery Act funds dedicated to safety improvements is a project to install traffic cameras, electronic message signs, and traffic sensors on a 10-mile stretch of northbound I-5 in the Marysville area. This will complement another project replacing the existing low-tension cable median barrier on I-5 with a concrete barrier. Also included was $9 million to install cable median barriers and $3 million for rumble strips. As discussed earlier, both have proven effective in reducing collisions and their severity.

Washington State Department of Transportation

WSDOT Delivers Results

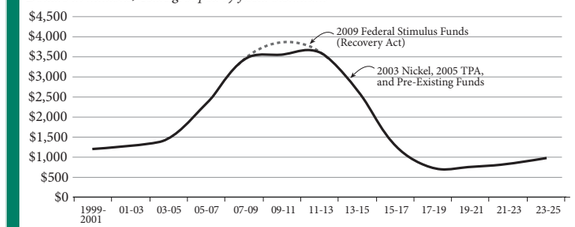
Projects funded by the Nickel and TPA packages, as well as the American Recovery and Reinvestment Act, are improving system performance, making our roadways safer, reducing congestion, and preserving our transportation system assets.

October 2009

Paula Hammond, Secretary of Transportation

Highway construction program by type of funds[1]

Dollars in millions; Years grouped by fiscal biennium



Source: WSDOT Project Control & Reporting Office.

[1] Includes Preservation and Improvement Programs with two exceptions: Excludes expenditures for the Tacoma Narrows Bridge and expenditures in the Improvement Program reimbursed by Sound Transit.

***Accountable:* WSDOT continues to report its performance results to Washington's citizens**

In April 2008, Governor Gregoire challenged WSDOT to measure the effectiveness of its projects on system performance. WSDOT continues to evaluate the effectiveness of these projects through before and after analyses. Of the projects completed and with data available, citizens are seeing the benefits through improved commute times, and fewer fatalities and serious injuries.

WSDOT is at the peak of construction for the Nickel and TPA funding packages, delivering the largest capital construction program in the state's history. By September 30, 2009, almost three-quarters of these projects, valued at $6.6 billion, will be completed or under construction.

This publication talks about three key measures, as WSDOT moves you more safely and faster, by making good investments in the transportation system.

***Safer:* 22% fewer fatal and serious injury crashes**

A study of 25 completed Nickel and TPA safety projects show that they have reduced fatal and serious injury collisions by 22%. The Before & After study results appear on **page 2**.

***Faster:* An average of 7mph faster commutes on 15 regional routes** A before and after analysis of selected Nickel and TPA mobility projects shows that travelers' speeds increased an average of seven mph following project completion. Results for improved commutes and trip times on **page 3**.

***Better:* WSDOT is leveraging federal stimulus money to complete more projects across the state**

In addition to projects funded by the 2003 (Nickel) and 2005 (TPA) transportation funding packages are an additional 40 state-managed and 147 local projects funded through the American Recovery and Reinvestment Act. Recovery Act funding has contributed a significant 'bump' of $492 million to the money WSDOT had available to complete its already impressive capital projects construction plan. WSDOT, along with cities and counties, leveraged the $492 million into nearly $1.4 billion by combining federal dollars with partially funded, ready-to-go projects. To learn more, turn to **page 4**.

Safer: Results show WSDOT's targeted highway projects make a difference to traveler safety

The state's Strategic Highway Safety Plan, Target Zero, outlines the goal to achieve zero traffic fatalities by 2030. WSDOT assesses safety projects by comparing a route's history for several years prior to construction with data collected after construction. Twenty-five Nickel/TPA projects completed between October 2003 and September 2006 resulted in a 1.4% reduction in all injury/fatal collisions (245.3 compared to 242), and a 22.3% reduction in all serious injury/fatal collisions (18.7 compared to 14.5).

Traffic fatalities on state highways are decreasing

Over the past 18 years, the fatality rate on all Washington public roads (state, city, and county) has decreased 49%, from 1.85 in 1990 to 0.94 in 2008. For Washington State highways only, during this same time period, fatal and serious injury collisions have declined 59%, from 2,491 collisions in 1990 to 1,024 in 2008 while the state highway VMT increased 29%. The year 2008 represents the greatest one year reduction of fatal and serious injury collisions on state highways since 1990, and the lowest number of traffic fatalities recorded (522) since 1955 (461).

Other funded Nickel safety priorities

The Nickel package set aside $20 million to replace existing guardrail barriers that were built to now-outdated safety standards and another $10 million for the strengthening of nonstandard bridge rails statewide.

Sixteen guardrail projects have been completed for just over $4.5 million, while five bridge rail replacement projects have been completed for just over $1 million.

Project results: 22% fewer fatal and serious injury crashes

Cable median barriers prove effective

Fifteen of the projects included in the study of 25 safety projects are installations of cable median barriers. Cable median barrier safety projects help prevent collisions that result in injuries and fatalities, and reduce the severity of those collisions that do occur. An analysis of the before and after data of cable median barriers from 1995 – 2008 shows:

- 59% fewer serious injury median collisions
- 25% fewer fatal median collisions
- 44% decrease in the rate of fatal median collisions

WSDOT has installed cable barriers in the majority of medians that are 30 to 50 feet wide. Next steps include replacing low tension barriers with high tension, four-cable barrier systems that provide greater protection against vehicles getting under or over barriers. The Recovery Act provided funding to advertise three projects that will replace nearly all the low tension installations statewide.

■ SR 500/NE 112th Ave Interchange

Clark Co., operationally complete June 2005: This project constructed an interchange on SR 500 at NE 112th Avenue and Gher Road, replacing the existing high-speed signalized intersection. There were 206 recordable collisions in the three-year period before construction, an average of 69 collisions a year. There were 96 collisions in the two years since construction has completed - an average of 48 per year.

Benefit: A 30% reduction in collisions despite traffic volumes increasing by 20%.

■ US 395/Kennewick VMS

Benton Co., operationally complete July 2004: This section of US 395 near Kennewick experienced a number of congestion-related collisions. By installing a Variable Message Sign and camera near the north end of the Blue Bridge, this project improved highway safety by warning approaching traffic of back-ups and emergencies ahead.

Benefit: An 11% reduction in all injury collisions and a 23% reduction in serious injury and fatality collisions.

Rumble strips: Low cost, high return

WSDOT has installed centerline rumble strips on roughly 960 miles of Washington highways. Rumble strips are grooves or rows of raised pavement markers placed at the edges of pavement of the center-line. As a vehicle passes over the rumble strips, they produce noise and vibration, alerting drivers they are drifting from their lane. WSDOT engineers have conducted preliminary evaluations of 518 miles with rumble strips that have been in place six months or longer, and the preliminary results indicate:

- A 28% reduction in all fatal and serious injury collisions.
- A 26% reduction in all cross-centerline collisions.
- A 50% reduction in fatal and serious injuries resulting from cross-centerline collisons.

Before and After results for 25 Nickel/TPA safety projects

Collisions annually: 24-36 months before and after construction

	Serious injury/Fatal	All injury (including fatal)	All types of collisions	Property damage only
Before period data	18.7	245.3	639.0	393.7
After period data	14.5	242.0	731.8	489.8
Percent change +/-	-22.3%	-1.4%	14.5%	24.4%

Data source: WSDOT Transportation Data Office.

Moving Washington: WSDOT's balanced program to fight congestion

Effective transportation is critical to maintaining our economy, environment and quality of life. Moving Washington is WSDOT's vision of investments and priorities for the next 10 years. It includes a balanced strategy that integrates new capacity, efficiencies, and commute options to address congestion head-on and improve the performance of our state's transportation system.

Faster: WSDOT's congestion relief projects are moving more traffic in less time

WSDOT's program for addressing congestion is Moving Washington, a three-part strategy comprised of adding highway capacity strategically, operating the system more efficiently, and managing demand. Highway mobility projects funded by the Nickel and TPA packages are part of that larger program.

A Before and After analysis of 15 completed Nickel and TPA projects statewide showed an average improvement in travel speeds of 7 MPH during peak periods with improved travel times of up to 2.5 minutes. Commute times through these project segments improved by 15% (1 minute savings on average). The improvements occurred despite traffic volumes increasing by 14% on these segments.

An earlier study of completed Nickel and TPA mobility projects showed similar improvements. Ten additional projects showed daily average speeds increased by 18% from an average of 39 MPH in the before period to 46 MPH in the after period. Combined travel times for these 10 projects improved by 1,834 hours per day (a 10% improvement). For more information on this study please see: http://www.wsdot.wa.gov/NR/rdonlyres/BE788045-A653-4716-ACB2-5D78B4AA6F59/0/GrayNotebookSep08.pdf#page=54.

Project results: 7 mph faster commutes on 15 regionsl routes

■ I-405 South Bellevue Widening

King County Operationally complete January 2009: The I-405 South Bellevue Widening project expanded capacity at a bottleneck location by adding a new auxiliary general-purpose lane. The opening of the additional lane reduced travel times, improved reliability, and reduced congestion.

Benefit: The average morning peak period travel time dropped from recent averages of 32 and 35 minutes in the past two years, to 21 minutes following the opening of the new lane.

■ SR 502/I-5 Interchange

Clark County Operationally complete October 2008: This project constructed a new interchange on I-5 with SR 502 at 219th Street, the project has reduced congestion, improved traffic flow, and provided a more direct connection between Battle Ground and I-5.

Benefit: Following project completion southbound commuters during the morning peak period (6 am-10 am) saw travel times improve by 7 minutes with speeds increasing from an average of 19.4 MPH to 54.9 MPH. This occurred despite the fact that volumes increased by 49% following project completion. During the evening peak period (2 pm-6 pm), commuters saw travel times improve by 2 minutes, with speeds increasing by nearly 20 MPH.

Before and After results for 15 Nickel and TPA mobility projects*

15 completed projects: Changes in peak period travel

	Before	After	Change
Average speed	38 MPH	45 MPH	7 MPH (+20%)
Peak period travel times combined[1]	84 Minutes	71 Minutes	13 Minutes (-15%)
Volumes combined (vehicles)[2]	28,152	32,124	3,972 (+14%)

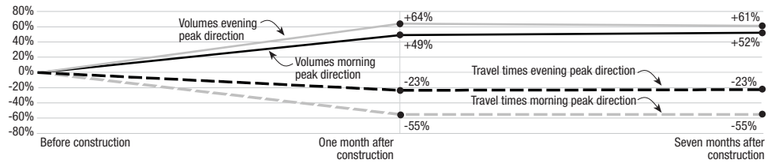
Source: WSDOT Transportation Data Office

1. Before and after results measured for peak direction commutes only, either AM (6 AM-10 AM) or PM (3 PM-7 PM).
2. Volume data available for 14 projects.

* Note: Volume information is based on traffic counts and speed information is based on modelled data. These projects are those completed mobility projects with the necessary data to support a Before & After analysis. WSDOT received funding to purchase additional equipment to perform a greater number of and more precise Before & After studies in the future, and has been actively collecting data to conduct those studies.

Before and after results for SR 502/I-5 interchange project

Percent change for peak direction travel times and volumes



Data source: WSDOT Transportation Data Office.