

2006 Construction Highlights Report



2006 Construction Highlights Report

Each spring the Washington State Department of Transportation selects a handful of highway construction projects from each of our region offices for a year-end evaluation of the project's construction phase. The 2006 Construction Highlights Report provides the results of this self-assessment of our on-time and on-budget performance. This is WSDOT's sixth annual report.

These 25 projects provide a snapshot of the variety, complexity, and size of our Construction program. Six of the projects (24%) had the highest, five-star ratings in each of the four evaluation categories. Our project evaluations rate each project on design, construction administration, schedule and cost.

This report is just a sampling of the many projects that were under construction in 2006. There were 185 active construction projects ranging in cost from \$95,000 to \$615 million. This represents approximately \$2 billion in ongoing work.

On the following pages are the evaluations for each of the 25 construction projects that were completed, or nearly completed, during the 2006 construction season.

2006 Project Highlights Evaluation Criteria

Rating System

- ★ Major impact, preventable >25% cost growth
- ★★ Major, significant impact, 15% to 25% cost growth
- ★★★ Moderate impact, 10% to 15% cost growth
- ★★★★ Minor impact, 5% to 10% cost growth
- ★★★★★ No impact, or up to 5% cost growth

Design

Errors in the plans

Ability to have corrected with information available

Impact on cost and schedule

★ Major design problems encountered, most of which could have been resolved with the information available during design. These issues have led to major impacts on project cost and schedule.

★★ Major design problems encountered, many of which could have been resolved with the information available at the time of design. These issues have had a significant impact on the project cost and schedule.

★★★ Moderate design issues encountered, some of which could have been resolved with the information available at the time of design. Impact on project cost and schedule is moderate.

★★★★ Some design issues encountered, most of which would have been difficult or impractical to resolve with the information available at the time of design. Project schedule and budget are close to planned, in spite of these issues.

★★★★★ Virtually no design problem encountered, or only minor problems encountered that would have been difficult to resolve in design with the information available. Project has maintained schedule and budget as planned.

Contract Administration

Issue resolution to avoid increase cost and schedule

Communication and partnering

Focus on safety, workmanship, and environmental stewardship

★ Contract team is unable to stay on top of issues. Most if not all resolutions are reactionary, resulting in impacts to the schedule and cost of the project. Communications have broken down and all attempts at a partnering atmosphere have failed. Project team completely lacks focus on safety, workmanship, and environmental stewardship.

★★ Contract team is unable to stay on top of issues. Few issues are resolved proactively, and the result is an impact on project schedule and cost. Communications are poor and attempts at a partnering atmosphere have marginal results. Project team fails to dedicate adequate focus on safety, workmanship, and environmental stewardship.

★★★ Contract team is struggling to stay on top of issues. Attempts are made at managing the project in a partnering atmosphere, but frequent breakdowns in communication are evident. Some issues are addressed proactively, but many are not, resulting in impacts to the schedule and cost of the project. Project team has some focus on safety, workmanship, and environmental stewardship, but it is not consistent or uniform.

★★★★ Contract team is managing most issues and avoids major impacts to the cost and schedule of the project. Communication and partnering efforts are generally good, with a mutual commitment to strengthen. Most issues are addressed proactively and resolved to the mutual benefit of the team. Project team has a good focus on safety, workmanship, and environmental stewardship, with shortcomings resolved promptly.

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★★★★★Contract team is on top of all issues and managing the project in a partnering atmosphere. Issues are addressed proactively and resolved with mutual satisfaction before they impact the cost and schedule of the project. Project team exhibits a strong focus on safety workmanship, and environmental stewardship.

Schedule

Schedule

Duration

Public inconvenience

★Project is substantially behind the originally anticipated completion date. Delays have pushed the completion date into another construction season. Significant inconvenience, traffic impacts and delays for the traveling public is expected, beyond what was originally planned.

★★Significant delay in project schedule. Overall duration of the project is well beyond the original anticipated completion date, pushing work into a less than optimal season. Public will experience a major increase in inconvenience due to traffic restrictions.

★★★Moderate schedule delay from the originally anticipated completion date. Delay has pushed the completion later in the construction season, but has not pushed it into another construction season. Public will be inconvenienced for a longer period, but the duration is moderate.

★★★★Minor schedule delay from the originally anticipated completion date. The overall duration of the project has extended a minor amount. As a result, inconvenience to the public, beyond what was originally envisioned, will be minor or not existent. Project is scheduled for an on time completion.

★★★★★Minor adjustments to the schedule have been managed to essentially preserve the original completion date and delays to the public have not exceeded those originally envisioned.

Cost

Comparison to bid

Comparison to estimate

★Project cost substantially exceeds the original anticipated budget amount. Changes orders and/or quantity variations are substantial. Total dollars paid to contractor are anticipated to be over 25% of the original bid amount and well in excess of the final engineer's estimate for this project. Most of the cost growth could have been prevented with the information available during design. Impact and delay costs are a major portion of added cost.

★★Project is growing in cost (>15% over bid and estimate). Changes and quantity variations are large. Most of the added cost is for work that should have been identified in the original contract based on the information available during design. Impact and delay costs are a significant part of the overall increase in cost.

★★★Project is growing in cost (>10% over bid and estimate). Changes and quantity variations are large, but have lead to added value. Added work is necessary to accomplish the goals and objectives for this project. Most of these additions are for issues that could not have been reasonably known and resolved at the time of design.

★★★★Project is growing in cost (within 5% of the bid or estimate). Changes and quantity variations exist, but they are small in comparison to the overall project and have lead to added value. Delay and impact costs are being held to a minimum and a majority of the growth is for direct costs. These additions are issues that would not have been reasonably solved with additional design effort.

★★★★★Project is tracking right on the original budget with only minor changes and quantity variations. Cost growth on project through quantity variations, and change orders do not exceed 5% of original bid amount. Bid amount compares favorably to the engineer's estimate (within 10%)

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Project	Contractor	Design	Const. Mgt.	Schedule	Cost	Total Points
SR 14 – Leiser Road Bridge Repair	Selby Bridge	★★★★★	★★★★★	★★★★★	★★★★★	20
SR 17 – Mesa to Basin City Paving	Transtate Paving Co.	★★★★★	★★★★★	★★★★★	★★★★★	20
I-90 – Replaces Potato Hill Bridge	Weaver Construction	★★★★★	★★★★★	★★★★★	★★★★★	20
SR 112 – Bear Creek Culvert	Bruch & Bruch, Inc.	★★★★★	★★★★★	★★★★★	★★★★★	20
SR 202 – 224th Ave. NE	Tri-State Const. Inc.	★★★★★	★★★★★	★★★★★	★★★★★	20
SR 207 – Wenatchee River Bridge Rail	Frank Gurney, Inc.	★★★★★	★★★★★	★★★★★	★★★★★	20
I-90 – Kachess River Bridge	Concrete Barrier, Inc.	★★★★★	★★★★★	★★★★★	★★★★	19
I-90 – East Channel Bridge Painting	Purcell Painting	★★★★★	★★★★	★★★★★	★★★★★	19
SR 531 – Smokey Point Blvd.	SRV Construction Inc.	★★★★★	★★★★★	★★★★	★★★★★	19
SR 16 – Wollochet Dr. NW	Tucci & Sons	★★★★★	★★★★★	★★★★	★★★★	18
SR 20, etc. – Eastern Region Chip Seal	Central WA Asphalt	★★★★	★★★★★	★★★★★	★★★★	18
SR 165 – Carbonado to SR 410	Woodworth & Co.	★★★★★	★★★★★	★★★★	★★★★	18
I-5 – I-205 to N. Fork Lewis River Bridge	Acme Concrete	★★★★	★★★★★	★★★★	★★★★	17
I-5 – East Fork Lewis River Bridge	KLM Construction	★★★★	★★★★★	★★★★	★★★★	17
SR 20 – Troxel Road Vicinity	G.G. Excavation, Inc.	★★★★	★★★★★	★★★	★★★★★	17
SR 164 – 158th Ave. SE to High Pt.	Rodarte Construction	★★★★	★★★★	★★★★	★★★★★	17
SR 31 – Metaline Falls to Intn'l Border	M.A. DeAtley, Inc.	★★★★	★★★★	★★★★	★★★★	16
US 97 – Wells Dam/Starr Boat	Basin Paving Co.	★★★★	★★★★★	★★★	★★★★	16
SR 202 – SR 520 to Sahalee Way	Northwest Construction	★★★★	★★★★★	★★	★★★★★	16
SR 548 – Portal Way Vicinity Signal	Signal Electric Inc.	★★★★	★★★★	★★★★	★★★★	16
I-82 – Yakima to Prosser Weigh	Aztech Electric Inc.	★★	★★★★★	★★★★	★★★★	15
US 101 – Brockdale Road	ACE Paving Co. Inc.	★★★★★	★★★	★★	★★★★★	15
SR 291 – Vicinity Nine Mile Safety	Steelman - Duff	★★★★	★★★★	★★★	★★★	14
SR 516 – 208th & 209th Ave.	Road Construction NW	★★★★	★★★★	★★	★★★	13
SR 522 – Paradise Lake Road	Scarsella Brothers	★★	★★★	★★	★	8

2006 Construction Highlights Report

SR 14 – Lieser Road Bridge Repair

Clark County

We repaired the Lieser Road Bridge after a flatbed truck hauling an oversized forklift collided into the overpass on eastbound SR 14 a few miles west of I-205 in Vancouver. The resulting damaged bridge girders caused WSDOT to close the adjacent lane of the bridge until repair due to safety concerns. The work included demolishing the damaged portion of the bridge, repairing one and replacing two of the seven existing concrete girders, and replacing the affected portion of the bridge deck. The Lieser Road Bridge provides a direct link to the Southwest Washington Medical Center hospital from SR 14 – the main east-west artery within Clark County - so minimizing traffic impacts was essential.

Construction Summary

During construction, the Selby Bridge Company and WSDOT initiated several alternative solutions to save money and lessen traffic impacts while providing the same quality product:

- WSDOT removed the contract requirement to the waterproof membrane between the deck and the asphalt paving. It was not feasible for a water-tight seal between the old and new membrane to be achieved, and epoxy-coated deck steel had been detailed to prevent corrosion.
- WSDOT approved a Contractor-proposed demolition method that crushed the damaged portion of the bridge into rubble. The demolition was completed in only 5 hours – much less than conventional demolition methods.
- WSDOT performed a daily survey after deck concrete placement to monitor the settlement of the newly placed girders. This allowed the bridge to fully open to traffic ahead of schedule.
- When crews encountered conditions that did not match the bridge as-builts, WSDOT and Selby Bridge were quick to develop solutions so work was not delayed.
- The Contractor was flexible in scheduling their work activities in order to allow passage of emergency response vehicles through the work zone. WSDOT also kept the hospital dispatch apprised of changes in traffic control that would affect their response time. Comments expressing satisfaction with traffic impacts were received from both the public and the hospital.

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★★
Cost	★★★★★

- Engineer's estimate: \$673,256
- Contractor's bid amount: \$549,693
- Anticipated final payment to contractor: \$489,271



Lieser Road Bridge

This contract restored the bridge to its original 1969 condition. The insurance company of the party responsible for the damage to the bridge was billed for the repairs.

WSDOT used this opportunity to replace signs on the bridge earlier than scheduled, saving money on traffic control and eliminating the need for illumination. The new bridge was open to traffic in both directions on July 13, 2006, within the allotted working days. Physical completion was reached on August 18, 2006. The final project cost was 11% lower than the contract bid amount.

Contractor:

Selby Bridge, Inc.
Vancouver, WA

WSDOT Contact:

Chris Tams, P.E.,
Columbia Gorge Area Engineer
(360) 759-1325
swgorge@wsdot.wa.gov

2006 Construction Highlights Report

SR 17 – Mesa to Basin City Road – Paving

Franklin County

Crews paved just over two miles of SR 17 near Mesa, providing a new driving surface in place of the old deteriorated pavement. They added continuous centerline rumble strips and recessed pavement markers throughout the entire project to reduce cross-over head-on collisions. Our contractor also updated highway signing and pavement striping. As a result of these improvements, drivers enjoy a smooth ride, the life of the roadway is extended, and safety is improved for the motorists.

Construction Summary

This project was constructed as designed, with the exception of proposed illumination upgrades. These upgrades were not possible because the existing system was not compatible with the proposed retrofit. This \$1,750 item of work was deleted from the contract. Only one change order was needed due to the design oversight and it had a minimal affect on the contract's final cost.

WSDOT, Transtate Paving and the project subcontractors established good communication early in the project. They were able to avoid delays and project conflicts due to effective communication.

The project was on schedule, completed on August 11, 2006 with 0.5 working days remaining.

Contractor

Transtate Paving Company
Pasco, WA

WSDOT Contact

Moe Davari, Project Engineer
(509) 222-2402
davarim@wsdot.wa.gov

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★★
Cost	★★★★★

- Engineer's estimate: \$483,224
- Contractor's bid amount: \$408,527
- Anticipated final payment to contractor: \$413,045

2006 Construction Highlights Report

I-90 – Replaces Potato Hill Bridge

Grant County

We replaced a low-clearance bridge on I-90 in the City of Moses Lake. It was the last under-height bridge between George and Moses Lake on I-90 to be raised or replaced. Over-height trucks no longer have to take a time-consuming 40 mile detour. This reduces truck traffic on the secondary state highways, as well as reduces maintenance costs for those routes.

Construction Summary

The project was constructed as originally designed and no major changes have occurred as a result of design issues. Prior to advertising this project for construction, we coordinated with the City of Moses Lake to incorporate pedestrian and bicycle facilities into the new bridge. This eliminated a separate adjacent structure that had been proposed. We modified our structure design to accommodate the increased sidewalk widths and added sidewalk at the ends of the bridge to tie into the local network.

Construction was completed while maintaining continuous traffic flow on both I-90 and on Potato Hill Road. One lane of traffic in each direction was maintained at all times on I-90. One lane, signal controlled traffic was in effect for Potato Hill Road traffic during most of the work. To eliminate further reduc-

ing the low clearance issue under the existing bridge during construction of the new one, the deck of the bridge was constructed with pre-fabricated concrete panels. That eliminated all the wooden falsework necessary if the deck had been poured in place. The falsework would have reduced the clearance to even less than the 14-feet under the old bridge. Use of the pre-fabricated slabs improved the quality of the deck and reduced the traffic realignment necessary on I-90 to only a few days instead of weeks. The contractor worked well with WSDOT personnel to reduce the traffic restrictions as much as possible.

One of the challenges with the project's schedule was the paving work, slated to be completed late in the year, potentially compromising our final product. We collaborated with the contractor in order to complete all paving the first week in October. All construction activities were completed ahead of the allowable contract working days. The project is within budget and no cost over-runs are anticipated. Construction began March 6th and was operationally complete in early November.

A comprehensive public and emergency services notification plan using, e-mail, fax, media notifications, 5-1-1 and the WSDOT web pages kept travelers informed of traffic impacts and construction activities. The traffic control and



Potato Hill Bridge

work zone safety plans were successful. There were no WSDOT or contractor personnel injuries reported during construction and no project related vehicle accidents.

Contractor:

Weaver Construction Co.
La Grande, OR 97850

WSDOT Contact:

Mike Fleming, Project Engineer
PO Box 98
Wenatchee, WA 98807-0098
(509) 667-2870
flemim@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Projects/I90/Potato-HillBridgeReplacement/

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★★
Cost	★★★★★

- Engineer's estimate: \$2,740,365
- Contractor's bid amount: \$2,838,131
- Anticipated final payment to contractor: \$2,838,131

2006 Construction Highlights Report

SR 112 – Bear Creek Culvert Replacement

Port Angeles, Clallam County

This environmental retrofit project was located west of Port Angeles on SR 112 at Bear Creek. Crews replaced a deficient concrete culvert with a three-sided concrete structure that will provide better fish passage. The new structure creates a natural stream flow under the highway with a fish-friendly gravel streambed.

Construction Summary

The project was constructed according to the original design with only a minor change to the water line placement under the bridge deck. There were no increases to contract time or cost on this project as a result of this change proposed jointly by the utility company and the contractor.

The contractor’s bid amount was 27 percent below the engineer’s estimate because the work was very predictable and had reasonable timeline. The contract work was completed 3.4 percent under the contract bid amount.

The project involved completely tearing up the highway surface, and required that SR 112 be closed for three days. WSDOT held two community meetings (one in Joyce and the other in Sekiu) in November 2005 to find the preferred dates for the closure that would result in the least impact on these communities. A survey was conducted and based on the public’s response; the highway was closed July 19-22 without incident. Motorists used the highly publicized detour route of SR 113 and US 101.



Bear Creek Culvert

Contractor:

Bruch & Bruch, Inc.
Bruch & Bruch Construction
Port Angeles, WA

WSDOT Contact

Jerry D. Moore, Project Engineer
(360) 457-2575
moorej@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Projects/

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★★
Cost	★★★★★

- Engineer’s estimate: \$450,185
- Contractor’s bid amount: \$327,566
- Final payment to contractor: \$316,303

2006 Construction Highlights Report

SR 202 – 244th Avenue NE

King County

This project is located approximately six miles east of the city of Redmond at the intersection of SR 202 and 244th Avenue NE. Crews installed a temporary signal in June of 2005 to immediately reduce the number of collisions plaguing the intersection. They also widened the intersection to add left and right turn-lanes and installed a permanent signal system. The turn lanes help alleviate the heavy congestion on 244th Avenue NE and the new signal makes the intersection safer and more efficient.

Construction Summary

Crews began grading, electrical and paving work in mid August 2006 after a four month waiting period for materials to arrive on site. Because signal poles must be fabricated, signal contracts are designed with suspension of work built in to the schedule. Due to this lengthy wait period, the signal steel items, including the signal poles, were not available until after the paving deadline of October 1, 2006. In order to complete paving before the end of the paving window, WSDOT and the contractor paved the roadway first, then returned after the new poles and signal were installed to pave the area where the temporary signal poles had been. As a result, we were able to complete the project without extending construction into next year.

Contractor:

Tri-State Construction, Inc.
Bellevue, WA

WSDOT contact:

Dave Lindberg, Project Engineer
(425) 814-7104
lindbed@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Projects/SR202/244thAveNE

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★★
Cost	★★★★★

- Engineer's estimate: \$446,967
- Contractor's bid amount: \$462,823
- Anticipated final payment to contractor: \$462,000

2006 Construction Highlights Report

SR 207 – Wenatchee River Bridge Rail Retrofit

Chelan County

This project is located near Lake Wenatchee State Park, four miles north of the US 2 and SR 207 intersection in western Chelan County. This safety improvement project is part of a statewide effort to upgrade existing guardrail. It also brought the obsolete bridge rail on the Wenatchee River Bridge up to current standards.

The original bridge railing consisted of a steel collision rail fastened to the bridge trusses and concrete railing at the ends of the bridge approaches. This type of ornate railing was commonly used on many 1940's-era steel bridges. Today's heavier vehicles, traveling at faster speeds coupled with aging concrete rail, resulted in the need to retrofit this bridge with a more crashworthy system. The project reduces the likelihood of vehicles going into the river while crossing the bridge or over embankments at the approaches to the bridge. It also protects the bridge structure from vehicle collision damage and reduces maintenance requirements.

Construction Summary

WSDOT and its contractor had a very good working relationship throughout the project. Construction challenges were quickly resolved, reducing costs and traffic impacts.

Construction began on April 24 and was completed on May 5, five days ahead of schedule. The project was completed according to the plans and special provisions and there were no change orders on this project. The plans and special provisions allowed the contract to move forward quickly and accurately.

A comprehensive public and emergency services notification plan used, e-mail, fax, media, 5-1-1 and WSDOT web pages to keep travelers informed of traffic impacts and construction activities. The traffic control plans and the work zone safety plans were successful. There were no WSDOT or contractor personnel injuries reported during construction and no project related vehicle accidents.



Wenatchee River Bridge

Contractor:

Frank Gurney, Inc.
Spokane, WA 99211-1557

WSDOT Contact:

Kevin Waligorski, Project Engineer
PO Box 98
Wenatchee, WA 98807-0098
(509) 667-2880
waligok@wsdot.wa.gov

Project web page:

[www.wsdot.wa.gov/Regions/
NorthCentral/projects/SR207/
WenatcheeRiverRailRetrofit/](http://www.wsdot.wa.gov/Regions/NorthCentral/projects/SR207/WenatcheeRiverRailRetrofit/)

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★★
Cost	★★★★★

- Engineer's estimate: \$92,554
- Contractor's bid amount: \$101,124
- Anticipated final payment to contractor: \$100,840

2006 Construction Highlights Report

I-90 – Kachess River Bridge – Deck Rehabilitation

Kittitas County

This project is located on eastbound I-90 at milepost 69.5, two miles west of Easton. The contractor rehabilitated the bridge deck by grinding the deck and approach slabs and applying one and a half inch rapid set latex modified concrete overlay. This deck rehabilitation project extends the service life of the bridge and provides motorists a smooth ride.

Construction Summary

WSDOT and Concrete Barrier Inc. worked together very well. Shortly after contract execution, Concrete Barrier Inc. submitted a work schedule that met the specifications and did not require revisions during the length of the contract. Worksite safety was a top priority for both WSDOT and Concrete Barrier Inc. At the beginning of each shift, the project superintendent met with the project inspector and his crew and reviewed work activities for the shift. This ongoing coordination was a critical factor in minimizing project-related delays to motorists.

The project had no change orders due to a thorough job by the design team. Extra time was spent on the deck preparation, given the condition of the existing bridge deck, raising the final contract cost over the engineer's estimate. Due to the nature of the work, bridge deck preparation can only be estimated at the design stage of a project. Because WSDOT has no way to predict how much deck repair and preparatory work will be required, bridge deck rehabilitation projects are paid by invoice for the amount of time and materials used, rather than by a bid price for the work. Despite the added work, which also added value to the project, no additional delay costs were incurred and the project was completed in the original allotted time.



Before



After

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★★
Cost	★★★★★

- Engineer's estimate: \$278,292
- Contractor's bid amount: \$266,407
- Anticipated final payment to contractor: \$307,608

Contractor

Concrete Barrier, Inc.
Mukilteo, WA

WSDOT Contact

Will Smith, Project Engineer
(509) 577-1840
smithw@wsdot.wa.gov

2006 Construction Highlights Report

I-90 – East Channel Bridge Painting

King County

This project involved coating the interior bottom of the steel tub girders that comprise the two Interstate 90 bridges that cross the East Channel of Lake Washington between Mercer Island and Bellevue. A rust penetrating epoxy sealer and top coat was used to help prevent further corrosion of the steel that had occurred due to moisture buildup inside the girders.

Construction Summary

Overall, WSDOT and Purcell Painting & Coatings worked well together to successfully complete this project ahead of schedule. The design was solid and the scope of the work was clear. The only change order was for removing minor concrete debris encountered on the floor within girders resulting in minimal costs.

There were difficult issues that had to be addressed such as environmental, hazardous materials, toxic fumes, and confined space. Early measures were in place to ensure no materials escaped from the work area into Lake Washington. The crew had to be trained in proper procedures on wearing appropriate respiratory equipment, monitoring flammable and toxic gas levels, confined space entry, and handling of materials. Through out the project, mutual cooperation and problem solving between WSDOT and Purcell Painting & Coatings converted this potentially dangerous project into a very successful one.

Contractor:

Purcell Painting & Coatings
Tukwila, WA

WSDOT Contact:

Julia Mizuhata, Project Engineer
(206) 764-4105
mizuhaj@wsdot.wa.gov

Evaluation

Design	★★★★★
Contract Administration	★★★★
Schedule	★★★★★
Cost	★★★★★

- Engineer's estimate: \$331,922
- Contractor's bid amount: \$196,804
- Anticipated final payment to contractor: \$195,000

2006 Construction Highlights Report

SR 531 – Smokey Point Blvd. Vicinity to 40th Ave. NE

Access Management

Smokey Point, Snohomish County

To keep traffic moving and drivers safe, we limited access on State Route 531 through downtown Arlington by replacing an existing two-way left turn lane with raised median traffic islands. Crews also installed several left-turn pockets and a bus pullout/U-turn pocket at the southeast corner of the SR 531/Smokey Point Boulevard intersection. The raised median islands will reduce the chance of dangerous sideswipe and head on collisions by restricting left turns. Designated turn pockets and u-turns at signals will provide access to businesses.

Contractor:

SRV Construction, Inc.
Oak Harbor, WA

WSDOT contact:

Amir Ahmadi, Project Engineer
(425) 225-8725
ahmadi@wsdot.wa.gov

Construction summary

This project was advertised and awarded in 2005; however, construction did not commence until 2006 because it took a long time to procure signal equipment. Despite our late start, the project was finished on time (within working days) and under budget.

Except for minor issues, design plans were solid. We had a total of two change orders: one with no cost and another to install curbing based on requests from citizens and the City of Arlington.

In addition to daily lane closures, our construction contract authorized a continuous lane closure over a weekend so crews could build a bus pullout. Our contractor, SRV Construction, Inc., was able to avoid the lane closure, which would have had a significant effect on traffic. We also coordinated with the adjacent Smokey Point Bridge Replacement Project to help minimize affects on traffic, businesses and surrounding communities.

Many drivers were used to making left turns in the area. We were concerned that some of these drivers wouldn't notice the new curb in the days following installation. To avoid surprising drivers, we provided advance notice of the change by placing signs and high-visibility devices such as safety drums in the center turn lane before the new curbs were installed.

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★
Cost	★★★★★

- Engineer's estimate: \$238,045
- Contractor's bid amount: \$237,366
- Anticipated final payment to contractor: \$218,454

2006 Construction Highlights Report

SR 16 – Wollochet Dr. NW – Signal and Paving

Pierce County

This project was located in Gig Harbor, at the SR 16 interchange with Wollochet Drive. We constructed a signal system for eastbound SR 16 off- and on-ramps to and from Wollochet Drive. Interchange improvements included paving on Wollochet Drive and an asphalt overlay of all four ramps at the interchange. Basic safety upgrades were also done.

The main benefits to the public include improved traffic flow, protected left-turn traffic movements, and safer, upgraded guardrail and guardrail ties to bridge barrier. The new pavement provides a smoother driving surface for drivers and extends the life of the roadway for another 10 to 15 years.

Construction Summary

This project was constructed according to the plans with a few changes. The quality and detail of the design were more than sufficient to implement the contract. The contractor's personnel are good to work with and conscientiously deliver a quality end product that is of good value. The contractor aggressively pursued the project. A total of three and one-half working days were added to the contract as a result of changes. The contractor completed all contract work within the allotted time by exercising proper contract management. There were 13 minor change orders during this project, adding \$26,729 to the contract total. The project was completed under the contractor's bid amount.



Wollochet Drive

Contractor

Tucci & Sons
Tacoma, WA

WSDOT Contact:

Dave Ziegler
(253) 534-3100
ziegled@wsdot.wa.gov

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★
Cost	★★★★

- Engineer's estimate: \$592,735
- Contractor's bid amount: \$679,922
- Anticipated final payment to contractor: \$666,740

2006 Construction Highlights Report

SR 20, 21, 26, 27, 127, 261, 271, 274, 278, 904 and portion of I-90 – Chip Seal

Adams, Franklin, Pend Oreille, Spokane, and Whitman Counties

Crews resurfaced and improved over 117 miles of state highways and selected streets in various towns. Routes included portions of SR 20, SR 21, SR 26, SR 27, SR 127, SR 261, SR 271, SR 274, SR 278, SR 904, and a small section of Interstate 90. The project extends the service life of the roadways by up to six years by resurfacing with either Bituminous Surface Treatment (also called chip seal) or hot mix asphalt. These surface treatments add structure to the roadway surface while also increasing skid resistance. This project also included asphalt paving in various small towns along the chip sealed routes, as well as chip-sealing on some of the town's streets through funding provided by an agreement with the Transportation Improvement Board.



Roadway resurfaced with chip seal

Construction Summary

For WSDOT's contractor, Central Washington Asphalt, this was the second year constructing the Eastern Region Chip Seal. They made tremendous improvements over the previous year's contract in all facets of contract requirements. In order to achieve a successful project in the allowed timeframe, chip-seal projects need a strong commitment to scheduling and coordination of work items. Central Washington Asphalt did a good job of working with WSDOT in providing and adhering to their weekly schedules. WSDOT helped the contractor with the scheduling so that there weren't conflicts with some of the annual celebrations put on by the small towns along the chip-seal routes.

The contractor consistently worked in a safe and productive manner. Starting work in late April and reaching substantial completion by mid-July, Central Washington Asphalt successfully completed over 117 miles of chip-seal throughout the region. The contractor did a good job of keeping short the punch-list of needed corrections, which were completed by mid-August.

Contractor:

Central Washington Asphalt
Moses Lake, WA

WSDOT Contact:

Chad Simonson, Project Engineer
(509) 324-6252
simonc@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Regions/Eastern/projects/ChipSeal/2006/Map

Evaluation

Design	★★★★
Contract Administration	★★★★★
Schedule	★★★★★
Cost	★★★★

- Engineer's estimate: \$4,689,420
- Contractor's bid amount: \$5,245,148
- Anticipated final payment to contractor: \$5,536,344

2006 Construction Highlights Report

SR 165 – Carbonado to SR 410 Paving and SR 162 I/S Realignment

Pierce County

We paved approximately 6.8 miles of SR 165 from the community of Carbonado to the City of Buckley, and realigned the SR 162 and SR 165 junction into a ‘T’ intersection. The project provided drivers a smoother ride, extended the life of the existing roadway, updated signing and pavement markings, and created a safer intersection.

Construction Summary

WSDOT and Woodworth & Co. worked well together to successfully complete the project. Communications with the contractor was open and honest. Overall, the project was constructed as designed. Minor design issues were encountered at the SR 162 / SR 165 intersection realignment. A cooperative effort between the contractor and WSDOT enabled these issues to be addressed with little disruption to the construction activities.

One utility company was not able to complete relocation work prior to the agreed date that was specified in the contract. Woodworth & Co. staged their work to keep the project in close conformance to the schedule, while allowing the utility company to complete relocation work. Although the delay caused by the utility relocations extended the construction activities beyond the original schedule, the impacts to the traveling public were minor.

Cost increases for the project are largely attributed to additional efforts required to rehabilitate the existing pavement and concrete panels on SR 165 prior to resurfacing.

Contractor:

Woodworth & Co.
Tacoma, WA

WSDOT Contact:

Neal Uhlmeyer
7912 Martin Way Ste E.
PO Box 47448
Lacey, WA 98516
(360) 412-3420

Evaluation

Design	★★★★★
Contract Administration	★★★★★
Schedule	★★★★
Cost	★★★★

- Engineer’s estimate: \$1,467,279
- Contractor’s bid amount: \$1,454,459
- Anticipated final payment to contractor: \$1,551,100

2006 Construction Highlights Report

I-5 – I-205 to North Fork Lewis River Bridge – Concrete Rehab

Clark County

We repaired concrete panels on I-5 between the I-205 merge in the Salmon Creek area of Clark County and the North Fork Lewis River Bridge at the Cowlitz County line, near the city of Woodland. Crews stabilized the existing concrete pavement in the center lane of the interstate by tying the individual concrete panels to each other using steel dowel bars. They also replaced over 150 damaged panels, and smoothed tire ruts on selected sections. This work provides drivers with a smoother ride, extends the life of the concrete pavement, and upgrades safety features in both directions of I-5 to current standards.

Construction Summary

The contract had complex traffic control challenges that were caused by the high volumes of traffic on this busy, six-lane section of I-5. Traffic control challenges were increased by the need for daytime center lane closures, necessary for the curing of the new concrete panels.

The contract was awarded on February 21, 2006. Work was suspended until April 17, 2006, as more favorable weather conditions were necessary to begin work. The first piece of the project, installing the steel dowel bars between the concrete panels, was completed on July 17. Shoulder work was completed in early September. The concrete panel replacement was completed by September 18, and was followed by concrete grinding, which was completed on October 3. Paving was completed in late September.

As of October 31, 2006, pavement marking is the only item that has not been completed. The contractor has currently used all of the assigned 85 working days, as well as 10 additional days.



North Fork Crew

Contractor:

Acme Concrete Paving Inc.
Spokane, WA

WSDOT Contact:

Casey Liles, Project Engineer
(360) 905-1537

Project web page:

www.wsdot.wa.gov/Projects/I5/North-ForkLewisRiverBridge/

Evaluation

Design	★★★★
Contract Administration	★★★★★
Schedule	★★★★
Cost	★★★★

- Engineer's estimate: \$7,005,693
- Contractor's bid amount: \$6,818,173
- Payment to Date (9/20/06): \$6,883,634

2006 Construction Highlights Report

I-5 – East Fork Lewis River Bridge Repair

Clark County

We made repairs to the I-5, East Fork Lewis River Bridge, located just south of Woodland in northern Clark County. Repairs were necessary to preserve and prolong the life of the bridge. Crews replaced worn expansion joints and repaired concrete around the joints. Cracks were sealed and steel components were repaired.

Construction Summary

WSDOT staff worked closely with the project contractor, KLM Construction Inc., to solve minor construction problems related to structural repair work. Work was deferred for approximately one month due to delays in obtaining materials. A few changes to the original material orders were made, mainly due to availability.

Double-lane closures were necessary to complete the joint work on top of the bridge deck. Because of traffic volumes on I-5, the double lane closures were limited to night hours. The overall number of double-lane closures exceeded the original plan due to design changes and staging of the work. This change contributed to additional impacts to the traveling public; however, these impacts were minor. Washington State Patrol (WSP) and WSDOT maintenance personnel assisted with rolling slow downs to switch work from one side of the bridge to the other, contributing to safer traffic control setups.

Close communication with the contractor and Headquarters Construction Support were critical to ensure that all issues were resolved in a timely manner. Keeping an open mind to design changes was also essential in the success of this project.

Contractor:

KLM Construction
Puyallup, WA

WSDOT Contact:

Denys Tak, Kelso Area Engineer
(360) 442-1370

Project web page:

www.wsdot.wa.gov/Projects/I5/North-ForkLewisRiverBridge/

Evaluation

Design	★★★★
Contract Administration	★★★★★
Schedule	★★★★
Cost	★★★★

- Engineer's estimate: \$511,995
- Contractor's bid amount: \$553,000
- Anticipated final payment to contractor: \$580,000

2006 Construction Highlights Report

SR 20 – Troxell Road Vicinity to Cornet Bay Vicinity

Whidbey Island, Island County

We made significant safety improvements to State Route 20, north of Oak Harbor. During construction we lowered the highway nine feet; widened lanes and shoulders; created clear zones along the shoulders; added turn lanes and a bus pullout; and made other safety improvements. In the last five years there were 51 collisions in this area; 42 were rear-end collisions. Improved sight distance, the realigned intersection and new turn lanes will substantially improve safety and reduce congestion.

Construction Summary

We built the project according to the original design with only minor changes during construction. We were able to quickly fix minor design issues with little or no delay on the construction schedule.

Our contractor, G.G. Excavation, was committed to quality work, safety, and the environment. Highway 20 is heavily traveled, and we worked closely with the contractor to maintain a safe area for drivers and workers. Getting school buses in and out of one side street was challenging, but the contractor stopped work twice a day to ensure the buses could get through the construction zone safely. Throughout the duration of the project, we worked closely and effectively with G.G. Excavation.

Unforeseen water line and sewer line issues added extra utility work to the project. Due to the additional work, the project will be completed this fall, with the exception of the final layer of asphalt and the permanent road striping. That work will be completed spring 2007. We expect the project to be completed within the allotted number of working days.

Construction activities that could pose higher risk of changes have been completed; therefore we expect the project to be completed within budget.

Contractor:

G.G. Excavation, Inc.
Anacortes, WA

WSDOT Contact:

Dave Crisman, Project Engineer
(360) 848-7103
crismad@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Projects/SR20/TroxellToCornetBay

Evaluation

Design	★★★★
Contract Administration	★★★★★
Schedule	★★★
Cost	★★★★★

- Engineer's estimate: \$3,494,008
- Contractor's bid amount: \$3,778,150
- Anticipated final payment to contractor: \$3,778,150

2006 Construction Highlights Report

SR 164 – 158th Avenue SE to High Point Street

Enumclaw, King County

This project improved SR 164 west of Enumclaw at the intersections of 158th Avenue S.E., S.E. 392nd Street, 196th Avenue S.E., 212th Avenue S.E., 228th Avenue S.E., and 244th Avenue S.E. We improved safety and increased driver visibility approaching intersections by lowering and rebuilding the roadway and building turn pockets. In fall 2006 we will install a new traffic signal at S.E. 392nd. Roadway improvements include wider shoulders, guardrails, a new asphalt overlay and new striping on SR 164. This work will help enhance driver safety and improve traffic flow at intersections along the SR 164 corridor and give drivers a smoother driving surface.

Construction Summary

The contract allowed for an initial winter shutdown period to fabricate traffic signal poles and to allow utility companies to relocate services affected by construction work. Unfortunately, utilities did not complete the utility relocations within the allotted timeframe. This forced the contractor to work around the utilities, changing our work sequence. This created inefficiencies that increased costs and delayed the job. A WSDOT staff shortage also added to costs because our contractor had to perform survey work normally performed by WSDOT workers.

Despite the utility relocation delays, WSDOT and Rodarte Construction worked effectively to resolve contract issues and cooperatively developed a schedule recovery plan to complete the project this construction season. The schedule recovery plan was successfully implemented, allowing crews to perform the critical roadway realignments and paving before October 1, the end of the paving season. WSDOT expects the contractor to complete the remaining contract work within the allotted number of working days. However, we granted 16 non-working days due to utility relocation and survey related delays. The utility relocation delays, additional survey work, and minor quantity changes increased the estimated project cost by approximately three percent.

Contractor:

Rodarte Construction
Auburn, WA

WSDOT Contact:

Derek Case, Project Engineer
(425) 433-2000
cased@wsdot.wa.gov

Project web page:

[www.wsdot.wa.gov/Projects/SR164/
158thSEtoHighPoint](http://www.wsdot.wa.gov/Projects/SR164/158thSEtoHighPoint)

Evaluation

Design	★★★★
Contract Administration	★★★★
Schedule	★★★★
Cost	★★★★★

- Engineer's estimate: \$3,280,316
- Contractor's bid amount: \$3,405,411
- Anticipated final payment to contractor: \$3,499,475

2006 Construction Highlights Report

SR 31 – Metaline Falls to the International Border

Pend Oreille County

We rebuilt 12.7 miles of SR 31 to an all-weather condition allowing legal loads from Metaline Falls to the Canadian border. SR 31 is heavily used by the timber and mining industries and serves as a vital commerce route to and from Canada. The existing roadway was deficient in pavement structure and required annual load restrictions to avoid freeze-thaw damage to the roadway. This negatively affected the region's economy. This route is also used for recreational purposes. Approximately 60% of this project runs through United States Forest Service (USFS) land.

The project provided additional pavement structure to eliminate the annual load restrictions, and aid in the economic growth of the area. Other benefits included improving the overall sight distance by clearing obstructions adjacent to the roadway which improves the safety; reducing future maintenance by bringing the highway up to current standards, and improving access for recreation and tourism.

Construction Summary

Communication between the contractor and the WSDOT was good. Weekly meetings were held which provided ongoing communication throughout the

project. Safety was always addressed as the first item at each meeting and there were no major accidents or injuries on the project.

A few significant changes were made to the original project design to minimize cost impacts. For example, a material substitution was made to mitigate an overrun in rock cap material and to make good use of a crusher by-product. In addition, the contractor proposed changing a wall design, which resulted in a net savings to the project, and did not require additional environmental involvement. Various material types and conditions were encountered during excavation. This resulted in a need for more rock bolting and dowels than originally anticipated. Traffic control needs were significantly higher than anticipated, which resulted in a significant overrun of traffic control items.

Although quality was discussed at each weekly meeting, the work did not always meet the specifications. Therefore, a significant "punch list" of needed corrections was prepared at the end of the project. The punch list was completed prior to project completion, raising the work to the quality required by the contract specifications. There were no environmental violations on the project.

The contractor finished the project beyond the original number of working days, and the final project cost is expected to be approximately six percent (\$736,500) above the contractor's bid amount. Additional costs and working days to the project were a result of the materials source, additional traffic control needs, overrun in rock bolt and dowels, relocation of a community water line, and widening of the roadway in the paving section of the project for truck turning movements.

Contractor:

M.A. DeAtley Inc.
Clarkston, WA

WSDOT Contact:

Bob Hilmes
WSDOT Project Office
2714 N. Mayfair
Spokane, WA 99207
Phone: (509) 324-6231
hilmesb@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Projects/SR31/MetalineFallsIntern/

Evaluation

Design	★★★★
Contract Administration	★★★★
Schedule	★★★★
Cost	★★★★

- Engineer's estimate: \$10,974,126
- Contractor's bid amount: \$10,989,022
- Anticipated final payment to contractor: \$11,725,600

2006 Construction Highlights Report

US 97 – Wells Dam/Starr Boat Launch Turn Lanes

Chelan & Okanogan Counties

This was a safety improvement project on US 97 funded by the Douglas County Public Utility District (PUD) and administered by WSDOT. Recognizing the heavy use and safety concerns at their Wells Dam Interpretive Site (MP 264.2) and Starr Boat Launch (MP 248.82) approaches, the Douglas County PUD offered funding for WSDOT to design and oversee construction of the needed safety improvements. Contractor crews added left turn lanes, illumination and additional signing at the intersections.

Construction Summary

WSDOT, Douglas County PUD, and the contractor had a very good working relationship throughout the project. Construction challenges were quickly resolved, reducing costs and traffic impacts. During the project development phase, WSDOT designed this project in accordance with PUD's available budget. As project construction began, PUD requested added paving and provided funding for the expanded scope of work. Construction began on April 24 and was completed on July 17.

The existing RV parking lot at the Wells Dam Interpretive Site was in such poor condition that the Douglas County PUD requested WSDOT do additional paving on the contract. This was accomplished through a supplement agreement that was executed between WSDOT and Douglas County PUD, with additional funding (\$22,791) provided by the PUD. In addition, due to the poor soils on the roadway slopes, compost was added for better re-vegetation results, which in turn helps prevent soil erosion (\$13,400). Another addition to the project was a chip seal (oil and crushed rock) at the Wells Dam intersection to improve the driving surface and increase skid resistance. (\$22,459)

A comprehensive public and emergency services notification plan using, e-mail, fax, media notifications, 5-1-1 and the WSDOT web pages kept travelers informed of traffic impacts and construction activities. The traffic control and work zone safety plans were successful. There were no WSDOT or contractor personnel injuries reported during construction and no project related vehicle accidents.

Evaluation

Design	★★★★
Contract Administration	★★★★★
Schedule	★★★
Cost	★★★★

- Engineer's estimate: \$514,784
- Contractor's bid amount: \$458,938
- Anticipated final payment to contractor: \$505,134



Wells Dam Turn Lane



Starr Boat Launch Turn Lane

Contractor:

Basin Paving Company
Wenatchee, WA 98807-0098

WSDOT Contact

Bob Romine, Project Engineer
PO Box 98
Wenatchee, WA 98807-1628
(509) 667-2880
rominer@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Regions/NorthCentral/projects/US97/WellsDam/

2006 Construction Highlights Report

SR 202 – SR 520 to Sahalee Way Widening – Wetland Site

Rural King County, east of Redmond

This project is located in rural King County next to SR 202. Once a peaceful two-lane farm-to-market road, SR 202 now carries 27,000 vehicles each day and the local population continues to increase. WSDOT crews are widening SR 202 to help alleviate congestion, maintain highway efficiency and enhance safety. Crews extended the existing right turn lane from SR 202 to Sahalee Way and alleviated a frustrating traffic chokepoint. In addition, we wanted to be responsible neighbors, to reduce the risk of floods, and to comply with federal and state environmental laws. As a result, we created a new 13 acre wetland near Sahalee Way that includes a backwater channel to give salmon a safe resting spot on their journey up Evan's Creek. In addition, the backwater channel provides an area for floodwater storage in this historic flood plain.

Construction summary

Construction work started in late summer 2005 when crews placed large, woody debris in Evans Creek to improve salmon habitat. The contractor performed all in-stream work within the period of time that the work will least likely endanger the fish. Immediately afterwards, the contractor began excavating almost 120,000 cubic yards of soil to create the backwater channel. Work was shut down for the winter in December 2005 due to the seasonal flooding that occurs in this area. The remaining excavation began in July 2006 and concluded with the backwater channel connection to Evans Creek before the salmon started their migration. Unfortunately, heavy rains came early this year and the site flooded before we could finish planting 35,000 native wetland plants. Planting is on hold until March 2007 when the flood waters are expected to subside. As proof of this project's success, downstream flooding this fall was noticeably minimized as the new backwater channel absorbed floodwaters.

Contractor:

Northwest Construction
Bellevue, WA

WSDOT contact:

Brian Dobbins, Project Engineer
(425) 956-2100
dobbinsb@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Projects/SR202/SR520_Sahalee

Evaluation

Design	★★★★
Contract Administration	★★★★★
Schedule	★★
Cost	★★★★★

- Engineer's estimate: \$4,277,927
- Contractor's bid amount: \$3,781,277
- Anticipated final payment to contractor: \$3,781,277

2006 Construction Highlights Report

SR 548 – Portal Way Vicinity Signal

Whatcom County

We installed a new traffic signal and street lighting on SR 548 at Portal Way, north of Ferndale, in Whatcom County. We also added crosswalks, widened shoulders, improved turn lanes and made other minor safety improvements. The new traffic signal replaced a four-way stop and is helping vehicles flow more smoothly and safely through all directions of the intersection. It is also preventing drivers from getting stranded on the nearby railroad tracks. The signal is coordinated with the railroad signal and new in-ground electronic traffic loops.

Contractor:

Signal Electric, Inc.
Kent, WA

WSDOT Contact:

Dave Crisman, Project Engineer
(360) 848-7103
crismad@wsdot.wa.gov

Construction Summary

We were able to build this project according to the design plans, with the exception of a few minor changes. We needed to install some additional signs that were not a part of the original design to work with the railroad signaling. We also had to deepen the foundations for the signal poles and provide additional wiring for the signal boxes. These changes were worked out quickly with little delay on the project schedule. Our contractor, Signal Electric, understood and followed our focus on safety, quality and environmental control. They put forth extra effort to reduce impacts to commuters with good traffic management, reducing how often they closed lanes.

Our communication with Signal Electric was efficient. They were quick to respond to minor issues that arose during the project. Our ability to effectively problem solve as a team saved the project from additional delays. Originally, some communication problems existed between the railroad and the contractor, but as the project progressed, communication improved.

The project was delayed by approximately one month while the additional signs were fabricated and delivered to the project. However, the contractor was successful in completing the project within the original number of working days given.

Changes to the contract brought the final cost within \$1,500 of the engineer's original estimate.

Evaluation

Design	★★★★
Contract Administration	★★★★
Schedule	★★★★
Cost	★★★★

- Engineer's estimate: \$278,414
- Contractor's bid amount: \$253,910
- Anticipated final payment to contractor: \$280,000

2006 Construction Highlights Report

I-82 – Yakima to Prosser Weigh-in-Motion and Weather and Radio Stations

Yakima and Benton Counties

We improved safety along I-82 by installing two highway advisory radios and two highway weather stations in Parker and East Prosser. In addition, crews installed a truck weigh-in-motion system at exit 75 (Benton County/Yakima County line), east of Grandview.

By using the highway advisory radio (HAR), motorists will have access to weather and road conditions on I-82 near Yakima and Prosser. This information alerts drivers of roadway conditions on the road ahead, allowing them to make travel adjustments as needed.

The weigh-in-motion system is at the Washington State Patrol truck scale near Grandview on I-82 westbound. This system allows trucks of legal weight to remain on the highway and avoid delays often incurred at weigh stations. This will allow legally loaded freight to arrive at its destination sooner by limiting the truck traffic exiting and entering at weigh stations, decreasing potential conflicts between slow trucks and 70 mph freeway traffic.

Construction Summary

The project start was delayed 17 working days (34% of contract time) due to design complications. At the preconstruction conference, the design consultant informed WSDOT that the contract plans did not include recent design changes and that these revisions must be added in. The new plans conflicted with work completed earlier in the contract and had to be further corrected before the contractor could begin work on the system. During construction, work was suspended twice due to the unavailability of WSDOT-supplied materials. These work suspensions delayed the contractor five additional working days, bringing the total delay to 22 days (44% of contract time). These were issues that should have been resolved in the design stage of the project.

The contractor, Aztech Electric, and WSDOT worked together to resolve design issues to minimize impacts to project schedule and budget. Although the overall project completion data had been delayed, impacts to the traveling public were minor. The design changes and material cost and availability led to changes in project cost.

Contractor

Aztech Electric, Inc.
Spokane, WA

WSDOT Contact

Paul Gonseth, Project Engineer
(509) 577-1810
gonsetp@wsdot.wa.gov

Evaluation

Design	★★
Contract Administration	★★★★★
Schedule	★★★★
Cost	★★★★

- Engineer's estimate: \$473,982
- Contractor's bid amount: \$576,384
- Anticipated final payment to contractor: \$594,000

2006 Construction Highlights Report

US 101 – Brockdale Road to Skookum Creek – Paving

Mason County

Crews paved 12.5 miles of US 101 near the city of Shelton in Mason County. The project included 7.9 miles of a two-lane section from the Brockdale Road intersection to the SR 3 (South Shelton) Interchange; 4.6 miles of the four-lane section from the SR 3 interchange to the SR 108 interchange; and a 1.5 mile auxiliary lane. It also included the overlay of all the ramps at the Shelton-Matlock, SR 3, and SR 108 interchanges. The pavement overlay will extend the service life of the roadway by another 10 to 15 years.

Construction Summary

Overall the project was constructed as designed, but did include some minor change orders. Most of the changes did not significantly impact the construction cost or schedule, but one change added approximately \$58,000 and 14 working days to the contract. We made a decision to modify the shoulder finishing material to make it easier for future roadside vegetation management. This was done by using a mixture of 60 percent compost and 40 percent crushed surfacing. Compost material provides a better environment for planting grasses, which will not need to be mowed more than once a year. Once the grass is established, the turf will block weeds and other high-growing plants and eliminate the need for herbicide treatments. The added cost of

this change will be offset by under runs in other items of work. The project is expected to be completed within budget.

The project began with good coordination and communication between WSDOT and ACE Paving. The contractor began paving operations in late June, at the north end of the project in the two-lane section. As work progressed south through the SR3 Interchange, traffic volumes increased significantly. This had been anticipated in the design phase and the contract had specified that any work requiring lane closures between the Shelton – Matlock and SR3 interchanges had to be done at night. When the contractor began paving south of the SR 3 interchange in the four-lane section, traffic volumes were greater than anticipated and the contractor’s schedule had to be adjusted for these peak traffic periods. We directed the contractor to avoid closing the southbound lanes before 8 a.m., and no lane closures were allowed in the northbound lanes after 4 p.m. Traffic issues were further complicated as more work operations and various subcontractors activities were being done simultaneously, in multiple locations throughout the length of the project. Traffic control operations and work activities were not being coordinated efficiently, and there were many complaints.

The relationship between WSDOT and the contractor became strained as the contractors’ work activities were inconsistent with



Paving on Brockdale Road

his proposed daily schedule. This problem may have been exacerbated while the project manager and some personnel and equipment were being shuffled between two projects, one with night time operations and one with daytime operations. Even though the contractor’s resources have been stretched, the quality of work has been exceptional and the crews have accomplished their work safely. Lack of coordination may have resulted in some down time, but safety of the workers has not been compromised.

The project is currently (as of 9/29/06) under construction, with 18 working days left. All major paving is completed. The remaining items of work include: shoulder finishing, grinding centerline rumble strips in the two-lane section, final pavement marking, and adjusting catch basins, junction boxes, and survey monuments. The project is expected to be substantially completed and open to traffic within the allowed working days.

Evaluation

Design	★★★★★
Contract Administration	★★★
Schedule	★★
Cost	★★★★★

- Engineer’s estimate: \$4,238,112
- Contractor’s bid amount: \$3,913,479
- Anticipated final payment to contractor: \$3,881,510

Contractor:

ACE Paving Co., Inc.
Bremerton, WA

WSDOT Contact:

John Hart, PE
(360)533-9352
hartj@wsdot.wa.gov

2006 Construction Highlights Report

SR 291 – Vicinity Nine Mile Safety Improvements

Spokane County

This project is located on SR 291 about nine miles northwest of Spokane along the Spokane River near the Nine Mile dam. It included the business district of Nine Mile Falls. Rutter Parkway, a county road providing access from this area to north Spokane connects from the east. Prior to construction, this roadway had no shoulders north of the business district. It also had sharp curves south of Charles Road, and Rutter Parkway came into SR 291 at an extreme angle, making access to SR 291 to the south difficult.

The project moved Rutter Parkway one half mile to the south, which now connects with SR 291 at a right angle. Turn pockets were added for both Charles Road and Rutter Road. Roadway improvements included widening the shoulders and easing the sharp curves. In addition, a two-way turn lane was added through the business area. The improved alignments, turn pockets, improved sight distances, and two-way turn lane allow for better and safer traffic flow.

Construction summary

The project was constructed according to design with the exceptions of utility work and traffic control. A major impact was due to relocation of a fiber optic line in the narrowest section of the project. Coordination with this work was good but it took much longer than anticipated. Traffic control had major overruns and probably should have been estimated higher given the amount of traffic, the topography of the work area, and complexity of the work along SR 291. Removal of rock along SR 291 took longer than the contractor projected. Successes included the overall design of the project and the work with blasting near the dam.

Coordination with the contractor was generally good however, there were breakdowns. Contract work slowed down in the second half, the contractor impacted traffic more often and had some problems keeping up with dust control. Relations with adjacent property owners were generally good, but some issues have taken longer to resolve than anticipated.

Most of the extra days given on the project were related to utility impacts on SR 291. The project completion is about one calendar month beyond expectations. The estimated cost will overrun the contractor's bid by 11% and the engineer's estimate by 7%, primarily due to the added traffic control and more complicated utility company needs.

Evaluation

Design	★★★★
Contract Administration	★★★★
Schedule	★★★
Cost	★★★

- Engineer's estimate: \$3,028,532
- Contractor's bid amount: \$2,827,234
- Anticipated final payment to contractor: \$3,155,000



Aerial view of the new SR 291 alignment

Contractor:

Steelman – Duff
Clarkston, WA

WSDOT Contact:

Ken Olson
(509) 324-6140
NineMileSafety@wsdot.wa.gov

Project web page:

www.wsdot.wa.gov/Regions/Eastern/projects/US291Vicinity9MileSafetyImprovements/

2006 Construction Highlights Report

SR 516 – 208th and 209th Avenue SE

King County

This project is located approximately one mile east of the City of Covington between 204th Ave SE and 212th Ave SE. Crews improved safety by adding a two-way left turn lane from 207th Avenue and 209th Avenue, widening lanes and shoulders to current standards, adding bus pull-outs, sidewalks and installing street lighting throughout the project limits.

Since 1999, drivers have been involved in 50 collisions in this two-lane section of SR 516, resulting in 51 injuries. Forty-five of these 50 collisions were rear-enders. About 20,000 vehicles drive through this stretch of highway everyday. Prior to this project work, drivers wanting to turn left had to block through traffic until they were able turn. This slows down traffic and increases the potential for accidents. The project enhances safety by allowing left-turning cars to get out of the through lanes while waiting to turn off the highway. This also will reduce congestion by eliminating backups behind drivers who wish to make left turns.

Construction Summary

WSDOT and Road Construction Northwest, Inc., have worked together to advance the construction of this project. The contractor prepared the area by clearing and grading the widened areas to allow the local utilities to relocate their poles and lines out of the planned widening. Once the utilities were relocated, the contractor continued to finalize the earthwork in preparation of laying the new asphalt.

The major difficulty on the project has been the relocation of the utilities. Once notified to relocate they were allowed 56 calendar days to move their poles and lines. The utilities started late and took a total of 114 days to complete their work. This has pushed our contractor into the fall and winter seasons to complete the grading and paving work on the project. WSDOT will be discussing with the utilities these impacts and the costs associated with them and their responsibility for paying.

Since the majority of the work is widening the existing roadway, impacts to the traveling public have been minor.

Contractor:

Road Construction Northwest, Inc.
Renton, WA

WSDOT Contact:

Alan Dyer P.E.
(253) 872-2958
dyerae@wsdot.wa.gov

Evaluation

Design	★★★★
Contract Administration	★★★★
Schedule	★★
Cost	★★★

- Engineer's estimate: \$742,149
- Contractor's bid amount: \$677,812
- Anticipated final payment to contractor: \$707,012

2006 Construction Highlights Report

SR 522 – Woodinville – Paradise Lake Road to Snohomish River Interchange and Drainage

Snohomish County

Crews improved the SR 522 Fales/Echo Lake Road intersection by building a single point urban interchange at SR 522, midway between Woodinville and Monroe in Snohomish County. Building this type of interchange allowed us to minimize the footprint of the project, which is located in an environmentally sensitive area. The new bridge allows SR 522 to pass over Fales/Echo Lake Road and eliminated a traffic signal that once stopped drivers at the intersection. Crews also built a drainage system that treats stormwater in a sand filter before it reaches the Snohomish River. The sand filter is large to accommodate future widening on SR 522. We also constructed two wetlands, three large culverts which allow fish passage, and added intelligent transportation technology and signal systems. These improvements allow us to provide real-time traffic information to drivers and to better manage traffic flow and enhance safety.

Construction summary

The work started in early summer of 2004 with the construction of the detour roadway, which included a 40-foot tall structural earth wall and two large 14-foot culverts for two Evans Creek

tributaries. In winter of 2004 and 2005, the project team discovered that our temporary erosion control plans did not adequately address how to handle dirty water generated by the project. The project is located in the midst of several large wetlands with a very high water table. The opportunity to use temporary ponds and infiltration into uplands was very limited. The water did not respond to normal treatment methods, such as temporary ponds, due to the fine silts present in the existing material and import materials. An expensive chitosan system was added to treat the water prior to discharge from the site and to avoid environmental violations.

In summer 2005, traffic was diverted to the detour roadway and our contractor was able to begin construction of the new bridge over Fales/Echo Lake road. With traffic on the detour roadway we could also excavate the old SR 522 roadway to install the remaining fish passage culverts.

During the winter of 2005/2006 crews built the new bridge over Fales/Echo Lake Road. During construction there were many stumbling blocks including poor workmanship, lack of qualified personnel, and poor working relationships with the contractor's crews. Addition-

ally, the contractor that was hired to construct the barrier for the earth walls went out of business and was replaced by the contractor building the bridge. The contractor fell behind schedule.

There were also delays associated with the extraordinary amount of erosion and sediment control necessary to control water quality on the project. In the winter of 2006 WSDOT entered negotiations with the contractor to resolve all outstanding issues and get the project back on track. In May 2006 we settled for an additional \$1.8 million with a 96-day time extension. A consultant helped get the parties working together again and the bridge was opened to traffic on August 17, 2006. The only remaining work is final planting and plant establishment.

Contractor:

Scarsella Brothers, Inc.
Kent, WA

WSDOT contact:

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Project web page:

www.wsdot.wa.gov/Projects/SR522/Widen/Fales-EchoIC

Evaluation

Design	★★
Contract Administration	★★★
Schedule	★★
Cost	★

- Engineer's estimate: \$20,962,037
- Contractor's bid amount: \$22,810,188
- Anticipated final payment to contractor: \$29,000,000