

Cross Cutting Management Issues

Construction Material Costs

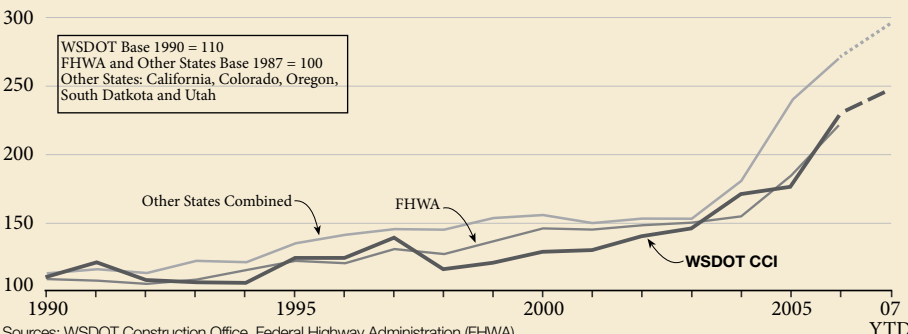
WSDOT's construction cost estimates are suitably based on market conditions drawn from recent bids. There is no method available to provide engineers an accurate prediction of future material price escalation caused by unforeseen market conditions. Like other state transportation agencies, WSDOT must extrapolate for the future based on past records. This makes WSDOT vulnerable to contractors' bids exceeding engineers' estimates during times when prices for construction materials experience steep escalation, as they have since 2004.

WSDOT collects construction cost information from recent bids and calculates a Construction Cost Index (CCI). WSDOT's CCI is a composite of unit price information from low bids on seven of the most commonly used construction materials, which include Hot Mix Asphalt (HMA), Structural Concrete, Roadway Excavation, Crushed Surfacing, Structural Steel, Steel Reinforcing Bar, and Concrete Pavement. These items reflect a composite cost for a completed item of work and include the costs of labor, equipment, and materials.

Construction Cost Index Increases by 7.9% in the First Three Quarters of 2007

The graph below illustrates the past 17 years of CCI data for Washington State. This is plotted against the CCI of the Federal Highway Administration (FHWA) and a

Construction Cost Indices Washington State, FHWA, and Other States



Sources: WSDOT Construction Office, Federal Highway Administration (FHWA)
Note: WSDOT 2007 Index is for Quarters 1, 2 and 3; FHWA Index Discontinued in 2007; Other States 2007 Data is for Quarters 1 and 2.
Note: 2003 and 2004 WSDOT CCI data points adjusted to correct for spiking bid prices on structural steel.

line representing the combined CCIs of several nearby Western states: California, Colorado, Oregon, South Dakota and Utah.

The average annual growth rate of the CCI held steady at about 1.5% per year from 1990 through 2001. Beginning in 2002 and continuing through 2006, the growth rate increased to 13.1% per year. WSDOT's CCI has increased 7.9% in the first three quarters of 2007 over the annual average for 2006, from 228 to 246. While material price escalation for CCI components is slowing from the rate experienced in 2004 – 2006 when WSDOT's CCI rose 57.2%, annual inflation is still far above the levels experienced between 1990 and 2001.

Of the seven materials WSDOT tracks in the CCI, Hot Mix Asphalt (HMA) comprises 48.5%, or almost half the weight of the index. HMA prices increased 9.4% during the first three quarters of 2007 from \$57.12 per ton to \$62.48 per ton. HMA prices have risen 79.6%, from \$34.78 per ton since 2003. The rise in HMA prices is attributable to rising crude oil prices. As the cost of crude oil has increased, refiners have developed ways to more efficiently produce high end products like gasoline. Additionally high crude oil prices are pushing refiners to make a profit on asphalt, which in the past was viewed as a non-lucrative by-product of the refining process.

Key Performance

WSDOT's Construction Cost Index rose 7.9% over the past three quarters to 246. The escalation for CCI components is slowing from the rate during 2004 – 2006 when WSDOT's CCI rose 57.2%, annual inflation is still far above the levels experienced since 2001.

WSDOT Utilizes New Strategies to Attract Bidders

WSDOT has very little control over the price fluctuation of construction materials. Unfortunately, as the CCI has illustrated, since 2001, costs have continued to grow beyond the historic inflation rates experienced in the 1990s. This rapid growth has put additional strain on WSDOT and its contractors in their combined efforts to deliver projects both on time and on-budget. However, WSDOT has been working to adopt strategies that address current market conditions for construction materials, helping to minimize financial risk to contractors, encourage a competitive bidding market, and future project planning internally.

HMA and Fuel Escalation Clause Improve Competitive Bidding Climate

HMA Escalation Clause

Hot Mix Asphalt (HMA) prices are of particular concern since they have increased 34% in 2006, and 9.4% during the first three quarters of 2007. The rapidly rising price of this commonly used material prompted WSDOT to implement a HMA Escalation Clause in September 2006.

To gain input from industry on how to better allocate material price escalation risk, the HMA escalation clause was developed jointly with advice from the Washington Asphalt Paving Association (WAPA). To date, WSDOT has awarded fifteen contracts containing the clause.

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The table below compares the average unit bid price submitted by the contractor to the average unit bid price for the western or eastern side of the state during the quarter the project was awarded. No price adjustments have been made to date on contracts containing the clause.

Implementing the clause has removed uncertainty for both the contractors and WSDOT. The fear of rapid price escalation is lessened for contractors because WSDOT takes on the risk of future HMA costs. In return, WSDOT gets bid prices for HMA that reflect current market value, rather than a price that factors in possible future cost increases for the material. WSDOT's clause allows for either a payment to the contractor or a credit to WSDOT if WSDOT's asphalt binder monthly cost index increases or decreases 10% or more between the month preceding the bid date and the month that the HMA was placed. WSDOT maintains an asphalt binder cost index for both eastern and western Washington.

Fuel Escalation Clause

Increased global consumption of fuels as well as limited and strained crude oil production and refining facilities are contributing to an increase in project costs. The construction industry depends heavily on many products projects derived from crude oil and many aspects of highway construction are highly fuel intensive, meaning that potential fuel price increases can cause contractors to submit higher bid prices not only for materials derived from crude oil but also for items of work that require heavy use of fuel to power machinery or truck items to the work site.

In December 2006, WSDOT implemented a fuel escalation clause for projects lasting longer than 200 working days. Like the HMA clause, this transfers risk from the contractor to the state, reducing the effect of cost uncertainty on contractors' bids, which may result in contractors submitting lower bids. Nine contracts included the fuel escalation clause, and one contract had compensatory payments in the amount \$23,846 to date.

WSDOT Escalation Clauses

Hot Mix Asphalt (HMA) prices are up 34% since 2006 and 9.4% for the first three quarters of 2007.

Since October 2006, 15 contracts were awarded with the HMA Escalation Clause.

Since December 2006, nine contracts have been awarded with the Fuel Escalation Clause. Only one reimbursement has been issued to date.

WSDOT Projects Utilizing the Hot Mix Asphalt Escalation Clause, October 2006 - September 2007

Contract Name	Tons Awarded	HMA Price/Ton	Quarter Average Price/Ton	% Difference
I-90, 2-way Transit & Hov Operations	4,339	\$120.00	\$64.32	86.6%
SR 20 Spur To Sr 536 Vic Paving	7,654	\$67.75	\$67.85	-0.1%
SR 20, Sidney St Vic To Scenic Heights	17,450	\$66.45	\$67.85	-2.1%
SR 509 Slayden Rd To Sw 185th St	5,758	\$70.20	\$64.32	9.1%
SR 20, Fredonia I-5 Widening	56,062	\$54.02	\$64.32	-16.0%
I-5, Sr 502 Interchange	55,671	\$57.13	\$64.32	-11.2%
SR 9, Schloman Rd To 258th Ne	19,290	\$59.92	\$64.32	-6.8%
SR 520, West Lake Sammamish Parkway Flyover Ramp	8,550	\$68.18	\$64.32	6.0%
SR 539, Horton Rd To 10 Mile Road	75,889	\$69.12	\$67.41	2.5%
Sr 395, Freya To Fairview	17,690	\$55.69	\$57.48	-3.1%
SR 395, Freya To Farwell	36,412	\$59.55	\$57.48	3.6%
I-5, Rush Road To 13th Street	134,105	\$58.50	\$67.41	-13.2%
Bremerton Transportation Center Access	5,960	\$71.26	\$67.41	5.7%
SR 518, Seatac Airport To I-5	19,950	\$74.00	\$67.41	9.8%
SR 20, Safety Improvements Quiet Cove Road	7,286	\$83.40	\$67.41	23.7%

Data Source: WSDOT Construction Office

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Federal Highway Administration and the Office of the Inspector General Outline Recent Cost Increases in Report

In September, FHWA released a report analyzing growth in highway project costs after a number of states began cancelling and delaying planned projects due to insufficient funds. The Office of Inspector General (OIG) conducted the performance audit of highway construction and maintenance costs to determine the extent of the cost increases and whether they should be viewed as short-term or long-term.

The report found that a dollar will have lost between 27 and 60 percent of its value between 2005 and 2009 if highway project inflation continues at its 2006 pace. It also found that the increases were the result of structural economic changes that suggest the raw materials used in highway construction will remain elevated or even continue to increase. Steel, asphalt, cement and aggregate price escalation caused most of the highway construction cost increases. These materials alone account for 89.3% of WSDOT's CCI. The economic changes driving the price increases for these materials were mostly the result of supply and demand issues as well as crude oil prices. The report determined that the next highway bill may need to provide significantly higher funding to maintain, let alone exceed the volumes of work undertaken prior to 2003.

To view the report in full, visit: <http://www.oig.dot.gov/item.jsp?id=2135>.