

High oil prices, higher asphalt prices

In the summer of 2006 many municipalities in the U.S. and Canada found that they couldn't complete planned street maintenance projects because costs had skyrocketed (see Box 5. *Oil prices and street maintenance costs*). Higher oil prices were the main cause, but the effect was disproportionate: crude oil only rose approximately 5% from mid-2005 to mid-2006, yet the cost of asphalt doubled, and street maintenance costs in some regions tripled. What happened?

Asphalt is a byproduct of refining oil for fuels. When oil prices started rising beyond normal levels in 2004, and especially after Hurricane Katrina reduced Gulf of Mexico production in September 2005, the base cost of asphalt rose. At the same time, high oil prices meant that refineries had incentive to produce more higher-revenue products per barrel of oil, and thus less asphalt; refineries make much more money from the gasoline and diesel they produce out of a barrel of oil than from the asphalt.

Together with continued high demand for asphalt from booming construction in many parts of the U.S. and Canada, asphalt supply was squeezed and prices rose even further. Street construction took a double hit from rising oil prices because it requires not only asphalt but significant amounts of fuel for moving machinery and asphalt on site and for keeping the asphalt hot before it is laid.

This jump in street maintenance costs had multiple effects:

- Many jurisdictions had to change their paving plans, from scaling back and postponing to canceling them altogether.
- Postponed and canceled projects meant less work for crews and less revenue for paving companies.
- Reduced work and revenue meant less pay or no pay for paving crews, and ultimately less in income and business taxes to governments.
- Less road construction and road maintenance meant that transportation infrastructure improvements were delayed, at a cost of more expensive future repairs. It may have also meant delays for real estate development projects that depended on the construction or repair of streets.

The vulnerability of municipal street maintenance to oil price changes is an instructive example of how even a relatively small change in the supply and price of oil can have many unexpected effects. It's also an example of why planning for oil price volatility needs to happen at the local level: impacts were felt differently throughout the U.S. and Canada thanks to local differences in construction activity, budgeting (some jurisdictions planned for cost hikes, others didn't), and regional variations of asphalt and fuel themselves. Even similarly-sized towns in the same region may have had different experiences.

See *Systems Thinking: A Tool for Municipalities* in the Appendix for an exploration of how a street maintenance program might be seen in relation to larger governmental and economic systems, and what can be learned from this approach.



For instance, Hamblen County [Tenn.], a typical Renfro [Construction Co.] customer, could not afford any paving this year. Road Superintendent Barry Poole said high asphalt prices 'really put us out of the ballgame' in an already tight budget year.

'Here was a job we were counting on for \$400,000 to \$500,000 worth of work, and all of a sudden it's zero,' said Renfro's [senior vice president, Robert] Hill.

Hill said Renfro has had to lay off truck drivers and paving crews in order to stay competitive.

- Eder, Andrew, "High price of asphalt puts brakes on paving projects," Knoxville News Sentinel [Tenn.], 6 Sept. 2006

Box 5 Oil prices and street maintenance costs

In the summer of 2006, crude oil prices has risen 5% over the previous summer, but the price of asphalt more than doubled. Municipalities across the U.S. and Canada struggled to cope with these unexpected costs for street maintenance:

Lowell Prange, administrator for the City of Menomonie [Wisc.], said that as the largest user, the public works department is affected most by the increase in fuel prices.... 'We'll see what happens next year, because that was a pretty big bump, and it takes a big hit out of your budget when you got to go up by \$50,000 to \$60,000 in a \$10 million dollar budget. It takes away from what the city can do, or fund'.

- *Ryder, Sarah, "Rising fuel costs wreak havoc on local budgets." The Dunn County News [Wisconsin], 7 Sept. 2006*

Though Ontario cities have managed to cope so far, that's likely to change. Toronto signed the bulk of its paving contracts early in the year, when the cost of asphalt was low, but there are concerns that plans for next year will have to be modified when new contracts are signed at higher prices.

'Probably we will not be able to resurface and possibly even reconstruct the same number of roads we originally expected,' said Gary Welsh, the city's manager for transportation services. 'It probably wouldn't affect any of the high-priority projects, but there may be some local resurfacing projects [postponed or scaled back].'

- *Sethi, Chanakya, "High cost of asphalt steamrolls plans." The Globe and Mail [Toronto], 26 June 2006*

The agency has sold roughly \$150 million in bonds the last 10 years in its effort to provide sewer service citywide. But it has lost money recently as rising oil prices have sent construction prices skyrocketing, particularly on PVC pipe and asphalt, said John Martin, manager of billing services.

'If we continue this now with the prices escalating, we're just going to go into a deeper hole,' Martin said.

- *Barbarisi, Daniel. "Rising construction costs put Sewer Authority in fiscal hole." The Providence Journal [Rhode Island], Tuesday, 8 Aug. 2006*

High price of asphalt puts brakes on paving projects



Workers pave part of Interstate 40 in downtown Knoxville in this July 2001 photo. The high price of asphalt means state and local governments are pursuing fewer road projects these days. Bruce Wuethrich, senior director of engineering and public works for Knox County, said the county has not had to sacrifice capital projects — the building of new roads or major reconstruction projects that generally cost more than \$50,000. Instead, it has scaled back maintenance projects in subdivisions.

County hasn't quit new roads but halts maintenance work

BY ANDREW EDER
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When Knox County awarded a bid for a road-resurfacing project near the beginning of the year, the price of asphalt was holding steady after a post-Hurricane Katrina spike.

But by the time paving began two months later, the project cost shot up about 40 percent.

"It turned out to be 20 miles of road that got bumped off the paving list," said Bruce Wuethrich, senior director of engineering and public works for the county. "The worst effect was my street got knocked off the paving list."

Liquid asphalt is a petroleum byproduct produced mainly in oil refineries. The dark, viscous substance is combined with materials like gravel, crushed rock and sand, or aggregate, to produce asphalt pavement.

Construction materials have been rising in price across the board since Hurricane Katrina last year. But liquid asphalt has seen an especially sharp rise, nearly doubling during the past 12 months.

That spike in price has put the squeeze on paving contractors, and it means state and local governments are pursuing fewer road projects.

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ects that generally cost more than \$50,000. Instead, it has scaled back maintenance projects in subdivisions. The 20 miles of road cut from the paving list were all residential, he noted.

Tom Clabo, chief civil engineer for the city of Knoxville, said rising asphalt prices have pushed back a paving project that was approved in July.

"We're delaying letting that project until early 2007 to see if prices come back down," he said. "If that liquid asphalt price doesn't come down, we'll be in the same situation as the county."

Counting the cost

Statewide, the Tennessee Department of Transportation this year will let about 36 fewer resurfacing contracts, including interstate projects, said spokeswoman Kim Keeler.

Robert Hill, senior vice president of Renfro Construction, said the cost of liquid asphalt has basically doubled in a year — from about \$200 per liquid ton a year ago to the current price of about \$400 per liquid ton.

See ASPHALT on C4

DID YOU KNOW?

Asphalt cement is a dark, viscous material found in crude petroleum. The cement is separated out in the oil refining process and transported to a plant near the paving site. Asphalt cement is mixed with hard material called aggregate to form asphalt concrete, also called blacktop. Asphalt pavement consists of a surface layer of asphalt concrete over several layers of other materials. Asphalt pavement is the most recycled product in the country, with 80 percent of removed pavement being reused in new paving projects.

Source: National Asphalt Pavement Association

HISTORICAL ASPHALT PRICES

- Sept. 2006: \$391.15/ton
- July 2006: \$377.31/ton
- April 2006: \$278.75/ton
- Jan. 2006: \$239.17/ton
- Sept. 2005: \$227.08/ton
- Aug. 2005: \$199.17/ton
- Jan. 2005: \$189.58/ton

Source: Tennessee Department of Transportation Bituminous Index

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