A REVIEW OF OIL VOLATILITY ON NEW ZEALAND FUNDING OF ROAD INFRASTRUCTURE (2006 – 2009)

Jonathan Slason, PE
Transportation Engineer at Beca (www.beca.com)

The views expressed are those of the author and do not necessarily reflect those of Beca or any other organisation or agency.

Further detail behind the issues raised is available by contacting jonathan.slason@beca.com
Since 2006 the world has undergone significant transformation – world economy has experienced the worst recession since the 1930’s and a significant oil price shock occurred in Mid-2008.

Questions

How is our Transportation Infrastructure affected by World Oil Prices?

What was the NZ impact of rising world Oil prices in 2008?

What is the current State of Managing Road Infrastructure Pricing?

What opportunities do we have to manage the risk of Volatile Oil Prices?

What could the future picture look like and how should we respond?
Cost of **Bitumen, Asphalt, Cement binder, Steel, and Oil** inputs into the transport, construction, and operations for Roadway Construction.

- These inputs are Energy Intensive and require substantial Oil input throughout their life cycle. Especially during the creation of Asphalt Binder and Cement.

**Cost of Bitumen**

- NZ contractors cannot effectively manage the risk of cost fluctuations in bitumen
- International Price volatility
- Some hedging options, but size of contracts and timing detract from benefit
- Bitumen Index has been a worthwhile tool to reduce contractor risk but it must relate to bitumen volume used (more risk, greater volumes, etc.)

**Rising Cost of Steel**

- Increased by 75-100% in 2008
- Resulting cost of steel fabrications +20%
- Resulting cost of reinforced concrete +12% -14%

**Cost of Fuel**

- This has increased bulk earthworks rates by 16%
- Recent decrease but still volatile
Resealing Price Adjustment Factors

- Construction (PPIQ.SNE) 40%
- Transport & Storage (PPIQ.SNI) 20%
- Bitumen Price Index 15%
- Labour Index (LCIQ.SE53Z9) 20%
- Non Metallic Mineral Production (PPIQ.SNC12) 5%
Bitumen Price Index

August 2008 ~ 100% increase from January 2006

Remains 30% higher from January 2006 today
USD to NZD exchange rate

Example Price Index from USA ~ 220% increase in 2008

NZ Bitumen Price Index ~ 100% increase in 2008
The relative changes in Bitumen and other Roadway Construction Materials only tell half the story.

• An average of 45 percent of New Zealand’s reseals contractors do not have escalation clauses

• For those that do have escalation clauses the formula used to calculate the “rise and fall” under-calculate on average by around 15 percent. This becomes very significant when large increases occur.

Source: Roading NZ, March 2008

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While Contractors and Builders are concerned about contracts, estimating prices correctly, and compensation there are the real concerns of Higher Prices for Infrastructure.
Numerous Examples from the US where infrastructure is being cut back due to funding concerns. The US has experienced a higher degree of cost increases.

City rejects all bids for Saratoga Avenue paving project
San Jose Mercury News. Aug 4, 2009

130 "maintenance paving" projects were canceled. They would have cost $30 million. This represents 75 percent of the planned maintenance for the next two years, a significant cut.

NZ recent issues:
- Western Bay of Plenty: in 2012, to minimize rate increases, Council is proposing to reduce seal extensions from 10km per year to 3km per year and to reduce seal widening from 8km per year to 3km per year.

- Dunedin City Council: “While some allowance was made for known price movements at the pre tender stage, the reality is that the tender prices received by DCC were typically 25% higher than anticipated. The current Resurfacing budgets are insufficient to allow all of our scheduled work to be completed”
Where is Oil Price going? How can we Manage Risk?

Global oil demand in 2010 is expected to bounce back by +1.7% or +1.4 mb/d year-on-year to 85.2 mb/d.

This strong rebound is led by non-OECD countries, but the OECD should also post a modest recovery. This prognosis is based on IMF economic assumptions (World Economic Outlook, April 2009), which see global economic growth reaching +1.8% in 2010, compared with -1.4% in 2009 (given time constraints, this report did not integrate the last IMF partial update, which was released at the time of writing).

- The weakening US dollar is a factor as oil is traded in US dollars;
- Investor flight to commodities. As property and shares become less attractive and more risky for US investors, many are turning to rising commodities as investments. Oil is a high demand commodity that holds its value;
- General geopolitical uncertainty due to unrest in the Middle East, Africa and other supply regions;
- Relentless demand pressure from China and India, fuelling the diesel-powered machinery of economic growth;
- Exchange rate pressure as the NZ dollar is trading with a high degree of volatility.
IEA estimates that the decline in oil production in existing fields is now running at 6.7 per cent a year compared to the 3.7 per cent decline it had estimated in 2007, which it now acknowledges to be wrong.

Even if demand remained steady, the world would have to find the equivalent of four Saudi Arabias to maintain production, and six Saudi Arabias if it is to keep up with the expected increase in demand between now and 2030, Dr Birol said.
The final total price paid for a Road Resealing contract is not known until completion (after cost adjustment), making budgeting very difficult. Upon receiving a set amount of $NZ funding for the purpose, a Road Owner budgets to Reseal a certain number of kilometres of road. However, when these “Cost Adjustment Factors” are applied to the original tender amount, the cost per KM is potentially even higher, meaning the planned rescaling is only partially completed or over budget.

Example: Westpac Bitumen Price Index Swap
Transport professionals will be required to assess costs of projects differently.

- changing design criteria
- change materials (Bitumen Asphalt, Concrete, etc.)
- Evaluate life-cycle options as well as economic-life returns (25year assessments)
- Acknowledge future maintenance cost variability given the relationship with world oil markets.

We should be proactively looking to reduce end project costs. As oil prices rise, limited transport funds will be increasingly used to obtain raw materials.
Questions ??