Case Study
Measuring the Economic Resilience of Infrastructure Tool (MERIT)

SH4 CLOSURE – RAETIHI TO WHANGANUI

In June 2015 floods in the lower North Island forced people in Whanganui from their homes and closed a number of State Highways around the lower North Island.

Road closures included sections of SH4, SH43 and SH3 through the Manawatu Gorge.

MERIT was used to assess the economic consequences of the closure in SH4 from Raetihi to Whanganui.

Fast facts

**EVENT** – June 2015 major floods forced people in Whanganui and surrounding areas from their homes and significantly disrupted businesses. SH4 from Raetihi to Whanganui closed for about a month.

**IMPACT** – After the first month loss to commodity production in the region was around $1.7 million. Total loss in Gross Domestic Product (GDP) over six months estimated at $10.7 million.

ECONOMIC IMPACT OF SH3 MANAWATU GORGE OUTAGE

The SH3 Manawatu Gorge is an important link through the lower central North Island connecting Palmerston North to Napier.

In 2011 a large slip closed the route for 183 days. A total of 370,000 cubic metres of soil, rock and debris was removed from the site in an effort to reopen the road.

An alternative route was available via the Pahiatua Track or Saddle Road, which added up to 20 minutes to each journey.

Fast facts

**EVENT** – 2011 a large slip closed the SH3 Manawatu Gorge route for 183 days.

**IMPACT** – one year from the event the total loss in GDP was $6.3 million. The cost per day was approximately $34,200.
WHAT IS MERIT?

MERIT can provide useful information on the wider economic impacts and importance of significant network disruptions. For example, the SH4 disruption assessment showed that while the region suffered some decline in commodity production because of the outage, the rest of New Zealand in turn had some benefit. Essentially this is because other producers increased production to cover local impact.

MERIT provides a range of economic impact indicators of a potential (or actual) network outage at a regional and national level. The advantage of the MERIT model is the whole of economy coverage and the ability to describe the situation through time and by region. The model has four phases.

Firstly, analysis begins with a description of the road outage or scenario.

Second is an assessment of how distance and time to travel between locations has altered as a result of the event.

Third an analysis is made of effects of net changes in travel distance and time on the economic activity costs between areas. It is important to determine not only how much extra has to be spent on transport as a result of the event, but also the types of goods and services towards which the changed costs are allocated.

The final stage is to run MERIT. This compares an optimised business as usual economic scenario against a scenario where the economy moves to a new economic equilibrium due to the shock. The difference is the economic impact reported.

There are several advantages to the MERIT model. These include the ability to produce a variety of indicators including GDP, regional value-added, value of exports and imports and household utility. MERIT also provides information on the distribution of economic impacts across different study regions and across different economic industries. However, due to the nature of evaluating transport shocks on the national economy, MERIT is not applicable for disruptions of less than a week duration.

For further information visit us on the NZTA website
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