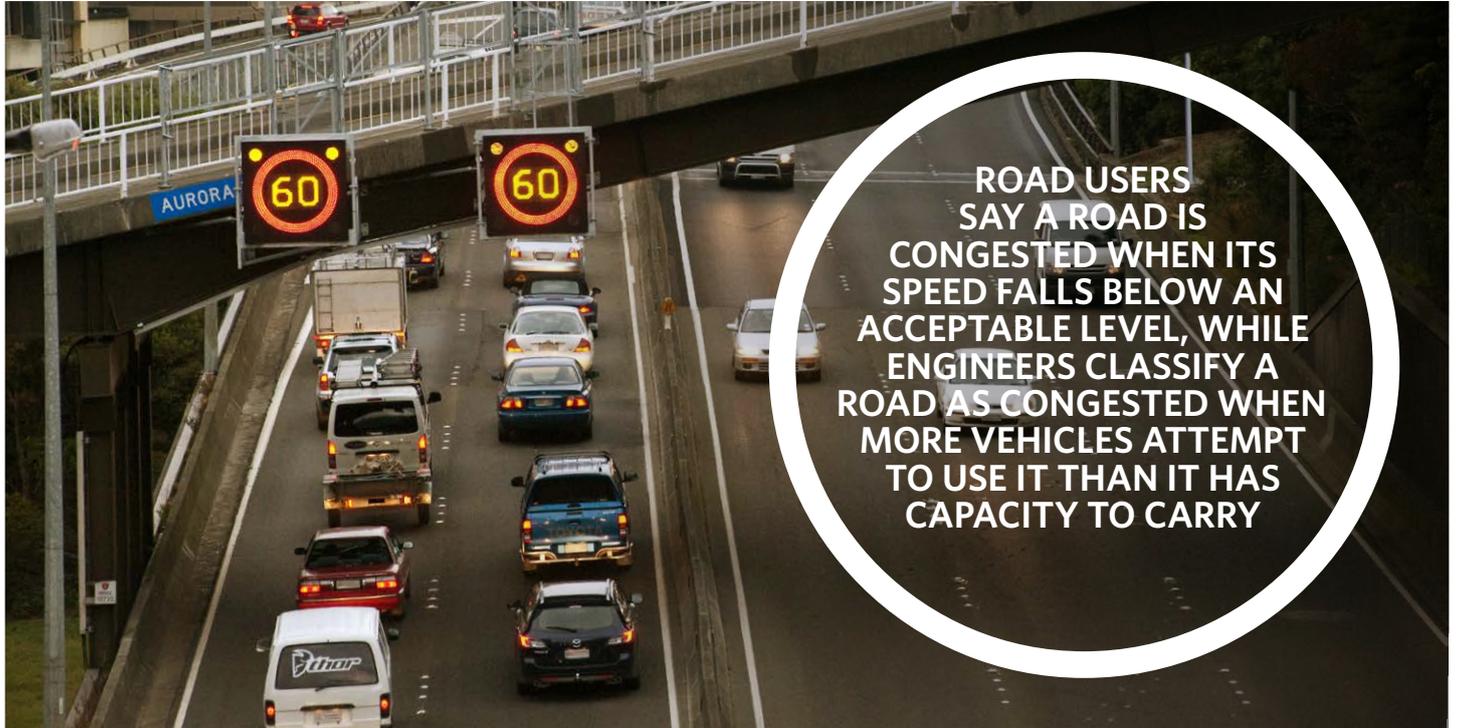


# EASING CONGESTION ON WELLINGTON'S URBAN MOTORWAY

SMART INFO

May 2015



ROAD USERS SAY A ROAD IS CONGESTED WHEN ITS SPEED FALLS BELOW AN ACCEPTABLE LEVEL, WHILE ENGINEERS CLASSIFY A ROAD AS CONGESTED WHEN MORE VEHICLES ATTEMPT TO USE IT THAN IT HAS CAPACITY TO CARRY

Reducing peak time congestion, improving travel time reliability and safety on the busiest section of Wellington's urban motorway are the main objectives of the Ngauranga to Aotea Quay upgrade.

Before the project began, the average afternoon peak travel times were 59% longer than during non-peak times. Average travel time increased by over two minutes during the peak, from 3 minutes 35 seconds to 5 minutes 43 seconds between SH1 Hobson Street and Ngauranga Gorge. Travel time reliability was 56%, meaning drivers can count on how long their trip will take them only 56% of the time<sup>1</sup>.

## THE PROBLEM WITH CONGESTION

Congestion adds extra cost and time, as well as stress, to individuals, businesses and to the economy as a whole. While congestion can be defined as the cost of time it takes to travel on a congested road compared to the cost of free-flow travel, time delays are only part of the true cost of congestion. The extra fuel used and the higher-than-necessary level of vehicle emissions also add cost to individuals and society. People's lives are affected if they need to make changes to their routines to avoid delays or make allowances in case of unexpected delays. Unexpected delays further affect people if they're late to, or even miss, an event or appointment.

Because of the monetary and quality-of-life costs of congestion, the Transport Agency tries to reduce significant congestion where possible. If nothing was done to manage

congestion, conditions would continue to deteriorate and travel times would continue to get longer and less dependable. This also affects public transport.

## WAYS OF MANAGING CONGESTION

There are many ways to ease congestion, including:

**Demand management** - smoothing out traffic flows reduces the number of vehicles on a road at any one time. This can be done by:

- offering commuters alternative modes, eg encouraging people to use public transport and/or travel during non-congested hours
- tolling sections of road and increasing the price at peak times (congestion pricing) to discourage people from travelling during those times.

<sup>1</sup> Source: NtAQ Scoping report, Nov 2011

**Driver information systems** - allows drivers to make informed decisions about their route and time of travel.

**Build more lanes so traffic gets less congested** - this is very expensive because the traffic peak lasts only a short time each day, so the extra lanes would be unused most of the time.

**Better use the road space you already have** - various intelligent transport solutions can make the road operate more efficiently. Incident detection systems such as loops, detectors, cameras and radars, keep traffic moving smoothly and help clear incidents quickly. Information and control systems such as variable message signs and lane control signals advise people of traffic conditions and manage traffic flows during incidents or congestion.

**Ramp signals** - a traffic light at the end of an on-ramp directs traffic to enter a motorway at a rate that allows traffic to merge easily with the mainline flow. Although the traffic on the ramp can have additional delays, the flow on the main route (the motorway) is maintained and the overall network operates more efficiently. The speed of traffic on the motorway and motorway travel times are improved with ramp signals.

**High occupancy vehicle or bus lanes** - incentivise people to carpool or get the bus which reduces the number of vehicles on the road, and hence congestion.



### REDUCING CONGESTION ON WELLINGTON'S BUSIEST ROAD

Public transport plays a vital role in Wellington's transport system. The Transport Agency co-invests with Greater Wellington in public transport trips and in the development of public transport infrastructure. The Transport Agency also supports people to use Wellington's bus and train network as much as possible.

After significant investigation, other tactics selected to reduce congestion and improve travel time reliability on the Ngauranga to Aotea Quay section of motorway were to increase capacity by adding an additional lane in both directions, and introduce the 'smart motorway' system which involves enhancing the ATMS (active traffic management system).

The improvements will be delivered in four stages:

Stage 1 was completed in June 2013 and involved improvements to the SH2 northbound on-ramp and to the State Highway 1 and 2 merge and diverge.

Stages 2 and 3 make up the current upgrade and include:

- introducing the smart motorway system including enhancements to the existing ATMS, and
- four-laning the State Highway 1 northbound carriageway from the Aotea Quay on-ramp to the SH1/SH2 diverge

Four-laning State Highway 1 southbound from the SH1/SH2 merge to the Aotea Quay off-ramp makes up Stage 4. This stage is not yet programmed because it requires detailed investigation into the seismic issues of widening the Thorndon Overbridge, access requirements for the Interislander and Centreport, and has implications for duplication of the Terrace Tunnel.



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Better tomorrow**