

MIN-3616 NZ Upgrade Programme

28 May 2021

The Minister has requested the following information on the NZ Upgrade Programme:

- Revised BCRs for all of the NZUP projects based on the new costings
- detailed analysis work the agency has done on Mill Road in particular any emissions analysis
- any plans to do/is likely to do safety changes around the SH2/Omokoroa Rd intersection

Benefit Cost Ratios

At this stage, revised benefit cost assessments to reflect baselined costs have been completed for some, but not all projects. Where these assessments are not yet completed, these will be undertaken before the completion of the current project phase (i.e. completion of the business case).

Where revised benefit cost assessments are not yet available, Waka Kotahi and KiwiRail have undertaken an indicative assessment of likely benefit cost ratios (BCR), using a combination of the historical benefit cost information and the revised cost information.

The following table summarises the BCRs by project on the basis of the above approach:

Project	Indicative Benefit Cost Ratio
State Highway 58 (SH58)	Less or equal to 1*
SH1/ SH29	Not available
Takitimu North Link Stage 1	Greater than 1*
Papakura to Drury South Stage 1	Greater than 1
Canterbury Package	Greater than 1
Queenstown Package	Greater than 1
Wiri to Quay Park	Greater than 1*
Papakura to Pukekohe electrification	Greater than 1*
Wellington Railway Station safety	Not available
Wairarapa Rail Upgrades	Not available
Capital Connection Interim replacement rolling stock	Not available
Drury Rail Stations (three stations)	Greater than 1 (baseline calculation is 3.9)
Melling	Greater than 1*
Penlink	Greater than 1*
Northern Pathway	0.4 to 0.6**
Ōtaki to North of Levin	Less than 1*

South Auckland (Papakura to Drury South and Mill Road)	Not available for revised package Original design for Mill Road – 0.5 to 1.1 Original design for Papakura to Drury South – 2.3
Whangārei to Port Marsden	Not available for revised package Original design – 0.9 to 1.3
Takitimu North Link Stage 2	Greater than 1*

* Projects where revised BCRs are not yet available and an indicative assessment has been undertaken using historical BCR information and updated costs.

** The BCR for the project is currently estimated to be around 0.4 - 0.6. However, this assessment is based on an old assessment using traditional methodology, which Waka Kotahi believes does not consider the full benefits of the current scheme. When this is reassessed, we believe the BCR will be more favourable due to the recommended option allowing improved user amenity benefits, greater resilience, increased land use forecasts and therefore demand, changes to how micro-mobility is addressed and improvements to Economic Evaluation Manual (EEM).

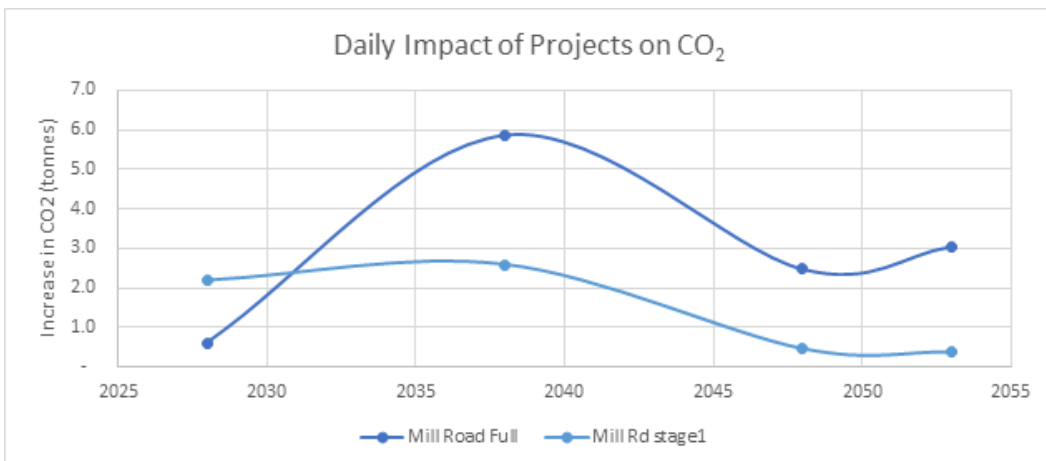
Mill Road emissions analysis

In early 2021, a high-level assessment of Mill Road and Papakura to Drury South projects impact on greenhouse gas emissions was undertaken. This assessment look at the three key influences on the emissions rates:

- the amount of vehicle travel
- the system efficiency (speed/congestion); and
- the vehicle fleet efficiency (fuel efficiency).

This analysis shows the Mill Road project is likely to induce additional vehicle kilometers with a net increase in emissions. However, these impacts are reduced as the New Zealand vehicle fleet will improve with the introduction of more hybrid and electric vehicles over the next thirty years. The graphs below show the increase in emissions expected from Mill Road (full or staged) over time, assuming the vehicle fleet changes as forecast.

Graph 1: Daily CO2 emissions with Mill Road



The original scope of Mill Road includes walking and cycling facilities and is part of a wider transport network, which includes projects targeting mode shift outcomes.

Please note the following caveats on the emissions analysis:

- The assessment identified indicative results based on the original scope of the project and are subject to change with scope and/ or design changes.
- Assessment is made on assumed form of the projects, yet project development (via Business cases) on these projects are not complete.
- Assessment is based on land use growth assumptions aligned with Unitary plan, yet the pace and type of growth remains uncertain. We have not considered a 'constrained growth' scenario.
- Assumptions used on future vehicle fleet assumptions that have inherent uncertainty (albeit based on latest VEPM / MOT forecasts).
- The whole-system solution involves land use, multi-modal and demand management interventions, yet this assessment isolates only the one element of that system. In particular, it assumes that the desired land use type and location could occur regardless of the planned network system solution.
- There are inter-dependencies between the various elements of the whole-system solution – therefore assessments would differ under different assumptions on other parts of the network.
- The assessment has not considered any specific demand management strategies for Mill Road itself, such as lowered speeds, managed lanes, tolling etc. Such interventions have the potential to mitigate induced traffic, and hence reduce enabled emissions.
- When included with other parts of the proposed southern package (e.g. rail stations, integrated land use), the net emissions are likely to reduce, rather than increase (scale would depend on the form of the project).
- The assessments have not considered any specific demand management strategies for Mill Road itself, such as lowered speeds, managed lanes, tolling etc. Such interventions have the potential to mitigate induced traffic, and hence reduce enabled emissions.

SH2/ Omokoroa Road Intersection

The SH2/ Omokoroa Road intersection is included within the scope of the Takitimu North Link Stage 2 project. The Minister of Finance and the Minister of Transport have requested that this project is not funded through NZUP.

Given the current demands on the National Land Transport Fund (NLTF), this project is unlikely to be progressed via the National Land Transport Programme (NLTP) within the next three years and is unlikely to be progressed within the next ten years.