

## Ken Ng

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**From:** Craig Nicholson  
**Sent:** Monday, 12 August 2019 7:57 am  
**To:** Lonnie Dalzell; Greg Lee  
**Subject:** RE: Te Ahu a Turanga - toll assessment  
**Attachments:** 20190802 Te Ahu a Turanga Toll Modelling Scope.docx

Thanks Lonnie.

I agree it's a good idea to meet to clarify the scope.

Attached is a scoping document that section 9(2) sent me last week, for me to add to, which sets out his current thinking.

I'm generally happy that it captures what he and I have discussed, but the key elements where I think the scope "growth" needs to be controlled are:

- Key scope item #3 – There appears to be a need to undertake separate traffic diversion assessments for cars and trucks, which is probably ok, but requires twice as much analysis (and presumably reporting).
- Key scope item #5 – As I noted in my original scoping email, any assessment of the change in economic benefits as a result of tolling would be very time consuming, because the existing WSP-Opus spreadsheet model doesn't include any assessment of the economic benefits of the new route, so any assessment of the impact of tolling on the benefits would need to calculate the project benefits from scratch.
- Key scope item #6 – I am unclear how much reporting is required, but as the analysis expands, I expect the reporting requirements will too.

**Greg** – section 9(2) and I are already trying to arrange another meeting. I have indicated to him that the only times I'm available to meet him this week are tomorrow morning, or Wednesday afternoon (after 3:00pm) if either of those suit you?

Regards,

Craig

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**From:** Lonnie Dalzell  
**Sent:** Monday, 12 August 2019 6:53 AM  
**To:** Craig Nicholson <Craig.Nicholson@nzta.govt.nz>; Greg Lee <Greg.Lee2@nzta.govt.nz>  
**Subject:** RE: Te Ahu a Turanga - toll assessment

Hi Craig,

Thank you for keeping me informed. Keep on going but we need to sit with section 9(2) and clarify what he is after.

Greg – it sounds like section 9(2) is trying to do a full analysis on what basically a traffic model from a spreadsheet. This can't be used for a full detailed assessment, and it was my understanding this was only an initial assessment. Can you organise a meeting for the 4 of us (I may have to call in), to discuss.

Cheers

Lonnie

**Lonnie Dalzell** / Owner Interface Manager (Te Ahu a Turanga)  
Project Delivery Team  
System Design and Delivery

section 9(2)(a)

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**From:** Craig Nicholson  
**Sent:** Sunday, 11 August 2019 11:19 PM  
**To:** Greg Lee <[Greg.Lee2@nzta.govt.nz](mailto:Greg.Lee2@nzta.govt.nz)>; Lonnie Dalzell <[Lonnie.Dalzell@nzta.govt.nz](mailto:Lonnie.Dalzell@nzta.govt.nz)>  
**Subject:** Te Ahu a Turanga - toll assessment

Hi Lonnie and Greg,

I'm just following up my conversation with Greg last week regarding the toll assessment for Te Ahu a Turanga, which has grown considerably in scope from what I first envisaged.

When I first scoped the toll assessment task (as per the email chain below), I envisaged simply using the existing WSP-Opus spreadsheet model and an "expert assessment" of the traffic diversion rates at different toll rates to identify the optimum/maximum toll revenue.

When Greg and I met with section 9(2)(a) and section 9(2)(a) from the toll group in late June, they were seeking a more sophisticated analysis than I had envisaged, which Greg and I noted may not be feasible, given the limitations of the data that is available about the travel patterns in the area.

Following further discussions with section 9(2) about the need for more data about the existing traffic conditions to assess the effect of a toll, I undertook an analysis of the travel time and distance savings (or increases) for each key origin-destination pair for vehicles using Te Ahu a Turanga. I then met again with section 9(2) recently, to undertake the "expert assessment" needed to then complete the final part of the toll assessment. The meeting was constructive, but despite my best efforts, section 9(2) wasn't ready for us to undertake the "expert assessment". He continues to see a need to more fully define and further broaden the toll assessment scope.

To date I have spent 25 hours on the toll assessment work, and I now envisage the total time commitment will be in the order of 50 to 75 hours, but even that is a little uncertain until I can confirm the scope with section 9(2). For example, I originally envisaged only very limited reporting about the optimum/maximum toll revenue, but I now understand that Same (on behalf of the toll group) want a detailed tolling report to be prepared, which could easily take another 25 hours or more, depending on how extensive it needs to be.

I'm conscious that the initial approved time budget was only 30 hours (with a provisional allowance for another 20 hours), so I have almost expended the initial budget.

Can you confirm that you're happy for me to continue working with section 9(2) to confirm the scope and then complete the toll assessment.

Thanks

Craig

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**From:** Craig Nicholson  
**Sent:** Thursday, 13 June 2019 11:44 PM  
**To:** Greg Lee <[Greg.Lee2@nzta.govt.nz](mailto:Greg.Lee2@nzta.govt.nz)>; Lonnie Dalzell <[Lonnie.Dalzell@nzta.govt.nz](mailto:Lonnie.Dalzell@nzta.govt.nz)>  
**Subject:** RE: Te Ahu a Turanga - have you got time to assist with a transport modelling question?

Hi Lonnie and Greg,

Following up the emails between Greg and I yesterday and our conversation this afternoon, I'd be happy to undertake an initial toll viability assessment for Te Ahu a Turanga if you want me to.

As I discussed with Greg, I think the best (and probably the only) approach will be to:

1. interrogate the WSP-Opus spreadsheet traffic model (which I have) to list the proportions of trips that would use the new route, Saddle Road and the Pahiatua Track for each of the assumed origin/destination pairs, for trips that cross the ranges between Manawatu and Tararua.
2. Use the two existing modelled scenarios (i.e. with and without the new route) as the “outer limits” of the tolling scenarios (since they also represent the toll scenarios with either a zero toll, or a very high toll (i.e. so high that nobody uses the new route, so the traffic pattern is as if the new route doesn’t exist).)
3. Work with [section 9\(2\)\(a\)](#) to undertake an “expert assessment” of how the proportions of traffic (for each O/D pair) using each of the three routes will change as the toll rate increases (between the defined outer limits of the two existing scenarios)
4. Identify the optimum/maximum toll revenue.

I estimate this will take approximately 20 to 30 hours, including meetings with [section 9\(2\)\(a\)](#). However, as I discussed with Greg, that time estimate excludes any assessment of the change in economic benefits as a result of tolling (which may or may not be required) which would be very time consuming, because the existing WSP-Opus spreadsheet model does not include any assessment of the economic benefits of the new route, so any new assessment of the affect of tolling would need to calculate the economic benefits from scratch.

The maximum budget of my existing/previous contract was almost full expended (to within \$2,000), so the budget will need to be extended if you want me to undertake this work.

Please let me know if/when you want me to proceed. I should be able to complete the work within two or three weeks of getting the go ahead.

Kind regards,

Craig

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**From:** Greg Lee

**Sent:** Wednesday, 12 June 2019 12:50 PM

**To:** Craig Nicholson <[Craig.Nicholson@nzta.govt.nz](mailto:Craig.Nicholson@nzta.govt.nz)>

**Subject:** RE: Te Ahu a Turanga - have you got time to assist with a transport modelling question?

Yip, but [section 9\(2\)\(a\)](#) and Opus are conflicted for time being at least.

Greg Lee/ Principal Planner

System Design and Delivery

[section 9\(2\)\(a\)](#)

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**From:** Craig Nicholson

**Sent:** Wednesday, 12 June 2019 12:49 PM

**To:** Greg Lee <[Greg.Lee2@nzta.govt.nz](mailto:Greg.Lee2@nzta.govt.nz)>

**Subject:** RE: Te Ahu a Turanga - have you got time to assist with a transport modelling question?

Hi Greg,

That will be more than a bit tricky...

You may recall that the “traffic model” is just a spreadsheet with some assumptions [section 9\(2\)\(g\)\(i\)](#) [section 9\(2\)\(a\)](#) (and/or his team) at Opus and then “sense checked” by me about what proportion of traffic would divert to the new route / stay on Saddle Road / stay on the Pahiatua Track for each different O/D pair (with approx. start/end points to the west of the Gorge, and three to the east).

Any “toll model” will essentially just alter the assumed proportions to use the different routes.

I think section 9(2)(a) team would be best placed to do this, perhaps with section 9(2)(a) input. I suggest they should consider the proportions using each route for each O/D pair for different incremental toll costs.

The existing "modelled" route proportions obviously corresponds to no toll. Assess changing proportions on each route for toll of say \$1.00, \$1.50, \$2.00, \$2.50 and \$3.00. With each increment, the proportions would presumably move further away from the current "with the new route" scenario, and closer to the current "do minimum" scenario.

I'm happy to get involved if you want me to, but I think the two section 9(2)s are probably the best placed to look at it.

Cheers,

Craig

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**From:** Greg Lee

**Sent:** Wednesday, 12 June 2019 12:12 PM

**To:** Craig Nicholson <[Craig.Nicholson@nzta.govt.nz](mailto:Craig.Nicholson@nzta.govt.nz)>

**Subject:** RE: Te Ahu a Turanga - have you got time to assist with a transport modelling question?

Need someone to undertake first cut assessment as to whether tolling is viable or not. First step is to re-run the traffic model with some tolling assumptions, working with section 9(2)(a) and investment colleagues to establish assumptions and agree outputs.

Greg Lee/ Principal Planner

System Design and Delivery

section 9(2)(a)

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**From:** Craig Nicholson

**Sent:** Wednesday, 12 June 2019 12:09 PM

**To:** Greg Lee <[Greg.Lee2@nzta.govt.nz](mailto:Greg.Lee2@nzta.govt.nz)>

**Subject:** RE: Te Ahu a Turanga - have you got time to assist with a transport modelling question?

Of course... what's up?

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**From:** Greg Lee

**Sent:** Wednesday, 12 June 2019 10:27 AM

**To:** Craig Nicholson <[Craig.Nicholson@nzta.govt.nz](mailto:Craig.Nicholson@nzta.govt.nz)>

**Subject:** Te Ahu a Turanga - have you got time to assist with a transport modelling question?

Greg Lee/ Principal Planner

System Design and Delivery

section 9(2)(a)

# TE AHU A TURANGA: Manawatu Tararua highway - TOLL MODELLING

## Scoping

Craig Nicholson; section 9(2)(a)

1 August 2019

0.1

## introduction

Te Ahu a Turanga is a new road link between Manawatu and Tararua that replaces the closed SH3 Manawatu Gorge. The planning for Te Ahu a Turanga is now complete and the project is now into a Design and Construction phase with the road programmed be open in 2024.

It is NZTA policy to consider tolling for new road links. Tolling has not yet been considered for Te Ahu a Turanga and completing an initial assessment is now required to provide the necessary lead time for implementing tolling should it be recommended.

The purpose of this document is to set out the scope for completing toll modelling/analysis for Te Ahu a Turanga.



Figure 1.1: Te Ahu a Turanga Project Location and Alternative Routes

## scope

The scope of the work relates to investigations into the network and revenue outcomes for a potential toll strategy for the future SH3 corridor between Woodville and Ashurst.

## Purpose

The purpose of the work is to complete a desk-top toll strategy study of Te Ahu a Turanga, including:

1. Analysis and recommendation of a preferred toll strategy (i.e. gantry location, vehicle type toll differentiations etc)
2. Estimates of revenue-maximising and 'network optimised' toll levels, along with sensitivity/risk adjustments
3. Estimation of potential impact of a toll strategy on Te Ahu a Turanga
4. The impact on the assessed benefits of Te Ahu a Turanga

This analysis would be used to support a decision to proceed to more detailed analysis of tolling or not, including undertaking public consultation. The analysis is not therefore intended for network planning purposes, and not planned nor scoped to be to provide 'investment-grade' revenue estimates.

## Key scope items

The key items are:

1. Project set-up and agree this scope
2. Data collection and analysis, including:
  - a. Review of the existing traffic analysis completed by WSP Opus and NZTA for the Detailed Business Case for Te Ahu a Turanga
  - b. Current and pre-Gorge closure traffic data on key routes
  - c. Identifying willingness to pay inputs
3. Test toll strategies limited to vehicle type differentials, ie exclude time of day tolling, distance-based tolling
4. Analyse results and identify optimal option considering Tolling Policy, including not tolling
5. Estimate potential impact of tolling on the benefits of Te Ahu a Turanga
6. Report documenting the analysis

## Detailed Methodology and Scope

The basis for the tolling analysis is the traffic analysis completed for the Te Ahu a Turanga Detailed Business Case<sup>1</sup>.

The traffic analysis involved the following assumptions that affect the tolling analysis:

- all pre-closure Gorge trips used either Saddle Road or Paihiatua Track

<sup>1</sup> <https://www.nzta.govt.nz/assets/projects/sh3-manawatu/NZTA-NOR-Volume-3.1-Transport.pdf>

- The traffic distribution (proportion of traffic between origins-destinations) with Te Ahu a Turanga in place is the same as it was pre-Gorge closure
- the heavy traffic proportion of redistributed traffic is 12% (close to 11% in the Gorge in 2016)
- ..
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- .
- .

The methodology for the analysis includes:

- The use of a tolled Te Ahu a Turanga is based on the travel time savings for the various origin-destinations, and how much each origin-destination is prepared to pay
- The travel time savings have been identified in the DBC and will be used for the analysis
- The willingness to pay values will be taken from the EEM and other recently completed research on the existing toll roads in NZ. The income levels in the various origins and destinations will be considered in moderating these values.
- Travel time savings are the
- Determine tolled traffic by:
  - At \$0 toll: All forecast traffic uses Te Ahu a Turanga
  - At \$ZZ toll: Traffic distribution is as with road network without Te Ahu a Turanga
- Considering whether the origin-destination pairs used in previous analysis are relevant or could be optimised for this analysis
- Review the proportion of trips by origin-destination. Use the uncongested travel times and distances as an indicator for the proportion of traffic on each origin-destination pair.
- Test a range of toll levels to be tested for light vehicles
- Test multipliers for heavy vehicles
- ...

## Programme

An indicative programme is provided below.

Task	August	September	October
Set-up			
Data collection and analysis			
Toll strategy Testing			
Reporting			

## Budget

5. The Project will be managed out of WBS xxxxxxxxxx.
6. The allocated budget for this Project is a total of \$xxxxxxx, and is broken down as follows:

## Key personnel

The key personnel are:

section 9(2)(a) – NZTA Project Manager of Tolling Assessment

section 9(2)(a) – NZTA Tolling Programme Manager

Craig Nicholson – NZTA Principal Project Manager – Completing the toll modelling

Lonnie Dalzell – NZTA Owner Interface Manager for Te Ahu a Turanga

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