

Peer review: economic benefits of a cross harbour walking and cycling link (including wider economic benefits – WEBs)

New Zealand Transport Agency (NZTA)

FINAL DRAFT – CONFIDENTIAL

Reliance Restricted

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Economic benefits of a cross harbour walking and cycling link (including wider economic benefits – WEBs) – Peer Review Report

06 June 2019

Dear Robert,

In accordance with the IPA Contract, dated 28 February 2019 (“Contract”), EY has been engaged to undertake a peer review of work by Flow and MRCagney to estimate the economic benefits of a cross harbour walking and cycling link (including wider economic benefits – WEBs). This engagement provides NZTA with a final draft report (the “Report”) with our views and recommendations to enhance the content provided.

Purpose of the Report and restrictions on its use

The Report may only be relied upon by the NZTA pursuant to the terms referred to in the Contract. Any commercial decisions taken by NZTA are not within the scope of our duty of care and in making such decisions you should take into account the limitations of the scope of our work and other factors, commercial and otherwise, which you should be aware of from sources other than our work. For further details, please refer to the assumptions and limitations outlined in this report.

EY disclaims all liability to any party other than the NZTA for all costs, loss, damage and liability that the third party may suffer or incur arising from or relating to or in any way connected with the provision of the deliverables to the third party without our prior written consent.

If others choose to rely in any way on the Report, they do so entirely at their own risk. If the NZTA wishes to provide a third party with copies of the Report, then our prior written consent must be obtained.

If you would like to clarify any aspect of the report or discuss other related matters then please do not hesitate to contact me.

Yours faithfully

Chris Money
Partner



Dashboard

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Introduction



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Outline of this report

Our report has been organised as follows:

- ▶ Section 1 (this section) provides an overview of the engagement, our scope of work and its assumptions and limitations
- ▶ Section 2 provides a summary of our peer review.
- ▶ Sections 3 and 4 contain our full set of comments, including a “traffic light” assessment related to the potential materiality that addressing the commentary may have on the results presented in the reports subject to peer review.

Overview of the project

- ▶ The proposed project involves a 1.3 km shared use, walking and cycling facility on the Auckland Harbour Bridge that will connect Northcote Point on the North Shore to Westhaven in Central Auckland. It is expected to attract utility and recreational cyclists and pedestrians, as well as tourists.
- ▶ The New Zealand Transport Agency has tasked Flow Transportation Specialists and MRCagney to conduct analysis of the potential benefits that may arise from this project.

Scope of work

Our scope of work includes the peer review of the following reports:

1. “Wider economic benefits of a new walking and cycling link across the Waitemata Harbour” prepared by MRCagney dated 3 April 2019
2. “Cross harbour walking and cycling connection - Draft Transport modelling and economic benefit evaluation” prepared by Flow Transportation Specialists dated 15 April 2019.

EY’s role is strictly limited to a methodological peer review of the contents presented in these reports and does not include a review of any modelling conducted to support their preparation. Our work is bounded by the assumptions and limitations outlined below

Assumptions and limitations

- ▶ The scope of EY’s peer review has been limited to the documents listed above. Appendix A referenced in the report titled “Cross harbour walking and cycling connection - Draft Transport modelling and economic benefit evaluation” was not provided to us and therefore has not been peer reviewed.
- ▶ This report does not include a peer review of other documents used as a reference.
- ▶ EY has not peer reviewed any of the models mentioned in these documents nor has EY conducted an audit of any modelling/forecasting process and/or its specific inputs or outputs.
- ▶ EY’s views are limited to the approach presented in the mentioned documents. Whenever possible we have aimed to express views on specific methodological components such as formulas and parameters applied to calculate results, if available.
- ▶ We reserve the right to amend/update our comments with respect to the reviewed documents based on the availability of new information.

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Summary of our peer review





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Summary of our approach

Our peer review has been conducted through a four step process:

1. **Initial document review:** EY reviewed the reports listed on pg. 5 and provided initial commentary regarding the methodological approach undertaken.
2. **Discussions with authors:** EY held meetings with authors to ask for/ provide clarifications based on the comments raised in the initial document review.
3. **Additional documentation review:** EY was provided with additional documentation containing updates to the authors methodological approach based on discussions as per Step 2. EY reviewed the proposed changes and held meetings with the authors to ask for additional clarifications and provided advice to strengthen their evidence base, as appropriate.
4. **Peer review reporting:** The process outlined above was summarised in this report which contains EY's overall assessment of the authors work as well as detailed commentary on specific elements of their methodological approach.

General commentary for "Wider economic benefits of a new walking and cycling link across the Waitemata Harbour"

EY's general views on this report are:

- ▶ The methodological approach undertaken by MR Cagney reflects a reasonable application of standard methodologies and practices. Overall, conservative assumptions have been applied in the absence of specific information.
- ▶ The authors have disclosed areas where uncertainties are present and further work may be needed to refine estimates.
- ▶ The authors may wish to consider some restructuring in terms of how the information is presented, in order to make it easier for the reader to understand key calculations that are specifically related to the project.

General commentary for "Cross harbour walking and cycling connection - Draft Transport modelling and economic benefit evaluation"

EY's general views on this report are:

- ▶ The methodological approach undertaken by Flow, reflects a reasonable application of standard methodologies and practices in most instances. The authors have applied formulae and parameters as per contained in the Economic Evaluation Manual (EEM) guidance, when applicable.
- ▶ While some parameters may carry some level of uncertainty (for example, there is little evidence available on the effect of e-scooters over cycling demand given that this mode is fairly new), the authors have conducted sensitivity assessments to provide confidence that the overall results are not likely to change significantly given changes in these parameters.
- ▶ The authors may wish to consider updating these parameters once more evidence becomes available to refine the assessment.

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Peer review of 'Wider economic benefits of a new walking and cycling link across the Waitemata Harbour'





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Section	Reference	Methodological approach	EY commentary	Materiality
5. Evaluating the tourism related benefits	General comments		<p>This section is based on Flow's Transportation estimates of the number of tourists going through the facility. Given these estimates have been conducted based on very high level assumptions, we suggest including an explanation to that effect in the report to ensure consistency with Flow's work.</p> <p>MRC response: <i>We propose to incorporate any amendments (or sensitivity tests) ultimately made by Flow.</i></p> <p>EY response: <i>EY is comfortable with this approach.</i></p>	●

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Peer review of 'Cross Harbour Walking and Cycling Connection - Draft Transport Modelling and Economic benefit evaluation'





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3. Demand	Pg. 5 Section 3.1	"The same 'existing' pedestrian demands have been assumed to apply to a walking and cycling facility across the Auckland Harbour Bridge, if it were available today, factored by relevant differences in catchment"	<p>Please specify the relevant differences in catchment that have been considered. Do these only refer to future land use (as per Table 3) or are there any other factors being considered?</p> <p>Flow's response: <i>This statement in the reporting is unclear, and will be corrected. The 1,190 existing pedestrians on Tamaki Drive has been assumed to apply equally to the cross-harbour facility (if built today), as their respective population catchments within a 2km radii are relatively equal.</i></p> <p>EY's response: <i>EY is comfortable with the approach undertaken and acknowledges that reporting will be corrected as per above.</i></p>	●
	Pg. 5 Section 3.1	"A 20% increase has been estimated to apply to the 2018 pedestrian demands above, to give estimated 2026 demands of 1,400 pedestrian trips per day"	<p>Assuming the word <i>above</i> is referring to the 1190 daily pedestrian trips estimated for Tamaki Drive a 20% increase results in 1428 trips per day not 1400. Please clarify if this is just for rounding purposes.</p> <p>Flow's response: <i>Correct – this is just rounding. 1,428 pedestrians implies far greater accuracy than the estimate has.</i></p> <p>EY's response: <i>EY is comfortable with this explanation, however suggests using 1,428 if possible.</i></p>	●
	Pg. 5 Section 3.1	"Future growth beyond 2026 has been set at 2.2% per annum (linear increase), based on the forecast growth in cycle trips on the facility (refer Section 3.2)."	<p>Please provide explanation for this assumption. It is not clear in section 3.2. why the same growth rate has been set for cyclists and pedestrians beyond 2026.</p> <p>Flow's response: <i>The assumption is that there are multiple drivers behind the expected growth in pedestrian trips across the harbour, including the future cost of travel by other modes. These are reasonably expected to grow at a higher rate than the 0% to 2% annual land use growth forecast north/south of the bridge.</i></p> <p>EY's response: <i>Please provide clarification on why specifically 2.2% growth has been set.</i></p> <p>Flow's response: <i>As discussed, we've simply pegged this growth to the forecast cycle trip growth predicted by the cycle model, as this 2.2% is slightly higher than the forecast land use growth (and I would expect pedestrian numbers to grow a little faster than land use). Sensitivity testing this assumption:</i></p> <ul style="list-style-type: none"> • 0% pedestrian growth beyond 2026: -\$3.3 million in discounted benefits • 1% pedestrian growth beyond 2026: -\$1.9 million • 2.2% pedestrian growth beyond 2026: default assessment • 3% pedestrian growth beyond 2026: +\$0.9 million <p><i>So this has a very small impact on the overall \$259 million in discounted benefits.</i></p> <p>EY's response: <i>EY acknowledges that the sensitivity assessment provides indication of small impact on the overall result due to changes on the pedestrian growth rate. We suggest including this assessment in the report to provide additional confidence around these estimates.</i></p>	●



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Section	Reference	Methodological approach	EY commentary	Materiality
3. Demand	Pg 10 Section 3.2.4	Utility trips estimates	<p>Difficult to follow the calculations. Can these be shown in a worked example?</p> <p>Flow's response: <i>Using the Quay Street example: 6% utility cyclists on Saturday 78% utility cyclists on weekday $(78\% \times 245 \text{ days/year} + 6\% \times 120 \text{ days/year})/365 = 53\% \text{ utility cyclists}$ The Tamaki Drive example is more complex as the ratios relate to surveyed peak periods: 57% in the 3 hr morning peak, 13% in the 2 hr interpeak, 79% in the 3 hr evening peak and 1% over the 13 hr Saturday survey. We've weighted these based on their respective cyclist volumes, to get to an annual daily average of 40%</i></p> <p>EY's response: <i>EY is comfortable with the methodology undertaken, however suggests including this explanation in the report.</i></p>	●
	Pg 11 Section 3.2.5	Mode share estimation	<p>Does the mode choice modelling take into account future road and PT travel costs – eg does it reflect increased congestion over time?</p> <p>Flow's response: <i>The mode shares presented are the proportion of estimated cross harbour cycle trips to cross harbour car and PT trips from the MSM. The latter reflects future travel costs as represented in the MSM. The ACM however does not include future congestion as an input, and assumes a consistent demand response for a given cycle infrastructure investment and land use, regardless of traffic congestion. As such, the longer range forecasts can be considered conservative.</i></p> <p>EY's response: <i>EY is comfortable with the information provided. Flow may wish to consider adding a footnote with the above information.</i></p>	●



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3. Demand	Pg. 12 Section 3.2.6.	"Understandably the forecast for the cross harbour connection is higher than the forecasts for Tamaki Drive and the Northwestern Cycleway, as the proposed facility will be the only cycling connection to the North Shore other than the Upper Harbour Bridge."	<p>Can we provide any details on the Upper Harbour Bridge cycling connection (e.g. current/future capacity) that can help understand the high forecasts for the Cross Harbour (i.e. is the argument based on the Upper Harbour Bridge being at full capacity in the near future?)</p> <p>Flow's response: <i>Capacity is not a constraint within the ACM, and the Upper Harbour Bridge in any case is very unlikely to reach capacity, being a very long way around the harbour. The future demands on the cross harbour facility are higher than those for Tamaki Dr or the Northwestern, because it would be the only link connecting the significant North Shore catchment. As an aside, we understand that Quay Street and the Northwestern cycleway have seen significant growth in 2018. Table 5 probably warrants updating to reflect 2018 data.</i></p> <p>EY's response: <i>EY is comfortable with the methodology undertaken and suggests including this explanation in the report.</i></p>	●
	Pg 12 Section 3.2.6	"the proposed facility will provide access to approximately double the residential catchment within a 5km radius"	<p>Should this analysis only look at population North and East of the CBD?</p> <p>Flow's response: <i>This simple analysis is provided as a high level sensibility check. Clearly there are other factors that affect cycle demand beyond residential populations. But the comparison has been made to provide some comfort in the scale of the forecasts.</i></p> <p>EY's response: <i>EY is comfortable with the explanation provided, we suggest including a footnote to this effect.</i></p>	●
	Pg. 16 Section 3.3	"San Francisco has a more developed cycle network and bicycle culture than Auckland generally, but Auckland will have a comparable network within the city centre on completion of the Urban Cycleways Programme"	<p>Is there any details on the urban cycleways program (i.e. when will it be completed, what is the proposed infrastructure involve?, etc.)</p> <p>Flow's response: <i>Refer https://www.nzta.govt.nz/walking-cycling-and-public-transport/cycling/investing-in-cycling/urban-cycleways-programme/auckland-urban-cycleways-programme/ <i>The UCP was funded in 2014, for a four-year investment programme (2014-2018). The programme is partially complete, and has been extended to allow for a 2020 completion date.</i></i></p> <p>EY's response: <i>EY is comfortable with the information provided and suggests adding a footnote with the above information.</i></p>	●



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3. Demand	Pg. 18 Section 3.2.2	[...]It is not practicable to develop estimates of daily tourist users on the proposed cross-harbour walking and cycling facility based on the 530 average daily tourist users of the Queenstown Trail, given the differences between these two facilities and their context. However, the latter provides some confidence that the separately estimated 550 daily tourist users of the proposed cross-harbour walking and cycling facility is sensible...	<p>Given the high level assumptions used to estimate the number of tourists going through the proposed facility it may be useful to include a sensitivity around this particular demand group. Suggest using evidence on share of tourist trips on existing routes instead.</p> <p>Flow response: Agree that the high level estimates of tourist numbers warrant sensitivity testing, and this has been done in Section 6.12 of the report. We're unaware of any suitable local routes that would provide useful comparisons for tourist trips; happy to discuss options however.</p> <p>On April 4 2019, Flow issued a technical note including estimation of tourist demand numbers using Queenstown as a benchmark to provide a comparison with previous estimates.</p> <p>EY response: While estimates are based on high level assumptions, EY acknowledges that sensitivity testing has been conducted (-50% tourist demand) and that the impact on the results is relatively small to the overall benefits. Queenstown estimates provide additional confidence to the results regarding tourist demand are in the order of 550. We suggest refining estimates when more information regarding similar local routes becomes available.</p>	●
	Pg. 20 Section 3.5	Table 9	<p>Is it possible to provide breakdown for new and existing users?</p> <p>Flow's response: We don't have separate breakdowns of new and existing users by type. However, it is reasonable to assume that:</p> <ul style="list-style-type: none"> - 100% of tourists are new users - 85% new and 15% existing users, for utility and recreational cyclists; from the ACM - 50% new and 50% existing pedestrians; estimated as per Section 6.4 <p>EY's response: Please provide clarification regarding the split between new and existing pedestrians.</p> <p>Flow's response: Again as discussed, ostensibly every pedestrian trip across the bridge will be a new trip, as you can't currently walk across the bridge. The 50% reduction is a conservative attempt to recognise that some recreational pedestrian trips across the bridge will replace existing recreational trips elsewhere. Of course there's no data to give us a more accurate estimate. Again sensitivity testing this:</p> <ul style="list-style-type: none"> •100% of pedestrian trips are new: +\$14.9 million in discounted benefits •50% of pedestrian trips are new: default assessment •0% of pedestrian trips are new: -\$14.9 million in discounted benefits <p>These sensitivity tests are really quite extreme: it's very unlikely that none of the pedestrian trips across the bridge will replace an existing trip. Any commute pedestrian trip will generate health benefits, as the current alternative is car/bus/ferry. And clearly some – possibly most – of the recreational trips will also be new.</p> <p>EY's response: EY acknowledges that the sensitivity assessment provides indication of small impact on the overall result due to changes on the proportion of new pedestrians. We suggest including this assessment in the report to provide additional confidence around these estimates.</p>	●



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3. Demand	Pg. 28 Section 6.4	"This is considered conservative in that while some tourists will only cross the bridge itself and no further (ie 1.3 km), others will cycle across the proposed facility as part of a much longer waterfront trip"	<p>Is there an indication of magnitude of tourists cycling across the facility as part of a longer trip? Maybe a reference or including a statistic could enhance this assumption.</p> <p>Flow's response: <i>We have no data to indicate how many tourists will cycle only the bridge (ie 1.3 km), and how many may cycle much further (eg Northcote Point to Mission Bay, some 11.5 km). 3 km was applied as an assumed average, but open to other suggestions.</i></p> <p>EY's response: <i>EY understands the uncertainties around this number as disclosed by Flow. However it is not possible to determine whether the assumed 3k average is a suitable proxy for the distance of the typical trip. Suggests that sensitivity analysis is conducted to provide more confidence in these estimates.</i></p> <p>Flow's response: <i>Again there's no data we can provide to support this guesstimate, as we don't know where tourists will start and end their journeys. However the most likely place a tourist will hire a bike or pick up a share bike will be within the CBD or the Wynyard Quarter. The Wynyard Quarter to the Pub in Northcote Point would be a 3km ride. The CBD (say the ferry terminal on the Quay Street cycleway) to Northcote Point will be 4.5km. Ponsonby (Three Lamps) to Northcote Point would be a 2.9 km trip. Westhaven Marina to Northcote Point could be as little as 1.5 km, but the tourist would still need to get to Westhaven somehow, which isn't that accessible to tourists and cuts out the pleasant waterfront cycle to get there.</i></p> <p><i>So sensitivity testing this again:</i></p> <ul style="list-style-type: none"> • 1.5km average tourist trip: -\$2.0 million in discounted benefits • 3.0km average tourist trip: default assessment • 4.5km average tourist trip: +\$2.0 million in discounted benefits <p>EY's response: <i>EY acknowledges that the sensitivity assessment provides indication of small impact on the overall result due to changes on the average tourist trip. We suggest including this assessment in the report to provide additional confidence around these estimates.</i></p>	●



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6. Economic Benefit Evaluation	Pg. 29 Section 6.6	Safety benefits	<p>That net impacts are negligible is not substantiated. It is not quite clear how the gains and losses end up cancelling each other out.</p> <p>Flow's response: <i>Safety benefits and dis-benefits have not been determined. Our expectation that they will broadly sum to zero is based on:</i></p> <ul style="list-style-type: none"> -The conflicting safety gains and losses documented -Cycle safety benefits for new cycle infrastructure tend to account for 1% to 2% of the overall project benefits (given that SP11 allows only \$0.05 per new/existing cycle-km safety benefit on new infrastructure) <p>EY's response: <i>We suggest calculating safety benefits as per EEM guidance to understand the magnitude of the impact.</i></p> <p>Flow's response: <i>The standard EEM rate for cycle safety benefits is \$0.05 per new and existing cycle-km on the improved facility. If that were applied verbatim, the safety benefits would amount to \$1.2 million, discounted. But clearly, the proposed facility doesn't improve an existing cycle facility, so its questionable whether the EEM method even applies</i> <i>The EEM method doesn't account for:</i></p> <ul style="list-style-type: none"> • <i>Safety dis-benefits associated with increased cyclist numbers on roads leading to the facility (although typically these would be less than the safety benefits accrued by cyclists on the facility itself, following the standard EEM method)</i> • <i>Safety benefits associated with fewer cars on the road network</i> <p><i>Hence, the actual safety benefits are likely to be a very small number, in light of the wider benefits. This is not unusual, where safety benefits are typically a very small component of cycle infrastructure</i></p> <p>EY's response: <i>We suggest using Transport for New South Wales (TfNSW) guidelines (pls. see table 67) for calculating these benefits. Calculation should be as follows:</i></p> <ul style="list-style-type: none"> - <i>Diverted car kms X car crash cost/vkt</i> - <i>less Incremental bicycle kms X cycling crash cost/vkt</i> - <i>plus bicycle kms on new facility X the EEM parameter.</i> <p><i>Converted to NZ dollars</i></p> <p><i>(continues overleaf)</i></p>	●



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6. Economic Benefit Evaluation			<p>(continuation)</p> <p>Flow's response: <i>I suggest however that we omit safety benefits on the 1.3km facility itself. The methodology proposed by EY suggests that on the bridge itself, cycle trips will accrue:</i></p> <ul style="list-style-type: none"> • A\$0.27 of disbenefits, less • NZ\$0.05 in benefits • Or approximately NZ\$0.24 in disbenefits per cycle-km on the bridge itself <p><i>Which doesn't seem appropriate given it's entirely separated from traffic, and the only crashes will be with pedestrians or other cyclists, and unlikely to be fatal or serious injury crashes. also suggest that we only include this as a sensitivity test. I'm a little reluctant to include it in the default economics, as NSW traffic conditions and economic rates aren't necessarily applicable to Auckland. Particularly for cyclists around the project, given the generally good standard of protected cycle infrastructure at either end, particularly the city side. The NSW rates presumably reflect a very low average standard of state-wide cycle infrastructure.</i></p> <p><i>Sensitivity test as per above (using 2026 forecasts in the example below):</i></p> <ul style="list-style-type: none"> • Diverted car km: 3,623 km/day x A\$0.03/km x 365 days / 0.94 exchange rate = \$42,210 • Incremental cycle km (deducting cycle trips across the 1.3 km bridge): (19,540 km/day – 1.3 km x 2,566 cyclists) x -A\$0.27 x 365 / 0.94 exchange rate = -\$1,698,945 • Cycle km on new facility omitted • 2026 total = -\$1,656,735 <p><i>Discounted over the economic period, this results in -\$21.7 million in safety benefits. Which is moderately significant within the context of the overall \$259 million benefits, but not sufficient to change the BCR range. As per my earlier email however, my expectation is that the above is overly pessimistic, given the application of the NSW \$0.27 rate for cycle-km is likely too high for this location.</i></p> <p>EY's response: <i>The explanation above sounds reasonable. We agree with Flow that the calculation above should be added as a sensitivity to provide the option of a worst case scenario.</i></p>	●



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6. Economic Benefit Evaluation	Pg. 30. Section 6.7.	<p>"It is noted that car mode share may not directly correspond to car diversion, as public transport users may be more willing to change mode to cycling than car users. This would particularly be the case for users who do not have access to a vehicle.</p> <p>The 2013 Census data however indicates that only 5% of households within the Devonport-Takapuna and Kaipatiki Local Board areas did not have access to a car. Nonetheless, this suggests that an additional factor may be necessary, to account for this bias.</p> <p>Conversely however, we consider that car/public transport diversion is also corridor specific, and will vary depending on the respective levels of service offered for each mode. In the case of the Auckland Harbour Bridge and its approaches, existing level of service by car is very poor, with significant queues and delays for car users during the commuter peak periods. Levels of service for bus users however are relatively good, with bus or transit lanes on the key arterial corridors that supply the Northern Motorway (Onewa Road, Esmonde Road and Akoranga Drive on the North Shore, and Fanshawe Street in the city centre), and bus priority through interchanges.</p> <p>The two factors above offset each other to some degree, but it is not possible to quantify to what extent. As a result, the car diversion rates applied to the economic evaluation have been developed based on car mode shares, as documented below.</p>	<p>Car mode share is not representative for mode diversion share. Closest substitute is ferry or other PT.</p> <p>Flow's response: <i>Agree that we should discuss lower diversion rates. We note however that:</i></p> <ul style="list-style-type: none"> • <i>The diversion rate applied to the assessment is 36% in 2026 and 32% in 2046 (when combining mode share, car occupancy and the proportion of utility trips). By comparison, the EEM's diversion rate for PT is 72.5%</i> • <i>22% of Auckland Lime scooter trips were reported to replace a car trip in 2018. This provides a useful reference diversion rate, particularly given that e-scooters are generally used for shorter trips than bicycles and are potentially less likely to replace a car trip.</i> <p>On April 4 2019, Flow issued a technical note including estimation of lower diversion rates for the commuter peak period.</p> <p>EY's response: <i>EY acknowledges the clarification and disclosure of uncertainties related to this figure. However, there is not enough evidence to conclude whether the approach undertaken to estimate car diversion rate is methodologically sound. As noted by the author, different drivers for car diversion offset each other to some degree but the extent is unclear. Given that only \$0.10 of the per km cycle externality relates to decongestion (whilst congestion cost per km of car travel is \$1.86), car diversion may be less than 10%, which is lower than the proposed rates for the commuter peak (31%). Suggest conducting sensitivity testing to understand the impact.</i></p> <p>Flow's response: <i>I attach QTP's economic evaluation for the Christchurch Major Cycleways programme from 2014, which was accepted by the Transport Agency. Refer in particular to paragraphs 5.2.5 to 5.2.7, which document the 0.6-0.65 car diversion rate used in that analysis and accepted by the Transport Agency.</i> <i>But sensitivity testing this again:</i></p> <ul style="list-style-type: none"> • <i>0.10 car diversion in 2026 and 2046: -\$33 million in discounted benefits</i> • <i>0.31 car diversion in 2026, 0.27 in 2046: default assessment</i> • <i>0.60 car diversion in 2026 and 2046: +\$76 million in discounted benefits</i> <p>EY's response: <i>Results appear to be moderately sensitive to changes in car diversion rates. Given that previous diversion rates approved by NZTA seem to be in the order of the upper range of the sensitivity test, the default assessment provides a more conservative assumption in the absence of more corridor specific diversion rates. We suggest including this sensitivity testing in the report to provide additional confidence in the results.</i></p>	



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Section	Reference	Methodological approach	EY commentary	Materiality
6. Economic Benefit Evaluation	Pg. 33 Section 6.10	Tolling benefits	<p>EY does not have enough evidence to conclude whether tolling is a viable option in this case, given the potential costs of levying tolls and the inconvenience of the mechanism for users.</p> <p>Flow's response: Agreed. Hence why tolling remains only a sensitivity test, and not part of the base case. But that's for decision makers to conclude, rather than us.</p> <p>EY's response: <i>EY recommends that the NZTA provides strategic guidance whether this is a viable option to pursue as tolling options are likely to affect demand for the facility.</i></p>	●
	Pg. 34 Section 6.12	[...]The effect of a large future uptake in e-bikes (this test has reduced health and environment benefits for cyclists by 50%, reflecting the motorised nature of these cycle trips)	<p>Is there a reference/evidence to support the 50% reduction in health benefits assumption?</p> <p>Flow's response: This figure is just an indicative test, as it is impossible to predict the effect e-scooters will have on pedestrian trips.</p> <p>EY's response: <i>EY agrees that health benefits of the project are likely to be affected by the use of e-bikes and e-scooters. To further enhance sensitivity testing we suggest acknowledging the lack of available evidence on the impact of e-scooters given they are a recent development (potentially as a footnote).</i></p>	●

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