+ This document is a working appraisal of the cost benefit analysis of the proposal. As the project has developed, more information has been provided, which may supersede or respond to questions arising from earlier assessments, as detailed below. This working appraisal was prepared in April 2010 for input into the Project Assessment Brief prepared by the Office of the Infrastructure Coordinator.

2009-10 INFRASTRUCTURE PIPELINE: ECONOMIC APPRAISAL WORKING ASSESSMENT

Project: *Integrated Transit Corridor Development – Route 86 Demonstration Project*

Proponent: *Department of Transport, Victorian Government*

Date economic review conducted*: 15/03/10 – 07/04/10*

Note: Victorian projects nominated by the former Government are being carefully considered for advancement alongside the new Victorian Government's infrastructure priorities and in the context of the Government's development of a new, outcomes-based metropolitan planning strategy. Cost estimates and technical analysis for Victorian projects indicated in this document are as submitted to Infrastructure Australia in 2009.

BCR summary information by proponent: 4.0 (for Route 86)

The Route 86 Demonstration Project seeks to realise faster, more reliable tram access to local users along two sections of the Route 86 Corridor (Westgarth and Northcote). It involves using traffic management measures and traffic signal strategies to encourage general traffic away from the tram route onto more appropriate arterial roads. Concurrently, there is an implementation of tram priority measures and improved stops. Specific measures include:

- Tram stop up-grades: five new accessible tram stops to increase accessibility and reduce dwell times;
- Track priority work over a 4.1km section, which includes the creation of part–time tram lanes. These lanes are reserved for trams during peak periods (when trams experience the largest delays). Outside of these times motorists are able still able to use these lanes.
- 1.6km of tram track work with track renewal along key sections.
- Other traffic work including: intersection re-design for tram priority and to direct traffic off the tram corridor; a reduction of the speed limit for cars along the tram route from x km per hour to 40km per hour; and restrictions on the ability of traffic to make turns at various intersections (ie turning across the tram route).
- Tram stop rationalisation – removal of two closely spaced and under-utilised tram stops, which decreases overall journey time.

It should be noted that this demonstration project only captures the costs associated with up-grades to these two sections. The Route 86 *Corridor* appraisal was carried out by RK Consultancy and delivered a BCR of 1.4. The points of difference between the demonstration project appraisal and the corridor appraisal appear to be the reduction of the urban consolidation saving (from an NPV of $35 million to $24 million) and a decrease in costs from $75 million to $23 million. All other major benefits, such as travel time savings, remain consistent. Hence the major shift in the BCR from 1.4 to 4.0.

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1. Depth of supporting information

Externally produced reports used to support the project include:

- The benefits associated with urban consolidation (SGS);
- Risk adjusted capital costs (Currie & Brown);
- Passenger impacts (SKM); and
- Economic appraisal (RK Consultancy).

2. Demand

The primary demand issue is that no modelling is undertaken that details the impact of the project on the surrounding road network. This impact could be significant given the tram priority measures will come at the expense of private vehicles.

An assumption is also made that travel time savings will be a consistent 6 minutes across the life of the project (ie savings do not diminish or deteriorate over time). DOI have confirmed this assumption, but stressed the overall viability of the project wasn't sensitive to changes in this assumption.

These clarifications with the DOI also indicate that demand has not been calculated on a generalised trip costs (GTC) basis. Rather, expected time savings associated with stop up-grades, stop rationalisation and tram prioritisation are added to generate a potential savings of 6 minutes to the current Tram 86 journey times.

These observations suggest a very high level approach has been taken to the demand modelling.

3. Capital costs/operating costs

Capital costs are base on Currie & Brown risk adjusted costs for the phases of work that apply to this demonstration project.

There has been no additional rollingstock (capital expenditure) or operating cost (recurrent expenditure) included within the appraisal. It could be argued that the costs of servicing the additional demand directly resulting from the project should be included within the analysis. However, DOI have advised that there would be the required capacity within the system (both in terms of planned rollingstock up-grades and timetable adjustments due to reduced travel time) to meet this demand without the need for additional capital expenditure. A recurrent expenditure should be included to capture the costs associated with running the additional services, however its current exclusion is likely to have a limited impact upon final result.

4. Quality of economic assessment methodology

There are a number of areas that follow up work could concentrate on. The major issue is the treatment of new users, which appears to be calculated on an annual basis rather than a (Base Case) – (Project Case) basis, a requirement of all CBAs. The impact of this is to potentially suppress new user benefits and misrepresent the distribution of benefits across user groups. Subsequent feedback from the DOI confirms this treatment of new users, however they did not comments on the impact this has on the appraisal.

Discussion with DOI also confirmed a number of economic parameters are higher than those specified by the ATC Guidelines, but dismissed these as immaterial on the overall viability of the project. These include:

- the decongestion parameter value;
- assumed private vehicle / public transport mode split; and
- transport amenity values.

A number of benefits are included which can be regarded as indirect and not applicable to the CBA framework for this project. These include:

- urban amenity; and
- urban consolidation.

5. **Comparability and accuracy of the BCR**

Making the possible technical adjustments to the economic parameters and excluding the indirect benefits, reduces the BCR to around 2.1. However, these adjustments do not address the fundamental concerns associated with the demand (assumption driven rather than specifically modelled), treatment of new users (incorrectly using annual changes in number of trips rather than differences between project case and base case) and neglect to capture existing road user costs. These three concerns all have the ability to alter this adjusted BCR significantly.

In an effort to address these concerns, a bottom up calculation based on provided demand was undertaken to test the likely viability of the project. This calculation attempts to correctly capture the previously understated new user benefits through recalculating travel time savings to new and existing users and adjusting parameter values to bring them into line with ATC Guidelines. This calculation suggests the project is likely to still be viable, even under a scenario of higher capital costs and diminishing travel time savings. The calculations assume no benefits to road users, since no corresponding costs can be captured. However, this quick assessment should not be regarded as a substitute for a robust, peer reviewed appraisal and relies upon the accuracy of the provided demand.

If this demonstration project was to be funded, it is recommended that an *ex post* economic appraisal, using a demand model capable of capturing road user impacts be undertaken upon completion. This appraisal and the underlying demand should both be independently and peer reviewed. This *ex post* work could also be used to test the actual level of urban consolidation that occurs through observations of building approvals and construction. While this wouldn't prove urban consolidation was a direct result of the transport infrastructure, it would strengthen the argument that transport plays one role in helping to facilitate it. Funding for the corridor or wider network projects could then be assessed in light of the *ex post* appraisal results.

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WORKING NOTES

1. Demand

There are three areas of the demand that should be clarified:

1. Treatment of new users. In the model new users appear to be calculated on an annual basis. It is unclear why this approach has been adopted and is currently resulting in inconsistent demand readings For example:

   Corridor Demand 2011 – Modelled

Year		No. Corridor users p.a. - BOARDINGS (Base)	No. Corridor users p.a. - BOARDINGS (Projected)	Implied existing boardings	Implied new boardings	Implied total boardings
Proposed	2011	3,694,404	4,133,186	3,694,404	438,782	4,133,186
Modelled	2011	3,694,404	4,133,186	3,694,404	146,261	3,840,665

Source: 'Transport Amenity' tab in Rt 86 BCR spreadsheet-DOC-10-262235

   The modelled scenario above is contained within the BCR model. The method to calculate new users implies that 3,840,665 boardings are being captured within the BCR calculations, whereas the demand states that there are 4,133,186 boardings in the corridor. Hence, these new users are being understated in the current model.

   It is also unclear why the calculations used to generate these new users figures refer the previous year as the term 'new user' applies across the life of the project, irrespective of whether people switch on day one year 1 or the last day in year 29.

   This methodology appears to be implying new users for the entire route in 2011 are lower than new users just for the section of the route North of Westgarth.

   This has implications upon new user benefits, as they all appear to stem from these calculations within the 'Transport Amenity' tab, as well as the travel time savings to existing users, as these figures are also used within this calculation.

2. Approach to modelling travel time savings. It appears that a consistent 6 minute travel time saving is applied across the entire appraisal period. There is a need to clarify whether this is a travel time savings, or a saving in generalised trip costs (which includes both IVT and weighted OVT).

   One would expect diminishing savings over the course of the project as additional demand results in additional services, combined with increased road use, resulting in a deterioration of travel time. This diminishing return does not appear to be factored into the CBA. Greater clarification should also be sought as to which users receive which savings, given the a person boarding after the Thornbury / Preston, area where the infrastructure is proposed, should receive no significant benefits, compared to a person boarding at the first stop who should receive all savings. While an attempt appears to have been made to do this within the modelling, it is unclear how this has been achieved. This should be clarified as attempting to segment demand and savings like this can lead to double counting.

3. An average trip length of 16km seems high given the total length of the route appears to be around 22km. Any average trip length should match the patronage profile of the route (hence shorter average trip length savings for those boarding closer to the city). This may be based on corridor specific data, in which case the 16km is fine. However, this should be clarified. As a sensitivity test it is recommended reducing the average trip length to 11km until further confirmation can be sought.

While the scope of this project may render the ability to model it on a network wide transport model limited, a select link assignment could be carried out on the road user and public transport implications. If these improvements were to be rolled out across the entire network then it is recommended that the road and public transport user benefits are modelled using a Melbourne Network model.

Finally, clarification should be sought as to why the assumption of 60% of the new users having diverted from car ('Parameters' cell B69) has been adopted. The ATC suggests that this figure is likely to be in the order of 35% - 40% (ACT, V4, pp 56).

2. Capital costs/operating costs

System Capacity

Clarification should be sought as to the capacity of the system to absorb the forecast patronage. Demand indicates that patronage in the option in option is around 27% - 30% higher than the base for each forecast year. However, no additional costs are included to account for additional rolling stock that may be required to service this additional demand.

Further investigation could be focused on understanding not only if the infrastructure costs included are capable of delivering such an increase in patronage, but whether the current rollingstock, timetables etc can service this demand. For example, in 2031 there are an additional 1,031 passengers travelling in the AM peak. Assuming a 3 hour peak, and the up-grade to new rollingstock in the base case with a load capacity of 150 passengers, this would imply an additional 7 tram services would need to be operated to meet demand (or an additional 4.5 services if you assume continuous running at close to a max crowding level of (160%)).

Furthermore, given the growth in services to meet the forecast demand in the corridor, one may expect diminishing travel time savings. So while a saving or around 6 minutes for the full trip may be achievable upon opening of the service, as the number of services increase dwell times and reliability decrease, reducing this saving.

It should also be noted that additional rollingstock implies additional operating costs, which are also not reflected over the 30 year appraisal period.

It is recommended that the additional costs required to service demand, and the impacts of this additional demand upon travel time savings could be an area of further investigation.

{DOI has subsequently confirmed that there will be sufficient capacity within the system to accommodate the forecast demand}

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3. Quality of economic assessment methodology

Transport Amenity

Transport amenity values appear to be incorrectly specified. The value to travellers of weather protection, cleanliness, modern and seating all appear to be in line with ATC values. However, the ATC emphasises that for a package of changes, "it would be expected that the total valuation would be lower than the sum of individual components". Hence, the ATC recommends that: "*in the absence of any evidence to the contrary, when a package of features is considered, the quoted value of individual attributes should be divided by two to adjust for any over-estimation (ATOC 2005)*" (ATC, V4, pp 47). Following this recommendation implies that the value used for amenity benefits in the appraisal should be half its current value.

Furthermore, these 'amenity factors' are designed to replace the IVF (in vehicle factor) and MSC (mode specific constant). If the demand model uses MSC in calibration there could be double counting of these benefits. Conversely, if the demand modelling does not adopt an IVF or MSC then it is possible that demand attributes are not being captured.

Finally, it should be clarified why the amenity benefit of North of Westgarth patronage are used, not the entire corridor patronage?

Timing of the project

Infrastructure and evaluation period start in FY08, yet parameter and costs are in FY09. Minor issue with likely impact a marginally understated BCR due to the timing of appraisal period.

Decongestion

A very high decongestion factor of 77c is used. This stems from workings on the 'car travel cost data' tab. To generate this value implies 70% of total daily trips are undertaken in heavily congested peak periods. ATC guidelines suggest that 21.1% of total daily trips occur between 7am – 9am and 27.4% between 4pm to 8pm. While this is based on South Australian studies, (hence it could be argued that it is slightly higher for inner city Melbourne) even during these periods the heavy congestion is commonly associated with the 'peak hour' with the shoulders of the peak periods experiencing less congestion. Melbourne specific data should be available, and used, to determine the decongestion costs to this specific corridor.

The decongestion parameters shown on the 'parameter' tab of the demand model indicate a reasonable profile which produces a decongestion value which are in the broad range (slightly on the high side) with other jurisdictions (eg.CityRail) estimates and transport model specific project estimates (.449c/VKT). Hence, it should be clarified as to why un-titled parameters detailed in the 'car travel cost data' tab were used instead of the ones specified on the 'parameter' tab. This could be a result of mis-specification in the excel modelling.

It is recommended that the value in the modelling be up-dated using corridor specific data, which should result in a figure around the .449c/VKT already included in the 'parameter' tab.

Urban Consolidation

This should be considered a second order or indirect benefit of the transport project. The major reason behind this is the difficulty in proving direct causation between a discreet piece of transport infrastructure / policy, and the proposed changes in land use. For example, using the SGS matrix (Transforming Tram Corridors, Urban Development Business Case, Section 9.1.1, pp 55) implies that in the absence of any transport (improvement) you could achieve 40% of the additional dwellings in the Thornbury area. This figure should therefore comprise the base case urban consolidation figure. However the matrix also implies that you could achieve the same level of this densification (70% of additional dwellings) even if you had no transport, but had full planning permission & design guidance and good public realm. This reinforces the issues of drawing a direct correlation between transport and the claimed densification, and hence its inclusion within the appraisal.

It is recommended that this benefit be excluded from the appraisal.

Urban Amenity

The parameter used appears to capture an up-lift in residential, retail, office / commercial and industrial rent due to a 2% increase in the rental pool. This equates to approximately $500 million per annum and a present value of $6.02 million. Including an up-lift in rental income is not a valid benefit in a cost benefit analysis.

From a theoretical standpoint, rent is a financial transfer which is already captured within the change in consumer surplus hence the reason why this type of benefit is excluded from the ATC Guidelines (for example see Report 100: Facts and Furphies in Benefit-Cost Analysis: Transport, BTRE 1999).

Exceptions to the use of this type of benefits do occur. For example, if you were specifically analysing a land use policy then it may be possible to justify – ie reducing an imbalance between housing types provided and potential demand within a given area. A second example was if the base case proved producers were receiving super normal profit due to market distortions (implying returns above marginal cost). However, these exceptions only exist in special circumstances and even then, it is very difficult to prove that any gain is a direct result of the transport infrastructure and not an indirect effect. The assumption used within the model of a 2% rental pool increase does not appear to fall into line with either of the scenarios.

It is recommended this benefit be excluded.

Impact to road network

There is no indication given as to the impact this scheme will have upon the road network. These impacts should be examined to ensure that any changes to tram alignment and priority in this corridor do not have an adverse impact upon the road network and if they do, this adverse impact is not greater than the benefits to tram users.

Furthermore, given a reduction of decongestion is claimed as a benefit, then any commensurate costs need to be captured. Specifically, congestion is a factor of urban road speed, so although it is assumed the there is a diversion from road to tram as a result of the project, the reduction of road speeds and car delays associated with increasing tram priority should be examined. Finally, (as a last resort) if these road user costs are not going to be examined, then for the sake of consistency road user benefits (reduced congestion, reduced VOCs ect) could also be excluded.

While it is not recommended that urban consolidation benefits be included within the appraisal, it should be noted that any modelling for the road network in the option case should include the assumptions around higher population growth (through densification) on this area. Although the majority of new residents attracted to a TOD style development (or transport facilitated densification)

would be expected to use PT, there will still be an increase in car usage and hence an impact upon the local road network which needs to be captured.

4. Comparability and accuracy of the BCR

Further clarification should be sought over a number of material issues:

- modelling of new users and the impact this has on both new and existing user benefits (travel time benefits in particular);
- the assumption that the 6 minute saving in travel will not diminish over the 30 year project period;
- clarification should also be sought as to how the forecast capacity is met given that no costs are included for additional rollingstock. (If the forecast patronage can be met with existing rollingstock on the route then it would imply there is ample network capacity, questioning the need of the project); and
- while road user benefits are captured (decongestion, reduced VOCs ect) there is no quantification of road user costs which would be expected given a reduction in speed limits, priority given to trams, loss of road and parking spaces during construction and the assumed densification (ie population increase) of the area.

These issues all have the potential to materially impact upon the viability of the project. However, leaving aside these points, adjusting the model to incorporate the above recommendations around:

- urban consolidation;
- urban amenity;
- transport amenity;
- the decongestion value; and
- using a 7% discount rate

results in the BCR falling from the stated 4.01 to 2.13. The cumulative breakdown of this is displayed below:

- urban consolidation; (BCR – 2.81)
- urban amenity; (BCR – 2.51)
- transport amenity; (BCR – 2.35)
- the decongestion value (BCR – 2.31); and
- adjusting average trip length (BCR – 2.26)
- using a 7% discount rate (2.13).

It is against this base of around 2.13 that any further adjustments to accommodate the material issues identified above should be made.

A high level analysis, using the demand provided and manually calculating the benefit of travel time savings, suggest that this project could still be marginally viable with a substantial increase in costs to reflect the capacity required to meet demand and diminishing travel time savings to 1 minute by 2031. However it should be stressed that this was only undertaken as a rough sensitivity test and the following questions should be adequately addressed before being able to make a full call on viability.

Specific Question:

1. Based on the spreadsheets provided, clarify the rationale behind the calculation of new users ('transport amenity' tab). Specifically:

- why are new user boardings higher in 2011 for the section North of Westgarth (175,626) than the entire route (146,261) when the entire route presumably includes the section North of Westgarth? ('Transport Amenity' tab - cells I8 and T8). This appears to be inconsistent with total demand which indicates that demand for the entire route is higher than the demand for the North of Westgarth section.
- Why do the number of new and existing user boardings in the amenity benefits calculation for 2011 (cells U8:V8) equal less than the total boardings forecast for 2011 (S8)? ('Transport Amenity' tab).

2. Does the demand model used for this analysis adopt a mode specific constant (MSC)? [yes means a potential double count of transport amenity]

3. Would it be possible to provide more detail on how travel time saving of 6 minutes is calculated including a breakdown of both in vehicle and out of vehicle components?
4. The modelling appears to assume that the same level of saving (be it travel time of generalised trip cost) is realised across the full thirty years of the appraisal. What is the justification for this assumption? Why wouldn't travel times deteriorate towards the end of the period, as is usual in public transport appraisals, as the road system becomes more congested and more services are required on the route to service demand?

5. Capacity in the 2031 option is approximately 30% higher than the base case. In terms of the AM peak this implies over 1,000 additional users (or an additional 7+ trams assuming 150 passenger capacity or 4.5 trams assuming 150 passenger capacity with 160% crowding levels). However no additional costs appear to be included in the appraisal for additional rollingstock or operating costs. Why have no additional costs been included to meet this forecast demand?

6. Given the current frequency of the timetable and expected rollingstock up-grades, what capacity is there for the 2031 timetable to service the forecast 240% growth in demand.

7. What is the source for the assumed 16km average trip length for this corridor? Does this figure reflect the length of the Route 86 corridor and car usage patterns of the areas serviced by it?

8. What is the justification for only capturing road user benefits (ie reduced congestion, vehicle operating costs, environmental externalities ect) while excluding road user costs (ie increased delays due to tram prioritisation, increased congestion on roads surrounding High Street and Plenty Rd, in light of road speed decreases)?

9. What is the rationale behind including an 'urban amenity' benefit within the appraisal? What is the source of the assumptions driving this, specifically the 2.0% rental pool increase?

10. What is the source of the assumption that 70% of daily traffic is undertaken in Heavy Congested: Peak Conditions? ('Car travel cost data' tab). Why is this inconsistent to the decongestion parameter calculated on the 'Parameters' tab?

11. Can you explain the process and values driving the 'travel time' spreadsheet? What sections of the route do these time savings apply to and what are the percentage figures which appear to be driving these calculations (cells H1:I3)?

12. Why has the assumption of 60% of the new users have diverted from car ('Parameters' cell B69), when the ATC suggests that this figure is likely to be in the order of 35% - 40%? (ACT, V4, pp 56)

13. Request a copy of the RK Consultancy Services, *Tram 86 Corridor Improvement Project – Economic Evaluation*, December 2009.

Follow up conversation with DOI – 22/03/10

The DOI stressed that this appraisal was undertaken as a decision aid, designed to assist the council with stakeholder consultation and justification. They also stressed that many of the concerns raised were not material to the overall viability of the BCR.

The two areas where detailed answers were not provided, or the questions were taken on notice, that do have the ability to materially impact the BCR are in terms of how the demand (and in particular new users) has been used and the capacity of the network.

In terms of network capacity, DOI indicated that sufficient capacity will exist in the base case to deal with expected demand. Hence, no incremental costs are required and the system will be able to service demand. DOI offered to provide further calculations to support this.

However, the use of the demand outputs are still of concern. Specific questions couldn't be answered due to the absence of the original modeller. Explanations as to new use calculations were not logical and still result is a large proportion of the new users not being captured within the appraisal. Capturing this correctly has the potential to not only influence the strength of the project (likely to still be positive), but also to alter the distribution of benefits between new and existing users. The DOI took to examine this further.

Concerns also exist around the modelling of impacts on existing road users. The DOI expressed that these would be marginal and assumptions in the base case could accommodate these alterations and changes in specific road capacity. However, from a technical standpoint, the impact of road diversion and tram priority do need to be captured, even if to ensure consistency with the capture of benefits to road users who switch to tram (reduced congestion, environmental ect.)

Specific answers are detailed below.

1. The DOI are re-examining the calculations of new uses. They expressed difficulties finding direct answers given the modeller for the project has since left the company. *Awaiting further information*

2. No mode specific constant was used in modelling. Hence it is valid to include the transport amenity benefits, albeit at 50% of the value used in the current model.

3. Travel time savings costs savings are based on an in vehicle time saving, not a GTC.

4. The modelling assumes the same 6 minute savings throughout the period. However, the total savings only apply to people undertaking the full journey, with a proportionate saving applied to those taking smaller journeys depending upon their boarding's and alighting. They conceded this was potentially optimistic, but stressed that the appraisal was carried out as a decision aid.

5. Tenders are currently being finalised for the purchase of rollingstock which would deliver the capacity required to meet forecast demand. Hence, as there is capacity within the existing fleet, this has been included in the base case.

6. The DOI advised that the purchase of the additional rollingstock would deliver a 36% increase in capacity and the savings in travel time would allow for an additional 7% capacity due to more efficient timetabling. Furthermore, the line is currently running at 60% peak capacity. These factors all suggest that the 240% growth in demand can be met.
   Further information around the capacity calculations will be provided by the DOI.

7. Advised that trip length was probably sourced from travel survey data. However, DOI was unsure of the exact source and was going to clarify. Advised that any changes to this figure would be immaterial.

8. Stressed that the base case included all the current network operating plans and that the impact upon surrounding roads would be negligible.

9. Advised that this benefit was immaterial to the BCR and that if it wasn't consistent with other projects submitted it could be excluded.

10. Pointed to a mi-type in the model 'parameter' tab, but said the 70% justification was valid given it was an inner city location. Stressed that changing the assumptions only had a marginal impact upon the BCR.

11. Certain segments of demand were apportioned different travel time savings, depending upon boarding and alighting. This ensures that only people travelling the full length receive the 6 minute saving.

12. Stressed that the impact of this on the BCR was marginal, with the project still viable even if the 35% - 40% assumption is used.

SGS Urban Densification Benefits report still to follow.

Subsequent advice provided by the Department: Thursday 25 March.

DOI confirmed that new uses are calculated on an annual basis. Using this method departs from the CBA analysis principle as a new user in year 1 doesn't become an existing user in year 2. Every year (or observation period) the number of new users in the option is calculated with respect to demand in the base case (not the previous year). Adopting the approach submitted in the appraisal is resulting in a likely underestimate of the BCR and misspecification of the distribution of benefits between new and existing user benefits.

In terms of capacity, DOI have provided advice that indicates that forecast patronage can be met with the expected capacity of the new tram fleet and due to the saving in travel time reducing headway. Their simplistic calculation indicates there would (just) be sufficient capacity to meet expected demand. However, these calculations do not take into consideration deteriorating reliability and boarding times as the system nears capacity.

Finally, significant work has been undertaken the urban densification work within Melbourne by SGS. The documents provided relate to work undertaken for Melbourne wide growth as well as tramway specific densification. The work is comprehensive and adheres to the relevant economic principles and the arguments forwarded for the benefits of urban consolidation are not without strategic merit. However, as acknowledged in correspondence with DOI, this area of appraisal is still in the early stages of development. These benefits provide excellent additional context in understanding the

wider impacts of a transport appraisal on land use. However, adhering strictly to transport CBA methodology as outlined by the ATC, and consistency within IA submissions, these benefits should not be included within the BCR. However, the recommendation not including them within the BCR does not imply they shouldn't be considered within decisions on the wider strategic context of the project.