

Costs and benefits of early delivery of transport options

Transport Options in New Suburbs

Policy Brief

This policy brief presents the outcomes from an RMIT study into transport provision in two Melbourne growth areas to inform policy stakeholders on approaches to transport infrastructure and service provision in new suburbs.

Key Recommendations

- ▶ A base level of public transport service, and provision for active transport, be considered essential in growth areas from the time residents move in.
- ▶ Develop strategic transport plans to inform planning for growth areas.
- ▶ Introduce staged public and active transport provision, ensuring a basic level of provision at the commencement of settlement and then stepping up as development milestones are met.
- ▶ Start with a public transport network of direct and frequent routes in growth suburbs, which is complemented by routes that provide wider geographic coverage to ensure equitable access to transport.
- ▶ Ensure the early delivery of neighbourhood and/or town centres to encourage active transport and provide a place for community activity.

Background

Infrastructure provision for new suburbs – such as active transport, public transport facilities, shops, services and schools – is often not provided until long after residents move in due to funding constraints. This delay, often of years, can impact upon resident travel time, health and quality of life, and lead to missed benefits from increased social engagement and economic participation.

To understand the costs and benefits of transport options, RMIT researchers undertook a study into transport provision in Melbourne's growth areas in partnership with the Cities of Casey and Wyndham, property developer Stockland Australia and the Planning Institute Australia (Victorian Division),

and in consultation with the Victorian Planning Authority (VPA) and the Department of Transport. From case studies in the Casey and Wyndham growth areas, scenarios were modelled for active transport and public transport infrastructure and service provision based on timing of delivery (early, medium and late) and quality of service (low, medium and high) to assess respective costs and benefits.¹ These findings are extrapolated to assess the cumulative cost and benefits of early transport infrastructure and service provision in growth areas across Melbourne.

Key findings

Early delivery of transport infrastructure and services is more costly but also provides greater benefits

Early delivery of transport facilities costs more than delayed delivery due to the timing of the financing of the infrastructure and services (as a current dollar is valued more than a dollar expended in later years), and also because recurrent costs are incurred for a longer period. However, benefits are higher for early delivery as they accrue over a longer time span, and resident uptake of active and public transport is more likely if these facilities are available when residents first move in.²

Active and public transport options provide greater benefits than costs

The case study analysis of Wyndham and Casey growth areas quantified physical health benefits, social and economic participation benefits, and household savings from a reduction in number of cars owned.

Table 1 indicates the results for the two case study areas and for growth areas overall. Quality of service provision has a significant influence on the benefit-to-cost ratio, which is well below 1 for low-quality transport delivery. Where transport service provision is of medium or high quality, the benefits of infrastructure and service delivery exceed costs, regardless of the timing of delivery. In both Wyndham and Casey early, high-quality delivery of transport options provides high benefit cost ratios of 17.9 and 23.3 respectively. Benefits of early high-quality transport delivery in the Wyndham and Casey case study areas are approximately \$1.058 billion and \$1.374 billion respectively, compared to costs of \$59 million for each case study area.

The benefits of early delivery of high-quality transport infrastructure and services outweigh costs by 18:1 in the Wyndham growth area and 23:1 in the Casey growth area.

Table 1: Summarised results of costs and benefits of early, medium and late delivery of transport options at a high, medium and low quality.

Quality	Scenario	Early delivery			Medium delivery			Late delivery		
		Costs in million \$	Benefits in million \$	BCR	Costs in million \$	Benefits in million \$	BCR	Costs in million \$	Benefits in million \$	BCR
Low	Wyndham case study area	5.1	1.5	0.30	3.4	1.0	0.29	2.3	0.6	0.28
	Casey case study area	5.5	1.7	0.31	3.7	1.2	0.32	2.5	0.8	0.31
	Growth Areas	839.2	103.7	0.12	544.2	75.0	0.14	370.1	48.6	0.13
Medium	Wyndham case study area	15.2	324.1	21.33	9.8	215.2	21.93	6.6	139.5	21.18
	Casey case study area	25.9	458.6	17.73	17.2	315.5	18.18	11.5	203.2	17.62
	Growth Areas	3,088.1	18,398.9	5.96	1,995.9	13,794.3	6.91	1,346.5	8,940.9	6.64
High	Wyndham case study area	59.0	1,057.9	17.94	39.8	706.1	17.74	26.7	457.7	17.14
	Casey case study area	59.0	1,374.4	23.29	39.9	931.5	23.36	26.9	603.8	22.44
	Growth Areas	8,764.8	36,625.4	4.18	5,884.4	27,408.9	4.66	4,002.3	17,765.4	4.44

Notes: Early delivery: Public transport from Year 1; Active transport starting Year 1, extended Years 3 and 5 to match population; Medium time frame delivery: Public and Active transport from after Year 5; Late delivery: Public and Active transport from after Year 10; Growth Areas: Extrapolation to all areas with residential Precinct Structure Plans (existing and future) issued under Victorian Planning Authority guidelines; BCR: benefit-to-cost ratio.

The extrapolation to all residential growth areas indicates that early, high-quality transport delivery would cost \$8.8 billion and would deliver \$36.6 billion in benefits. The benefit-to-cost ratio of 4.18 is lower than in the case study growth areas. This is because in assessing costs and benefits across all of Melbourne growth areas, the costs incurred in non-growth neighbouring areas were included, while benefits for people living outside growth areas were not included to avoid double counting.

The greatest benefit comes from avoided car ownership

Avoided additional car ownership is the largest contributor (about 65%) to benefits. Even if a more conservative approach is taken to car ownership reduction, by including only 50% of the estimated reduction, total benefits would still be about \$718 million and \$918 million for the Wyndham and Casey case study areas respectively. Car ownership assumptions are based on levels seen in other parts of Melbourne. The large share of household savings in the overall benefits shows that currently a large proportion of transport costs is passed on to private households. An indirect benefit not included in our analysis is the reduction in cars on the road, reducing the impacts of congestion such as loss of productivity and greenhouse gas emissions.

Sequencing of development

The study indicates that benefits of increased transport provision in a new suburb are amplified by effects on surrounding suburbs, highlighting the importance of good sequencing and location of development alongside areas with existing amenity such as shops and services. For example, 86% to 90% of the calculated benefits for early high-quality transport provision

accrue to the population living outside the respective case study areas. This includes for example the population living in adjoining growth areas within walking distance of new bus routes.

For further information:

cur.org.au/project/equitable-healthy-transport-options-new-suburbs/

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¹ This study involved a focused cost-benefit analysis informed by a literature review on early transport delivery and behaviour change, and document analysis to identify costing parameters. For further details on the study methods and results, see Gunn, L.; Kroen, A.; Pemberton, S.; Goodman, R. (2021) Benefits and costs of early delivery of transport options in new suburbs. Internal Working Paper, Centre for Urban Research, Melbourne. Note that estimates of costs and benefits in this study are based on a high-level focused cost benefit analysis and that transport modelling or sensitivity analyses have not been undertaken. This study therefore does not constitute an analysis at the level of detail required to support

plans for a specific intervention. The study authors found that the tools currently available for quantifying benefits are less developed than those available for costs, and accordingly, reported benefits are less detailed than the costs.

² Pemberton, S.; Kroen, A.; Goodman, R.; Gunn, L. (2021) Behavioural Change, Choice of Travel Mode and Residential Relocation. Internal Working Paper, Centre for Urban Research, Melbourne.