Value capture: options, challenges and opportunities for Victoria

Technical Appendix

Advice to Infrastructure Victoria

October 2016

Building a better working world

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Executive Summary

This study considered the strategic options to enhance the way value capture is used to support changes to the planning system and to fund infrastructure projects in Victoria, which included assessing mechanisms to take a beneficiary pays approach to planning and development and to extend value capture so that a broader set of beneficiaries can make a more meaningful funding contribution.

Value capture approach, infrastructure options and mechanism design

In considering the role of value capture in funding high priority infrastructure projects, it was determined that the application of value capture should be decided on a case-by-case basis across all infrastructure sectors when there is a clear nexus between planning changes and infrastructure delivery with material value gains for landowners and developers.

An assortment of revenue mechanisms, including developer contributions (i.e. charges and other development contributions), betterment levies and development rights and leases, were designed and assessed for case studies and scenarios based on options being considered by Infrastructure Victoria in its draft 30-year infrastructure strategy. The case studies and scenarios considered include:

- Melbourne Metro 2 (public transport)
- Outer metropolitan ring road (road transport)
- Rezoning of industrial land near a train station (planning)
- Public housing asset rationalisation and refurbishment (housing)
- Major hospital redevelopment (health)
- Commitment to a new school in an urban growth area (education).

A number of important mechanism design choices were made relating to expected levels of value capture or cost recovery for different projects and mechanisms, revenue base and determination of rates of charge, boundary selection, timing and payment options. Some of the key design choices are identified in the table below.

Table 1: Key mechanism design choices

Design choice	Suggested design focus
Extent of value capture	Determining the appropriate level of value capture is challenging. While a principled starting position is to share value gains on an equal basis, this approach should only be followed when there is a high degree of certainty in measuring value gains and capturing value. This level of information is only likely to be available in certain situations, such as in the context of planning changes and other interventions that create a clear change in the use and value of affected land (e.g. the transaction of unused or underutilised land). For these examples there could be the opportunity to capture 50% of value gains. In relation to betterment levies, limits on the ability to target value gains and the desire to implement fair and affordable value capture mechanisms, cost recovery of around 20-30% of project costs is considered reasonable and in line with experience in other jurisdictions. However, the level of value capture should be determined on a case-by-case basis depending on the level and certainty of project benefits and other policy considerations.
Revenue base	The most efficient revenue base is the unimproved (site) value of land, and this should be the base for any developer contributions targeted at value uplift and any betterment levies. Other developer contributions have a focus on development activity (e.g. residential units and commercial floor space). While this increases the complexity of understanding the precise link with value gains and may deter investment at the margin, the approach is well-established and provides a practical approach to value within current settings.

Design choice	Suggested design focus
Land use	The inclusion of different land uses in the design and application of value capture funding mechanisms should be linked to the beneficiary pays principle. If the analysis of expected benefits can be demonstrated to materially flow to individual property classes, then there is a strong case to include those classes in mechanism design.
Geography	From a tax policy perspective, the use of boundaries is undesirable as it creates the risk of creating vastly different tax liabilities where benefits are similar. However, a move to apply value capture mechanisms by location necessitates their use. The challenge lies in being able to define appropriate boundaries that are not complex and do not carry material boundary issues. For example, this could include determining a time or distance constrained catchment (e.g. a 1km 'walk' catchment) and making adjustments to accommodate local factors that can affect the distribution of project benefits. For example, the use of local government or statistical boundaries (e.g. LGA, suburb, SA2, or SA1) and other physical barriers (e.g. major infrastructure links and/or planning buffers) can support the choice of boundary location. As with other aspects of value capture, boundaries should be determined on a case-by-case basis, using appropriate analytical tools and design capabilities.
Rate structure	The choice of rate structure should reflect the selection of land uses and revenue base. Value capture or cost recovery amounts can be allocated to different areas and property classes based on the analysis of project benefits. This approach can lead to the development of bespoke variable rate classes in a similar way that is in place for the Fire Services Property Levy.
Timing / Frequency & Payments	The timing of developer contributions and property sales and leases should be structured around the timing of the transactions themselves. In the case of integrated development opportunities, the timing of payments could be adjusted to match the development profile and incentivise the right risk/reward outcomes. Betterment levies can be applied from the time that benefits begin to materialise, which in many cases is from at or before construction starts. However, there may be a mismatch between when benefits are created by the acts of government and materialise in land values and when landowners realise those gains. While beneficiaries may receive a partial benefit early on linked to greater consumption and borrowing capacity, it is generally only upon the sale of property that the gains are fully realised. A suggested focus is to commence betterment levies from the start of project construction, with duration linked to the duration of project financing arrangements or another pre-determined timeline. However, while they have not been assessed in detail as part of this study it could be possible to allow payment deferrals to assist landowners and developers in managing cash flow associated with value capture liabilities. However, depending on adoption rates, this could have significant cash flow implications for government.

Evaluation results

A range of development contributions, betterment levies, property developments and commercial opportunities were assessed across the project options considered.

The evaluation considered three broad objectives for value capture on an equal basis:

- Revenue potential: The extent to which the total value captured by the mechanism maximises revenue relative to the value created by the project and its total capital cost. In the case of planning decisions the value captured relative to the value uplift;
- Equity and efficiency: The extent to which the mechanism promotes fairness and encourages efficient use of resources, while not distorting economic activity; and,
- Simplicity and sustainability: The extent to which the mechanism is easy to understand, administer and comply with, minimises administrative or transaction costs, and leads to sustainable revenues.

The evaluation identified a mix of mechanisms that could be suited to each of the future projects and scenarios. While developer contributions were assessed as being able to make a significant contribution to project funding, these could be enhanced by better targeting value gains due to planning changes and infrastructure provision where the benefits can be clearly demonstrated (e.g. activation of greenfield land).

The inclusion of betterment levies significantly increases value capture's funding potential, with the recovery of up to around 25% of project costs considered possible under the levies considered in this study, depending on underlying land values and the level of benefits received. Property development and other commercial opportunities can also make a positive contribution while enhancing project outcomes, although their revenue potential is limited.

The evaluation also identified a set of favoured complementary mechanisms that could form part of a value capture funding strategy for each of the future project options. These are presented in the table below.

Table 2: Future project value capture strategies and estimated revenue

Future Scenario	Value capture strategy (complementary value capture mechanisms)	Total revenue ($, real)	Cost recovery (%, present values)*	Benefits captured (%, present values)*
Melbourne Metro 2	1. Developer contribution	2.0 billion	6%	7%
	2. Betterment levy – rate on full property value in LGA corridor	11.5 billion	25%	31%
	3. Property development, sales and leases	0.2 billion	1%	n/a
	Total	13.7 billion	32%	39%
Outer Metropolitan Ring Road	1. Developer contribution	3.2 billion	12.5%	11%
	2. Betterment levy – rate on full property value in LGA-corridor	3.3 billion	12.5%	11%
	Total	6.5 billion	25%	22%
Rezoning industrial land near a train station	1. Developer contribution – share of value gains	1.1 billion	n/a	50%
Public housing asset rationalisation and refurbishment	1. Property development – returned asset	$60 million	100%	n/a
Major hospital redevelopment	1. Property development – commercial leases	n/a	< 10%	n/a
Commitment to a new school in an urban growth area	1. Developer contribution – accelerated GAIC	n/a	40%	2.7%
	2. Developer contribution – uplift sharing	$6 million	25%	1.8%
	Total	$6 million	65%	~4%

** A feature of value capture funding is the timing difference between upfront investment expenditure and subsequent revenue collections, where the use of discounting is required to enable a 'like-for-like' comparison that accounts for the time value of money and risk. Therefore, in establishing value capture funding mechanisms to generate revenue and achieve a level of cost recovery while also allowing for the time value of money and risk, total nominal revenue (i.e. the sum of annual cash flow over the duration of the funding arrangement) may be higher than the total cost of the project. By converting future revenues and costs into present values using discounting, a more meaningful comparison can be made, where revenue raised is generally less than the cost of the project.*

** Present values were calculated using the Victorian Government's standard discount rate of 7% (real) and 9.7% (nominal, assuming 2.5% inflation).*

Source: EY analysis of project data provided by Infrastructure Victoria and other public information

This evaluation highlights the significant contribution that value capture could make to raising funds in support of a range of infrastructure projects across multiple infrastructure sectors, and the additional benefits that can come from deploying multi-faceted value capture strategies.

1. Introduction

1.1 Background

Infrastructure Victoria (IV) has engaged EY to examine the strengths and weaknesses of the various value capture funding options as applied in Victoria and elsewhere and in the context of future infrastructure project case studies or scenarios.

To undertake this project EY has reviewed literature on the value created by infrastructure and on approaches used to capture this value, and has conducted modelling to illustrate the potential land value uplift created by a range of prospective Victorian investments, and the revenue potential and impacts of various value capture mechanisms tailored to each future project case study.

The analysis and modelling of options, challenges and opportunities considers a range of sectors, not just transport and planning. While user charges are noted as a value capture funding mechanism, EY understands user charges (such as transport network pricing) are the subject of a separate analysis and discussion paper being undertaken by IV and are not covered here.

1.2 Purpose of this report

The purpose of this report is to:

- Outline lessons learnt from the review of Victorian and other jurisdictions' application of value capture funding mechanisms
- Review the impact of infrastructure investment on property values in Victoria and other jurisdictions to inform analysis and modelling of potential value capture funding options or mechanisms
- Analyse value capture funding options for a selection of future projects and scenarios
- Outline the approach, evaluation criteria, assumptions and modelling results for applying value capture options and funding mechanisms for a selection of future projects and scenarios
- Assess value capture funding options and funding mechanisms in line with the evaluation criteria.

2. Value capture funding mechanisms

2.1 Value capture: A 'beneficiary pays' funding approach

'Value capture' is an umbrella term, covering a range of revenue mechanisms with a common goal – that of funding projects from beneficiaries rather than from taxpayers in general. Value capture does not refer to any particular type of tax, levy, or other mechanism, but describes the spectrum of mechanisms that can be used to enact a funding model in which beneficiaries contribute more funding towards projects they benefit from. This includes user pays mechanisms, developer charges and contributions, targeted and broad-based betterment levies, property development rights, asset sales or leases, major beneficiary contributions, and other non-land taxes or levies.

The key distinction between a value capture funding approach and general revenue raising is that value capture refers to targeted beneficiary funding, where there is a connection between benefits received and funding contributions. As such, value capture is grounded in the beneficiary principle of taxation – that "people should pay tax broadly in accordance with the benefits they receive from government spending".[1]

All infrastructure and services have a locational dimension, where the benefits that favour certain areas over others will eventually become capitalised into land values. A pragmatic focus on capturing value created therefore focuses on property values and recouping project benefits at the point where they materialise as land value uplift.

While the focus has narrowed around land value capture there is no single or best practice policy or approach for how value capture should be implemented. For instance, there is a threshold choice around the role of value capture – whether as a cost recovery tool or as an approach to benefit capture regardless of the cost of investment, with the latter approach also lending itself to value capture in the context of planning decisions that transfer significant value gains to private landowners.

There are also choices around mechanism design to meet the objectives of any value capture policy, involving important trade-offs in terms of beneficiary targeting, revenue potential, efficiency, fairness and simplicity.

Another way of understanding what a value capture funding model can achieve is to see it as 'closing the loop' between a project, its beneficiaries, and its funding. A value capture funding model prevents so much publicly-funded benefit leaking into land values. It thereby avoids the relative inequity and economic inefficiency of general taxation, and provides the opportunity to support infrastructure funding by either growing budget capacity or linking a new revenue source directly to a project through some form of revenue hypothecation, with the latter approach increasing the transparency of funding and expenditure but reducing the flexibility to manage risks within the budget.

2.2 Overview of value capture mechanisms

Value capture or beneficiary pays principles have been enacted across a wide range of jurisdictions in numerous different ways. Many aspects of the local context have influenced how value capture has been put into place – factors such as the legislative powers available to the jurisdiction, the structure of broader tax systems, political influences and the power of vested interests, revenue needs, the motivations driving policy, and numerous historical factors.

There are numerous variants but also some common features in the mechanisms used elsewhere.

[1] Australia's Future Tax System review, Consultation Paper, p33p

For the task of assessing mechanisms suitable for the Victorian infrastructure context, it is important to set aside the specifics of the designs applying elsewhere to examine the essential underlying features of each mechanism.

Putting aside user charges there are five broad categories of value capture mechanisms, including:

- Developer contributions
- Land betterment levies
- Property development, asset sales, or leases
- Major beneficiary contributions
- Non-land mechanisms

The defining features of each of these categories, and some of the important variations of each, are outlined below.

2.2.1 Developer contributions

Developer contributions (also referred to as developer charges or development contributions) are payments made by property developers as a condition of development permission (or as a condition of re-zoning preceding development). Payments are often directly linked to infrastructure costs resulting from development, i.e. a cost-recovery focus (as per the Development Contributions Plan system). Sometimes they are not linked tightly to costs, or are explicitly designed with a benefit-capture focus (as in ACT's Lease Variation Charges).

Developer contributions can take different forms, depending on the legislative instrument applied. However, the essential feature of developer contributions is that payments (in cash or voluntary 'works-in-kind') are one-off and only apply to land undergoing development.

In Victoria the Planning and Environment Act 1987 allows for developer contributions to be collected through planning system when changes are made to planning schemes or through the provision of planning and building permits. Specific mechanisms used in Victoria include Developer Contributions Plans (DCPs), voluntary agreements (under section 173 of the Planning and Environment Act 1987) and the Growth Areas Infrastructure Charge (GAIC), which is a contribution scheme designed to help fund infrastructure in Melbourne's growth areas.

2.2.2 Land betterment levies

Land betterment levies are special taxes paid by all landowners (not just on land undergoing redevelopment) in a defined project or benefit area as a means of capturing a portion of land value gains that accrue to properties because of a government investment or policy change.

Betterment levies can be one-off but are usually recurrent (e.g. annual) and set to recover a specific value gain or share of infrastructure cost over the life of the mechanism.

Betterment levies involve a series of design choices that can have a significant bearing on the extent of value capture and other equity and efficiency considerations. For example, at a high level, three important variants are identified with different characteristics, including levies based on land or property value, levies set at a flat rate or area rate, and levies based on value uplift to more closely match land value gains.

In Victoria betterment levies were established to fund the Melbourne Underground Rail Loop, with contributions sought through the City of Melbourne and the MMBW. However, pressures led to the phasing out of the charges and the cost of the project was ultimately funded by the Victorian State Government (see case studies).

In the Victorian context there are a range of state and local government mechanisms that could be used or strengthened as value capture mechanisms. At the state level this includes possible use or enhancement of land tax, stamp duty and Urban Renewal Authority mechanisms. At the local government level this includes use or enhancement of council rating mechanisms.

2.2.3 Property development, asset sales, or leases

Sale of property development rights, sale of land, and leases can go hand-in-hand with the development of various forms of economic and social infrastructure. The aim of these approaches to value capture is to integrate and generate funding from commercial uses of government land and assets.

This can include the physical integration of commercial opportunities with the infrastructure being delivered and operated, or could include realising the gains from the sale of assets to fund other infrastructure and services.

The sale of development rights includes instances where space is created alongside or above infrastructure, with common examples in the transport sector including 'air rights' above or next to rail lines or stations (e.g. Southern Cross Station redevelopment, Burke Road level crossing removal). Other sectors can also provide for these opportunities. For instance, the delivery and operation of health and education facilities can involve the co-location of similar commercial businesses or sub-letting/selling land for alternative uses to create integrated community precincts. These opportunities can arise as new infrastructure is being planned, as well as through the re-modelling and refurbishment of existing assets, including where opportunities to rationalise and consolidate assets may be available.

Other asset sales or leases, such as the planned lease of the Port of Melbourne, provide another means of harnessing the value created through the commercial operation of state assets. These sales create a means of funding ongoing investment in infrastructure to meet growing industry needs, as well as to raise revenue to recover the cost of these large legacy investments to raise funds for other community infrastructure.

An essential feature is that these mechanisms are contract-based (not compulsory taxes) that are most often triggered around the same time the infrastructure is being procured and delivered. This provides a close timing match between possible funding and investment expenditure.

2.2.4 Major beneficiary contributions

Governments sometimes seek payments from major beneficiaries (e.g. airports, major employers, landowners) to secure and fund infrastructure, with payments generally negotiated between the Government the private parties.

For example, the funding of the Crossrail project in London includes major contributions from the Canary Wharf Group, Heathrow Airport, and Berkeley Homes. The contributions from the Canary Wharf Group include around £150m to part-fund the construction of a new Crossrail station at Canary Wharf, with the other £350m being provided by the government and a condition that the Canary Wharf Group will fund any additional costs incurred over the £500m fixed price limit given it is responsible for designing and building the new station. The owner of Heathrow Airport was to contribute around £230m to the cost of the project, which will provide direct connections to the airport. However, this was reduced to around £70m by the airports regulator in recognition of other capacity issues affecting the airport.[2]

2.2.5 Non-land mechanisms

It could be possible to impose levies on other (non-land) taxes as a form of value capture funding, with levies on payroll tax, motor vehicle registrations or fuel excises possible examples.

[2] http://www.crossrail.co.uk/about-us/funding

There are limited examples of these forms of tax levies being introduced as value capture funding in other jurisdictions, and it is questionable whether these mechanisms can be sufficiently targeted toward capturing private value gains created by infrastructure projects.

However, one prominent example is the use of payroll tax levies to fund transport infrastructure in France, where the benefits of agglomeration in cities are used to justify the incidence of the levy on businesses subject to the tax. For example, this was used successfully in the funding of the RER rail network in Paris.[3]

2.2.6 Mechanisms summary

The table below summarises these mechanisms with reference to examples in Victoria and elsewhere.

Table 3: Value capture mechanisms

Mechanism	Description	Examples	Variations
Developer contributions	One-off payments by property developers as a condition of development permission or rezoning. Payments are designed to recoup costs of infrastructure related to the development.	· LGA Development Contributions Plan system · LGA Voluntary Planning Agreements · NSW Special Infrastructure Contribution · ACT Lease Variation Charge · Vic Growth Areas Infrastructure Contribution · Crossrail (London) Community Infrastructure Levy	· May be designed to recoup costs of infrastructure related to the development (cost-recovery focus), or may be linked to gains from rezoning / permission (benefit-capture focus) · Trigger: subdivision, rezoning or development application /approval · Funding: a specific project or a general funding pool · Amount: $/ha, $/m^2 floor space, $/dwelling, % of development value, etc.
Betterment levies	Recurrent payments by landowners regardless of development status.	· Crossrail (London) Business Rate Supplement (BRS) · Gold Coast Rapid Transit levy · Metropolitan Melbourne parks charge · Congestion levy (Vic), which is applied to owners and operators of parking facilities and not directly paid by road users · Commonwealth Capital Gains Tax (the closest existing precedent) · *Local Government Act 1989* (Vic) 'special rating' powers	· May be based on land or property value, be at a flat rate or area rate, or be based on land value uplift · Limited in time or revenue collected (e.g. BRS), or ongoing · Funding: could be project-specific (e.g. gains in a defined area and time period), or general · Payment: could be on transaction, or recurrent based on official valuations · Uplift levy could be based on growth in land value either since last transaction or above some base value
Property development, air rights, asset sales, or leases	Following completion of a project (or in conjunction with project delivery), government land is sold, development rights are granted, or commercial leases are created.	· Hong Kong MRT · Southern Cross Station redevelopment · Level Crossing Removal integrated development · Portland Cascade Station and airport light rail	· Land may either be already owned, or be acquired at pre-project values · Development rights may be packaged with project delivery or contracted separately

[3] Dominique Boufand David Hensher (2007) The dark side of making transit irresistible: The example of France, Working Paper ITLS-WP-07-10 prepared for the Institute of Transport and Logistics Studies

Mechanism	Description	Examples	Variations
Major beneficiary contributions	Negotiated contributions from parties who will be significant beneficiaries from a project (or modifications to it)	· Crossrail (London) – contributions by Canary Wharf Group, Heathrow Airport, and Berkeley Homes · Special payments from toll road concessionaires, airports, public transport operators, etc.	· Contributions could be financial or in-kind. · Contributions could be linked to increase in activity/turnover, or expected cost reductions.
Non-land mechanisms	All mechanisms not related to land/property, e.g. surcharges/premiums on other taxes	· Payroll tax levy (France, Paris RER rail network) · Vehicle registration surcharge · Fuel excise surcharge	· Could be time-limited, or geographically limited (e.g. Metropolitan Melbourne)

Source: EY analysis

2.3 Value capture funding in Victoria's current tax and planning system

It is recognised that a level of value capture already occurs through existing taxes and other mechanisms, as taxes grow in line with the economy and property markets, and through other mechanisms in place as part of the planning system.

2.3.1 Value capture via 'automatic uplift'

Existing taxes provide a degree of 'automatic' value capture whenever a state investment raises property values, especially in the case of land tax, stamp duty and capital gains tax, as well as sometimes in the case of local government rates to the extent that a growing revenue base can be translated into higher rates through the rate-setting process.

It is also noted that infrastructure projects that raise productivity and incomes also increase a range of taxes, particularly labour income and payroll taxes, as well as the GST. In either of these cases, some of this additional revenue is received by the state; some is reflected in the local government rates base or in Commonwealth tax revenues.

The issue of automatic uplift creates doubts about whether new value capture revenue streams are really needed and whether implementing value capture risks 'double taxing' and over-charging beneficiaries. However, in reality, this is not the case. And it is important to consider how existing taxes and land value uplift observed from infrastructure investment are related.

Potential purchasers of property naturally take established taxes into account when considering property acquisitions. That means that any value uplift observed following provision of beneficial infrastructure represents the market's view of how much more the location is worth, *net* of the anticipated higher payments of established taxes. If land value growth does occur after infrastructure is provided and the value uplift can be traced to the investment, this means existing taxes are failing to capture all value generated.

The eventual uplift is also the amount that value capture instruments may target without risking 'double taxation' (i.e. taxing the same value gain twice). As long revenue targets are no higher than what would otherwise be privately captured, and the mechanism targets beneficiaries accurately, then fears of 'double taxation' are misplaced. In practice, value capture mechanisms usually aim for a far smaller share of benefits, so the risk of landowners missing out on capital gains is further diminished.

The opportunity for new value capture revenue streams is significant because the powers of existing state taxes to capture gains are generally minor. The average land tax rate across the state, for instance, is in the region of 0.1-0.2 per cent. A project that increases private land values

will thus recoup only one or two-thousandths of that gain each year, or perhaps 4-5 per cent in present-value terms over all future years (although the proportions will be higher where project benefits are concentrated on taxable land).

There is also some uncertainty regarding the extent to which changes in property related taxes for individual beneficiaries translate into an overall increase in tax collections. For example, changes in the value of land and property developments in one location may be offset by reductions elsewhere if it reflects a redistribution of market demand instead of a general increase in the willingness to pay for land. While there may be clear benefits for certain landowners that justifies the application of value capture at the local level, the potential for a redistribution of land values provides a constraint on the ability for governments to automatically capture value from overall property tax collections.

However, in the case of income, payroll taxes and the GST the situation is different. Infrastructure projects that can be demonstrated to increase economic productivity do create permanent increases in those taxes, with the primary beneficiary being the Federal Government as the collector of personal and company income taxes. The extent of this automatic tax gain depends on the nature of the project and its impact on productivity, with the analysis of the Melbourne Metro project suggesting it could be in the range of 20-30% of project costs, with the majority following to the Federal Government and not the State Government as funder of the project.[4]

2.3.2 Other mechanisms and recent reforms

There are a number of funding mechanisms that are available through the planning system that have characteristics of value capture mechanisms, including Development Contribution Plans (DCPs) and related agreements, the Growth Areas Infrastructure Contribution (GAIC) and Places Victoria (Urban Renewal Authority) Charges.

Despite the availability of these mechanisms, limitations and revenue shortages still exist, particularly in the case of DCPs, and the complexity of the system is considered to place a constraint on urban development.[5] This is why the Victorian Government is reforming its infrastructure contributions system for developers in growth areas where the GAIC does not apply, and in Strategic Development Areas identified in Plan Melbourne. However, while these reforms could simplify the system of developer contributions, it is yet to be demonstrated the extent to which they will address current funding problems.

The Victorian Government's proposed new planning controls to guide development of Melbourne's central city are also of interest for value capture. However, instead of focusing on the creation of new sources of revenue, the measures are aimed at leveraging underlying land values to create public benefits through controls on building heights and separations, and the protection of public space from wind and overshadowing.[6] And while the measures include floor area uplift bonuses (equivalent to 10% of the uplift in commercial value), which is a form of value capture, value gains are shared between developers and the community by requiring developers to provide additional public benefits as part of the development as opposed to funding major infrastructure works, with measures including the provision of public open space and laneways on site, office use and public space in the building, and social housing.

[4] EY analysis of the Full Business Case for the Melbourne Metro project

[5] See Plan Melbourne 2015 Review, *Report by the Ministerial Advisory Committee*, June 2015, where it is observed that despite the considerable energy devoted to reforming Victoria's system of developer charges and related mechanisms in recent years, limitations and revenue shortages still exist. For example, the Ministerial Advisory Committee review of Plan Melbourne highlighted shortcomings affecting growth area councils like Wyndham, pointing out that DCPs will raise only $1.6 billion of the $2.4 billion needed to fund local roads, open space and other community infrastructure.

[6] These controls represent a significant shift away from the previous arrangements and can be expected to negatively impact on land values. See EY, *Central City Built Form Review – Feasibility Review*, January 2016

2.4 Funding vs financing

Funding and financing are terms which are often used interchangeably, but there is an important difference between the two. Funding is the income that is received over time used to meet the costs of a project. Value capture mechanisms which create new revenue sources for the state are, like user charges or general taxation, alternative funding approaches.

Financing, in contrast, refers to the set of arrangements put in place to provide capital to meet the costs of the project as they are incurred, which usually means up front during construction. Financing costs (i.e. borrowing costs) are one of the costs that must be paid for by funding.

Some mechanisms referred to as 'value capture' also have a direct role in the financing of projects. The best known of these, the Tax Increment Financing (TIF) model, involves repayments of a project loan from growth in tax revenues above a pre-project baseline; like other financing mechanisms (e.g. loans, public-private-partnerships or PPPs) this shifts the timing of the funding task and can also change risk allocation. In general terms, it allows a government jurisdiction to take revenues derived from increases in property values within a prescribed development area and hypothecate those 'incremental' tax revenues to fund the infrastructure and renewal projects that have significantly contributed to this property appreciation.

The manner in which TIF is implemented is varied, and different jurisdictions have adopted different methodologies. The application of TIF mechanisms have been particularly widespread in the US over a number of decades, where they are typically administered at the local government level through the operation of urban renewal areas or "TIF districts". TIF schemes in the US are deployed to support the delivery of a range of community infrastructure assets and development opportunities, although there is mixed evidence about the benefits of TIF and its role in increasing property values in TIF districts.[7]

In the US, the Federal Government provides additional assistance through financing mechanisms such as the Transport Infrastructure Finance and Innovation Act (TIFIA) program. TIFIA provides Federal credit assistance in the form of direct loans, loan guarantees and standby lines of credit to finance surface transportation projects of national and regional significance. These loans must be repayable, in whole or in part, from tolls, user charges or other dedicated revenue sources such as special assessments and tax increment revenues from land sold and developed. The program has provided a mechanism by which project proponents have been able to develop beneficiary-pays funding strategies for projects, and leverage the revenues to raise finance to meet construction cost obligations.[8]

More recently, the Scottish Parliament has moved to support the application of TIF as a means of funding public sector investment infrastructure judged to be necessary to unlock regeneration in an area, and which may otherwise be unaffordable to local authorities. The Parliament has agreed to support up to six pilot schemes to explore the utility of TIF and under the use of a "But-For" test that specifies that the infrastructure required to unlock development in the area can only be delivered through the creation of the TIF mechanism and would not otherwise be deliverable by finance from the private sector and / or alternative public sector funding.[9]

Approaches to financing such as TIF can be efficient and equitable where the funding source underpinning borrowings does not create a market distortion or disincentive to land developers, and is directly linked to wealth gains created by the project. There is also the potential for positive or negative treatment by credit agencies, if the revenue stream can be clearly separated from traditional borrowing. There remain challenges, however. In particular, in developing a TIF model for each project, care must be had to avoid capturing natural, or background, taxation revenue.

[7] Land Lines: January 2006, Volume 18, Number 1, "Tax Increment Financing – A Tool for Local Economic Development; Dye, Richard and David Merriman

[8] US Department of the Transportation, Federal Highway Administration (https://www.transportation.gov/tifia)

[9] http://www.gov.scot/Topics/Government/Finance/18232/TIF

Studies show that this is often the case in the US, where poorly designed TIF schemes that effectively hypothecate existing revenues to urban renewal projects can undermine the ability of governments to fund service delivery and manage assets.

Although TIF has been promoted by various interest groups, it has not yet been adopted in Australia. Ultimately, the development of a financing strategy for any project will be bespoke and likely will be driven by the appetite and capacity of both government and private investors to finance the project, and the nature, risks, quantum and profile of the funding options taken forward.

However as previously stated, the focus of this paper is on mechanisms that create *new* revenue streams (or cost savings) for government, out of the uplift in value and economic activity arising from infrastructure investment – i.e. value capture *funding* mechanisms. Value capture financing mechanisms associated with value capture funding sources are not examined further here.

3. Approach to the analysis of value capture for selected future scenarios

This section outlines the selection of future projects and scenarios for the analysis of value capture funding options, value capture mechanism selection, and the approach to benefits and revenue modelling.

3.1 Project and value capture mechanism selection

The infrastructure options presented here are a selection of future projects and scenarios that are presented in IV's Draft 30-year strategy, having progressed through IV's assessment process.

Given Infrastructure Victoria's cross-sectoral perspective, the evaluation has looked at how different value capture mechanisms might play a role in funding a diverse range of infrastructure asset classes. These examples are designed to be indicative and serve to give a sense of the opportunities and challenges of applying value capture to future projects and scenarios.

Modelling scenarios and projects in this paper does mean that Infrastructure Victoria endorses or recommends a project. The modelling exercise for this research paper is illustrative only to help demonstrate the impact of value capture mechanism and their design. It is not definitive or suggested for actual project application. Further work and detailed modelling based on detailed business cases and project design on a case by case basis would be required to inform an investment decision.

3.1.1 Infrastructure projects

The following six project scenarios were selected from Infrastructure Victoria's Draft 30-Year Infrastructure Strategy to model for illustrative purposes in this paper:

1. Melbourne Metro 2 (MM2): Construction of a heavy commuter rail connection between Clifton Hill and Southern Cross Station, with a further connection from Southern Cross Station to Newport via Fishermans Bend.
2. Outer metropolitan ring road (OMR): Construction of the outer metropolitan ring road to improve cross-Melbourne freight vehicle access and/or connections to the north and east from key freight precincts in the west.
3. Rezoning of industrial land near a train station: Planning change to facilitate 'highest and best use' development for an industrial precinct located along the Dandenong rail corridor.
4. Public housing asset rationalisation and refurbishment: Increasing and improving the asset base of an existing public housing estate through an alternative asset development model.
5. Major hospital redevelopment: Future redevelopment of inner Melbourne's major hospital facilities to provide for increased demand due to state-wide population growth and also from new inner city residential development.
6. Commitment to a new school in an urban growth area: Accelerating the funding decision for school infrastructure in Melbourne's growth areas, bringing forward the delivery of the school and providing certainty to the community.

3.1.2 Types of mechanisms appropriate in the Victorian context

The types of value capture mechanisms considered appropriate in the Victorian context include:

- Developer contributions
- Betterment levies

- Property development, air rights, asset sales, or leases
- Major beneficiary contributions

A description of each mechanisms and guidance on their application is provided in the table below.

Table 4: The types of value capture mechanisms relevant for Victoria

Mechanism	Description	Application
Developer contributions	One-off payments by property developers as a condition of development permission or rezoning. Payments are designed to recoup costs of infrastructure related to the development.	· Most relevant in the context of planning changes to facilitate changes in land use and development, and when it can be demonstrated that infrastructure projects will lead to a material development activity in a defined precinct · Examples include re-zoning of land (e.g. from farmland or industrial to higher value uses), new rail station precincts, urban renewal initiatives, etc.
Betterment levies	Recurrent payments by landowners regardless of development status.	· Applicable when planning changes or investments lead to material land value gains for all new and existing properties in a defined benefit catchment. · Examples include betterment levies for funding transport projects, but could also be applied in other sectors where the impact on surrounding land values can be demonstrated.
Property development, air rights, asset sales, or leases	Following completion of a project (or in conjunction with project delivery), government land is sold, development rights are granted, or commercial leases are created.	· Applicable when the delivery of infrastructure creates opportunities to commercialise the use of government land or other assets. · Examples include integrated development opportunities, such as rail station precincts.
Major beneficiary contributions	Negotiated contributions from parties who will be significant beneficiaries from a project (or modifications to it)	· Applicable when large single beneficiaries can be identified and funding can be negotiated prior to project delivery. · Large asset /landowners could include airport operators, shopping centres, and owners of commercial precincts.

3.1.3 Evaluation criteria for selecting and designing value capture mechanisms

A key consideration when designing and evaluating value capture options is to be clear on the overarching public policy objective being sought. Is the objective of value capture to create a fairer system such that those who benefit most from infrastructure pay a reasonable share? Is it to recoup some of the cost of infrastructure? Or is it to drive more efficient land use and desirable spatial outcomes?

Given the possible inherent tension between these and other objectives, without a clear policy position, evaluating the application and effectiveness of value capture mechanisms is problematic, as different objectives will lead to the selection of different solutions. For example, mechanisms used to defray the costs of infrastructure are typically more pragmatic and simpler than those used to pursue policy objectives related to targeted benefit sharing or value capture. Mechanisms that bolster fairness may do so at the expense of simplicity, while others yield conflicting effects on economic efficiency and revenues.

Clearly, policy goals with respect to value capture are a matter for the government of the day. However, the lens through which value capture proposals can be evaluated can be grounded in typical policy and tax design considerations.

The evaluation framework below considers three broad objectives or principles for value capture on an equal basis:

- Revenue potential: The extent to which the total value captured by the mechanism maximises revenue relative to the value created by the project and its total capital cost. In the case of planning decisions the value captured relative to the value uplift;
- Equity and efficiency: The extent to which the mechanism promotes fairness in the tax system and aligns infrastructure funding with project benefits, and encourages efficient use of resources, while not distorting economic activity; and,
- Simplicity and sustainability: The extent to which the mechanism is easy to understand, administer and comply with, minimises administrative or transaction costs, and leads to sustainable revenues.

The above policy objectives are expressed in the following elements of each criteria, against which each of the mechanisms can be evaluated.

Table 5: Evaluation criteria

Criteria	General description	Application to value capture
Revenue potential		
Revenue potential	The amount of funding that can be expected to be generated.	The revenue potential of different mechanisms relate to choices around the revenue base, geography and rate structures. For example, a betterment levy on land values across wide area has the potential to generate significant revenue compared to a 'transaction' mechanism (e.g. developer contribution) applied to a smaller area that is only incurred when certain activities are undertaken by the private sector. Some funding mechanisms have natural constraints. For example, there are limits to the amount of money that can be raised through selling of development rights due to market forces and the costs involved in undertaking the development. In most cases, however, maximum potential revenues reflect assumptions about how a mechanism is implemented.
Equity and efficiency		
Fairness	Tax contributions should vary according to ability to pay.	More extensive value capture generally promotes system-wide fairness, since it supplants general taxpayer funding and reduces the un-earned benefits flowing into land. Some mechanisms may support this to differing degrees through the choice of revenue base and rate structure.
Beneficiary alignment	Contributions from taxpayers should be in proportion to benefits received from spending on infrastructure and services, and taxpayers with similar levels of benefit should be treated similarly.	As benefits from infrastructure projects not captured through user charges are ultimately capitalised into land values, value capture payments should therefore be correlated as closely as possible with land value uplift. Value capture policy should aim to capture as large a share of this uplift as possible, and land value gains should be treated equally regardless of the recipient, avoiding large discrepancies in contributions between similar beneficiaries.
Economic efficiency	In the absence of an identified market failure, revenue instruments should minimise distortions to market activity.	Value capture mechanisms should avoid distorting the allocation of land (e.g. across land uses or ownership structures), discouraging development, investment or other economic activity, or encouraging tax-avoiding behaviour.
Simplicity and sustainability		
Simplicity	Taxes should be simple, transparent, and low-cost to administer and comply with.	While a degree of complexity in value capture mechanisms to achieve the 'beneficiary pays' objective may be warranted, this needs to be traded off against the potential for complexity or non-transparency to undermine support for the beneficiary principle and for a value capture approach.

Criteria	General description	Application to value capture
Sustainability	The ability of a funding source to provide sustainable funding over an extended period of time.	Funding predictability and stability are desirable for planning and budgeting purposes. However, value capture mechanisms may fluctuate from year-to-year in line with movements in the property market. The choice of revenue base and other design parameters can provide more predictable and stable cash flows. A relevant consideration relates to the degree of risk transfer between government and beneficiaries and how that impacts on the value created for beneficiaries. For instance, the desire to create stable revenue streams transfers a level of risk to beneficiaries that remain exposed to changes in the property market.

3.1.4 Mechanism design choices

The design of value capture funding mechanisms requires governments to make a number of important policy choices. Understanding the trade-offs between objectives implied by particular design choices, rather than simply presenting a menu of mechanism options, can help in designing options to meet both general policy objectives and Government's specific preferences and priorities.

The table below describes some of the key design choices and implicit policy decisions that affect the incidence and effectiveness of value capture that should be considered in developing the funding mechanisms. Although not an exhaustive list of potential design choices, they highlight the substantive considerations and trade-offs implicit in value capture mechanisms.

Table 6: Mechanism design choices

Design choice	Question
Extent of value capture	What is the approach to value capture and the level of value capture or cost recovery that should be achieved?
Revenue base	What is the chargeable quantity (e.g. land value, property value, transaction value, change in property value, or a non-value measure such as hectares/dwellings/Gross Floor Area)?
Land use	Are all properties subject to the value capture mechanism, or only properties undergoing development? Do properties employed in all land uses pay the same tax, or are there exemptions or concessions for some uses (e.g. residential)?
Geography	How broad or narrow is the boundary or catchment area of properties subject to the value capture mechanism?
Rate structure	Is the rate flat ($ per taxpayer) or a proportion of value (i.e. ad valorem)? Is there a fixed charge, tax-free threshold, or multiple-rate structure?
Timing	Is the mechanism recurrent, or occasional? Should it commence from when the project is committed or from when it starts to operate? An important consideration relates to possible differences between when value gains are created through the actions of government and when they are realised by private parties, which could be partially reflected in additional consumption and borrowing capacity until the time property assets are sold and the full gain is realised.
Frequency/trigger	How often are the recurrent taxes levied, and for how long (time-limited or indefinite)? If the tax is occasional, what triggers the liability (e.g. transfer of ownership, rezoning, subdivision, planning approval)?
Payment	When is payment due? May liabilities be deferred / carried forward?

Extent of value capture

Determining the appropriate level of value capture is a significant policy and design choice in the context of value gains attributed to infrastructure that are often difficult to estimate with certainty. For instance, realised value gains from investment and planning decisions will be dependent on factors such as property market conditions, site characteristics and development feasibility, existing and future planning controls, and permissible development.

It is up to government to determine how much value it wishes to capture. A principled starting point for the development of any value capture strategy could involve exploring the possibility of sharing the gains with beneficiaries on an equal basis, with the ability to achieve this level of value capture dependent on the information available to precisely target value gains for individual beneficiaries, and the assessment of fairness and efficiency and simplicity and sustainability of the mechanism. Starting with an assumption of equal sharing reflects the mid-point between capturing none or all of the gain created by the change in question.

However, this level of information is only likely to be available in certain situations, such as in the context of planning changes and other interventions that create a clear change in the use and value of affected land. For these examples there could be the opportunity to capture 50% of value gains.

Examples of this include the betterment tax applied in Israel and recent value capture policies applied in NSW, where a number of councils are introducing policies for the use of planning agreements to capture a share of uplift in land value occurring as a result of planning decisions that improve the development potential of a site, through rezoning or change in development controls.

For instance, the Draft Woollahra Voluntary Planning Agreement Policy sets out the circumstances under which land value is to be captured and the method of calculating the contribution associated with land value capture.[10]

The policy defines value capture as a funding mechanism that captures, for the community's benefit, a share of the unearned land value increment accruing to developers as a consequence of:

- planning amendments that facilitate development, or the granting of or modification to a development consent; or
- the approval of or a modification to a development consent that allows development to exceed the otherwise permissible development controls.

The policy distinguishes land value capture from developer contributions on the basis that it is value sharing between the Council (on behalf of the community) and developers, rather than on funding the costs of infrastructure. The monetary contribution of the value capture mechanism represents 50% of the gain on the residual value of land that can be attributed to a change to a statutory planning control.

For most infrastructure projects, this level of information and certainty is unlikely to exist for estimating the benefits created. In these cases when developer contributions or betterment levies are being considered, rather than targeting value gains with precision, there is a need to apply more approximate mechanisms, such as those that target underlying property values or development value. In these cases, there is a good reason to scale back the level of value capture and apply pre-determined (standard) rates like the GAIC or focus more on setting rates to enable a level of infrastructure cost recovery (which provides a more tangible and practical revenue target). In this case, a betterment levy would be less concerned with capturing estimated uplifts and instead be set to recover an amount of revenue required to fund a portion of the project.

[10] Woollahra Municipal Council (2016), *Draft Woollahra Voluntary Planning Agreement Policy: Exhibition version of 8 February 2016* (http://www.woollahra.nsw.gov.au/__data/assets/pdf_file/0004/163543/1._Woollahra_Voluntary_Planning_Agreement_Policy_-_Exhibition_version_of_8_February_2016.pdf)

As an example, the value capture funding model used for Melbourne's City Loop sought to recover 50% of the costs of the project via council rates on commercial properties in City of Melbourne (25%) and simple levies on residential properties across Melbourne collected by the MMBW (25%), which reflects a high level of cost recovery compared to other examples. Crossrail, for instance, is seeking to recover approximately 25% costs through the BRS, with the funding of Crossrail from betterment levies focused on commercial properties only due to the challenges in accessing the residential base in London for this sort of investment.[11]

Another example is the Gold Coast light rail project, with council contributing around $120m (~12%) to the project, largely funded by its fixed rate levy ($111 per property), which is a blunt value capture instrument.[12]

Many stakeholders consulted as part of this study were of the view that while value capture does offer potential as an additional funding source, it is unlikely that it will be able to make a significant contribution to infrastructure costs. Most believe that value capture has a narrow funding scope, ranging from 5% to 20% of a project's capital expenditure.

In considering value capture in the Victorian context, then the City Loop example demonstrates the potential to apply mechanisms targeted at both business and residential properties. While it was previously noted that a 50% sharing of the value uplift would represent a reasonable mid-point between sharing all or nothing of the gain, limits on the ability to target land value gains and the desire to implement fair and affordable value capture mechanisms, suggest that a cost recovery target of around 20-30% of project costs is reasonable and in line with experience in other jurisdictions. This level of cost recovery is supported by the analysis below for a number of options, although instances were also identified where different levels of cost recover or benefit sharing are justified depending on the circumstances (e.g. OMR, linked to lower underlying property values and capacity to pay in outer areas). Noting, however, that the level of value capture should be determined on a case-by-case basis depending on the level and certainty of project benefits and other policy considerations including social and equity impacts such as people's ability to pay and the reasonableness of the funding burden.

Ultimately mechanisms settings such as the portion of project costs or value uplift targeted will be a matter for government.

Revenue base

The choice of revenue base can have important implications for benefit capture and economic efficiency.

For example, in relation to a property based value capture mechanisms (i.e. betterment levies), there is a choice as to whether it could be levied on a land-value base (like land tax) or a Capital Improved Value (CIV) base like council rates or the Fire Services Property Levy (FSPL). There are pros and cons to each. While a land base is preferable on efficiency grounds (i.e. as it cannot be avoided or reduced, a CIV levy would to some extent deter capital investment), a CIV base may be simpler to implement as it could be collected on the same base as rates and FSPL. As such, a starting position for this study is that betterment levies that target land values instead of CIV are preferred.

For developer contributions (notwithstanding current regulatory settings) there are similar choices, with the potential to levy site values or other units of measure like per square metre of gross floor area or numbers of residential units sold. The sale of assets and development rights also involve

[11] One factor identified for why funding for Crossrail has not targeted residential beneficiaries is the challenges involved in accessing the residential base in London for city-wide/national investments. A PWC study on the funding and financing options for Crossrail 2 highlighted the difficulties encountered when seeking to raise funds through councils, with there being notable objections when funding was sought for the 2012 Olympic Games:
PWC, *Crossrail 2 Funding and Financing Study*, 2014, https://www.pwc.co.uk/capital-projects-infrastructure/assets/crossrail-2-funding-and-financing-study.pdf

[12] Gold Coast City Council (2014) Revenue Statement and Resolution of Rates and Charges, 2014-15 and Gold Coast City Council (2014) Annual Plan 2014-15

further possibilities, including direct or staged sales, or the use of more complex arrangements like project development agreements.

Other revenue bases may also be of interest, such as payroll tax and fuel excises, or other existing taxes. While these revenue bases could be relatively simple to administer, it is important to consider the alignment of these mechanisms with the benefits of infrastructure, and the complex ways in which the economic incidence of these taxes are distributed through supply chains (including labour in the case of payroll taxes) and to consumers.

Land use and rate structure

The choices of applicable land uses, rate structure and thresholds raise similar considerations to the choice of boundary.

In general, the broader the base, the lower the rate of charge must be to avoid adverse impacts on beneficiaries that receive lower benefits, if it is the case that benefits are unevenly distributed across land-use types or across high and low-value properties and a wider net includes minor beneficiaries. Low rates, however, mean less value captured from the largest beneficiaries.

One approach that can be applied to account for systematic differences in benefit across land-use types is to set differential rates of charge by land-use type, which was applied in the case of the City Loop and is a common feature of the tax system (e.g. the variable rates under the Victorian Government's Fire Services Property Levy). Differential rates of charge mean a greater degree of value capture is possible than if certain property classes are exempted entirely, although this approach may be complex and difficult to justify with available evidence on project impacts.

Another design choice could be for the inclusion of value thresholds. While this may increase perceived fairness, it also narrows the revenue base in a way that could exclude significant beneficiaries. Value thresholds also induce distortions for purposes of tax avoidance which increase administrative and enforcement costs as well as legal complexity.

Geography

The choice of levy boundaries determines which beneficiaries are in the value capture area and hence how much value capture is possible.

A wider boundary broadens the pool of beneficiaries contributing, providing the potential capture more value and improve the correlation between benefit and contribution. However at a certain radius from the relevant infrastructure, where value gains due to the project have diminished, payments may exceed benefits received. At this point the levy acts less as a value capture mechanism and more as a general revenue-raising tool.

The choice of boundary and rate of charge may also raise fairness issues – e.g. where benefits are similar but tax liabilities change sharply – that can undermine support for value capture. Devising multiple (concentric) levy boundaries with differential rates may be sensible in this context, but increases the complexity of the mechanism.

Just as important as the choices themselves is having a transparent and objective process to ensure that decisions are made in a way that is both defensible and supports the overall policy objectives. To take one illustrative example – the geographic boundary of a betterment levy or special developer contribution for a new rail project – a systematic process for making this choice could include elements of the following:

- delineating areas within standard walking catchments (e.g. 1 km from a new station);
- determining which adjacent areas are part of a contiguous area of the same land use and hence see spill over demand that warrants inclusion (e.g. a residential precinct bordered by planning buffers, major roads or other infrastructure links, part of which is just outside the 1 km radius);
- determining which properties or areas have 'locked in' land use and are unlikely to see value uplift from anticipated changes in land use (hence are not candidates for redevelopment and will benefit less from the project);

- determining a statistical geography level (e.g. LGA, suburb, SA2, or SA1) or other metrics on which the boundaries should be based;

- examining behavioural and network model outputs for geographic areas which are located at possible boundaries, and setting criteria for inclusion/exclusion based on measurable outputs (e.g. a 5% travel time improvement as the threshold for inclusion).

Timing and payment

The benefits of infrastructure projects may start to materialise in land values from the time the project is funded/committed, and increase during construction (for those not adversely affected by construction activities) and after the commencement of operations. For properties that are to be developed there is likely to be a different timing profile depending on the nature of the development and related planning issues.

However, there may also be differences between when the benefit is created through the actions of government and when they are realised by private parties. While price rises may provide an immediate and partial benefit to landowners by increasing consumption and borrowing capacity, in many cases it is only when the property is sold that the full gain is realised. Depending on when a value capture mechanism is imposed and the payment method, this has the potential to create a cash flow mismatch for beneficiaries.

For most projects, it is preferable to impose value capture mechanisms as early as possible, including during the construction period, in order to reduce the timing mismatch between when a project is financed and ongoing funding. This would result in lower financing costs and overall value capture contributions. Alternatively, governments may choose to wait until a project is up and running and the benefits are fully evident.

Revenue from development based value capture mechanisms will vary depending on the timing of ownership, planning consents, development activity and sales.

The duration of any value capture mechanism is also an important consideration. If the goal is to capture a share of value gains or recover a share of project costs (e.g. to repay a new loan facility), then this can be achieved over a timeframe that ensures annual value capture liabilities are reasonable and doesn't over or under-collect revenue.

Policy options are available to overcome the timing mismatch issue where the majority of benefits may only be realised upon the sale of properties. These include concessions similar to those applied to other taxes (e.g. tax exemptions, thresholds, etc.), which can increase system distortions, and/or the application of deferral provisions so that tax liabilities may be carried forward against the property and paid upon disposal while the state manages the cash flow issues in the interim. While deferral provisions are not generally applied to other taxes, the mechanism would not be overly complex. However, the costs of allowing deferrals and any impacts on the timing of property transactions would need to be assessed.

For this study we have assumed that payments should commence from when the benefit is received, with the start of the construction period chosen as the relevant timing for betterment levies. This means that, given the timing of the future projects and scenarios, the value capture revenue streams are not modelled to commence until that time. Payment deferral mechanisms for individual beneficiaries are possible with all value capture mechanisms but are not included in the modelling.

3.1.5 Selection of mechanisms

Owing to the disparate nature and potential diverse policy considerations of the various categories of value capture, there are a range of mechanisms available depending on the desired outcome. Therefore the application of value capture should be decided on a case-by-case basis.

The results of the beneficiary analysis, quantification of potential land value impacts, and consideration of the evaluation criteria outlined above, provided the basis for aligning value capture mechanisms with each of the infrastructure options. These are summarised in the table below.

Table 7: Value capture types considered by EY for this assessment

Infrastructure option	Value capture types and suitability to infrastructure option				
	Developer contributions	Betterment levies	Development rights, air rights, asset sales, or leases	Major beneficiary contributions	Levies on other taxes
Melbourne Metro 2	Yes Likely to stimulate redevelopment (particularly where there is complementary re-zoning)	Yes Major accessibility improvement for existing property (esp. central city commercial areas and residential corridors)	Yes New station / state land development opportunities	Potentially There may be existing businesses with significant benefit	Potentially Possible payroll levies if rail provides a step-change in CBD accessibility
Outer metropolitan ring road	Yes May stimulate redevelopment (particularly with complementary rezoning)	Yes Accessibility improvement for existing property (esp. residential)	Potentially Complementary development e.g. petrol stations	Potentially There may be major freight/industrial beneficiaries	Potentially Possible vehicle rego / freight levies if road had major network benefits
Rezoning of industrial land near a train station	Yes Change in zoning but not transport means only land undergoing redevelopment receives significant benefit	Potentially Possible catalyst for gentrification, additional population increases demand for commercial premises	Potentially Potential for redevelopment of state land / station assets	No Major beneficiaries are landowners (captured via developer contributions)	No No clear beneficiary groups other than landowners
Public housing asset rationalisation and refurbishment	Potentially Possible catalyst for nearby development (particularly with complementary rezoning)	Potentially Possible catalyst for gentrification, additional population increases demand for commercial premises	Yes Primary value capture mechanism is sale of site redevelopment rights to developer	No No major beneficiaries identified (other than site developer)	No No clear beneficiary groups other than landowners
Major inner city hospital redevelopment	Potentially Hospital improvement may stimulate redevelopment (particularly with complementary re-zoning)	Yes Adjacent commercial property expected to improve yield; commercial-only betterment levy possible	Yes Hospital asset build may include lease/sale opportunities	Potentially Depends on location and existing land use	No No clear beneficiary groups other than landowners
Commitment to a new school in an urban growth area	Yes School development may accelerate property sales and development	Potentially Residential property values may increase.	Potentially School asset build may include lease/sale opportunities	No No major beneficiaries identified (other than site developer)	No No clear beneficiary groups other than landowners

3.2 Approach to the quantitative analysis

This study involved the analysis of a diverse selection of future infrastructure projects and multiple value capture scenarios for each project. This required the development of detailed quantification methods to estimate benefits and revenue across long time horizons and to compare them with project cost profiles. This requires tailored approaches to estimating land value gains for different infrastructure projects and the appropriate treatment of real, nominal and discounted monetary values.

3.2.1 General modelling approach

Property prices comprise the combined value that the market places on the amenities of a given location. If a location becomes more desirable as a place to live or do business because of an increase in local amenity, then (all other things being equal) demand for that location increases as

more people or businesses attempt to locate there. This drives up land prices and places pressure on governments to increase supply through land use and density changes.

In order to estimate land value change arising from the amenity afforded by government investment in infrastructure, the benefits created by a project (such as accessibility improvements from transport investments or proximity to education opportunities) were identified, along with the likely recipients of these benefits. Evidence from the literature, recent property transactions and additional regression analysis was used to estimate property effects associated with similar types of projects in similar types of areas, and to estimate their potential impact on property values and property market dynamics.

The modelling also required the development of area-wide property models to reflect current and future land values in the vicinity of the future infrastructure projects. These property models were developed from a mix of public sources and transactions databases. With this information in place it is possible to apply benefit and value mechanism design assumptions to estimate changes in property values due to infrastructure provision and to quantify value capture revenue streams.

Details regarding the approach to estimating land value and related benefits are provided below in each project evaluation. However, in recognition of the scope and purpose of this study, the preliminary nature of the future project proposals, and the challenge in estimating land value changes over the long forecast periods required, the results should be interpreted carefully.

3.2.2 Real and nominal dollars

Financial cost and revenue analysis through time often has to give consideration to whether use real (or constant) dollar values, or whether to use nominal values, where the key difference between the two is in relation to the treatment of inflation.

Expressing monetary values in real terms fixes the price basis to a certain point in time and removes inflation from past and future monetary values. While inflation means that something that costs $100 in 2016 will cost more in a future period (say $110 because inflation is 10%), the 'real' value of the item in the future is still $100 when expressed in real terms or 2016 dollars. By expressing monetary values in real terms we get a sense of what the equivalent value is today (in terms of purchasing power or other comparator).

Nominal monetary values, on the other hand, do not include any adjustments for inflation. Values are simply expressed as total units of value at the time they are incurred. Using the example above, with $100 available in the future period it would not be possible to purchase the item that costs $100 in 2016 because the price will have increased to $110 because of inflation.

Both nominal and real (2016) values have been used in this study depending on available information and the type of analysis being performed. Where possible, results of benefits and revenue analysis have been presented in real terms using 2016 prices, except in instances where the time value of money and risk are taken into account through discounting (see below).

3.2.3 Discounting

A feature of value capture funding is the timing difference between upfront investment expenditure and subsequent revenue collections, where the use of discounting is required to enable a 'like-for-like' comparison in 'present value' (PV) terms that accounts for the time value or opportunity cost of money and risk.

In establishing value capture funding mechanisms to generate revenue and achieve a level of cost recovery while also allowing for the time value of money and risk, total revenue (i.e. the sum of annual cash flow over the duration of the funding arrangement) may be higher than the total cost of the project. By converting future revenues and costs into present values using discounting, a more meaningful comparison can be made, where revenue raised is generally less than the cost of the project.

Present values for project costs and revenues were calculated using the Victorian Government's standard discount rate of 7% (when using real monetary values) and 9.7% (when using nominal monetary values, which is the 7% adjusted for future inflation that is assumed to be 2.5%), without any additional adjustments for risk.

This represents a simplified approach that treats the risks across the costs and different revenue streams the same. In reality, costs and revenues are likely to come from a number of different sources, with different profiles around timing, risk and uncertainty. These are likely to exhibit different risk profiles and therefore require different treatments in respect of discounting and risk-adjustment.

It is considered that the simplified approach is appropriate for a study of this nature, with more detailed risk analysis required for implementation through the development of project business cases and design of value capture revenue mechanisms.

3.2.4 Limitations of the analysis

The quantification of land value benefits attributable to infrastructure investment is a difficult and complex task. As outlined above, the modelling exercise for this research paper is illustrative only to help demonstrate the impact of value capture mechanism and their design.

This report does not constitute or claim to represent a comprehensive cost benefit analysis, and is only designed to provide an indicative and high level assessment of the potential value capture opportunities on a range of different scenarios. To that end, a number of assumptions have been utilised in our analysis and, while we note that this approach may not fully capture the precise intricacies of each project and scenario, all of the assumptions that have been used are conservative estimates based on current market information and data, and existing EY knowledge and experience.

4. Melbourne Metro 2

4.1 Project description and inputs

The scope of the Melbourne Metro 2 (MM2) project is to create a new Metro-style train tunnel through the Melbourne CBD connecting Clifton Hill with Newport via Parkville, Southern Cross Station and Fishermans Bend.

The new Metro service will provide additional capacity between Newport and Southern Cross Station accommodating more direct Wyndham Vale (Werribee) line services. Additional capacity will also be provided between Clifton Hill and Southern Cross, allowing for more services on the Mernda rail line, and over the long term the Hurstbridge and Doncaster rail lines as part of a future upgrade.

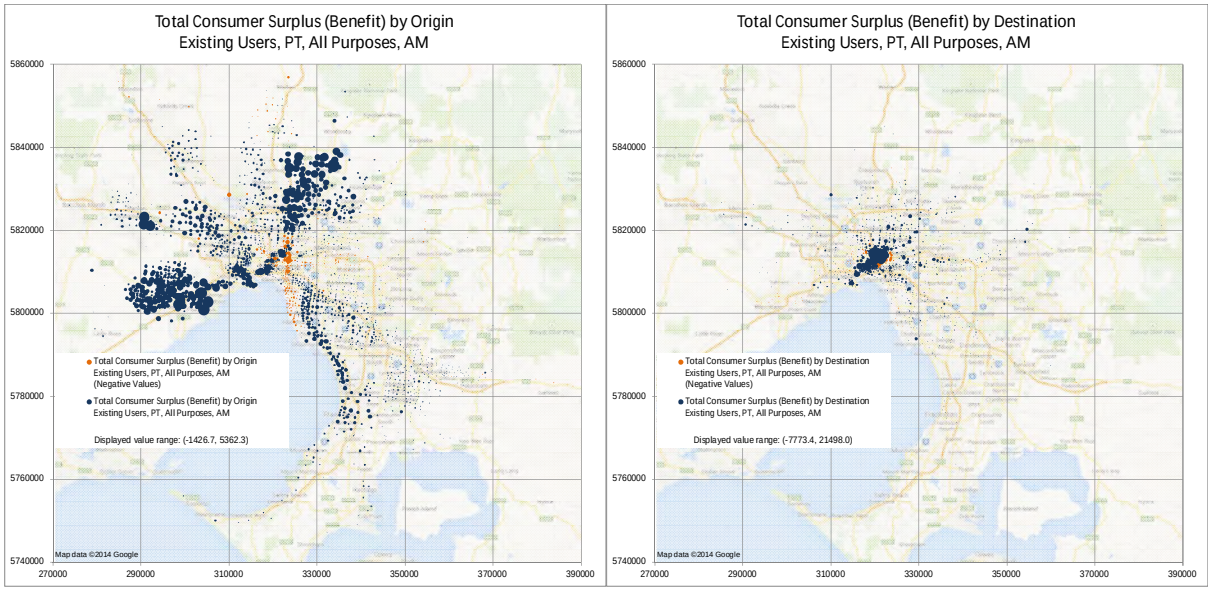
Based on costings undertaken for IV, the total capital cost of the MM2 project is estimated to be in the range of $15-22 billion, with $19 billion the assumed cost for this exercise. Construction is assumed to occur over 6 years, from 2034 to 2040, followed by a 50-year operational period.[13]

This scenario is based on the Melbourne Metro 2 (MMS) option considered in IV's Draft strategy. However, the timing, design and costings used for the modelling in this paper are illustrative only and are not recommendations.

4.1.1 Transport modelling

Detailed transport modelling was undertaken to better understand the potential impacts of MM2 and the distribution of benefits delivered by the project. The resulting benefit maps below demonstrate that the majority of benefits are distributed along the western and northern rail corridors while there is a strong concentration of benefits originating around Wyndham and Mernda. This is likely a result of better accessibility and more frequent services for commuters along these corridors. Benefit destination primarily in the CBD and Fishermans Bend, particularly in the western part of those areas.

Figure 1 MM2 benefit distribution map by origin and destination (2031)



Source: Arup for Infrastructure Victoria

[13] AECOM/PwC, (2016) Options Assessment 3 Technical Report – Supplement C Major transport projects – preliminary costings Assessment 3, advice to Infrastructure Victoria

4.2 Background research

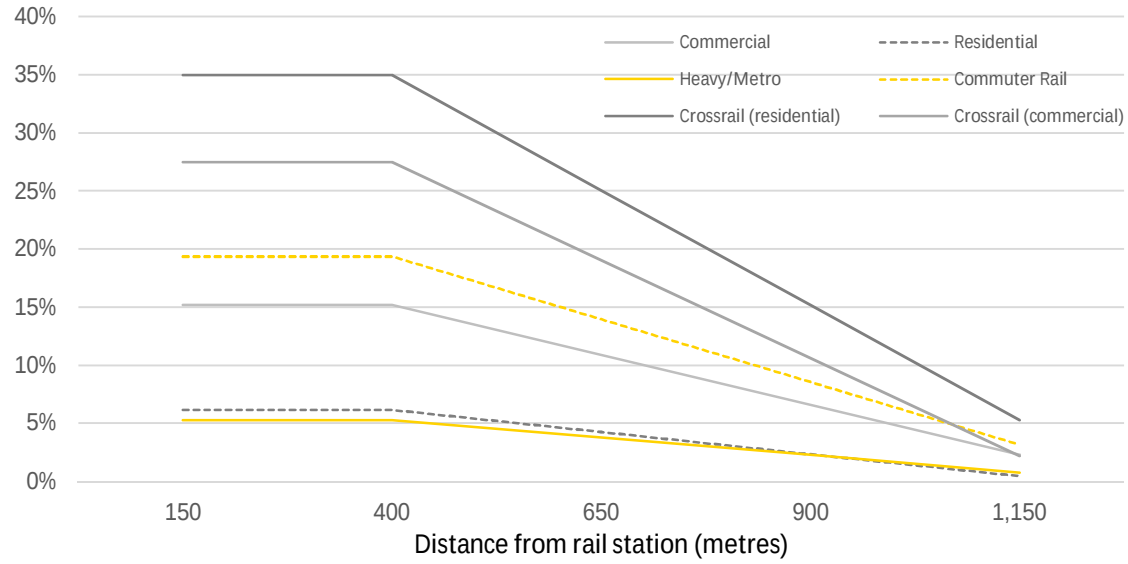
There are many studies on the impacts of transport infrastructure and particularly urban rail networks and stations on nearby property values, with each finding a common pattern of land value changes within defined walking catchments (i.e. for properties located within what is considered to be a reasonable walking distance of up to 1-2 km).

Selected research is presented in the table below.

Selected studies	Key findings
Crossrail studies (various)	The Crossrail *Property Impact Study* (2012) estimated that capital values in the areas around central London Crossrail stations would rise by 35% for residential properties, and 27.5% for office properties, over and above an already-rising baseline projection. Whereas residential values on the outer sections of the line were expected to rise a cumulative 27.5% above baseline, but office values to grow only slightly faster (0.5–2.5%) than baseline.
Nationwide (UK, 2013): *London homebuyers pay a significant premium to live close to a tube or train station*	Using the Nationwide House Price Model, Nationwide assessed how property prices in the Greater London region vary in relation to the distance to the nearest tube or train station. The research isolated the specific impact this has over and above other property characteristics such as property type, size and local neighbourhood factors. The research suggests that a property located 500m from a station would attract a 7% price premium over an otherwise identical property 1,500m from a station. The research also revealed that the marginal impact on price diminishes as the distance from the nearest station increases. For example, the price difference between properties located 500m and 1,000m is 3.7%. This compares to 3.4% for properties located 1,000m and 1,500m from the nearest station and 3.1% when comparing properties 1,500m and 2,000m away. The research suggests that while homebuyers would prefer to live close to a station, it becomes less important once outside easy walking distance.
The impact of railway stations on residential and commercial property value, G. Debrezion, E. Pels and P. Rietveld (2004)	The Debrezion study collated the results of a wide range of other studies through a meta-analysis and regression model. It found that: · Commuter railway stations have a significantly higher impact on property values. · After opening, property prices are 19.4% higher for a commuter station, and 5.3% higher for a heavy rail/metro station. · The impact of the value uplift reduces as you move further away from the station. Beyond a radius of 3.2km, there are no longer any value uplift impacts
The impact of rail transport on real estate prices: Empirical study of the Dutch housing market, Tinbergen Institute G. Debrezion, E. Pels and P. Rietveld (2006),	The study used a hedonic pricing model to analyse railway impacts on house prices, considering the following relevant features ► Distance to railway station ► Frequency of railway services at the station ► Distance to railway line It was found that dwellings very close to the station are on average about 25% more expensive than those 15kms or more distant. This percentage ranges between 19% for low frequency stations, and 33% for high frequency stations.

The figure below compares the uplift curves presented by various studies. It shows that there significant variance between studies.

Figure 2 Uplift curve comparisons



Source: EY analysis based on Debrezion and other studies outlined above

The Debrezion studies have been used as the basis of the value uplift assumptions for the analysis of the MM2 project, as they are regularly cited in the analysis of value capture in the UK and elsewhere, and because of the range of uplifts they provide for benefits of new stations and capacity upgrades. Given the scale of impacts suggested by some studies (e.g. Crossrail) this is considered to be a conservative approach.

The results from these various studies were analysed and then plotted to create comparable value uplift curves, from which a series of assumptions were developed for the spatial reach of indirect land value gains attributable to proximity to MM2 rail stations and the uplifts anticipated from the provision of new stations and capacity upgrades.

In order to check the relevance of the findings in a Victorian context, and to take into consideration the different characteristics of Melbourne's rail network, especially in outer suburban areas given the dispersed patterns of rail access supported by car parking in those areas, EY also undertook a regression analysis to measure the impact of the recently constructed South Morang station had on nearby property value using historical residential sales data. The table below shows the variables used and the results of the regression analysis. As can be seen, a number of variables such as property type, housing characteristics and land size and timing were controlled and tested in order to assess their impact on property value.

Table 8 South Morang Station regression results

Variables	Coefficient	Std. Err.	t	P>t	[95% Conf.	Interval]
Property type						
Business property	171.5	50.2	3.42	0.00	72.8	270.3
Commercial property	28.3	58.3	0.49	0.63	-86.3	143.0
House	86.0	41.8	2.06	0.04	3.8	168.2
Land(	55.7	42.3	1.32	0.19	-27.6	139.0
Unit	50.8	41.5	1.22	0.22	-30.8	132.5
Housing characteristics						
No. of beds	7.8	2.4	3.22	0.00	3.0	12.6
No. of bathrooms	9.8	3.9	2.54	0.01	2.2	17.4
No. of car spaces	-4.2	2.7	-1.56	0.12	-9.4	1.1

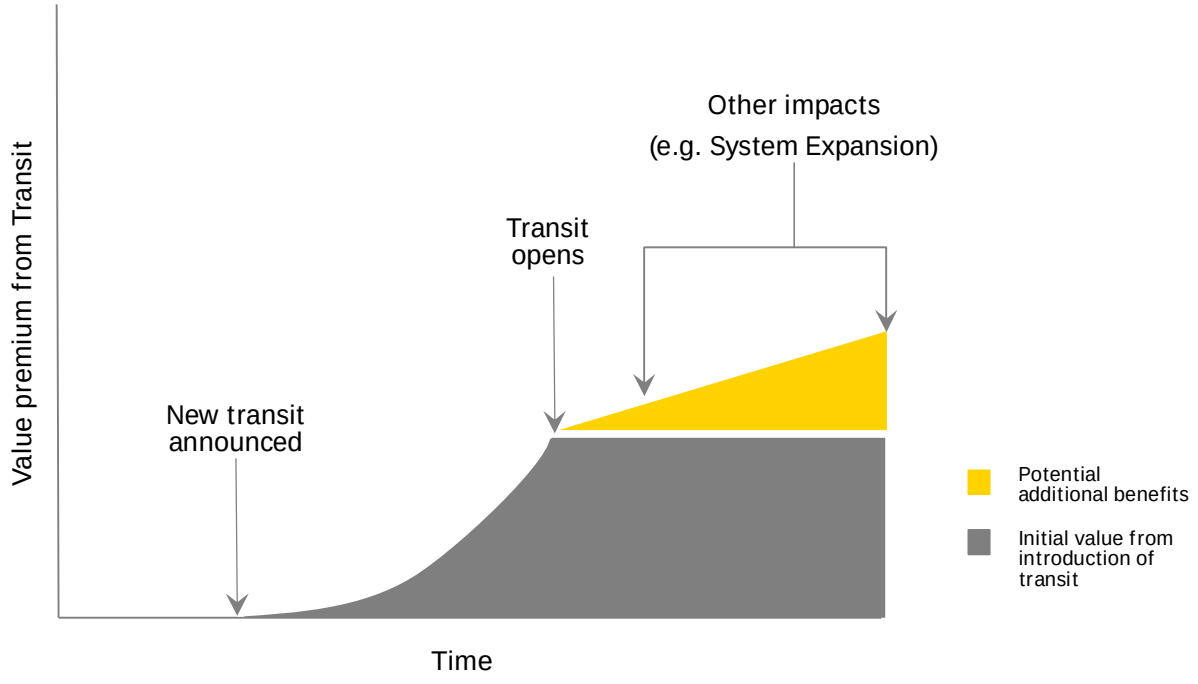
Variables	Coefficient	Std. Err.	t	P>t	[95% Conf.	Interval]
Land size	0.0	0.0	3.26	0.00	0.0	0.0
Year of sale	0.4	3.1	0.13	0.90	-5.7	6.5
Impact on property value						
After project announcement	4.8	13.6	0.35	0.73	-22.1	31.6
After construction begins	49.1	11.7	4.21	0.00	26.2	72.0
After operations commence	52.4	17.9	2.92	0.00	17.1	87.8
Distance to station	-8.7	8.3	-1.04	0.30	-25.1	7.8
Constant	-862.4	6249.0	-0.14	0.89	-13156.6	11431.8

Source: EY analysis

This analysis suggests that nearby properties were up to 52% higher after the rail extension commenced operations and that the benefits extended as far as 6km from the rail station, which is significantly higher and more far-reaching than any of the other studies report. While this suggests that value uplift impacts are potentially more widespread in the outer growth suburbs connected by the MM2 project, and potentially of greater magnitude, it is considered not to be applicable in this project because those areas are likely to become much more developed by the time the project is assumed to be completed in 2040. Instead a more conservative approach based on the findings outlined above have been applied to the catchments of the MM2 project.

Other research completed for the study points to how property values increase through the different stages of a project's lifecycle, from announcement, through construction and during the operational phase. A stylised representation of these impacts is presented in the figure below.

Figure 3 Property value uplift profile commonly associated with transport infrastructure provision



Source: Centre for Transit Oriented Development (2008), Capturing the Value of Transit

4.3 Benefits

This section identifies the different catchments that were defined for the analysis of indirect land value benefits and the assumed land value gains based on applying the results of other studies in the context of MM2 based on the current understanding of the project.

4.3.1 Benefit catchments

The MM2 corridor was segmented into the following four catchments for the purpose of the scenario analysis in recognition of different levels of service/accessibility changes expected along the corridor.

- Western – Wyndham to Newport
- Fishermans Bend
- Central – Southern Cross to Clifton Hill
- Northern – Clifton Hill to Mernda

Each benefit catchment is defined as having a 1km radius of rail stations along the corridor, which for modelling purposes has been measured from the MM2 alignment. This assumption is based on the results of the literature review, where there is a consistent view that the most significant land value gains attributed to rail projects occur within 1km of stations.

Within each catchment, baseline property information was developed by property class (residential, commercial, CBD zone, industrial) from EY databases and available public information. Property values are then forecast to grow in line with income growth (i.e. long term GDP growth projections). Baseline figures for each catchment are presented in the figures below.

Figure 4 Western catchment (assumed corridor for purpose of scenario analysis)

Western catchment	Baseline data (2016)
Population	78,625
Employment	38,309
Number of dwellings	29,439
Total catchment (hectares)	6,236
% of Residential Zone	48%
% of Capital City Zone	0%
% of Commercial Zone	11%
% of Industrial Zone	20%
% of Open space/Roads	20%
Starting land value (2016)	$34.6b

Source: EY analysis, Mapinfo

Figure 5 Fishermans Bend catchment (assumed corridor for purpose of scenario analysis)

Fishermans Bend catchment	Baseline data (2016)
Population	13,835
Employment	31,654
Number of dwellings	6,668
Total catchment (hectares)	1,015
% of Residential Zone	15%
% of Capital City Zone	27%
% of Commercial Zone	4%
% of Industrial Zone	35%
% of Open space/Roads	19%
Starting land value (2016)	$20.5b

Source: EY analysis, Mapinfo

Figure 6 Central catchment (assumed corridor for purpose of scenario analysis)

Central catchment	Baseline data (2016)
Population	102,502
Employment	324,247
Number of dwellings	49,773
Total catchment (hectares)	1,484
% of Residential Zone	32%
% of Capital City Zone	22%
% of Commercial Zone	24%
% of Industrial Zone	0%
% of Open space/Roads	22%
Starting land value (2016)	33.4b

Source: EY analysis, Mapinfo

Figure 7 Northern catchment (assumed corridor for purpose of scenario analysis)

Northern catchment	Baseline data (2016)
Population	119,553
Employment	39,242
Number of dwellings	46,567
Total catchment (hectares)	4,932
% of Residential Zone	62%
% of Capital City Zone	0%
% of Commercial Zone	16%
% of Industrial Zone	4%
% of Open space/Roads	17%
Starting land value (2016)	$15.9b

Source: EY analysis, Mapinfo

4.3.2 Estimated benefits: land value gains

MM2 will provide new stations in Fishermans Bend and North Fitzroy and extra capacity for the corridor, with a second and more direct route for the Werribee lines into the CBD, allowing for more services to be run. This increase in services would benefit all commuters along the rail corridor by improving the level of accessibility for these areas, and thus increasing the attractiveness of these areas for home buyers.

Western and northern rail corridors: The MM2 project will improve rail connectivity for the western and northern rail corridors and provide better access to employment in the CBD, Fishermans Bend and other parts of inner Melbourne, with up to 33 extra services (165% increase) on the Werribee Line, and an extra 18 services (75% increase) from Rushall to Mernda. By enabling faster and more frequent rail services, demand for rail services will increase due to large journey time savings. However, these benefits may be offset by increased crowding. Demand for residential property along the western and northern rail corridors is expected to increase as a results of these improvements.

Montague and Wirraway (Fishermans Bend catchment): As part of the MM2 project, two new stations will be built in Fishermans Bend (Montague, Wirraway). This will provide a step-change increase in rail connectivity for the Fishermans Bend precinct as it is connected to the urban rail network. A key benefit for business will be its enhanced access to labour markets across Melbourne. Fishermans Bend will also become better connected with other employment centres on the rail network with up to 42 new services being delivered, supporting both commuting from Fishermans Bend and business-to-business interactions. Travel to and from Fishermans Bend will become less car reliant, reducing local area congestion and parking requirements. There may also be less congestion on some strategic routes serving the precinct. Additional public transport demand could increase crowding on other parts of the network.

CBD, Southbank, Docklands and North Fitzroy (Central catchment): Modest increases in rail connectivity at Southern Cross (5% increase in services) and Flagstaff (14% increase in services) will free up capacity from the City Loop, particularly during peak periods, allowing more services to run on other lines and providing more efficient travel for commuters into the city for work. A more significant increase in rail connectivity is expected at Parkville (up to 42 new services or 88% increase), although accessibility gains are limited by available rail and other public transport and road options, particularly after the step-change already provided by MM1. It will also significantly improve rail connectivity for the surrounding precinct in North Fitzroy, given the new station assumed there. While the area is already well served by other public transport and road connections, the new station will help to reduce crowding on existing tram and bus service connecting the area with the CBD and Parkville in particular.

Each catchment was analysed individually in terms of their projected land values (assumed to grow in line with nominal GDP) and assessed value uplifts to estimate the impact attributable to the project. For example, the Fishermans Bend catchment would benefit from a commuter rail system where previously there was no rail services in place. Therefore, properties within that catchment would benefit from the full value uplift due to commuter rail. However, MM2 would move the Western catchment from what is equivalent to a heavy rail level of service to a more frequent commuter rail system and therefore would only benefit from the incremental value uplift associated with that change. Half the uplift was assumed for the Central and Northern catchments given the lower relative increase in rail services the project provides for those station catchments.

These assumptions are summarised in the table below and presented alongside the estimates of indirect land value gains that accrue to properties after construction is completed and operations commence in 2040.

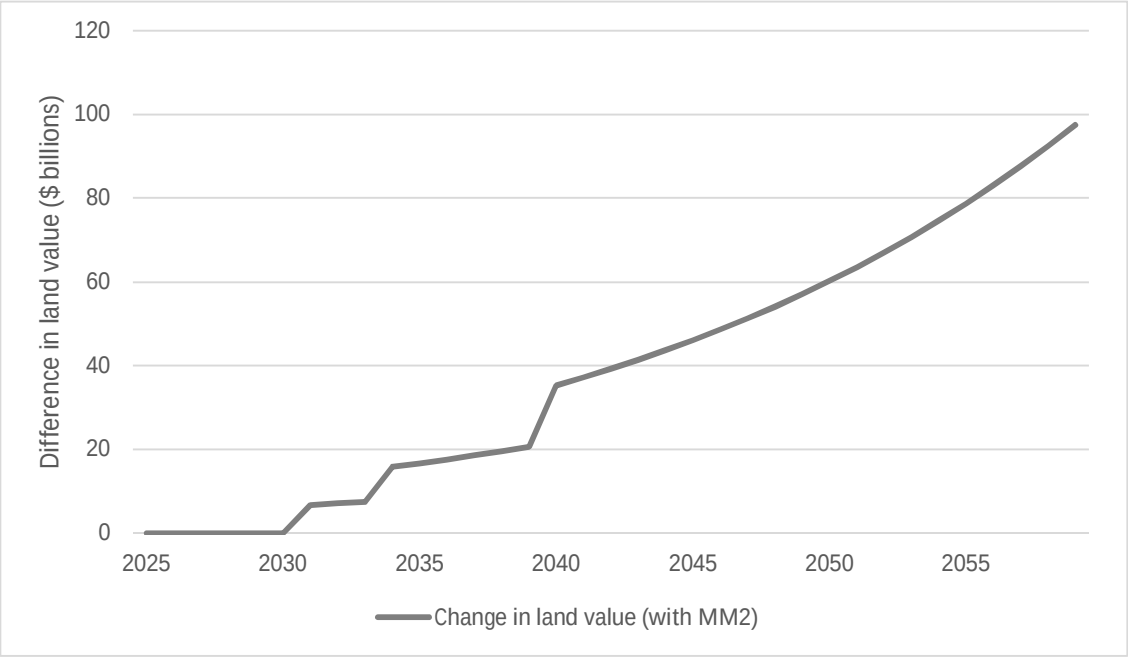
Table 9 Value uplift assumptions upon commencement of operations (at 2040)

Catchment area	Estimated value uplift when the project opens in 2040			
	(%)	($ billions, nominal)	($ billions, real 2016)	($ billions, PV)*
Fishermans Bend	17.20%	12,747	7,048	1,389
Central	6.25%	7,542	4,170	822
West	12.50%	7,176	3,967	782
North	6.25%	7,809	4,318	851
Total		35,274	19,502	3,845

**Discount rate: 7% (real) or 9.7% (nominal)*
Source: EY analysis, uplift assumptions based on analysis of technical studies

The figure below shows the estimated difference in land value for all catchments with MM2 compared to the land value without MM2, with increases occurring from the time the project is announced (assumed to be 2031), constructed (2034) and completed (2040). Additional uplift is modelled beyond 2040 reflecting the assumption of continued underlying land value growth in line with nominal GDP as opposed to any additional operational benefits that could be provided as service are increased beyond the level envisaged for the opening year.

Figure 8 Difference in land values – With MM2 versus without MM2 (nominal)

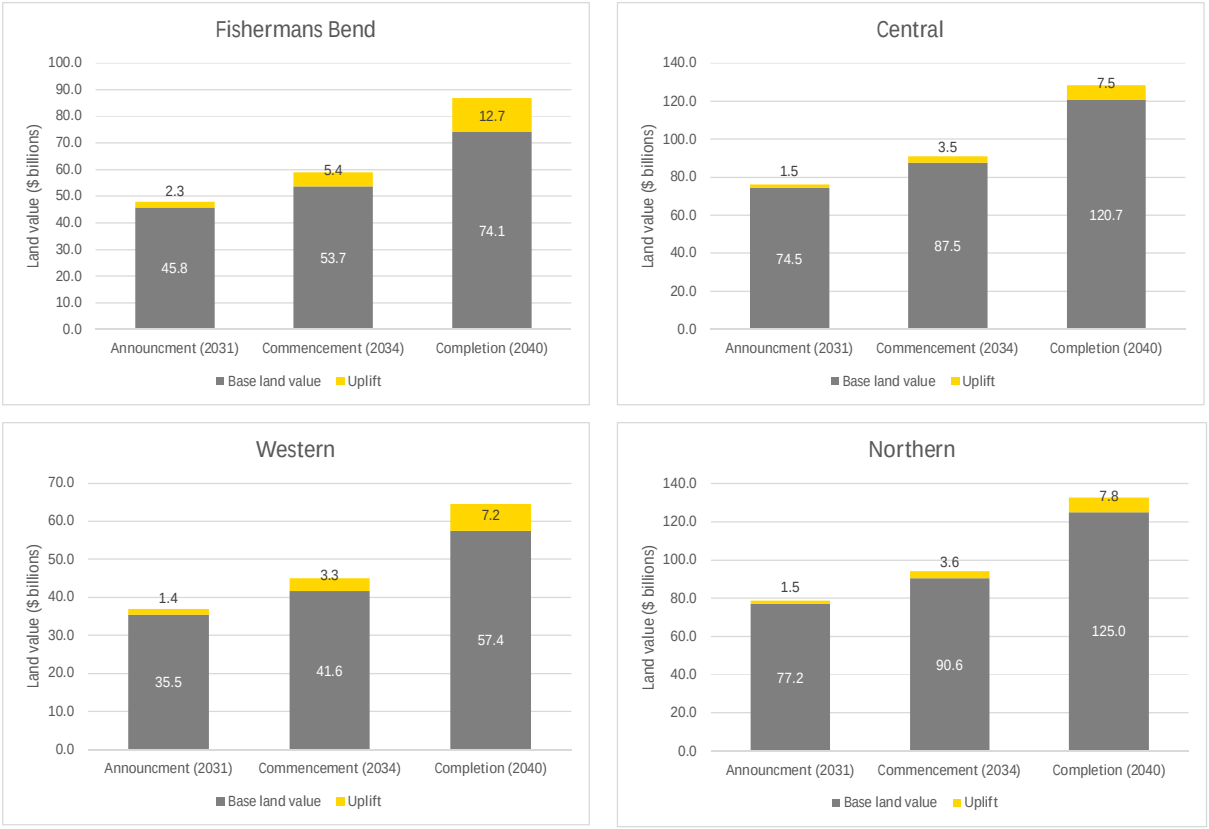


Source: EY analysis

Upon completion of the project, there is also potential for the sale of air and development rights over and around the newly constructed station areas. This would provide a steady stream of rental revenue, with the size of the benefit examined in the analysis of option 8.

The figure below shows the estimated uplift in each of the catchment at each of the three key milestones of the project (announcement, commencement, completion).

Figure 9 Land value uplift by catchment



Source: EY analysis

4.4 Mechanisms

Eight value capture mechanisms were developed, comprising one developer contribution mechanism, six betterment levy mechanisms and a property sales mechanism. The key design features for each of these are summarised in the table below.

Mechanisms relating to major beneficiary contributions were not further considered, as no major beneficiaries were readily identifiable through the beneficiary identification and value uplift quantification exercise.

A threshold issue with the design of developer contributions and betterment levies to fund major rail projects is in relation to the revenue raising objective. Options include capturing a share of value gains (e.g. 50% of value gains) to estimate an upper bound on possible revenue share, or to raise a share of project costs at a practical level of cost recovery (e.g. 25% of project costs). For the latter option, the funding of Melbourne's City Loop and Crossrail provide useful benchmarks. In the case of the City Loop, revenue raised from land value capture was to be equivalent to 50% of project costs (half from the City of Melbourne and half from the rest of Melbourne), although the mechanism was withdrawn. Crossrail is set to raise nearly a quarter of project costs from businesses located across Greater London, with concentrations in locations near the rail corridor.

Seeking to share 50% of value gains is a principled starting point if you have perfect information and the ability to levy mechanisms that target uplift. This approach has been assumed for Betterment Levy 1, which provides a notional example of full benefit capture.

However, given limitations, the approach to modelling the Developer Contribution and the other betterment levies have taken a more practical approach. For the Developer Contribution, rates are based on considerations of property market yields and the potential impact of charges on different land uses. For the betterment levies (2 to 5), which are applied to forecasts of unimproved land

values in the benefit catchments instead of uplift, the rates have been set to achieve 25% cost recovery.

Table 10 Value capture mechanism design features assessed for the MM2 project

Mechanism	Design assumptions
Option 1: Developer Contribution	Rationale: to share value gains associated with increased residential and commercial densities along the rail corridor in defined benefit catchments. Revenue base and geography: rate applied to all new residential apartments and new commercial floor space developed within 1,000m from the rail corridor, which in most cases is 1 km from train stations. Rate structure: a flat rate of $3,000 per apartment, and rates per metre of new floor space of $30-100. Timing and payment: Levied for 30 years from time of announcement and payable on transfer of property.
Option 2: Betterment Levy 1 - Rate on property value uplift	Rationale: to share value gains with the most significant beneficiaries in the defined benefit catchment using a targeted betterment levy structure. Revenue base and geography: All residential and commercial properties within 1,000m from the rail corridor, which in most cases is 1 km from train stations, with payments based on estimated uplifts in property (site) values. Rate structure: Based on capturing 50% of land value uplift attributable to the project. Timing and payment: Levied annually for 30 years from the start of project construction, with no deferral provisions or exemptions modelled.
Option 3: Betterment Levy 2 - Rate on full value of property	Rationale: to recover a share of project costs from the most significant beneficiaries in the defined benefit catchment using a betterment levy structure that spreads contributions based on underlying land values. Revenue base and geography: All residential and commercial properties within 1,000m from the rail corridor, which in most cases is 1 km from train stations, with payments based on full property (site) values. Rate structure: Fixed site value rate based on recovering 25% of project costs. Timing and payment: Levied annually for 30 years from the start of project construction, with no deferral provisions or exemptions modelled.
Option 4: Betterment Levy 3 - Flat rate	Rationale: to recover a share of project costs from the most significant beneficiaries in the defined benefit catchment using a simplified 'flat rate' betterment levy. Revenue base and geography: All residential and commercial properties within 1,000m from the rail corridor, which in most cases is 1 km from train stations. Rate structure: Fixed levy of $200 per residential property and $5 per square metre of gross floor area for commercial properties. Timing and payment: Levied annually for 30 years from the start of project construction, with no deferral provisions or exemptions modelled.
Option 5: Betterment Levy 4 - Rate on full property value Melbourne LGA commercial	Rationale: to recover a share of project costs from CBD businesses as general beneficiaries from ongoing urban rail network expansions using a betterment levy structure that spreads contributions based on underlying land (or site) values. Revenue base and geography: All commercial properties within the City of Melbourne, with payments based on full property (site) values. Rate structure: Fixed site value rate based on recovering 25% of project costs. Timing and payment: Levied annually for 30 years from the start of project construction, with no deferral provisions or exemptions modelled.
Option 6: Betterment Levy 5 - Rate on full property value metro-wide	Rationale: to recover a share of project costs from residents across Melbourne as general beneficiaries from ongoing urban rail network expansions using a betterment levy structure that spreads contributions based on underlying land (or site) values. Revenue base and geography: All residential properties across metropolitan Melbourne, excluding those within the City of Melbourne, with payments based on full property (site) values. Rate structure: Fixed site value rate based on recovering 25% of project costs. Timing and payment: Levied annually for 30 years from the start of project construction, with no deferral provisions or exemptions modelled.
Option 7: Betterment Levy 6 – Rate on full value of commercial and residential property in	Rationale: to recover a share of project costs from CBD businesses and residents located in LGAs more broadly along the rail corridor using a betterment levy structure that spreads contributions based on underlying land (or site) values. Revenue base and geography: All residential and commercial properties in the City of Melbourne and all residential properties in other local government areas that contain the MM2 alignment,

Mechanism	Design assumptions
the Melbourne LGA and residential property in the corridor LGAs	with payments based on full property (site) values. Rate structure: Fixed site value rate based on recovering 12.5% of project costs from commercial properties in the City of Melbourne, and 12.5% of project costs from residential properties in LGAs along the rail corridor, including Wyndham, Hobsons Bay, Port Phillip, Yarra, Darebin, Whittlesea, and the City of Melbourne. Timing and payment: Levied annually for 30 years from the start of project construction, with no deferral provisions or exemptions modelled.
Option 8: Property, development, sales and leases	Rationale: to exploit commercial opportunities associated with new station developments. Design: Sale of air and development rights over and around new station areas, and provision of commercial leases in station facilities.

4.5 Modelling approach and other assumptions

Using projections on the number households and employees in each of the catchments, we were able to estimate the impacts of a developer contribution, by applying a flat charge to residential, commercial and industrial properties.

We have also analysed the impacts of various types of betterment levies. The size of the betterment levy is based on the level of value capture that has been defined. In the options we have examined, the level of value capture sought has been defined as either a proportion of the value uplift generated by the project, or to recover a proportion of the project costs,

Another mechanism for value capture that we have examined for MM2 was through the sales of air and development rights over and around new station areas, and the provisions of commercial leases in station facilities. We have estimated the possible revenue based on current market land value and rental value estimates.

The following table describes the key assumptions applied to the value capture assessment of MM2.

Table 11 Key assumptions for the value capture assessment of MM2

Parameter		Value	Source/rationale
Project announcement		2027	Project assumption
Project commencement		2030	Project assumption
Project completion		2040	Project assumption
Underlying land value growth (annual)		5.5%	Based on forecast real GDP growth and inflation (2.5%)
DCP charge per apartment		$3,000	Represents a conservative charge that could be levied on all new dwellings in the project area.[14]
DCP charge on commercial FSR	Residential	$30/m²	Represents a moderate charge on commercial floor space built across residential and commercial zoned land in the project area (currently a charge of $150/m² is levied on commercial development on Capital City zoned land in Fishermans Bend.
	Capital city	$100/m²	
	Commercial	$50/m²	
	Industrial	$30/m²	
Estimated uplift due to MM2	Western	12.5%	Debrezion (2004,2006), EY analysis
	Fishermans Bend	17.2%	
	Central	6.3%	

[14] Note: The current DCP charge in Fishermans Bend is equivalent to $16,000 per new dwelling levied via section 173 Agreement.

Parameter		Value	Source/rationale
	Northern	6.3%	
Gross floor area (GFA) per employee	Commercial	50m²	Project assumption
	Industrial	50m²	Project assumption
Net rental income		$900/m²	Based upon high turnover convenience retail
Development costs		$4,000/m²	Rawlinsons Construction Cost Guide (2016)
Capitalisation rate		8.0%	EY assumption - Assumed minimum rate of return from a retail land owner

4.6 Results and assessment

Each of the value capture mechanisms was appraised as being reasonably effective in meeting the broad policy objectives previously defined. This is largely because the mechanisms were designed to optimise outcomes against the various evaluation criteria.

The sections below present the results of the revenue modelling, and the assessment of mechanism for their revenue potential and other qualitative criteria.

4.6.1 Revenue potential

With regard to revenue potential, developer contributions and betterment levies raise significant revenue given the scope of the developer contributions mechanisms and the design of the betterment levies which were explicitly set to target 25% of project costs (with the exception of Option 2, which focuses on value uplift in order to determine a notional revenue sharing upper bound).

Each of these mechanisms generates significant revenue, but differs markedly in terms of how and the impacts on landowners. For example, the impact on residential land owners ranges from as low as $106 per household in today's dollars across a broader catchment (Option 6), up to $435 per household in a tighter more defined catchment (Option 3), while still generating the same revenue in terms of cost recovery (i.e. percentage of costs recovered in present values). A betterment levy that is set against full property values in the LGA corridor is equivalent to $184 per household (Option 7).

Table 12 Estimated revenue by mechanism

Mechanism	Total revenue	Total revenue	Total revenue	Cost recovery	Share of value gains	Average rates: Year 1 ($ real 2016 /household or GFA)		
	$ billions nominal	$ billions real 2016	$ billions PV	%, PV	%, PV	Residential	Commercial	Industrial
Option 1	4.5	2.0	0.3	6.0%	7%	$3,000	$30-100	
Option 2	45.7	18.5	1.9	40.3%	50%	698	33	16
Option 3	28.4	11.5	1.2	25.0%	31%	435	21	10
Option 4	12.8	5.4	0.6	13.4%	17%	200	5	5
Option 5	25.2	10.5	1.2	25.0%	N/A	0	12	12
Option 6	25.2	10.5	1.2	25.0%	N/A	106	0	0
Option 7	25.2	10.5	1.2	25.0%	31%	184	6	6
Option 8	0.5	0.2	0.0	0.8%	n/a	n/a	n/a	n/a

Source: EY analysis

Table 13 below shows the per unit rates by catchment for each of the options analysed.

Table 13 Catchment per unit rates by mechanism (Year 1 of operations - 2040)

Mechanism	Catchment	Average rates: Year 1 ($ real 2016 /household or GFA)			Value Captured
		Residential	Commercial	Industrial	
Option 1	All MM2 catchment	$3,000	$30-100	$30-100	n/a
Option 2	Western	$910	$13	$21	50%
	Fishermans Bend	$670	$68	$27	
	Central	$235	$5	$0	
	Northern	$1,020	$19	$7	
Option 3	Western	$564	$8	$13	31%
	Fishermans Bend	$416	$42	$17	
	Central	$145	$3	$0	
	Northern	$632	$12	$5	
Option 4	Western	$200	$5	$5	10%
	Fishermans Bend	$200	$5	$5	6%
	Central	$200	$5	$5	47%
	Northern	$200	$5	$5	10%
Option 5	City of Melbourne	$0	$12	$12	n/a
Option 6	Metro Melbourne (ex. CoM)	$106	$0	$0	n/a
Option 7	City of Melbourne	$184	$6	$6	n/a
	Rail corridor*		$0	$0	
Option 8	Stations	n/a	n/a	n/a	n/a

Source: EY analysis

4.6.2 Qualitative assessment

The expected equity and efficiency outcomes of the mechanisms are wide-ranging.

Mechanisms based on land uplift and value within a defined benefit area are relatively effective in targeting those who benefit most from the accessibility afforded by MM2. Of these, the levy that assesses each landholding on an individual basis and captures a portion of only the real rise in value provides the strongest alignment with benefits received. While the value based mechanisms also align with benefits, they also ensure that those with higher land values contribute more. This reduces the alignment with benefits but increases other aspects of equity or fairness.

The simplified mechanisms that adopt a flat rate charge or charge based on floor area do not align well with the benefit principle. For example, the broad-based Melbourne LGA and metropolitan-wide levies do not directly target beneficiaries, raising revenue from other parts of Melbourne where there would only be relatively minor or zero land value gains. Flat rate mechanisms are also less fair than value-based levies, in that they treat high-value and low-value properties equally. Although they may be successful in raising revenues and dispersing the payment burden, such shortcuts can erode the rationale of value capture and, with time, might become just another tax.

In terms of economic efficiency, uplift and value based betterment levies on land are unlikely to lead to excessive distortionary impacts on property investment or consumption, although this could depend on the actual design of any boundaries. Conversely, levies and charges that focus on capital improved values could dampen incentives for high-density development within benefit area catchments.

An evaluation of the simplicity and sustainability of the mechanisms suggests that most are generally easy to understand, administer and comply with, apart from the value uplift based mechanism. Predictability and stability of revenue vary considerably between the mechanisms.

Experience from other jurisdictions has shown that mechanisms that levy land value uplift are inherently complex. This is because value change needs to be assessed on a parcel by parcel basis for all properties within the benefit area, and because there are considerable challenges quantifying the amount of value change that can be attributed to government infrastructure investment. Both of these factors significantly increase the cost of administration and give rise to legal complexity.

The mechanism that offers stable and predictable revenues is the flat rate betterment levy, which will provide a growing income stream consistent with growth in dwellings and commercial gross floor area. Revenue from all other mechanisms will fluctuate along with property prices and broader market dynamics, such as sales turnover and property development rates. However, these risks can be managed by allowing for a flexible duration, which would keep the mechanisms in place until a specified amount is recovered (i.e. a 'floating' duration).

Table 14: Summary of evaluation results

Mechanism	Equity and efficiency	Simplicity and sustainability
Option 1: Developer Contribution	Moderate	Moderate to High
	Excludes significant value gains for existing properties. May marginally slow property turnover and reduce development feasibility and intensity of land-use for sites already purchased for development. Boundary definition may also create market distortions. Developer contributions will be passed back to vendors rather than on to buyers.	Potentially simple, although cost apportionment across development sites can be complex and non-transparent. A one-off transaction is much simpler to administer than a recurrent levy. There is potential for high year-to-year variability depending on development activity.
Option 2: Betterment Levy 1 - Rate on property value uplift	High	Low
	Focus on value gains aligns with the beneficiary principle. No inherent distortionary impacts, but boundary definition may create market distortions. Levies are borne by landowners, but there may be distributional impacts.	Potentially significant challenges in quantifying value changes. As no mechanisms of this type exist in state law, implementation would require new legislation. Likely high year-to-year revenue variability, depending on land transfers.
Option 3: Betterment Levy 2 - Rate on full value of property in the defined benefit catchment	Moderate to High	Moderate to High
	Rates set to minimise 'losers' so miss significant value gains on properties in high benefit areas. No inherent distortionary impacts, but boundary definition may create market distortions. Levies are borne by landowners, but there may be distributional impacts.	Some complexity in design of boundaries, but would be simple to administer and comply with. Revenue varies with property market, as land-value base generally more volatile than CIV base
Option 4: Betterment Levy 3 - Flat rate	Moderate	High
	Equivalent levies do not adhere to the beneficiary principle. Per-dwelling or per-GFA levy may reduce feasibility of high-intensity development and land-use. Boundary definition may also create market distortions. Low vertically as high-value and low-value properties pay equal levy amounts	Simple to administer and comply with. Highly certain revenue, though variation arises from changes in growth between dwelling numbers and commercial GFA.
Option 5: Betterment Levy 4 - Rate on full value of commercial properties in the Melbourne LGA	Moderate	High
	Per-GFA levy reasonable proxy for CBD entry capacity, but excludes beneficiaries in other locations. May reduce feasibility of high-intensity development and land-use. Boundary definition may also create market distortions. Does not necessarily promote vertical equity, as commercial property ownership is dispersed.	Simple to administer and comply with. Highly certain revenue, though variation arises from changes in growth between dwelling numbers and commercial GFA.
Option 6: Betterment Levy 5 - Rate on full value of residential property metro-wide	Moderate	High
	Loose connection with MM2 benefits, which are area-specific benefits. Non-distortionary if based on land value. Generally promotes vertical equity but	Simple to administer and comply with. Revenue varies with property market. Land-value base generally more volatile than CIV base.

Mechanism	Equity and efficiency	Simplicity and sustainability
	actual impacts depend on detailed distributional analysis.	
Option 7: Betterment Levy 6 – Rate on full value of commercial and residential property in the Melbourne LGA and residential property in the corridor LGAs	Moderate to High Captures area-specific benefits, but the broader catchment reduces the connection with MM2 benefits. Non-distortionary if based on land value. Generally promotes vertical equity but actual impacts depend on detailed distributional analysis.	High Simple to administer and comply with. Revenue varies with property market. Land-value base generally more volatile than CIV base.
Option 8: Property sales and leases	High Commercial opportunities support beneficiary pays principle and supplants general taxpayer funding. No inherent distortionary impacts.	Moderate Procurement and contracting required. Value of development and land sales unclear and will vary with project design. Mix of upfront and ongoing revenue.

4.6.3 Key findings

This analysis demonstrates the significant revenue that can be recouped through developer contributions and property sales and leases. These mechanisms can form the foundation of any infrastructure funding strategy that seeks to make more of value capture.

The application of one or more betterment levies is the only way to generate significant funding in the order of 25% of project costs. However, the complexities involved in applying targeted betterment levies suggest that hybrid value capture / tax mechanisms are required. While this simplifies the design and administration of the mechanism, it reduces the link between benefits and funding.

Favoured mechanisms include Betterment Levy 2 and Betterment Levy 6 given their stronger performance on fairness and efficiency, and because they are simple and relatively sustainable.

Betterment Levy 2 involves recovering 25% of project costs through a rate on properties in defined project catchments. This could include the 1km catchments modelled in this study, or refined catchments to reflect the local characteristics along the rail lines (i.e. to make use of natural and physical barriers that could ring-fence value gains). Cost recovery is allocated to each section based on the approximate shares of benefits to enhance value capture alignment, which would translate into a variable rate structure similar to the Fire Services Property Levy.

Betterment Levy 6 follows a similar approach but simplifies the choice of boundaries to the borders of the LGAs that the MM2 is proposed to pass through. It also involves recovering 25% of project costs, with 12.5% allocated to commercial properties in the City of Melbourne, and the other 12.5% collected from residential properties in the City of Melbourne and the other LGAs, with payments based on shares of unimproved land values in the combined catchments.

From a tax policy perspective, Betterment Levy 6 performs slightly better as it greatly simplifies the selection of boundaries and broadens the tax base.

Either mechanism could form part of a legitimate value capture funding mix that also includes developer contributions, property sales and leases. This could complement additional funding contributions from government and the application of enhanced user charging regimes.

Based on this analysis, three mechanisms have been identified which are complementary and have the potential to be implemented simultaneously as part of a value capture funding strategy. If implemented together, these three mechanisms (developer contribution, betterment levy in defined benefit area, and property sales and leases) would generate $13.7 billion in real terms, recovering 32% of the total project cost.

5. Outer Metropolitan Ring Road

5.1 Project description and inputs

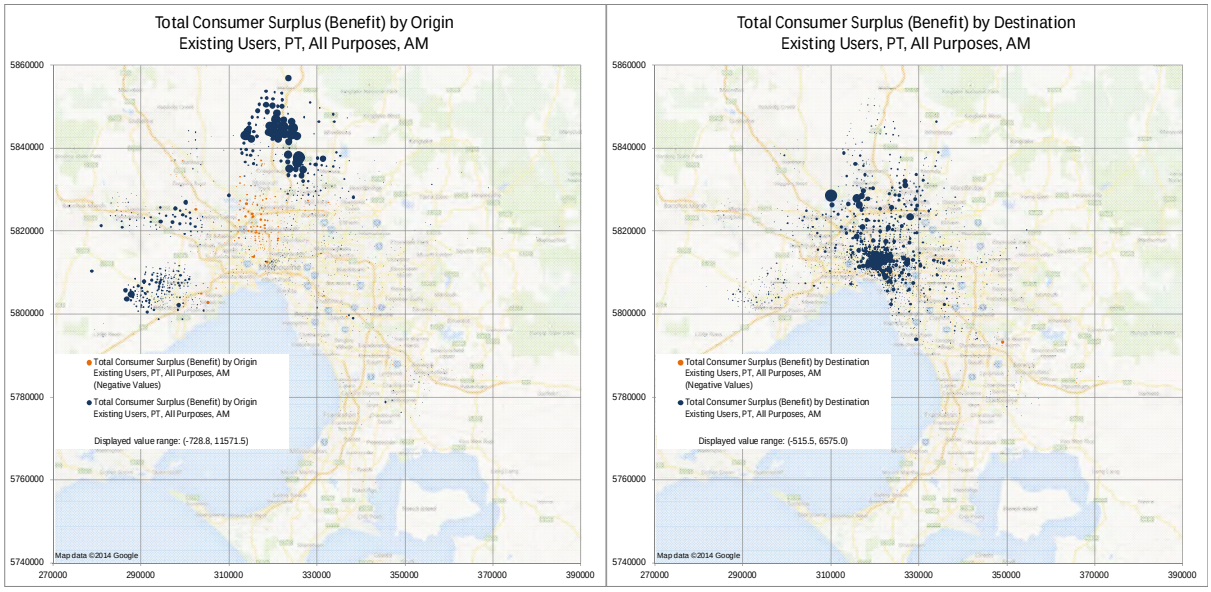
The Outer Metropolitan Ring Road (OMR) would provide a 100km high-speed transport link from Werribee to Thomastown via Rockbank, Diggers Rest, Mickleham, Donnybrook and Epping. Current planning for the corridor provides options for a freeway standard road carrying up to four lanes of traffic in each direction and capable of ultimately becoming a six-lane freeway standard road elsewhere. Ultimately, this would enable the road to include freeway-to-freeway and freeway-to-arterial road access points at grade-separated interchanges.

Based on costings undertaken for IV, the OMR project is estimated to cost in the range of $9-13 billion (in real terms or 2016 dollars). For this exercise, the assumed cost is $11 billion, with construction taking 4 years and operations commencing in 2035.[15]

5.1.1 Traffic modelling

Transport modelling results show that the majority of the benefits from the OMR project are delivered to commuters in the North, with pockets in the north-west and west also benefitting from the project.

Figure 10 OMR benefit distribution map by origin and destination (2031)



Source: Arup for Infrastructure Victoria

5.2 Background research

In a study for Infrastructure Australia, Urbis examined the long-term land value growth trends for certain property classes within the inner, middle and outer bands of Sydney, Melbourne and Brisbane. The study also explored three case studies related to recently delivered motorways in each city, including the M7 Motorway in Sydney, EastLink in Melbourne and the M1 Motorway in Brisbane.

[15] AECOM/PwC, (2016) Options Assessment 3 Technical Report – Supplement C Major transport projects – preliminary costings Assessment 3, advice to Infrastructure Victoria

Table 15 Urbis Valuations Report on Historic Land Value Growth - Case studies

Case study	Annual growth differential
M7 Motorway (Sydney)	1.7%
EastLink (Melbourne)	2.1%
M1 Motorway (Brisbane)	5.8%

Using data over 13-20 years, the study found that commercial and industrial property values in nearby catchments grew by 1.7-5.8% per annum more than similar properties in surrounding areas. It also found that land values increased by 20-50% from the time of route identification to operations, with the EastLink case study showing a 26% increase in industrial values in the project's benefit catchment.

5.3 Benefits

The land value benefits of the OMR are anticipated to flow to commercial and industrial properties across the broader catchment in line with studies of other similar projects, as well as through the activation of land along the corridor.

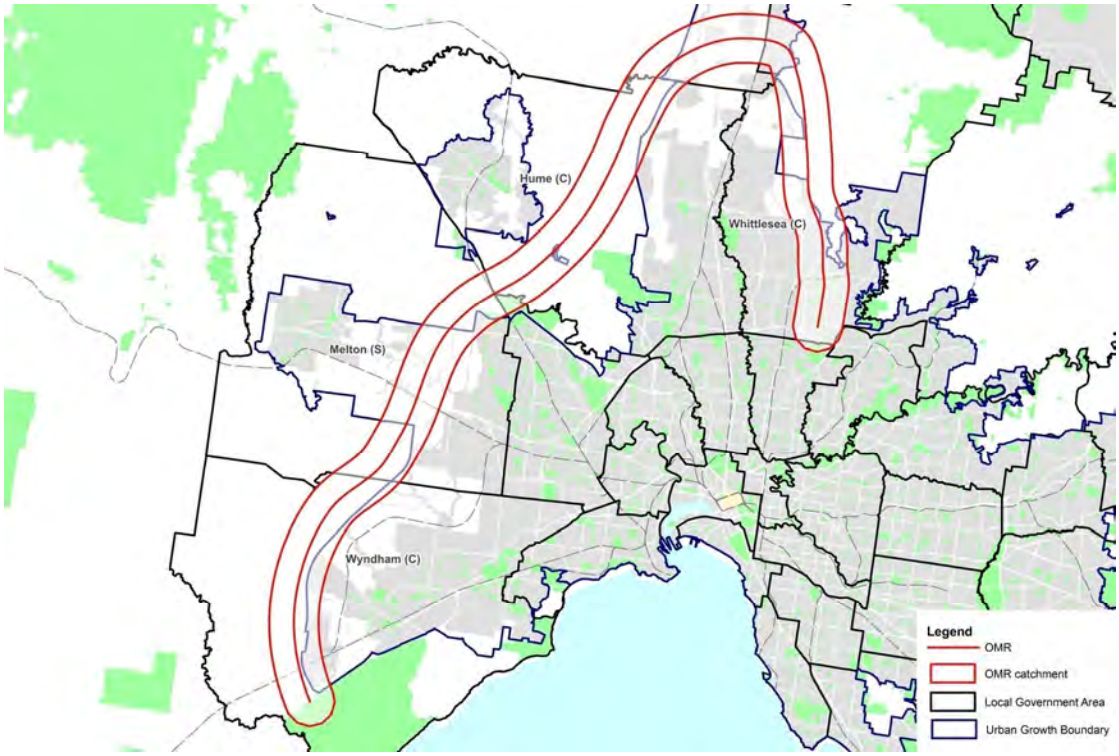
5.3.1 Activation of land in the nearby catchment

The project would also provide a major catalyst to the activation of residential, commercial and industrial land along the corridor, following similar patterns of development that have occurred alongside major freeways and arterials like the Western Ring Road (M80) and EastLink, particularly in locations near other major radial arterials that will cross the OMR.

Once complete, the OMR will help link residential and employment growth areas to the north and west of Melbourne, which includes the local government areas of Hume, Melton, Whittlesea and Wyndham. The OMR will also improve accessibility for local resident allowing better access to employment corridors in Avalon, Werribee, Melton and Mickleham.

While large sections of the OMR resides outside the urban growth boundary (UGB), our analysis is focused within the UGB consistent with current Government policy. The relevant catchment assumed for the purpose of scenario modelling fits within a 2km radius of the OMR, which broadly aligns with observed development around the sections of the M80 and EastLink, particularly those that pass through former greenfield areas. The catchment runs through the local government areas of Hume, Melton, Whittlesea and Wyndham.

Figure 11 OMR catchment (assumed corridor for purpose of scenario analysis)



Source: EY analysis, Mapinfo

To estimate the potential residential and commercial/industrial activity that could be supported by the OMR, we have analysed the Victorian Government's detailed population and employment forecasts from 2031 to 2046, with forecast changes in population and employment densities applied to the 2km catchment for the sections of the OMR inside the UGB.

Based on this approach, it is estimated that along the corridor an additional 55.5 million m^2 could be made available for residential use, 940,000m^2 for commercial and 510,000m^2 for industrial from 2028 to 2060. This is equivalent to $24 billion in additional land value in real terms, based on the difference in current developable and englobo land values* that are projected to rise in line with forecasts of nominal Gross Domestic Product (GDP).

5.3.2 Land value gains across the broader catchment

For this benefit we have considered the analysis of other similar projects outlined above. If similar price gains were to materialise in the catchment for the OMR, which for this study is defined by the boundaries of the LGAs through which the OMR is expected to traverse, then land value gains at the time of opening would be in the order of $3.6 billion in real terms. For comparison, an SGS study estimated the increase in land value as a results of CityLink to be $19.3 billion, while the increase due to the Western Ring Road was estimated to be $9.2 billion.

5.4 Mechanisms

The value capture mechanisms that would best align with the indirect benefits of the OMR include developer contributions and betterment levies.

It considering an appropriate developer contribution, it is recognised that much of the land in the area directly surrounding the OMR may be subject to the GAIC. However, the GAIC is applied on the basis of scheduled rates and there is merit in considering an additional value capture mechanism that more closely targets value gains that are realised when growth area land is developed. The mechanism applied in this analysis is based on recovering 12.5% of project costs in a defined project area (in line with the cost recovery amount set for the betterment levy as discussed below), payable by the developer using similar triggers and payment arrangements as the GAIC. This

approach would reduce the price that developers can pay the original landowners, with the remainder of the uplift returned to the state.

For this option, the catchment has been set at 2km from the OMR for the sections inside the UGB. The choice of boundary is a key issue to resolve through the detailed design of the mechanism, as setting it too narrow could risk creating unfair impacts on existing landowners inside the boundary if the market is willing to pay comparable rates to develop land outside the boundary.

While it is acknowledged that setting a boundary may encourage development on the edge in order to avoid the developer contribution, it is believed that if it were communicated early (i.e. before developers have entered the market), it would reduce these incentives (i.e. developers could factor in the charge when purchasing land).

The choice of an appropriate betterment levy is based on lessons learnt from the MM2 example outlined above, although the cost recovery rate is reduced to reflect the lower average land values in the catchment for the OMR. To avoid excessively high betterment levies that would capture more than 50% of project benefits, the betterment levy suggested for the OMR is to recover 12.5% of project costs from commercial and industrial landowners in the local government areas of Whittlesea, Hume, Melton and Wyndham. It applies a single rate (based on a share of full land or site values) and does not include any value thresholds or exemptions due to the impacts that would have on efficiency and simplicity, recognising they could be applied if deemed applicable for other policy reasons.

Table 16 Value capture mechanism design features assessed for the OMR project

Mechanism	Description
Option 1: Developer Contribution	Rationale: to share value gains associated with the activation of growth area (englobo) land. Revenue base and geography: All developed properties within 2,000m of the project. Rate structure: Developer contribution to recover 12.5% of project costs. Timing and payment: Levied at the time of change in land use (from englobo to residential/commercial/industrial), with no deferral provisions modelled.
Option 2: Betterment Levy - Rate on full property value in LGA corridor	Rationale: to recover a share of project costs from located in LGAs along the road corridor using a betterment levy structure that spreads contributions based on underlying land values. Revenue base and geography: All commercial and industrial properties within the local government areas of Whittlesea, Hume, Melton and Wyndham, with payments based on full property (site) values. Rate structure: Fixed site value rate based on recovering 12.5% of project costs. Timing and payment: Levied annually for 30 years from the start of project construction, with no deferral provisions or exemptions modelled.

5.5 Approach and key assumptions

In order to estimate the land value uplift that would occur across a portion of the catchment once the OMR is constructed, we have assumed that the land value uplift is equal to the additional development potential that can be realised over a portion of the catchment upon project completion, which previously would not have occurred.

A conservative approach has been utilised by assuming that zoning remains static during the assessment, meaning that all farm zoned land will remain so and the only development potential exists with the current commercial and residential land within the catchment. This analysis involved estimating current land rates with and without development potential (defined as retail and englobo land respectively).

The following table describes the key assumptions applied to the value capture assessment of OMR.

Table 17 Key assumptions

Parameter		Assumption	Evidence/justification
Project announcement		2028	Project assumption
Project commencement		2031	Project assumption
Project completion		2035	Project assumption
Underlying land value growth (annual)		5.5%	Based on forecast real GDP growth and inflation (2.5%)
Englobo Land Rate (2016)	Commercial	$150/m²	EY – Based on observable market rates of land parcels found in the outer unestablished suburbs of Melbourne
	Industrial	$30/m²	
	Residential	$180/m²	
Retail Land Rates (2016)	Commercial	$350/m²	
	Industrial	$80/m²	
	Residential	$350/m²	

5.6 Results and assessment

Each of the value capture mechanisms was appraised as being reasonably effective in meeting the broad policy objectives previously defined. This is largely because the mechanisms were designed to optimise outcomes against the various evaluation criteria.

The sections below present the results of the revenue modelling, and the assessment of mechanism for their revenue potential and other qualitative criteria.

5.6.1 Revenue potential

With regard to revenue potential, both options stand out as they are set to recover a significant portion of costs (12.5%).

The developer contribution raises significantly more than what could be likely under the GAIC, which is a result of targeting a level of cost recovery for the OMR instead of being notionally set to recover 15% of state infrastructure costs.

Table 18 Estimated revenue by mechanism

Mechanism	Total revenue	Total revenue	Total revenue	Cost recovery	Share of value gains	Average rates: Year 1 ($ real 2016 / m2 or GFA)		
	($ billions, nominal)	($ billions, real)	($ billions, PV)	(%, PV)	(%, PV)	Residential	Commercial	Industrial
Option 1	7.2	3.2	0.4	12.5%	11%	61	72	18
Option 2	7.4	3.3	0.4	12.5%	11%	0	8	

Source: EY analysis

5.6.2 Qualitative assessment

The expected equity and efficiency outcomes of both mechanisms are assessed as being moderate to high. While the developer contribution is set to target the largest value gains for land that is subsequently developed, it involves the use of a defined project area that may create boundary issues. The betterment levy is defined to apply to a broad catchment to align with more beneficiaries and to keep rates low to minimise impacts on efficiency. However, beneficiaries that receive the largest value gains only pay a small percentage of those gains, and those who only receive very low or zero benefits are required to pay. As such, this option is more like a sub-regional land tax.

The betterment levy scores high for simplicity and sustainability, which is mainly due to its simple design. A limitation of the betterment levy is that it would need to remain in place for 30 years, which leaves it vulnerable to the risk of future policy changes. The developer contribution is more technical in nature, and is assumed to be phased out after the initial development ramp-up period caused by the project.

Table 19: Summary of evaluation results

Mechanism	Equity and efficiency	Simplicity and sustainability
Option 1: Developer Contribution	Moderate to High	Moderate to High
	Greenfield nature of project suits developer contributions given lack of established properties. However, boundary definition may also create market distortions. Developer contributions will be passed back to vendors rather than on to buyers.	Potentially simple, although cost apportionment across development sites can be complex and non-transparent. A one-off transaction is much simpler to administer than a recurrent levy. There is potential for high year-to-year variability depending on development activity.
Option 2: Betterment Levy - Rate on full value of property	Moderate to High	High
	Benefit alignment at the sub-regional level but not for individual properties or specific areas. Generally promotes vertical equity but actual impacts depend on detailed distributional analysis.	Simple to administer and comply with. Revenue varies with property market. Land-value base generally more volatile than CIV base.

5.6.3 Key findings

Both of the mechanisms assessed for the OMR have merit and warrant further consideration for funding the project or other similar major road investments.

A suggested value capture funding approach could include both mechanisms, where the area subject to the developer contribution (which captures the largest benefits from nearby properties that are developed after the project is completed) could be excluded from the betterment levy area to avoid doubling up value capture payments. This complementary value capture strategy would yield a nominal revenue of $6.5 billion in real terms, equivalent to 25% of project costs in present values.

6. Rezoning of industrial land near a train station

6.1 Project description and inputs

This scenario considers planning regulation change to enable 'highest and best use' development for 70 hectares of industrial land near train stations along the Dandenong rail corridor and in close proximity to the Monash National Employment Cluster. For the purposes of land value change analysis and designing and evaluating value capture mechanisms, the scenario assumes a steady change from industrial use to mixed use development over a period of 20 years, from project announcement in 2020 to project completion in 2039.

By rezoning land from industrial use to mixed use development, the land itself becomes much more valuable due to unlocked development opportunities now available to the land owners. This exhibits itself through a significant increase in land values, the benefits of which are delivered directly to the land owner.

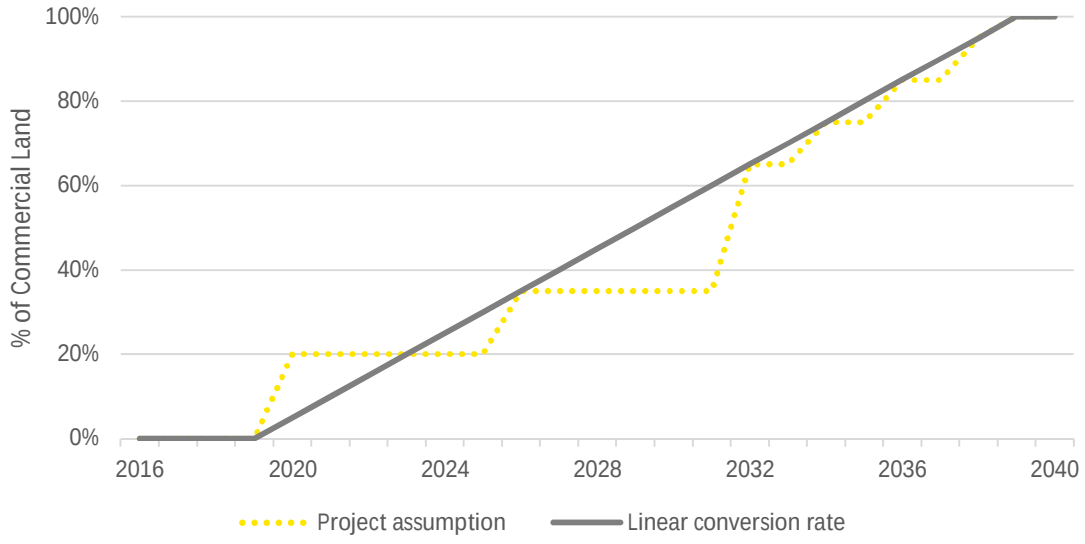
This scenario is based on the Strategic transit-oriented centres and corridors (STO) option considered in the Draft strategy. Transit-oriented development is the intensification of housing and businesses around existing (or proposed) major public transport infrastructure. However, the scenario modelled in this paper is hypothetical only, for illustrative purposes and is not a recommendation. It should also be noted than any such changes to planning policy should be based on sound planning policy and principles, not revenue raising.

6.2 Background research

Property values are partially controlled by government decisions in relation to land use regulation. Changes to the permitted use of land to a higher value use will benefit property owners by the difference in the market value of land between the lower and the higher value use. This can have a significant bearing on land values. For example, based on the analysis of observable market rates within an established area such as Clayton, commercially zoned land is approximately 67% higher than equivalent industrial zoned land ($5,000/m² for commercial versus $3,000/m² for industrial).

Based on development trends across other similar precincts in Melbourne, It is estimated that the government decision to rezone land from industrial to commercial use would lead to the land being converted to commercial use over a period of 20 years. The figure below shows the estimated change in land use over the life of the project.

Figure 12 Land use profile



6.3 Benefits

The rezoning of this land from industrial to commercial use will have a direct benefit for land owners through increased property prices.

Overall, this is estimated to generate an uplift in value of approximately $2.7 billion in real terms by the time that is achieved. Note that this estimate assumed inflation in line with nominal GDP.

6.4 Mechanisms

The benefits of this option relate almost entirely to the creation of land value gains due to the re-zoning of industrial land to commercial land, which are then realised by existing landowners selling land to developers or when self-developing and selling/leasing land to the ultimate users of that land.

These value gains can be captured through a betterment levy over time or at the time of development through a developer contribution, and it would be possible to design the mechanisms in a way to ensure equivalent revenue collections. However, for this assessment, we have focused on the application of a developer contribution because it is relatively straightforward, closely matches the timing of benefits, and doesn't require the creation of a project-specific mechanism that would need to be in place over a longer timeframe.

The mechanism applied in this analysis is based on capturing 50% of value gains in a defined project area, payable by the developer according to usual triggers under the planning system. This approach would reduce the price that developers can pay the original landowners, with the remainder of the uplift returned to the state.

This level of value capture is considered appropriate for this mechanism given expectations around the level of information that would be available to determine the level of property value gain for each land parcel. This is consistent with approaches adopted interstate and overseas, with examples including the betterment tax applied in Israel and recent value capture policies applied in NSW.

Table 20 Value capture mechanisms considered

Mechanism	Description
Developer Contribution – Share of value gains	Rationale: to share value gains associated with the rezoning of industrial land to higher valued uses. Revenue base and geography: All rezoned land in defined project area. Rate structure: Developer contribution to recover 50% of land value gains. Timing and payment: Levied at the time of change in land use, with no deferral provisions modelled.

6.5 Approach and key assumptions

To estimate the value uplift that would occur along the corridor as a consequence of industrial land gradually being transformed into commercial zoned land, we have calculated the estimated land values assuming the relevant catchment was made up either entirely of commercial or industrial land over the assessment period. By assuming the conversion profile described above, we are then able to estimate the uplift generated as these two land value profiles converge upon project completion. The value uplift is then equal to the difference between the future commercial land rate and the value of industrial land without the TOD Corridor.

The table below describes the key assumptions used in this analysis.

Table 21 Key assumptions

Parameter		Value	Source/rationale
Planning changes completed		2020	Project assumption
Underlying land value growth (annual)		5.50%	Based on forecast real GDP growth and inflation (2.5%)
Total land area		700,000m²	Project assumption
Starting land value	Commercial	$5,000/m²	Assumed Average Residual Land Value for commercial 1 zone land based on current market.
	Industrial	$3,000/m²	Assumed Average Residual Land Value for industrial 1 zoned land based on current market where the precinct is identified for future urban renewal.

6.6 Results and assessment

6.6.1 Revenue potential

In terms of the revenue potential, developer contributions are estimated to generate $1.1 billion in real terms. The significant value gains reflect differential in industrial and commercial land values (~70% higher in a high value area), while existing landowners also gain the same revenue benefit reflecting 50% value sharing. Using today's land values, this implies a value capture rate of $1,000 per m^2, or half the difference in commercial and industrial land values.

6.6.2 Qualitative assessment

The assessment of this mechanisms in the context of a possible re-zoning of a large industrial precinct located within a strategic transit corridor demonstrates the significant windfall gains that can be created when property is re-zoned and the significant revenue that could be recouped by the state in a way that is fair and efficient, and not overly complex to administer.

Table 22: Summary of evaluation results

Mechanism	Equity and efficiency	Simplicity and sustainability
	High	Moderate to High
Option 1: Developer Contribution – Share of value gains	Strong benefit alignment and would not adversely impact on economic efficiency if the value capture mechanism is communicated up-front.	Potentially simple, although cost apportionment across development sites can be complex and non-transparent. A one-off transaction is much simpler to administer than a recurrent levy. There is potential for high year-to-year variability depending on development activity.

6.6.3 Key findings

This example demonstrates the merit of applying value capture funding mechanisms to recoup the value transferred to landowners in the event of a re-zoning.

7. Public housing asset rationalisation and refurbishment

7.1 Project description and inputs

The main challenges of Victoria's public housing are ageing assets; supply does not meet demand; and, there is a mismatch between assets and tenant requirements. Most public housing estates are well located in Melbourne's inner and middle suburbs close to established community infrastructure.

To ensure financial sustainability, the Director of Housing seeks to maintain a diverse asset portfolio, which includes a balance between retaining and divesting assets in high value locations. For instance, a number of social housing sites contain social housing that takes up only a small proportion of the land, with parking and low utilised open space taking up the remainder of the sites. For example, in the short term, there are sites in inner-middle suburban areas that could be suited to redevelopment. Over the longer term, there are high rise estates in inner Melbourne sites that could suitable.

This illustrative option proposes to increase and improve the asset base of an existing public housing estate through an alternative asset development model. In particular, by transferring developments rights of the surplus land to developers, the landowners (in this instance, the government department responsible for social housing) benefit from the windfall due to increased land values and integrated delivery. This would enable the department to meet growing demand for social housing, with the option to redirect other funds to refurbishment of the high-rise public housing tower.

This scenario is based on the Public housing asset rationalisation and refurbishment (SHA) option considered in the Draft strategy. However, the scenario modelled in this paper is hypothetical only, for illustrative purposes and is not a recommendation.

7.2 Benefits

The project assumes that 30,000m^2 of surplus land is made available to community housing providers who license a developer to deliver new social housing stock on half the site (15,000m^2) with an allowance for private housing on the balance of the site (15,000m^2).

The underlying value of the land captured by the registered community housing provider funds the construction of new and improved social housing stock at no extra financial cost to the State. The State retains ownership of the new social housing stock and land with the community housing provider managing stock and tenants.

Development capacity of the estate is estimated to be around 450 new social housing dwellings on half (15,000m^2) of the surplus land at a construction value of $72 million, with the remainder of the site (15,000m^2) developed for private use.

Through this arrangement, the delivery of new social housing stock is fully funded by private unit sales, noting that the transaction process for the land would be subject to approval from the Government Land Monitor and independent valuation by the Valuer General. While this removes the option to use this land for other purposes in the future, it creates a funding stream to accelerate the delivery of new social housing assets.

While the benefit of this arrangement involves the development of the site and the provision of social housing without having to allocate budget funding, in doing so, the State would forgo 15,000 m^2 of land that is ultimately transferred to the private sector through subsequent unit sales. The developer would also receive a margin for undertaking and bearing the risk of the development and unit sales. The value of undertaking this option will therefore vary depending on the sites selected and the foregone use of that land, as well as any cost of transferring risks to the developer for undertaking the development and unit sales.

7.3 Mechanisms

Value Capture under a social housing revitalisation program would be captured through unlocking the site's unutilised potential.

Table 23 Value capture mechanisms considered

Mechanism	Description
Property development – returned asset	Rationale: provide a development license for the private sector, community housing sector or Development Victoria to redevelop existing sites owned by the Director of Housing. Design: a development license is provided to a third party to develop a mixed use development, with integrated new social housing stock returned to the Director of Housing

7.4 Approach and key assumptions

Our analysis estimates the amount of social housing which can be developed assuming a portion of the development is sold off to the private sector. The private sector development is modelled to fund 100% of the development.

Based on valuations by the Valuer-General Victoria (VGV), it estimated the gross realisation rate of private unit sales is equal to $6,000/m^2 to which a 10% discount has been applied due to their proximity to public housing. Build costs are estimated to be $2,500/m^2 based on Rawlinsons Construction Cost Guide, with a total of 750 units for private sale and 450 social housing units being built at an average unit size of 80m^2.

Table 24 Key assumptions

Parameter	Value	Source/rationale
Total land area	30,000m²	Project assumption
Contingency & Other Costs	20%	Conservative estimate based on previous analysis. Typically ranges from 2% - 15%
Private Housing Allocation (%)	50%	Project assumption
Sales value discount	20%	Project assumption
Net Realisation ($/m²)	$5,400/m²	Victorian Property Sales report – Based on average unit sales and size of unit
Private Housing – Build Costs (per unit)	$2,000/m²	Rawlinsons Construction Cost Guide (2016)
Average unit size	80m²	Based on average 1 bedroom apartment sizes within Melbourne market.

7.5 Results and assessment

7.5.1 Revenue potential

This transaction is structured in a way such that the revenue generated from land sales is used to fund the construction of public housing to the value of $72 million in real terms.

7.5.2 Qualitative assessment

This option can save the State considerable expenditures on social housing and improve the utilisation of social housing land and assets. It also achieves greater integration of social housing with general residential and other land uses, and enables the Director of Housing to replace obsolete housing with new lower maintenance stock in well-located areas.

It also achieves greater integration of social and private housing to reduce concentration of disadvantage.

Table 25: Summary of evaluation results

Mechanism	Equity and efficiency	Simplicity and sustainability
Option 1: Property development – returned asset	High	High
	Strong benefit alignment with the developer returning assets to the State, and increases utilisation of available land in central Melbourne.	Relatively simple to administer and short-term in nature. The Director of Housing currently converts land value to assets through development agreements with the private sector on a small scale. This proposal assumes a large scale, multi provider model.

7.5.3 Key findings

This example highlights the potential from integrating public and private housing stock and leveraging under-utilised assets to fund infrastructure upgrades. Embedding a commercial approach to asset investment and management could yield benefits across the Government's portfolio of social services.

8. Major hospital redevelopment

8.1 Project description and inputs

In future, inner Melbourne's major hospital facilities will need to provide for increased demand due to state-wide population growth and also from new inner city residential development areas, such as Fishermans Bend. In order to meet this demand, this option assumes a $500 million redevelopment to a major inner city hospital accommodated in 50,000 m^2 of new development. Construction is assumed to start in 2035 and be completed by 2040.

This scenario is based on the Major hospital redevelopments (THR) option considered in IV's Draft strategy. THR provides for major public sector hospital development projects over the next 30-year period. However, the scenario modelled in this paper is hypothetical only, for illustrative purposes and is not a recommendation.

8.2 Background research

When a new hospital is built or an old hospital expands, the surrounding area often changes to take advantage of the increase in demand for goods and services brought about by growth in hospital activity. Surrounding commercial land values increase and developers are usually quick to provide new commercial space.

For example, during a valuation of a large parcel of land near a major hospital facility in outer Melbourne, the analysis of a nearby property transaction showed a premium of approximately 70%. Similar results were found in a range of recent transactions near a major hospital facility in NSW, where it was observed that that adjacent sites were selling at a premium in the order of 50% or more in order to be co-located near the private hospital.[16]

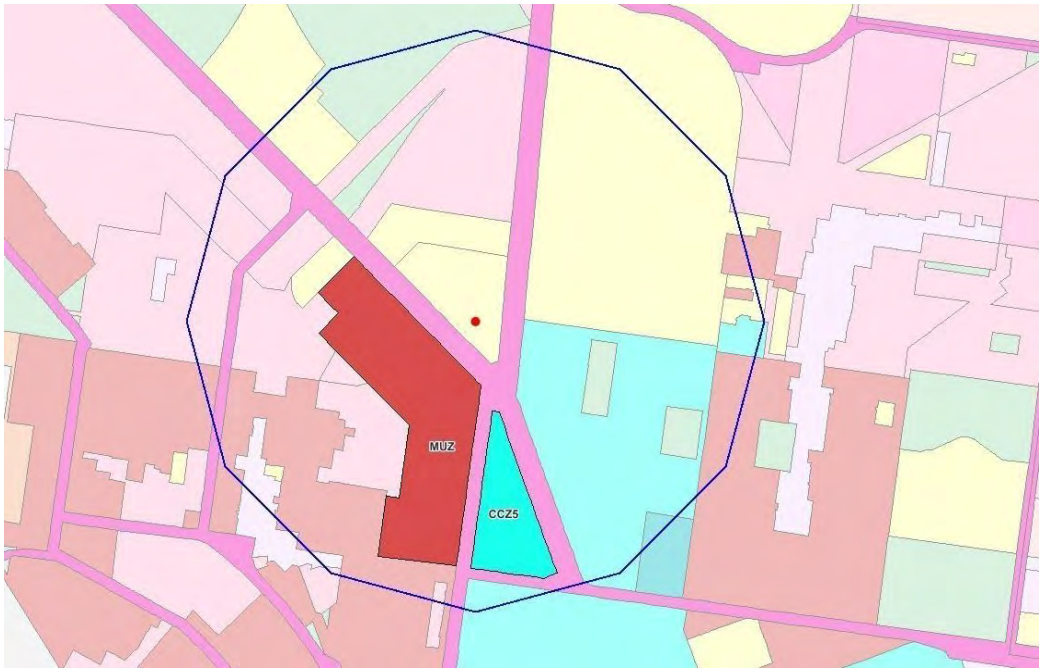
8.3 Benefits

For this hypothetical scenario, an area surrounding a typical hospital precinct was examined to determine the most appropriate catchment. It was determined that the land parcels with main road frontages would be the likely candidates for potential uplift due to the proximity to a health precinct. While there is typically commercially zoned properties across areas surrounding inner city hospital precincts, it is most likely to be used for other purposes rather than health due to proximity to other facilities and land uses. Based on this analysis, the total land area of the catchment attributed to commercial use that is most likely to be enhanced by its proximity to the hospital is assumed to be around 24 hectares.

While the analysis of recent property data outlined above suggests a significant premium (~50%) for commercial land near major health facilities, a challenge with this scenario is that existing land values would already reflect a large portion of the potential uplift given the existence and quality of the hospital before the upgrade. Rather than estimate a precise uplift, the analysis instead seeks to test the potential for value capture under the assumption that the expanded hospital could provide a further 5% increase in land value (i.e. effectively a 10% contribution to the total possible uplift suggested from the analysis of recent property transactions). In real terms this is equivalent to $120 million in 2040 when the project is constructed.

[16] EY analysis of confidential valuations data

Figure 13 Inner city hospital precinct catchment used to illustrate locations of properties affected near hospitals



Commercial value can also be created within new hospital developments, through leasing to commercial parties. For this study, it has been assumed that 6,000m^2 of floor space within the development is made available for commercial leases. Based on current rental market rates, the new development is expected to generate an average rental revenue of $600/m^2 per annum.

While it has been estimated that the rental revenue generated through this option is relatively small (less than 10% of project costs), it also provides the benefit of attracting and retaining a mix of services that benefit from co-locating at the hospital and increase the service offering at the hospital. However, the value capture opportunities from this mechanism appear limited.

8.4 Mechanisms

In our analysis of the Hospital redevelopment project we have applied a betterment levy to achieve the capture of 50% of the value uplift, to test the revenue potential of a betterment levy given expected land value gains and relative to the cost of the project. Payments based on a rate on underlying site values, with the Levy assumed to commence in 2035 and operate for 30 years.

This approach was considered more appropriate to test revenue potential than attempting to recover a share of costs given the lower level of land value benefits that are expected to flow to nearby commercial properties relative to the large costs of the project.

We have also analysed the potential revenue gains from leasing the entire development to commercial parties. Based on current market data, it has been assumed that the development would attract an average net rental of $600/m^2 per annum.

Table 26 Value capture mechanisms considered

Mechanism	Description
Option 1: Betterment Levy - Rate on full value of property	Rationale: to share value gains associated with the redevelopment of a major hospital that enhances the commercial value of nearby land. Revenue base and geography: All commercial land within the defined project benefit area (24 hectares of surrounding land). Rate structure: Based on capturing 50% of land value uplift attributable to the project. Timing and payment: Levied annually for 30 years from the start of project construction, with no deferral provisions or exemptions modelled.

Mechanism	Description
Option 2: Property development – Commercial leases	Rationale: to exploit commercial opportunities associated with the hospital development and to encourage business co-location. Design: commercial leases on 6,000m^2 of floor space.

8.5 Approach and key assumptions

As described above, many allied health services are co-located near hospitals and are prepared to pay a premium for the land. The increase demand for co-location to the new hospital is likely to result in an uplift in surrounding land values, however in cases like this the impact may be subdued due to the saturation of health services in the nearby area. Therefore, based on analysis of current market trends in the area and similar jurisdictions, a conservative approach has been taken in assuming a 5% uplift for properties in the relevant catchment.

One option for value capture would be to lease out additional space from the development to the private sector which would help fund the project. The impacts from this option have been modelled based on the estimated rental revenue the development would attract based on current market rates, which would be offset by the cost of construction estimated based on the average construction costs for comparable hospital developments.

The key assumptions used in the analysis are described in the table below.

Table 27 Key assumptions

Parameter	Value	Source/rationale
Project announcement	2032	Project assumption
Project commencement	2035	Project assumption
Project completion	2040	Project assumption
Underlying land value growth (annual)	5.5%	Based on forecast real GDP growth and inflation (2.5%)
Floor space for commercial leases	6,000m^2	Project assumption
Average Net Rental Revenue ($/m^2) p.a.	$600/m^2	Assumed rental for private hospital floor space based on current market rates
Hospital construction costs	$5,460/m^2	EY - Based on average construction costs for similar hospitals

8.6 Results and assessment

8.6.1 Revenue potential

The revenue potential of the betterment levy is estimated to raise around 10% of the project costs over a 30 year duration. Such a mechanism may or may not be worth the administrative effort, particularly if this form of value capture is not embedded in the tax system so that it can be applied as a matter of routine.

The commercial lease raises a similar level of revenue, worth approximately 7% of project costs in present values, however this mechanism is far easier to implement and maintain.

8.6.2 Qualitative assessment

Like similar mechanisms considered for other asset options above, the form of betterment levy applied has the potential to generate high equity and efficiency outcomes, with broad benefit targeting applied at the local level that is applied using a rate-based approach to ensure the highest value properties pay more. The commercial lease is also relatively fair and efficient given the application of market rates, while also attracting services to locate at the hospital.

In terms of simplicity and sustainability, the betterment levy is scored moderate and the leases moderate to high. The betterment may require complex benefit attribution to individual properties, and the low level of revenue may mean it could be easily removed at a later date without significant financial implications for the State. Option 2, on the other hand, carries risks related to the delivery and feasibility of the development, however commercial lease arrangements are common practice.

Table 28: Summary of evaluation results

Mechanism	Equity and efficiency	Simplicity and sustainability
Option 1: Betterment Levy - Rate on full value of property	Moderate to High	Moderate
	Benefit alignment at the local level but not for individual properties. Generally promotes vertical equity but actual impacts depend on detailed distributional analysis.	Simple to administer and comply with. Revenue varies with property market. Land-value base generally more volatile than CIV base.
Option 2: Property Development – commercial Leases	Moderate to High	Moderate to High
	Commercial opportunities support beneficiary pays principle and supplants general taxpayer funding. Attracts services to co-locate at the hospital development.	Relatively simple to administer and comply with.

8.6.3 Key findings

This example demonstrates a situation where land-based value capture mechanisms are likely to be only able to make a very small contribution to the projects (i.e. less than 10% of project costs in this instance, assuming the betterment levy is not feasible).

The use of commercial leases has the potential to provide a small contribution to project funding while also delivering benefits in relation to attracting and retaining a mix of services that benefit from co-locating at the hospital and increase the service offering at the hospital, and therefore is the preferred strategy in this scenario. However, this requires being able to adequately manage the commercial and other risks involved.

9. Commitment to a new school in an urban growth area

9.1 Project description and inputs

Currently, there is a high degree of uncertainty about when and where new schools will be developed to meet the demands of a growing population in both new and existing suburbs. Some communities can wait many years before school facilities are delivered.

It assumes a new school is committed in an urban growth area (for the purposes of modelling, the school is assumed to be committed in Clyde North), comprising a school catchment area of 100 hectares servicing 8,750 new homes. Development and construction costs for the school are estimated to be $20 million over five years in real terms.

This hypothetical scenario is based on the School infrastructure funding certainty (SIF) option considered in the Draft strategy. The SIF option would require the government to publish a proposed plan for school capital works (new and upgrades). However, the scenario modelled in this paper is hypothetical only, for illustrative purposes and is not a recommendation.

9.2 Background research

Committing to the delivery of new schools in urban growth areas can have positive impacts on the attractiveness of the area for people and families seeking new residential locations. Depending on the way the school is planned and delivered, this can accelerate land sales for residential lots in the nearby catchment, and increase the amount people are willing to pay to live there.

To understand the potential impacts on sales rates and values, EY investigated similar projects in other urban growth zones that were subject to recent assessments or valuations. EY also liaised with market participants about the likely scale of impact of a new schools asset on their underlying land values.

It is well established that there is a correlation between property values and being located in a school catchment area. Property owners located within a school zone (particularly high performing schools) can indirectly benefit being located near the social infrastructure through increased property values.

Access to high quality amenities and services, in particular schooling and education is a key driver for growth in property values across Melbourne. A 12 month analysis undertaken by REIV shows that homes located within the catchment area for some of Melbourne's best public secondary school are fetching close to a $25,000 to $300,000 premium compared to those outside the zone (excluding University High School, where the $600,000 premium is more likely to reflect a range of other factors given the location of the zone in the Parkville precinct).

For example, in relation to sale value, regression analysis undertaken by EY for Kororoit Creek Primary School in Melbourne's North West, suggests that nearby property prices were up to 37% higher after the announcement of the school, and up to 68% higher after the school opened. For example, for vacant housing lots worth $150,000 this could add up to another $100,000 to the value of the lot.

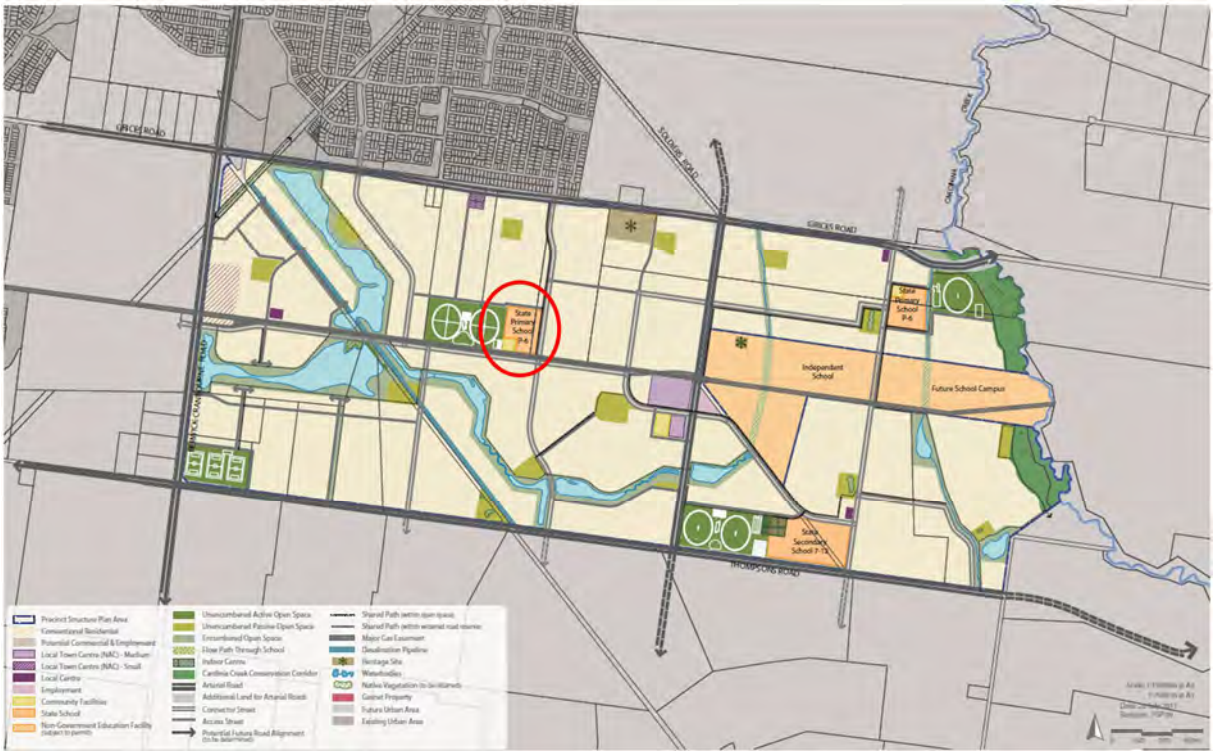
These impacts are similar to impacts in other prominent school zones across Melbourne, albeit at the lower end of the value scale, highlighting the material value that the construction of a new school can have on property prices.

9.3 Benefits

The benefits associated with the construction of a new school are expected to accrue to all residential lots within the school's catchment. For the purposes of this analysis, it has been

assumed that the school's catchment is equivalent to all residential lots within the Clyde North Precinct Structure Plan (see figure below).

Figure 14 Clyde North Precinct Structure Plan



Source: Clyde North Precinct Structure Plan, Growth Areas Authority

In order to calculate the value created by a new school in the Clyde North urban growth area, we have assumed that the upfront delivery of a primary school would lead to an accelerated rate of lot sales and accelerated rate of supplementary levy income relative to a based case. Using this approach generates a timing benefit by bringing GAIC/developer contributions (around $5,000 per lot), which is worth around $4 million in present value terms.

We have also considered the value that could be created if the provision of school infrastructure is assumed to increase the value of residential lots, with a premium of $50,000 for a standard housing lot assumed as a conservative approach based on the analysis presented above. This translates to additional value created of $350 million in real terms.

9.4 Mechanisms

This option aims to demonstrate the impact of up-front planning and funding commitments on development feasibility and timing, where the gains would be realised by developers or those holding the land in anticipation of future development.

The most relevant mechanisms in this instance are developer contributions, which may already be in place through the GAIC.

By putting plans and funding in place, the State would support the acceleration of property sales, which provides a revenue timing benefit for the State. This will happen automatically under the GAIC.

An alternative approach assessed here is the application of a developer contribution that captures a 25% share of the cost of delivering the school, which is a similar cost recovery target set for mechanisms applied to other projects like MM2.

Table 29 Value capture mechanisms considered

Mechanism	Description
Developer Contribution – Accelerated GAIC	Rationale: to recognise and share the gains associated with accelerating GAIC payments that arise from the commitment to a new school in an urban growth area. Design: automatic uplift in GAIC revenue as a result of accelerated sales of residential lots
Developer Contribution – Uplift sharing	Rationale: to share value gains associated with the commitment to a new school in an urban growth area. Revenue base and geography: All residential land within the defined project benefit area (100 hectares of surrounding land). Rate structure: Based on capturing 25% of project costs. Timing and payment: Levied at the time of change in land use, with no deferral provisions modelled.

9.5 Approach and key assumptions

It is believed that as a consequence of a school being delivered earlier, demand will increase for residential land within proximity to the school and help to drive some value uplift in the surrounding area. Based on the regression analysis undertaken by EY and IV, this value uplift could potentially be as high as $100,000 per lot, however a conservative assumption has been used in assuming a value uplift of $50,000 per lot.

The earlier delivery of the school would also help to accelerate residential lot sales. This provides a timing benefit as more of the revenue is captured in the initial years of a development rather than over an extended timeframe.

Table 30 Key assumptions

Parameter	Value	Source/rationale
Project completion/School opening	2022	Project assumption
Underlying land value growth (annual)	5.5%	Based on forecast real GDP growth and inflation (2.5%)
No. of lots delivered	8,750	Project assumption
Average lot size	400m²	Represents an expectation of average lots size in the defined precinct structure plan area
Value uplift per lot	$50,000	EY assumption – conservative estimate based on EY/IV regression analysis

9.6 Results and assessment

9.6.1 Revenue potential

The revenue potential of these mechanisms does not vary substantially. Automatic increases in revenue from existing contributions raises 40% of the required funding, although only as a revenue timing benefit. This represents 2.7% of benefits captured. The developer contribution mechanism targeting a share of value gains raises additional revenue which is equivalent to 25% of project costs in present values, which represents 1.8% of benefits captured.

In terms of the revenue potential, a developer contribution in the form of accelerated GAIC/developer contributions will not generate any additional revenue in real or nominal terms, only in present values given the timing benefit. The relatively low level of the GAIC/developer contributions (around $5,000 per lot) means there is only a small timing benefit of around $4 million in present values. Developer contributions targeted to recover 25% of project costs raises around $6.1 million in real terms.

9.6.2 Qualitative assessment

The ability to capture a portion of land value changes increases the equity and efficiency outcomes for the Developer Contribution.

The automatic value capture under existing contributions scores high for simplicity and sustainability as it doesn't require any changes to the operation of the mechanism. This contrasts with the other mechanism that involves additional administrative functions.

Table 31: Summary of evaluation results

Mechanism	Equity and efficiency	Simplicity and sustainability
Option 1: Developer Contribution –Accelerated GAIC/developer contributions	Moderate	High
	Only moderate benefit alignment reflecting the way GAIC/developer contributions are set and do not vary with land value changes.	Highly simple and sustainable as revenue is generated automatically through existing arrangements.
Option 2: Developer Contribution – Share of value gains	High	Moderate to High
	Stronger benefit alignment and would not adversely impact on economic efficiency or fairness if the value capture mechanism is communicated up-front.	Potentially simple, although cost apportionment across development sites can be complex. There is potential for high year-to-year variability depending on development activity.

9.6.3 Key findings

This example demonstrates the revenue benefits that can be automatically generated with enhanced planning and infrastructure delivery that is coordinated with residential development in the growth areas. In this case, 40% of the cost of the infrastructure could be recouped through this timing benefit.

More significant value gains are possible through the design and application of revenue mechanisms that are targeted at changing land values, particularly given the scale of impacts that a well-designed school can have on surrounding land values. While the design and administration of such a mechanisms is not overly complex, it does require establishing new revenue raising arrangements in the context of GAIC and other contributions.

Appendix 1. Australian and international case studies

This section includes a selection of Australian and international case studies on value capture and infrastructure.

These case studies have helped to guide the development of our analysis and assessment of value capture mechanisms and to inform how value capture could be applied to a selection future infrastructure case studies identified during the study and analysed in subsequent chapters.

Victorian examples

Funding Melbourne's City Loop

In planning since 1929, Melbourne's underground rail loop came to fruition following a 1960 Act establishing funding arrangements, inclusion in the 1969 metropolitan transport plan and an Act of Parliament in 1971 which established an authority to oversee its construction. Construction commenced that year and was completed progressively between 1981 and 1985.

The project was originally estimated to cost $117.23 million (1971 prices) excluding land acquisition, signalling and communications, and administrative and service costs including consultancy fees and interest on monies borrowed. However, due to delays and cost increases, and after including land acquisition, the cost of the project is recorded as being around $650 million (1985 prices).

The funding scheme for the loop was altered numerous times between 1960 and 1983, but was based originally on value capture principles and retained some aspect of this throughout.

Arrangements established in the 1960 Act were premised on the wider metropolitan area receiving 3/5ths of the benefit from the project with landowners in the inner city receiving 2/5ths of the benefits, and a 60-40 split between state government and inner-city ratepayer contributions was specified in the Act on this basis. Discretion to remit levies for particular properties was provided, evidencing a strong desire to link payments to benefits received. The Commissioner of Land Tax was responsible for charging and collecting two special annual levies through the land tax system, including a 'special duty of land tax' based on the value of land prescribed under the Land Tax Act 1958 (Vic), and a 'special rate' charged on the value of land determined by the local council under the Local Government Act 1958 (Vic).

However this scheme was abandoned early on, and a 1970 scheme established a 25-25-50% split of funding the cost of the project between the Melbourne Metropolitan Board of Works (MMBW) via a city-wide levy (25%), the City of Melbourne via a special council rates levy on commercial properties (25%), and rail passengers via a ticket levy and the state government (which paid the balance of the 50% not collected by the ticket levy).

The MMBW and CoM contributions were capped and later reduced to 15% and 10% respectively, with the CoM special levy repealed several years early in 1995, in part due to financial difficulties resulting from the financial collapses and recession of the early 1990s.

Analysis of the funding of Melbourne's City Loop provides a number of important lessons for considering the possible application of value capture to fund Victoria's future infrastructure needs. This includes:

- Reminding us that funding infrastructure from new land-based value capture mechanisms is not new for Victoria, and that the indirect benefits of infrastructure have been long recognised by policy makers and the wider community, particularly for the transport sector
- How value capture funding may be more acceptable to the community if mechanisms are simple and broadly applied to align funding with benefits received. This ensures that

mechanisms are easy to understand and comply with, and avoids having to undertake detailed assessments of land value benefits attributable to the project and attempting to factor that into mechanism design

- Warning of possible financial risks associated with relying on value capture mechanisms collected by other levels of government or corporate entities.

Sources: SGS Economics & Planning (2012), *Long run economic and land use impacts of major infrastructure projects*, with further details sourced from City of Melbourne Underground Railway Construction Act 1960, Melbourne Underground Rail Loop Act 1970, Transport Act 1983, and various amendment Acts in 1963, 1975, 1976, and 1995; Melbourne Underground Rail Loop Authority, *Annual Report 1971-72*; Metropolitan Transit Authority, *Annual Report 1984-85*.

Southern Cross Station

Southern Cross Station is Melbourne's centre for interstate and regional connections and is an integral part of Melbourne's metropolitan rail services. It also provides a regional and airport link bus interchange.

The Spencer Street Station Authority (later renamed the Southern Cross Station Authority) was established by the Victorian Government to oversee station redevelopment during the construction phase, with Civic Nexus awarded the concession to construct and operate the station for a period of 30 years.

The concession included certain commercial rights (air rights, retail rights and advertising rights) as well as the managerial responsibility of the station. The Commercial rights included in the project put to market by the government were:

- a 99 year lease of the air rights for space above the station;
- a 50 year lease air rights space above the bus interchange;
- retail rights within the station itself for full 30 year concession period; and,
- advertising rights within the station precinct.

The development air rights associated with the project allowed the availability of a long term return to the concessionaire, while the inclusion of commercial and retail rights helped to fund the project by partially offsetting the cost of the station redevelopment.

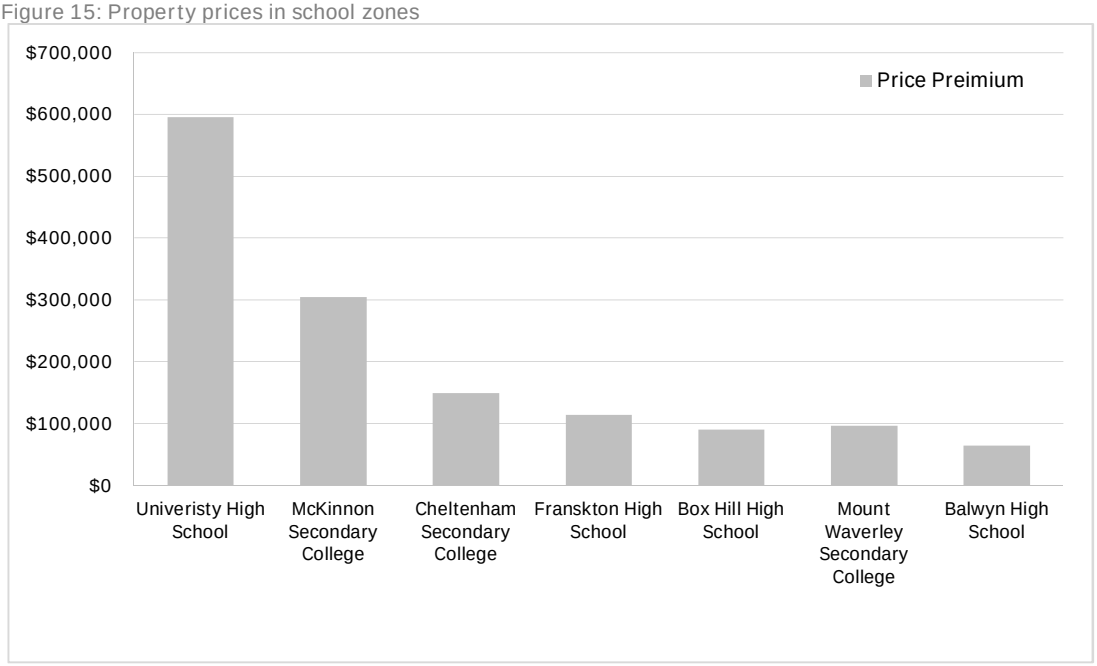
Source: Public Accounts and Estimates Committee (2006) Report on private investment in public infrastructure, seventy first report to the Parliament, Government Printer for the State of Victoria, Melbourne.

Melbourne property prices in school zones

It is well established that there is a correlation between property values and being located in a school catchment area. Property owners located within a school zone (particularly high performing schools) can indirectly benefit being located near the social infrastructure through increased property values.

Access to high quality amenities and services, in particular schooling and education is a key driver for growth in property values across Melbourne. A 12 month analysis undertaken by REIV shows that homes located within the catchment area for some of Melbourne's best public secondary school are fetching close to a $60,000 to $300,000 premium compared to those bordering the zone (however it should be noted that other factors may be at play and we have excluded University High School, where the $600,000 premium is likely to reflect a range of other factors given the location of the zone in the Parkville precinct).

Figure 15: Property prices in school zones



Source: Adapted from REIV, "Top of the class: school zones boost prices in 2016", 27 June 2016

Melbourne Central City Built Form Review

Following the completion of a review of Melbourne's central city built form that was announced in September 2015, the Victorian Government is proposing new planning controls to guide development of Melbourne's central city.

The proposed controls aim to ensure that there is adequate separation between buildings and the street, public space is protected from wind and overshadowing, and development opportunities provide public benefits.

The controls include:

- Floor area ratio controls with public benefits
- Fixed tower setbacks with defined flexibility
- Reinforced shadowing and wind controls
- Height controls only in special areas.

These controls represent a significant shift away from the previous arrangements and can be expected to negatively impact on land values. This was confirmed in a study undertaken by EY as part of the review, which concluded that land values for a selection of recent property transactions could be negatively impacted by up to 44% under hypothetical development scenarios permitted under the new controls.

However, the controls also include a form of value capture through the use of floor area uplift bonuses, where value gains are shared between developers and the community by requiring developers to provide additional public benefits as part of the development.

Under the proposals, a base floor area ratio of 18:1 is to be applied, with discretion to agree to a floor area uplift bonus if all relevant built form parameters are met, and an appropriate public benefit is provided to share added value. This could include:

- Public open space and laneways on site
- Office use
- Public space in the building
- Social housing in the building.

The value of the public benefits to be provided is calculated on the basis of the developer sharing 10% of the calculated uplift in commercial value.

While these controls are yet to be fully implemented, they provide an example of how (in following examples overseas) planning instruments can be used as value capture mechanisms to deliver alternative public benefits rather than a revenue stream to directly fund infrastructure.

Source: http://delwp.vic.gov.au/planning/policy-and-strategy/central-city-built-form-review; EY, *Central City Built Form Review – Feasibility Review*, January 2016

Other Australian examples

Gold Coast Rapid Transit Project

The Gold Coast Rapid Transit Project (GCRT) is a Public Private Partnership (PPP) between the Queensland Government, Gold Coast City Council (GCCC), the Commonwealth Government and the GoldLinQ consortium for the design, construction, maintenance and operation of a new light rail on the Gold Coast.

The $1.3 billion first stage of the project delivered a 13 kilometre light rail corridor between the Gold Coast University Hospital and Broadbeach, linking a number of the principal, major and specialist activity centres of the city. Passenger services were commenced on the corridor in July 2014, with potential future stages of the project being investigated.

The GCRT is defined as a 'city building' project that emphasises the catalytic nature of mass transit in creating high quality, higher density, mixed use urban environments, as well as facilitating increased investment, business activity and land values in and around station precincts. Land value gain was identified as a real and tangible benefit by the Queensland Government, and a formal strategy for capturing gains was developed in 2009, focusing on both the current legislative and policy environment and changes to legislation and/or policy.

The value capture mechanism adopted made use of an existing transport levy, which has been in place in the Gold Coast municipal area since 2004-05. Originally this was a flat rate levy of $15 per rateable property. In June 2012 the Gold Coast City Council resolved to apply the 'City Transport Improvement Separate Charge' on all rateable properties in the municipality at a flat rate of $111 per property. This charge was lifted to $117 per property from 2014-15. Based on the GCCC's Revenue Policy for, the levy raised estimated to be raised over the same period is $29 million.

The public transport levy applies to all rateable properties in the GCCC. However, the GCCC and other local government have the authority to, and do, apply levies targeting specific areas within their municipalities.

Sources: Gold Coast City Council (2014) *Revenue Statement and Resolution of Rates and Charges*, 2014-15 and Gold Coast City Council (2014) *Annual Plan* 2014-15.

NSW Voluntary Planning Agreements

In NSW a number of councils are introducing policies for the use of planning agreements to capture a share of uplift in land value occurring as a result of planning decisions that improve the development potential of a site, through rezoning or change in development controls.

For instance, the Draft Woollahra Voluntary Planning Agreement Policy sets out the circumstances under which land value is to be captured and the method of calculating the contribution associated with land value capture.[17]

The policy defines value capture as a funding mechanism that captures, for the community's benefit, a share of the unearned land value increment accruing to developers as a consequence of:

- planning amendments that facilitate development, or the granting of or modification to a development consent; or

- the approval of or a modification to a development consent that allows development to exceed the otherwise permissible development controls.

The policy distinguishes land value capture from developer contributions on the basis that it is value sharing between the Council (on behalf of the community) and developers, rather than on funding the costs of infrastructure. The monetary contribution of the value capture mechanism represents 50% of the gain on the residual value of land that can be attributed to a change to a statutory planning control.

Examples in the United Kingdom

Crossrail's value capture funding mix

London Crossrail project will provide a new east-west railway across London, connecting the outer suburbs to the City, Canary Wharf and the West End, as well as linking the city's key financial, business, retail and entertainment locations directly with Heathrow Airport. The project will provide wide-scale improvements in access to employment, spur regeneration and property development through improvements to public spaces and transport interchanges at 31 stations, and support wider economic growth through agglomeration-driven productivity gains.

The funding mix for the £14.8 billion project includes a substantial component – over a third of project costs – derived from land-based value capture mechanisms, including:

- A Business Rate Supplement (BRS) paid annually by non-domestic properties in Greater London, which targets businesses and other non-domestic properties in London with a rateable value of over £55,000 at 2 pence per £1 (i.e. 2% of value per annum), and remains in place until a £3.5bn loan is repaid.

- A Community Infrastructure Levy (CIL) paid by developers on all new developments across Greater London, expected to raise £0.3bn.

- Section 106 contributions (Development Charges) under an existing planning mechanism, expected to raise £0.3bn.

- Development rights through sale of surplus land and over-station development at some stations.

- Contributions by major beneficiaries, including the Canary Wharf Group (for the station at Canary Wharf), BAA (owner of Heathrow airport), and Berkeley homes (for Woolwich station)

[17] Woollahra Municipal Council (2016), *Draft Woollahra Voluntary Planning Agreement Policy: Exhibition version of 8 February 2016* (http://www.woollahra.nsw.gov.au/__data/assets/pdf_file/0004/163543/1._Woollahra_Voluntary_Planning_Agreement_Policy_-_Exhibition_version_of_8_February_2016.pdf)

Additional funding is also being derived from other sources, including from the national rail infrastructure operator (Network Rail) due to estimated efficiency dividends, Transport for London, and the UK Government (via the Department for Transport).

This model represents a landmark in project funding, demonstrating that it is possible to implement a more efficient and equitable funding mix that better reflects the beneficiary-pays principle for major infrastructure projects. It also highlights the spectrum of value capture and other funding mechanisms that can be applied to fund a major infrastructure project.

The majority of value capture funding is raised through the BRS which, like the funding approach applied for Melbourne's City Loop, involves a simple design and a broad alignment of funding and project benefits (see City Loop case study).

Sources: www.crossrail.co.uk, GLA, BRS Final Prospectus, 2010.

Design of the Crossrail BRS

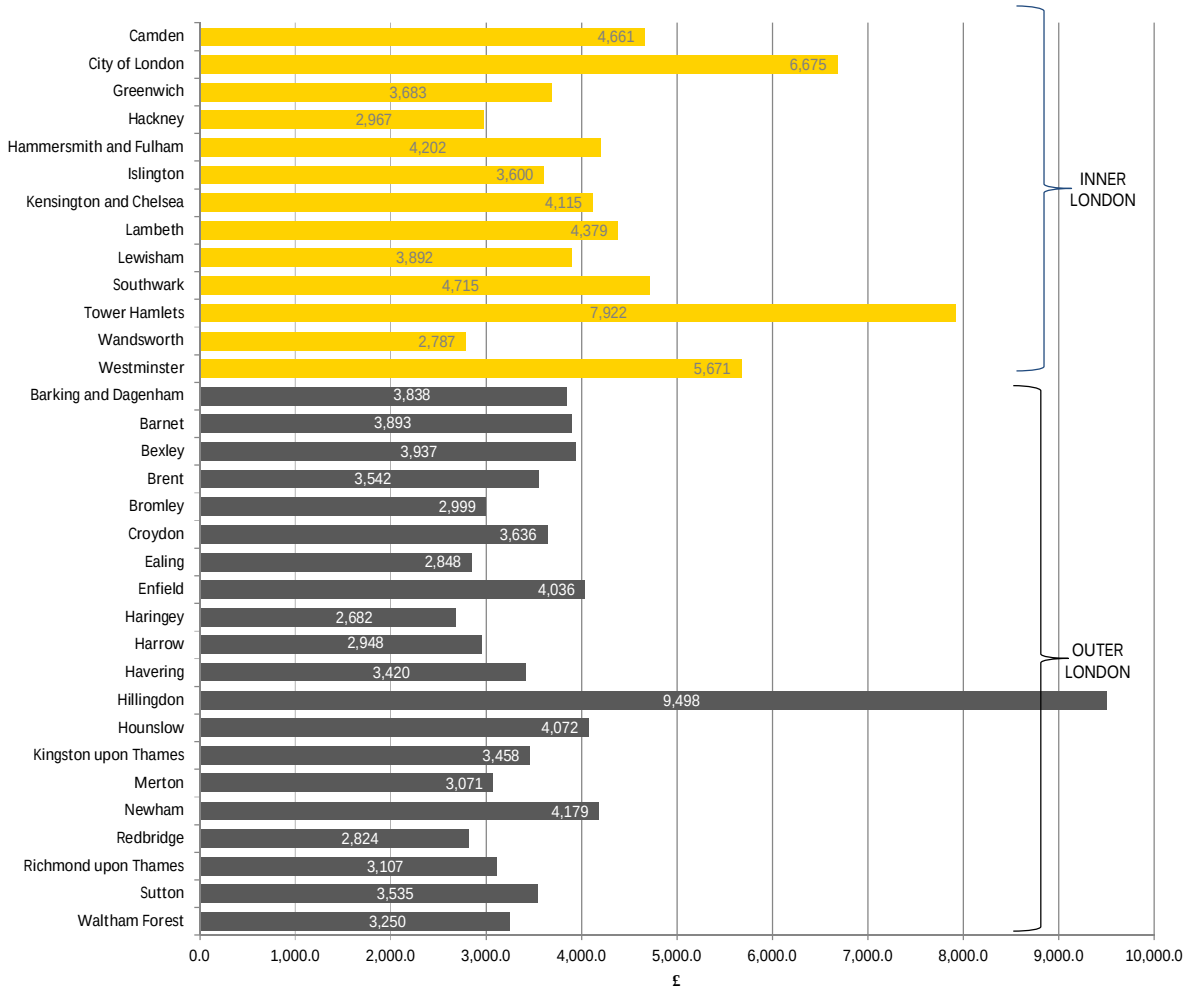
A high profile example of a betterment levy that has been applied overseas is the Business Rate Supplement that has been put in place to fund around £4.1 billion (~25%) of the £14.8 billion Crossrail project in London. The Business Rate Supplement targets businesses and other non-domestic properties in London with a rateable value of over £55,000 at 2 pence per £1 (i.e. 2% of property values, collected annually). Rateable value is equivalent to Net Annual Value in Victoria, and represents an estimate of rental value (not asset value), and the levy equates to an annual contribution of £2,000 for premises valued at £100,000.

Another important feature of the Business Rate Supplement is that it applies a 'fixed rate, variable duration' design, whereby the levy will remain in place until a £4.1 billion loan is repaid. However, because the levy is based on property value rather than on land value uplift (i.e. the measured increase in property values due to the provision of Crossrail), beneficiary targeting and value capture potential is limited. This illustrates a general challenge in achieving beneficiary pays funding with a property value-based mechanism.

A possible criticism of the mechanisms is that by restricting it to non-domestic properties and through the use of a threshold, it excludes a large number of landowners that will benefit from the project (i.e. all residential properties and around 80% of business properties are exempt). However, the design ensures that the incidence of the levy is predominantly felt by higher value properties in inner London along the broader east-west Crossrail corridor. And while there are large numbers of properties in outer London that are required to pay the BRS, many of these areas will benefit from reduced congestion on the broader London transport network, making it easier to do business and access customer markets.

The Greater London Authority estimates that the BRS will raise approximately £220 million in 2016-17 (equivalent to around AUD $370 million using today's exchange rate). With just over 46,000 properties estimated to be subject to the BRS this is equal to around £4,800 per property (AUD $8,000). The boroughs with the highest average rates are those with major single landholdings, including Hillingdon (London Heathrow) and Tower Hamlets (Canary Wharf). The next highest are the City of London (£6,675 per property), Westminster (£5,671) and Camden (£4,661).

Figure 16: Value capture funding and financing



Sources: www.crossrail.co.uk; GLA, BRS Final Prospectus, 2010; GLA, Request for Mayoral Decision (MD1590), Crossrail Business Rates Supplement - Approval of Policies for 2016-17, 2016, EY analysis.

Orienting project design towards value creation - Crossrail Woolwich station

Embedding a value capture mindset into project development can improve not just a project's funding strategy, but also its design. Adopting a value capture funding approach has the potential to strengthen the link between project benefits and project planning and design, by explicitly incorporating considerations of value creation into project development processes before scope and design solutions are defined. This can enhance both project outcomes and the associated revenue and funding opportunities, which is often difficult to achieve once project scope and design assumptions are in place and subsequent changes are required to realise value capture opportunities.

An example of this potential comes from London's Crossrail. Construction of a station at Woolwich was not proposed as part of the original route, but following realisation of the potential for a station to support adjacent land development an agreement was reached in 2011 for a station box to be included in the project design, fully funded by a private developer owning developable land above the potential station. A funding package for a full station fit-out was subsequently agreed in 2013 and the station will open with the rest of the line in 2018.

In this instance, openness to a design modification funded by a major beneficiary led to an improvement in project design by adding value to complementary property development; value capture allowed re-orientation of design towards overall value creation, rather than just core transport outcomes.

Examples of recent UK City Deals

Cardiff Capital Region City Deal

The Cardiff Capital Region, made up of 10 local authorities across south-east Wales, is the largest city region in Wales. It accounts for around half of all Welsh employment and gross value added (GVA) – a key measure of economic output. Despite this, the region's GVA is lower than all but one of the largest English city regions. There are also challenges in enabling Valleys communities to access economic opportunities.

The Cardiff Capital Region City Deal was agreed in March 2016. It has been allocated a £1.2 billion investment fund over a 20-year period, from which £734 million will be spent on the Metro project and Valleys line electrification.

Both the UK and Welsh Government are contributing £500 million to this fund respectively. The Welsh Government funding will be provided over the first seven years of the Investment Fund, from 2016/17 to 2022/23. The ten local authorities in the Cardiff Capital Region will contribute a minimum of £120 million over the 20 year period of the Fund. In addition, over £100m from the European Regional Development Fund has been committed to delivering the City Deal.

In order to receive the remainder of the funding, the Cardiff Capital Region have to demonstrate, via an independent assessment every five years, that the investments have met key objectives and contributed to Welsh and UK economic growth. This remaining element could fund other schemes to further support economic growth, including investment in further transport projects, housing and employment sites, or research and innovation facilities.

The City Deal also aims to attract £4 billion of additional private sector investment, creating 25,000 new jobs and increasing the region's GVA by at least 5% over the investment period.

Source: Growth in south-east Wales, Gareth Thomas, Andrew Minnis and Elfyn Henderson, National Assembling for Wales Research Service, 7 June 2016, https://assemblyinbrief.wordpress.com/tag/city-deal/

Aberdeen City

The UK government and the Scottish Government committed to jointly investing up to £250m over the next 10 years subject to detailed business cases and implementation plans.

The deal includes a new investment in an Oil and Gas Technology Centre and support research in biopharmaceuticals and food science.

There are also initiatives on expending Aberdeen Harbour and transport infrastructure.

Benefits and implications of city deals

Benefits of the City Deals initiative include its focus on productivity and liveability, and its enhanced governance framework that sees greater collaboration and accountability between stakeholders, including shared local decision-making. It also relies more on growing efficient revenue sources and creating improved investment accountability by increasing transparency and sharing contributions to infrastructure funding in exchange for a share of any increase in tax receipts realised by the higher tiers of the government.

A relevant question is whether similar arrangements could work in Australia given its different allocation of revenue raising powers and delivery responsibilities across its three levels of government. While these possibilities are worthy of consideration, what is clear is that a similar approach would be less effective as part of a state-based value capture policy, particularly given the largest share of indirect tax gains linked to wider productivity growth underpinned by infrastructure investment flow to the Federal Government. As such, for similar arrangements to work in Australia both state and Federal governments would be required to participate.

Source: https://www.gov.uk/government/publications/aberdeen-city-region-deal

Examples in the United States

Transbay Transit Center – San Francisco

The Transbay Transit Center is an example of how the design and scope of a project can have a significant impact on the availability and suitability of new funding and financing options, and vice versa.

The project was originally conceived as a transport project, but with the addition of significant investment in amenity features and the creation of opportunities for development, value capture revenues in the form of future property taxes were unlocked and made available to support a loan from the Federal government.

The Transbay Transit Center is a $4.5bn transportation and housing project in downtown San Francisco which will replace the former Transbay Terminal with a modern regional transit hub connecting eight Bay Area counties and the State of California through 11 different transport systems.

The project will create a new neighbourhood with homes, offices, parks and shops surrounding the new Transit Center. It will feature a 5.4 acre park on the roof of the bus and rail station and an adjacent tower (which at 326m will be the tallest in San Francisco). New elevated bus ramps will open up additional parcels of land for development opportunities.

Phase 1 of the project ($1.6bn) has been fully funded. A significant portion of this funding is based on value capture revenues arising from the development opportunities created through the design of the project. Revenue sources include $429 million of land sales, and $171 million TIFIA loan secured by dedicated property tax increment revenues from land sold and developed in the state-owned parcels surrounding the Transit Center, and a commitment of passenger facilities charges from the Transit Center's initial primary tenant, AC Transit.

The repayment and servicing of the TIFIA loan is achieved through the implementation of a Tax Increment Financing scheme. In total, the approximately $430m (FY 2004/05 dollars) in net property tax increment is expected to be generated over the life of the Redevelopment Plan, after the Agency meets its obligations to make payments to affected taxing entities. Approximately $178m of the net tax increment is pledged to help pay the cost of rebuilding the transit hub. The remaining tax increment generated will be split evenly between an affordable housing program in the Project Area and funds for other non-housing projects and activities related to the Project.

Additional beneficiary-pays funding sources are being used to contribute to Phase 1, including $100 million in local sales taxes, and $200 million from Bay Area toll bridge revenue.

Source: http://transbaycenter.org/

East Point, Georgia

The City of East Point, Georgia created the $22 million Camp Creek Tax Allocation Fund (TAD) in 2001 to extend infrastructure into an area that had not been previously developed due to difficult topography. These improvements sparked the development of the Camp Creek Trade Centre (a business park), Camp Creek Market Place (a 123,000m2 regional shopping centre) and 1,400 housing units in the area in 5 years. The additional tax revenue from these developments is generating the income stream to repay the TIF bonds that funded the initial improvements.

This TIF has been so successful that, in 2006, the City created its second TIF – the East Point Corridors TAD, to encourage private investment in the City's major corridors and Central Business District.

The East Point Corridors TAD is a $98 million TIF that is expected to generate $164 million in appreciation of existing properties and $191 million in new development over 25 years, thereby providing the new tax revenue needed to retire the TIF bonds. Public infrastructure to be funded by the TAD includes:

- new parks, open spaces and pathways and trails, linking to the area's parks
- roadway improvements and sidewalk and pedestrian friendly streetscape improvements
- land assemblages and/or on site preparation for private commercial and residential development
- construction of new public facilities, including a community recreation centre
- improvements to the area's basic water, sewer and transportation infrastructure.

The TAD, through provision of the above-mentioned infrastructure, is also expected to provide incentives for significant commercial, industrial and residential private development. As noted by the East Point Corridors TAD Development Plan:

"Creating the East Point Corridors TAD will provide inducement for certain major new developments that will spur more desirable and sustainable, market-based commercial and residential development in this area. With careful planning and guidance, the Main Street Corridor, Cleveland Avenue Corridor and Washington Road Corridor – and their surrounding communities – can be transformed into desirable, viable commercial and pedestrian friendly communities."

Source: City of East Point (2006) East Point Corridors Tax Allocation District and Redevelopment Plan.

Other examples

Property development funding mass transit – Hong Kong's MTR

Hong Kong's "rail plus property" model for funding the city's railway system is the world's best-known and most successful example of value capture via property development, with many stakeholders interested in understanding its relevance for value capture in Australia.

The Mass Transit Railway (MTR) corporation, a majority government-owned entity which has expanded from Hong Kong to operating rail systems around the world (including in Melbourne), acts as both infrastructure investor, system operator, and property developer, with the synergies between these three activities in the context of Hong Kong's extremely high population density allowing for profitable operations (farebox revenue covering operating costs) and development profits that fully fund the transport infrastructure, with no contribution required from government.

MTR funds construction of rail lines by developing and managing residential and commercial property on top of and around stations, leasing the land from the Hong Kong government on a 'greenfields' basis (i.e. at pre-railway values). MTR then develops the land and either sells or retains the developed properties. The increased density associated with the development, which is undertaken with a focus on seamless design of stations to facilitate ridership, in turn supports patronage and fare revenue.

In 2015 MTR generated a HKD $19bn (AUD $3.2bn) operating profit. This was made up of a $7bn profit from transport operations, $5bn from station commercial businesses, $4bn from property rental and management businesses, and $3bn from property development.

In considering whether this example can guide the development of value capture policy and practice in Victoria, it is important to recognise that Hong Kong is a vastly different city than Melbourne or any of Australia's capital cities.

As of 2015 its population stood at 7.3 million, with an average density of 6,760 persons per square kilometre and with the most densely populated district of Kwun Tong having a density of 57,360 persons per square kilometre. This level of population and density of development (and associated transport system congestion), combined with some of the world's highest property prices, greatly

enhances the potential for supporting the construction and operation of rail systems on a commercial basis.

This limits the relevance of this case study for advancing value capture policy in Victoria. There are also other socio-economic and political differences that can influence the effectiveness of value capture funding through property development.

However, there may be some lessons that can be adapted to the Victorian context. For example, it could be possible to fund greenfield rail investments (e.g. rail extensions, new stations) through property developments on surplus government land and from across the broader catchments in which they serve, particularly if the infrastructure can be shown to increase land values and accelerate development. It also highlights a possible benefit of increasing population densities along rail corridors, where a critical mass of development can help to fund the project while also achieving other desirable land use outcomes.

Sources: MTR annual report 2015; Wing-tat Hung (2014) "Transit oriented development and value capture – Hong Kong", presentation to UNESCAP conference, Ahmedabad; EY (2011) "Land value capture as a funding source for urban investment – the Warsaw metro system", http://www.censtatd.gov.hk/hkstat/hkif/index.jsp

Porto Maravilha Urban Operation, Rio De Janeiro

Porto Maravilha is a waterfront region and one of the oldest urbanised areas of Rio de Janeiro. The strategic location of the port played a key role in the city's social and economic development, but has struggled as a consequence of economic decline and the modernisation of maritime transportation. The project's aim is to regenerate the waterfront area of Rio de Janeiro and to create a vibrant city centre that blends a modern multimodal transportation hub with the region's historical and architectural heritage.

An 'Urban operation' is a funding, financing and delivery model regulated by the municipality to implement urban improvements within a defined area of the city. It is funded by the selling of bonds that can be converted into additional development rights inside its perimeter, called Certificates of Potential Additional Construction (CEPACs). All funds raised through the sale of the CEPACs must be reinvested inside the Urban Operation area. CEPACs were developed as early as 1995 for the redevelopment of the Faria Lima area of São Paulo, and were used to fund the city's Água Espraiada redevelopment project.

The value of CEPACs is dependent upon the increase land value within the Urban Operation area. CEPACs anticipate local government revenues that would be collected in the future through land value gains. By capitalising on anticipated future expectations, the government raises upfront cash and invests it in a way that triggers an effective increase of real estate values.

In June 2011, Caixa Econômica Federal Bank, a state-owned financial institution, bought all the CEPACs for the Porto Maravilha Urban Operation for R$ 3.5 billion (approximately AU$2 billion). Caixa Econômica Federal Bank sells the bonds at a profit to property developers for the construction of commercial and residential buildings in the project's area. The funds raised by the sale of CEPACs account for all the works and public services in Porto Maravilha, generating new opportunities for social and economic development, this includes:

- construction of 4 km of tunnels, enabling more public spaces for pedestrians and cyclists;
- rehabilitation of 70 km of streets and 650,000 m² of footpaths;
- construction of 17 km of bicycle paths;
- planting of 15,000 trees;
- replacement of a 4.8 km elevated highway to increase traffic capacity by 30%;

- construction of 28 km of light rail transit, connected to the metropolitan public transport system;
- improvement in local drainage capacity and adaptation to rising sea levels;
- construction of museums and the restoration of historic buildings;
- creation of a new fibre-optic network; and,
- professional capacity building and training for micro and small enterprises.

Source: Metropolis (2014) *Porto Maravilha Urban Operation* <http://policytransfer.metropolis.org/case-studies/porto-maravilha-urban-operation>.

Israel's uplift-based betterment levies

Israel has one of the world's longest established and most successful value capture policies, which can be traced back to British administration over the region in the early parts of the 20th century. Israel's betterment tax was initially based on unworkable British value capture policies, but was substantially revised in 1981 to set out clear and practical rules for levying the net betterment derived from land-use decisions.

Under the Israeli betterment levy, the Government imposes a 'land appreciation tax' (LAT) upon the sale of "real property" (i.e. land) to capture value uplift since the time of purchase, with the tax rate set in line with personal marginal tax rates up to a maximum of 25%. Furthermore, in certain cases, local planning commissions may levy up to 50% of land value uplift attributable to planning decisions.

The success of the Israeli betterment levy can be attributed to five key factors. Firstly, it has a clear purpose, which is to fund local infrastructure and services. Secondly, the value appraisal procedure is transparent and is undertaken at an individual property level, with a right for property owners/developers to appeal the results of the appraisal. Thirdly, the betterment rate is consistent and non-discretionary, but provides for exemptions based on economic or equity grounds. Fourthly, the revenue collected from the levy is sufficient to justify the significant costs required to administer it. And finally, there is strong support from all sides of politics for the betterment levy and other forms of value capture, such that it has not featured as a prominent issue in national or local politics.

Sources: Alterman, R. (2012) Land-use regulations and property values: The "windfalls capture" idea revisited. In: N. Brooks, K. Donaghy and G. Knaap eds., 2012. The Oxford Handbook of Urban Economics and Planning. New York: Oxford University Press. pp. 755-786; Deloitte (2016), International Tax: Israel Highlights 2016 (http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-israelhighlights-2016.pdf)

The impact of transport infrastructure on property prices

Land value gains associated with transport investment have been the subject of considerable study. Clear and lasting value uplift on residential and commercial landholdings located in close proximity to new transport projects is well-documented. Selected research on these impacts is presented in the table below.

Table 32: Selected evidence on the impact of transport infrastructure on property prices

Selected studies	Key findings
Crossrail studies (various)	The Crossrail *Property Impact Study* (2012) estimated that capital values in the areas around central London Crossrail stations would rise by 35% for residential properties, and 27.5% for office properties, over and above an already-rising baseline projection. Whereas residential values on the outer sections of the line were expected to rise a cumulative 27.5% above baseline, but office values to grow only slightly faster (0.5–2.5%) than baseline.
Nationwide (UK,	Using the Nationwide House Price Model, Nationwide assessed how property prices in the Greater

Selected studies	Key findings
2013): *London homebuyers pay a significant premium to live close to a tube or train station*	London region vary in relation to the distance to the nearest tube or train station. The research isolated the specific impact this has over and above other property characteristics such as property type, size and local neighbourhood factors. The research suggests that a property located 500m from a station would attract a 7% price premium over an otherwise identical property 1,500m from a station. The research also revealed that the marginal impact on price diminishes as the distance from the nearest station increases. For example, the price difference between properties located 500m and 1,000m is 3.7%. This compares to 3.4% for properties located 1,000m and 1,500m from the nearest station and 3.1% when comparing properties 1,500m and 2,000m away. The research suggests that while homebuyers would prefer to live close to a station, it becomes less important once outside easy walking distance.
The impact of railway stations on residential and commercial property value, G. Debrezion, E. Pels and P. Rietveld (2004)	The Debrezion study collated the results of a wide range of other studies through a meta-analysis and regression model. It found that: · Commuter railway stations have a significantly higher impact on property values. · After opening, property prices are 19.4% higher for a commuter station, and 5.3% higher for a heavy rail/metro station. · The impact of the value uplift reduces as you move further away from the station. Beyond a radius of 3.2km, there are no longer any value uplift impacts
Urbis for Infrastructure Australia (2013): *Review of Historic Urban Land Value Growth – East Coast Capital Cities*	This study was to support Infrastructure Australia in its aims of improving inter-governmental approaches to the identification and protection of infrastructure corridors. The study examined the long-term land value growth trends for certain property classes within the inner, middle and outer bands of Sydney, Melbourne and Brisbane. The study also explored three case studies related to recently delivered motorways in each city, including the M7 Motorway in Sydney, EastLink in Melbourne and the M1 Motorway in Brisbane. Using data over 13-20 years, the study found that commercial and industrial property values in nearby catchments grew by 1.7-5.8% per annum more than similar properties in surrounding areas. It also found that land values increased by 20-50% from the time of route identification to operations.

Other selected examples

Reference	Description
Infrastructure Finance Working Group (2012) *Infrastructure Finance and Funding Reform*	Joint Development – Australia Air rights were used to build major retail and residential complexes in exchange for building station precincts for Melbourne Central Station in Victoria and Chatswood Station in New South Wales.
Mathur Shishir, Mineta Transportation Institute (2012). *A Decision-Support Framework For Using Value Capture to Fund Public Transit: Lessons From Project-Specific Analyses.*	Benefit/Special Assessment Districts: New York Avenue Station, Washington Metropolitan Area Transit Authority Use of Special Assessment District funding to fund 23% of the project cost. Criteria for SAD participants was as follows: • Assessment amount based on current value and was fixed for the life of the project • 1.5 mile zone • Assessment payments from commercial properties only and not residential properties
	Los Angeles Metro Red Line Benefit Assessment District, LA, CA Red Line Segment 1 is a heavy-rail transit system that operates in downtown Los Angeles, Commercial properties paid assessment.
	Local Improvement District: South Lake Union Streetcar, Seattle WA

Reference	Description
	Assessments were calculated based on an individual basis and if the property was owned outright. The assessments were based on the estimated increase in the property value resulting from the introduction of the streetcar system. Funding Sources: · District of Columbia (Municipality): $54m · Federal Government: $25m · Private Landowners: $25m (SAD) Lessons learned: Project exceeded predicted forecasts in terms of jobs and investment growth. Assessed valuation of the 35 block area increased from $535m in 2001 to $2.3b in 2011, with an estimated increase of over 15,000 jobs and $1.1b in private investment Success factors · SAD pay-as-you-go approach allowed the district to issue bonds backed by future property tax revenue. · District and city support and extensive stakeholder engagement · Strong real estate market that attracted private investment · State law that allowed the creation of the SAD Barriers Stakeholder engagement – investment into time and resources to convince landowners of the benefit of the station and SAD model.
Office of Sustainable Communities Smart Growth Program, (2013). *Infrastructure Financing Options for Transit-Oriented Development.*	West Dublin BART Station, San Francisco Bay Area – Opened Feb 2011 after 15 years of funding and construction. Case study relevant for joint development and a paid parking strategy, as separately the joint development parties would not be in a position to construct the station. In-fill station built in the median strip of a major freeway and construction of a transit village consisting of over 300 residential units, a hotel and space for retail. Funding sources: · User fees and parking fees · Bond financing · Joint Development (Developers) and transaction fee (% of sale of residential units in the development was remitted to BART) Applicability of Joint Development · Strong and weaker real estate markets · Higher construction costs and implementation challenges due to the difficulty in design Success Factors · Capture of new real estate investment · Multi-agency coordination and unified sup[ort for the project – allowed for flexibility and enabling private investment during challenging real estate markets Barriers · Joint development value capture is restricted to the development areas and does not capture benefits from existing property owners. Potential for further value capture was missed. · Large projects require multiple sources of funding.

Appendix 2. Value capture funding in Victoria's current tax and planning system

Some value capture mechanisms are already present in Victoria's current tax and planning system and these are outlined in this section. They include:

- Value capture via 'automatic uplift' to existing taxes
- Developer contributions and related mechanisms
- Development rights, sales and leases
- User charges

Value capture via 'automatic uplift'

It is recognised that existing taxes provide a degree of 'automatic' value capture whenever a state investment raises property values, especially in the case of land tax, stamp duty and capital gains tax, as well as sometimes in the case of local government rates to the extent that a growing revenue base can be translated into higher rates through the rate-setting process.

It is also noted that infrastructure projects that raise productivity and incomes also increase a range of taxes, particularly labour income and payroll taxes. In either of these cases, some of this additional revenue is received by the state; some is reflected in the local government rates base or in Commonwealth tax revenues.

In the UK, a model for capturing automatic uplift accruing to other levels of government has been implemented in the form of "City Deals". Under these agreements, growth in central government tax revenue attributable to investments by sub-national authorities is estimated and a portion returned to these parties, with this 'earn back model' helping to establish a rolling fund for infrastructure delivery by local governments. It is essentially a codified contract between an economic region and the central government, and an important tool to support the UK Government's devolution agenda and the growing role it creates for regional governments in infrastructure and service delivery and as significant population and economic centres.

Each City Deal identifies a list of priority infrastructure projects to be delivered along with benchmarks of economic and productivity growth to be achieved. Highlights for recent City Deals in Cardiff and Aberdeen are identified in the table below.

Benefits of the City Deals initiative include its focus on productivity and liveability, and its enhanced governance framework that sees greater collaboration and accountability between stakeholders, including shared local decision-making. It also relies more on growing efficient revenue sources and creating improved investment accountability by increasing transparency and sharing contributions to infrastructure funding in exchange for a share of any increase in tax receipts realised by the higher tiers of the government.

A relevant question is whether similar arrangements could work in Australia given its different allocation of revenue raising powers and delivery responsibilities across its three levels of government. While these possibilities are worthy of consideration, what is clear is that a similar approach would be less effective as part of a state-based value capture policy, particularly given the largest share of indirect tax gains linked to wider productivity growth underpinned by infrastructure investment flow to the Federal Government. As such, for similar arrangements to work in Australia both state and Federal governments would be required to participate.

For the purposes of this report only actions within the power of the state are examined further. Mechanisms for recouping a portion of tax revenue by agreement with the Commonwealth are therefore not discussed further.[18]

Limitations as value capture mechanisms

The issue of automatic uplift raises three questions for value capture policy:

- Are *new* value capture revenue streams really needed when existing taxes already capture some uplift; are existing taxes an adequate value capture strategy?
- Might new value capture mechanisms risk 'double taxing' and potentially over-charging beneficiaries? Is it possible that new mechanisms on top of existing taxes might lead to some properties becoming net losers from infrastructure projects?
- Do tax increases materialise as an increase in overall tax collections and, if so, which levels of government derive the greatest benefit?

In considering the first and second questions it is important to consider how existing taxes and land value uplift observed from infrastructure investment are related.

Potential purchasers of property naturally take established taxes into account when considering property acquisitions. That means that any value uplift observed following provision of beneficial infrastructure represents the market's view of how much more the location is worth, *net* of the anticipated higher payments of established taxes – Capital Gains Tax, rates, land tax and every other property tax that purchasers take into account. Just as anticipated taxes are capitalised into land values when the infrastructure environment is static, so too are future payments on these taxes reflected in how much more markets value properties anticipated to benefit from newly-announced projects.

If land value growth does occur after infrastructure is provided and the value uplift can be traced to the investment, this means existing taxes are failing to capture all value generated. Reliance on existing taxes is evidently not an adequate value capture strategy since, on this basis, there are significant private windfalls – currently subsidised by public spending – that could instead be captured and used to fund infrastructure instead of burdening general taxpayers with the funding task. While it is true that rising revenue from existing taxes means some value created is being automatically captured, this does not diminish the opportunity for new revenue streams.

The eventual uplift is also the amount that value capture instruments may target without risking 'double taxation' (i.e. taxing the same value gain twice). As long as revenue targets are no higher than what would otherwise be privately captured, and the mechanism targets beneficiaries accurately, then fears of 'double taxation' are misplaced. In practice, value capture mechanisms usually aim for a far smaller share of benefits, so the risk of landowners missing out on capital gains is further diminished.

The opportunity for new value capture revenue streams is significant because the powers of existing state taxes to capture gains are generally minor. The average land tax rate across the state, for instance, is in the region of 0.1-0.2%. A project that increases private land values will thus recoup only one or two-thousandths of that gain each year, or perhaps 4-5% in present-value terms over all future years (although the proportions will be higher where project benefits are concentrated on taxable land).

[18] Although a state-based uplift tax mechanism functioning much like CGT and tapping broadly the same tax base *is* considered, under the category of betterment levies.

There are also constraints on the ability of local government taxes to support automatic value capture, as council apply low rates that are generally set against annual operating expenditure in the context of rate capping.

Interest in accessing Commonwealth tax bases to fund state infrastructure is prompted by the view that Capital Gains Tax (CGT), as a revenue line more closely reflecting land value uplift, may be quantitatively more important than existing state taxes. As CGT is collected by the Commonwealth, there is currently a misalignment between the level of government with the most influence over the revenue base and the level collecting the tax.

In relation to the third question identified above, there is some uncertainty regarding the extent to which changes in property related taxes for individual beneficiaries translate into an overall increase in tax collections. For example, changes in the value of land and property developments in one location may be offset by reductions elsewhere if it reflects a redistribution of market demand instead of a general increase in the willingness to pay for land. While there may be clear benefits for certain landowners that justifies the application of value capture at the local level, the potential for a redistribution of land values provides a constraint on the ability for governments to automatically capture value from overall property tax collections.

However, in the case of income and payroll taxes the situation is different. Infrastructure projects that can be demonstrated to increase economic productivity do create permanent increases in those taxes, with the primary beneficiary being the Federal Government as the collector of personal and company income taxes. The extent of this automatic tax gain depends on the nature of the project and its impact on productivity, with our analysis of the current Melbourne Metro project business case suggesting it could be in the range of 15-35% of project costs, with the majority flowing to the Federal Government and not the State Government as funder of the project.

Developer contributions and related mechanisms

There are a number of funding mechanisms that are available through the planning system that have characteristics of value capture mechanisms, including:

- The Growth Area Infrastructure Contribution (GAIC)
- Development Contribution Plans (DCPs)
- Section 173 Agreements under the Planning and Environment Act 1987
- The new Victorian Infrastructure Contributions system
- Places Victoria (Urban Renewal Authority) Charges.

Growth Area Infrastructure Contribution (GAIC)

The Growth Area Infrastructure Contribution (GAIC) began operation on 1 July 2010 and applies to growth area land brought into the Urban Growth Boundary since 2005-06 or subsequently which is zoned for urban development.

The GAIC is applied on a per hectare basis, with rates indexed annually at the start of each financial year. The indexed GAIC rates for the 2014/15 financial year were $88,770 per hectare for Type A growth area land, and $105,420 per hectare for Type B & C growth area land.[19]

GAIC is designed to cover around 15% of State Government infrastructure costs in the growth areas, and developers are making a significant contribution to funding infrastructure in growth

[19] Metropolitan Planning Authority (2015), Annual Report for 2014-15 (https://vpa-web.s3.amazonaws.com/wp-content/uploads/2015/10/MPA-2014-2015-Annual-Report_WEB-1.pdf)

areas. According the annual report for the Metropolitan Planning Authority, around $40 million was received from the GAIC in 2014-15, with around $13 million in payments deferred and around $64 million in staged payments agreed.

The State Revenue Office (SRO) collects the GAIC, with funds raised directed to the Consolidated Fund before being distributed evenly into the Building New Communities Fund and the Growth Areas Public Transport Fund.

The Growth Areas Public Transport Fund can be applied by the Planning Minister, with the approval of the Treasurer, for the following purposes:

- Land acquisition and capital works costs for State funded public transport infrastructure in any growth area;
- Recurrent costs for public transport services in a growth area for up to 5 years; and
- The Commissioner of State Revenue's costs in administering the GAIC scheme.

The Building New Communities Fund can be applied by the Planning Minister for the following purposes:

- Transport infrastructure including walking and cycling but excluding major public transport infrastructure;
- Community infrastructure including health facilities, education facilities, regional libraries, neighbourhood houses and major recreation facilities;
- Environmental infrastructure including regional open space, trails and creek protection;
- Economic infrastructure including providing access to information and technology and infrastructure supporting the development of commerce and industry; and
- The acquisition of land and other infrastructure necessary or required for the establishment or maintenance of any infrastructure referred to above.

The Planning Minister must not authorise the payment of an amount of $2 million or more from the Building New Communities Fund for the purpose of particular capital works without the approval of the Treasurer.

Development Contribution Plans (DCPs) and Section 173 Agreements

DCPs and Section 173 Agreements are administered by local government through planning schemes and the Planning and Environment Act 1987.

Development contributions can be either payments or in-kind works provided by developers to contribute to the supply of infrastructure required to meet the future needs of a particular development and surrounding community. As such, they reflect a degree of value capture given the flow of benefits from local infrastructure provision to the attractiveness and feasibility of development.

Contributions under a DCP may be levied through one or both of a development infrastructure levy (DIL) or a community infrastructure levy (CIL).

Voluntary agreements provide an alternative mechanism that can be easier to implement, placing an obligation on the landowner or developer to provide or pay for infrastructure, with the mechanisms provided under Section 173 of the Planning and Environment Act 1987.

Amounts collected via DCPs or Section 173 Agreements will vary by local government area or development project.

The new Victorian Infrastructure Contributions system

Infrastructure contributions traditionally help fund essential works and services for new communities including roads, parks, local sports and community facilities. More recently however legislative reform in Victoria has widened their potential scope and application to include funding State infrastructure.

The new Victorian Infrastructure Contributions system introduced in 2015 provides for a Standard Levy and Supplementary Levy (where appropriate). Development contributions have previously been designed to fund State infrastructure (e.g. Fisherman's Bend) however the new system provides a clearer basis for the application of an Infrastructure Contributions Plan in a planning scheme.

The supplementary levy is an optional levy for use when the standard levy cannot adequately fund the required infrastructure to unlock the growth capacity of the area. The supplementary levy may also be used to fund state infrastructure in growth areas where the GAIC does not apply. The supplementary levy can also be utilised in Strategic Development Areas identified in Plan Melbourne including urban renewal and National Employment Clusters.

Places Victoria (Urban Renewal Authority) Charges

Places Victoria has relatively broad statutory rights under the Urban Renewal Authority Act 2003 to impose infrastructure charges – both developer contributions and betterment levies – on properties within prescribed project areas.

There is significant flexibility in how these charges may be applied, with scope for the charge to be different for different classes of property and to include a scale of charges dependent on geographic location. Major investments that have 'place-making' objectives (particularly transport infrastructure, but also the social infrastructure needed to serve growing populations) could be funded more extensively, with benefit-capture focused developer contributions in particular, by declaring the relevant project areas and using Places Victoria powers.

The use of these powers were originally an important part of funding projects like the $290 million Revitalising Central Dandenong initiative through its Infrastructure Recovery Charge. According to Places Victoria's annual reports, the Infrastructure Recovery Charge raised $283,000 in 2013-14 and $3.4 million in 2012-13.

Limitations as value capture mechanisms

In recent years there has been considerable energy devoted to reforming Victoria's system of developer contributions and related mechanisms, although limitations and revenue shortages still exist. For example, the Ministerial Advisory Committee review of Plan Melbourne highlighted shortcomings affecting growth area councils like Wyndham, pointing out that DCPs will raise only $1.6 billion of the $2.4 billion needed to fund local roads, open space and other community infrastructure.[20]

The report also highlighted that in the established areas of Melbourne, there is no opportunity to capture the uplift from rezoning or permits to fund community infrastructure, except through a DCP incorporated into a planning scheme by other means such as Section 173 Agreement. They also noted that other value capture options to share the rise in property prices attributable to planning decisions are available but are not generally being applied.

[20] Plan Melbourne 2015 Review, *Report by the Ministerial Advisory Committee*, June 2015

Development rights, sales and leases

The sale or granting of development rights, asset sales and leases are a common feature of infrastructure provision in Victoria.

Well known examples in the transport section include the transfer of commercial and development rights associated with Southern Cross station, with residential development rights at Elsternwick station.

More recently, the business case for the Melbourne Metro project focused on identifying opportunities for the project to directly generate and capture value through integrated development and other commercial opportunities. Quantified value capture opportunities include:[21]

- Over site developments at CBD North and CBD South
- In-station retail and advertising.

Additional opportunities that are yet to be quantified include:

- Use of new telecommunications infrastructure to drive revenue
- Redevelopment of surplus land at Arden as part of the broader urban renewal of the Arden-Macaulay precinct.

The Tunnel and Stations PPP package will be responsible for delivering over site developments at CBD North and CBD South as well as retail and other commercial opportunities within the new stations.

Other projects and sectors also make use of commercial opportunities, including leases. Examples include VicTrack's commercialisation of its telecommunications network, and the use of commercial leases in the health sector, which can attract a range of services to co-locate at hospitals.

User charges and value capture

Users are usually the most direct or observable category of beneficiary of an infrastructure project. A user charge is a charge applied for the use of a specific asset each time the asset is used, in-principle providing the clearest form of value capture mechanism. The price charged typically reflects the use made of the asset and the timing of that use.

Well-designed user charges can provide a long term and sustainable funding base to improve not only infrastructure supply, but also to facilitate more efficient use of infrastructure, by aligning the price paid by users with the costs their use imposes. Tolls are a common form of charging for the use of roads, and have directly funded numerous road projects over many years in Australia. A public transport levy is another form of additional charge imposed on transport fares paid by users of specific public transport infrastructure or on fares paid by public transport users generally. Similarly, pricing of utilities, such as electricity, has been structured to ensure that charges paid recoup costs. This is best exemplified by different charges for on and off-peak usage.

In principle, user charges are the clearest form of value capture mechanism – a direct beneficiary charge. In practice, there are significant issues and challenges that mean prices cannot necessarily be set purely according to beneficiary pays objectives. User charges are usually set with reference to considerations like demand management, the practicality of charging, equity, or cost recovery rather than benefit capture.

[21] Department of Economic Development, Jobs, Transport and Resources (2016), Melbourne Metro Business Case

The transport sector provides relevant examples of this. For instance, for many toll roads, this involves the use of simplified tolling regimes with tolls that are fixed for each segment of the toll road to balance cost recovery through higher demand and revenue collections with operational efficiency. Both of Melbourne's toll roads in CityLink and EastLink are good examples of this. And in the case of public transport, fares are usually set to achieve a mix of objectives, where revenue raising is given a lower priority compared to other social policy objectives around access to employment and services.

Because of these limitations on the application of user charges, and the lower level of charges that are typically set compared to the benefits received by many users, there is the potential for these unpriced benefits to manifest in nearby land values. While this might not be surprising the case of high performing government schools and major public transport links, it is also the case for properties located near but not too close to major toll roads such as CityLink, where a study by SGS Economics and Planning for the Victorian Department of Transport in 2012 estimated that CityLink added around $25,000 to average household prices and around $18,000 to average unit prices by 2011, adding around $30 billion to overall property values with the highest gains for households in inner and western Melbourne.[22]

Detailed consideration of particular categories of user charges is a separate exercise, and accordingly the discussion of value capture below excludes further examination of user charging as a value capture tool for project funding. However, as the examples above demonstrate, there is the potential for complementary user charging and value capture strategies to play a role in funding the delivery of infrastructure in Victoria. Any value capture policy and funding strategy needs to have consideration of road and public transport user charging arrangements, as there is a direct link between the application of user charges and the level of value uplift a project may transfer to nearby properties. In this context, it is the unpriced benefits of infrastructure projects that becomes capitalised into land values through the operation of the property market. In this context, the design of value capture mechanisms should seek to minimise the risk of over-collecting (or "double dipping") revenue compared to the benefits received by property owners.

While a greater role for user charging in some circumstances is possible, in other situations user charges will only be able to provide a small contribution to project funding, with other objectives related to demand management and social equity also important.

[22] SGS Economics & Planning, *Long run economic and land use impacts of major infrastructure projects*, Report for the Victorian Department of Transport, 2012

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