Building a better Box Hill

An early-stage analysis and preliminary business case encompassing economic benefits and holistic planning opportunities available through co-operative redevelopment of the Box Hill transport interchange and town centre.

Technical Report

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Prepared for Whitehorse City Council

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1. Executive summary

This report summarises a preliminary appraisal of economic benefits associated with potential redevelopment of the Box Hill transit facility and town centre.

Key finding

The most important finding, as outlined in part 6, is that ***redevelopment of Box Hill transport interchange appears to be highly beneficial from a state economic perspective***. Around $188 million in direct transport-related benefits has been identified, while timely redevelopment of the transport interchange offers the opportunity to underpin around $3 billion in broader economic benefits at Box Hill over a medium and longer-range horizon, mainly in the form of property development and institutional investment impacts. In summary, state investment in station renewal at Box Hill appears to be a highly productive and attractive proposition.

Primary recommendation

Based on these economic and other factors, it has therefore been recommended that:

State government should actively consider funding and undertaking a full business case process for redevelopment of the Box Hill transport interchange during 2016. A range of factors suggest that necessary decisions are imminent for Box Hill infrastructure, and delay may place a wide array of developmental opportunities and job creation impacts at risk.

The business case should be based on comparison of several alternative redevelopment scenarios – including both high-impact full redevelopment options, as well as refurbishment-based approaches. This should allow for costing of alternative scenarios, in-depth modelling of transport-related and other implications, and a more detailed appraisal of potential economic benefits (including several pools of benefit not appraised in this paper, such as environmental and social benefits, agglomeration, road traffic congestion reduction, and others).

Jobs – through carefully targeted infrastructure investment

A timely and appropriate infrastructure upgrade of the Box Hill transport interchange will deliver substantive economic growth outcomes - leading to the creation of a significant number of direct and indirect jobs for Melbourne's East and the wider community. Economic impacts analysis has identified the likelihood of significant rise in gross demand, employment and income from consequent private and institutional investments. ***Analysis performed for this paper indicates around 11,000 total jobs can be expected*** based on the medium-term developmental trigger provided by timely renewal of the Box Hill transit interchange. This includes around 6,400 construction jobs and some 4,600 new and ongoing positions in other sectors.

Background – transport, property and economic context

This study has identified a number of latent issues that lend credence to the notion that the time has come for detailed engagement with redevelopment options at Box Hill station. This has included a very strong identifiable trajectory of recent and future ridership growth on both trains and buses at Box Hill. It is estimated that around 13,700 daily

bus passenger movements and 16,300 daily rail passenger movements are undertaken through Box Hill at 2015 – making it one of Melbourne's most important non-CBD transit facilities. While some 40,000 total daily passenger movements are expected at 2025, and 61,000 daily movements at around 2039 – which is double the current level, in a facility that is already acknowledged by transport stakeholders to be at or near its safe and effective design capacity.

Box Hill's transport interchange facilities were advanced for Melbourne at the time, but are now 30 years old, and were simply never designed for a life cycle far beyond that duration, for current expectations on amenity or access for people of lesser mobility, nor for the heavy throughput of transit patronage the station is now experiencing or likely to see over coming years. A range of technical and functional limitations is identified in part 2 of the report, drawing in-part on previous technical and engineering assessments of the site – which identified a range of problems and limitations.

At the same time, Box Hill is in the middle of a major growth trajectory based on its attractive and accessible location, competitive housing market, and a diverse mix of amenities and employment options. Box Hill is set to play a crucial role in the evolution of Melbourne's eastern suburban heartland. The transit facility that serves this important area and its sustainable growth is becoming an increasingly vital piece of economic and social infrastructure.

Design and place-making

But the activity centre more broadly also needs care and attention – within a transition toward contemporary urban design and movement outcomes. These must include better transit facilities, but extend beyond that need into areas such as pedestrian movement and permeability, enlightened treatments of public open space, and the consistent presentation of active street frontages. The station facility can become the crucial intervention which supports and unleashes a range of other upgrades and transformations - in line with current European examples of best-practice design and urban renewal. It is recommended that Box Hill move toward becoming a 'network of inter-connected, inviting public spaces'. While attention should be afforded to developing Box Hill's 'destinational' appeal – including support for a lively night-time economy based on attractive aesthetics, convenient movement opportunities, late shopping hours, diverse hospitality offerings, and recreational options.

Urban policy opportunities

Box Hill is already a leading centre among Melbourne's metropolitan activity centres. While much policy attention has been given to the idea of 'polycentric' development pathways and transit oriented planning over many years in Victoria, progress has been relatively constrained on these fronts. Box Hill offers a primary opportunity to successfully deliver on important policy directions – through interventions in the transit facility, support for ongoing growth and development, and enlightened design treatments. These interventions are logical and necessary, and imply a transition for this location *beyond* its current status as a leading activity centre. In policy terms, Box Hill should be viewed as a logical nationally significant employment cluster, and as Melbourne's best opportunity for the creation of a 'second CBD' in the tradition of Parramatta's role in greater Sydney. Consistent state government emphasis on polycentric growth and transit oriented planning needs to be exemplified and demonstrated in the timeliness and quality of infrastructure support provided to Box Hill.

Technical aspects of the paper

This report focused on two over-arching pools of potential economic impact – in the form of direct benefits to transport users, and broader economic benefits based on medium and longer-term urban renewal with the support of upgraded transit infrastructure. These pools of economic impact are not exhaustive of the totality of potential benefits from station renewal, but should offer a higher-level over-arching picture as to the basic attractiveness of Box Hill as an infrastructure investment option for state government and other stakeholders.

The transport-related benefits were analysed firstly on the basis of improved consumer utility to bus and rail passengers through higher amenity in new or renewed station facilities. Another appraisal was then conducted on the basis of potential time-savings benefits, from a reasonably achievable time saving assumption that could be delivered through enhanced internal and external movement for passengers arriving, departing and transferring at Box Hill.

Urban renewal benefits were calculated on the basis of an identified pipeline of likely or prospective property development or institutional investment commitments at Box Hill over a medium and longer-range period of + 4 to 12 years from today. These prospects were identified through a mixture of first-hand interviews with major property owners, as well as a basic appraisal of highest-and-best-use development capacity.

It is suggested that these medium and longer-term renewal prospects will become increasingly dependent on timely resolution of transport capacity and amenity issues at Box Hill transit interchange, and clarity regarding the future of the Box Hill Central shopping centre. In this sense, it is adjudged appropriate to tally these medium and longer-term investment prospects as a contingent benefit arising from any state investment in timely station renewal.

A range of other benefits are likely to exist, in realms such as social and environmental impacts, and other transport benefits (such as congestion reduction). Due to resourcing and information limitations these have not been explicitly calculated here, but should form an important part of any full scale business case exercise based on detailed project engineering and modeling.

2. Background – public transport, property, and economic context for Box Hill

The City of Whitehorse is focused around the Box Hill activity centre - whose evolution will ultimately define the liveability and the social, economic and environmental potential of its surrounding communities.

Transport challenges

In the realm of transport, Whitehorse City Council has charted a sustainable transport agenda through its Integrated Transport Strategy (Whitehorse City Council 2011). Among other priorities, the strategy identifies a need for; better links between transit modes, and the utilisation of transit infrastructure investment or enhancement to achieve broader goals of economic development and social connectedness (Whitehorse City Council 2011, p1). A number of pre-existing transport-related advantages are available to work with – including the fact that a significant proportion of Whitehorse residents already work within the local government area itself (p11). An overall increase in the usage of public transport is targeted (p5). Whitehorse City Council recognises that ongoing development at Box Hill will alter densities in the activity centre, which will invariably shift the transport usage of locals toward transit, and away from private vehicles to some degree over time (p7). Whitehorse City Council has also identified the role that *full integration* of land use and transport planning can play. These issues all clearly converge around treatment of the Box Hill transit facility, and the City identified a need to:

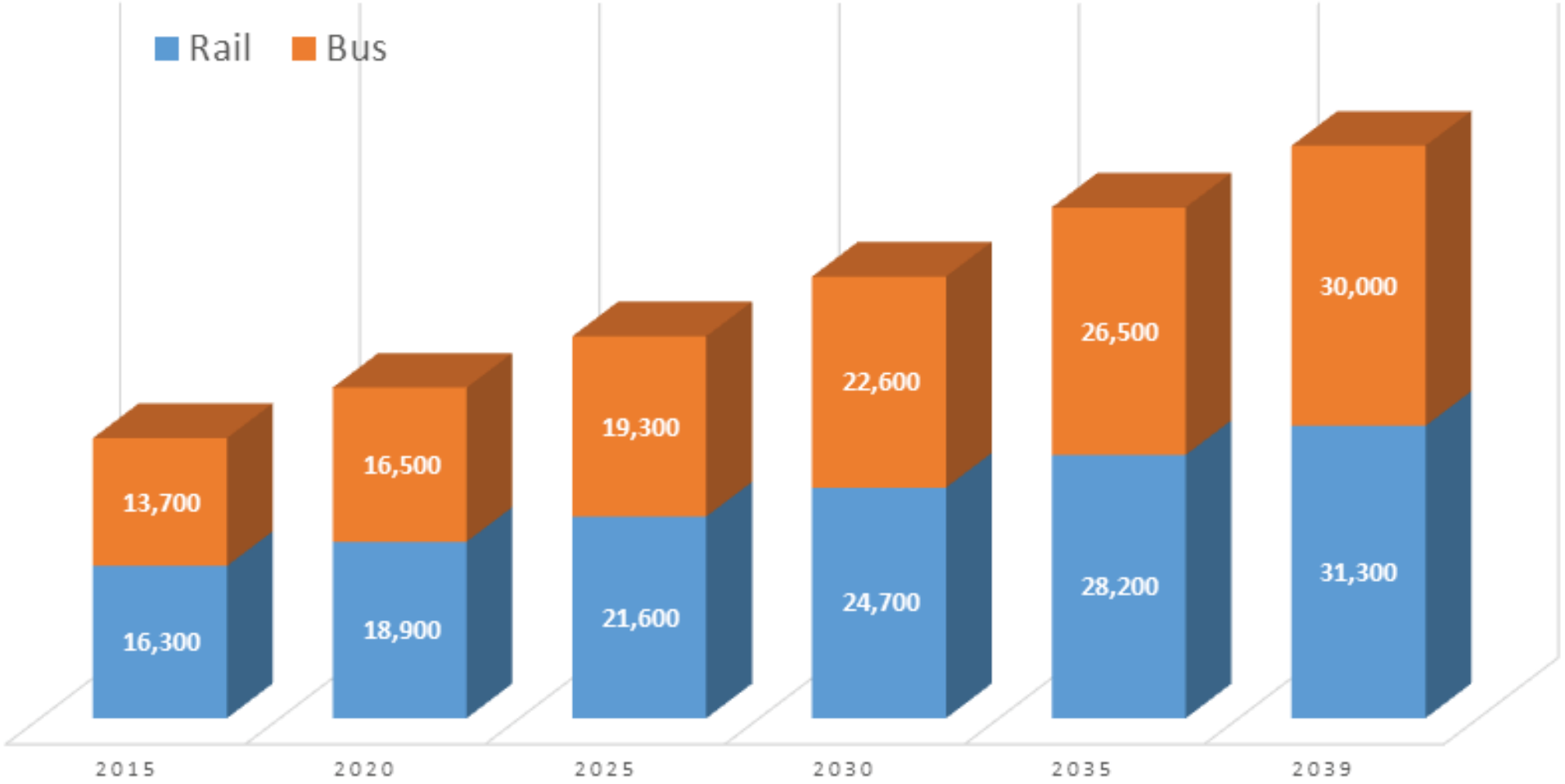
> "*Urgently upgrade the functionality, appearance, comfort, security, and way-finding at the Box Hill Transport Interchange…"*
>
> (Whitehorse City Council 2011, p9)

Sources speak to a list of transport challenges at the ageing Box Hill interchange facility (see Aurecon 2011, 2010; GTA Consultants 2014; MGS 2014; SGS Economics & Planning 2007); including:

- Intermodal connection between bus and rail, including legibility and ease of movement for transferring passengers
- The functionality and attractiveness of the bus facility
- Access issues for buses approaching, entering and departing the facility - including a short or medium-term need for carefully located on-road bus lanes, and measures such as signal priority
- Bike parking and cycling access infrastructure
- A need for ongoing attention and enhancement to pedestrian conditions in the area surrounding the transit interchange
- Questions regarding the rail station itself – which, although better in some regards than other Melbourne stations, faces inevitable limitations as a 30 year-old facility handling ongoing ridership growth and changing passenger expectations
- A number of practical and compliance-related disability access issues. These include, but are not limited to, the non-availability of direct elevator-borne transfer opportunity between bus and rail platforms

Professional advice has previously been taken regarding the transport interchange, particularly through several studies delivered by Aurecon (2010, 2011). These studies focused on what were considered to be the more practical and likely opportunities for *upgrade, rather than full redevelopment* of the facility. As such, they contain many sound ideas for improving passenger experience and the overall quality of the interchange. But the Aurecon studies essentially skirted the pros and cons of completely redeveloping the station – presumably because of the complexities involved and the need to interact closely with the shopping centre owner (as opposed to the 'single decision-maker' scenario seen in most state-led transport projects).

CHART 1. Box Hill Interchange - estimated daily passenger movements to 2039



The Aurecon studies were undertaken at a time of uncertainty for the then-owner of the shopping centre property, which essentially precluded meaningful prospects of resourcing a full redevelopment of the centre. Undoubtedly, any revisiting of the prospects for change at Box Hill *through the perspective of holistic and co-operative development* would fundamentally alter the options available for facility design and productive generational investment in the transit interchange. One reasonably obvious scenario would then involve the possibilities of fully replacing the station facility (not least the rooftop bus station) as part of a broader program – also comprising phased redevelopment of the shopping centre, or a very substantial renovation. This document does not hold the remit to canvass every possible eventuality for the station and retail centre, but it would appear that decisions loom regarding two or three potential pathways, including:

- Options that are suitable if the **shopping facility remains as-is**, or is slightly renovated, leaving transport stakeholders with *a need to address the transport issues listed above (not least DDA access questions, and a reasonably pressing need to upgrade the bus facility)*. This should not be viewed as a 'do nothing' or 'do very little' pathway, because projections for substantial growth in local ridership on buses and trains, and the transfer task between these two modes, must still be addressed within a physically constrained environment

- A scenario under which **both the transport facilities and the shopping centre embrace complete transformation, through a phased process of demolish and re-build**. This essentially triggers *an opportunity to completely redesign and replace the transport elements of the overall complex, creating possibilities for lasting solutions* on; DDA accessibility (including platform-to-platform transfer), far better integration between bus and rail, better station 'presence', and much higher amenity standards for bus passengers. This scenario presumably also embraces a re-build of the rail facility from first principles, according to 21st century design standards and with an eye to effective handling of growing passenger tasks over a 20 year + horizon

- A 'middle path' in which the **shopping centre receives reasonably substantial rebuilds and renovations, but the rail station is essentially left within its current 'shell'** or three-dimensional envelope. This middle path also presumably involves technically *challenging decisions regarding bus facilities* (in that they would most likely be replaced and/or relocated), and regarding the overall handling of a growing passenger movement task for people of all mobility levels

Picture: Box Hill has many of the elements for a truly accessible and integrated hub, but ongoing growth brings its own challenges

Chart one (see page 7) outlines the growth prospects for daily bus and rail movements at Box Hill. Other transport topics, and the *economic* rationale for addressing infrastructure issues at the Box Hill transit facility will be developed in greater detail later in this paper. But our initial discussion will be assisted greatly by engagement with inter-related issues across; design and place-making, liveability, economic development, and broader trends in activity centre planning.

Box Hill's role in Melbourne's Eastern region

Box Hill has in many respects already established itself as the premier integrated higher-density activity centre in the eastern suburban heartland of Melbourne. But this role is set to continue developing. Box Hill faces substantial opportunities to grow into a 'nationally significant employment cluster' and stakeholders have aspirations for it to become Melbourne's second CBD. In particular there is an opportunity to diversify Box Hill's white collar services focus - building on the momentum arising from the Australian Tax Office (ATO) development. There are also clear advantages in the educational field, through Deakin University and Box Hill Institute. Health services are another existing strength with substantial upside. Population growth is assured – with recent development of high quality residential towers, and new planning approvals and applications demonstrating the attractiveness of this location for those requiring convenience and easy access to services and transport, without wanting to live in the CBD or inner suburbs. Box Hill is set to retain and enhance its position as one of Melbourne's preferred non-CBD higher density housing markets. Taking these residential growth drivers into account, Box Hill seemingly also has a platform for the creation of one of Melbourne's most lively restaurant and shopping destinations. These directions will be further enhanced through any redevelopment of the Box Hill Central retail property.

But these exciting trajectories across commercial, retail, residential and institutional investment still face two primary challenges at this point – in the need to a) transition toward a more up-to-date design expression, and b) overcome inherent short and long-term capacity limitations and challenges in the realm of transport infrastructure and movement.

Place-making, contemporary design expressions and urban functionality

The Box Hill Central shopping centre was built in the early-mid 1980s, and essentially constrains Box Hill to a design, aesthetic and functional platform that was acceptable and mainstream for suburban contexts *at that time*. But contemporary design expectations have moved on substantially in recent years, while Box Hill is also clearly evolving from a 'suburban' starting-point toward a more 'urban' schema (albeit outside of the CBD and inner suburbs). The activity centre and the shopping centre itself may need to transition toward a more permeable movement fabric, including the embrace of 'active' street frontages, rather than the current propensity for bluff concrete facades and street frontages defined entirely by car parking structures.

Picture: At present, the core area of Box Hill does not always express itself through an inviting and people-friendly language of streets and design

Picture: A more up-to-date near future for Box Hill would build on existing advantages in public realm and people-friendly spaces

These opportunities are another driver for reconceptualisation of the integrated retail/transit facility – recognising its defining role in Box Hill's movement-related, functional, and aesthetic character. Intelligent redevelopment of Box Hill Central and transit facility could support:

- Better and more legible movement through the facility from one side of Box Hill to the other for pedestrians, with attendant 'retail capture' opportunities for the shopping centre. This also implies greater permeability and ease of movement to-and-from the rail station and surrounding activities or destinations
- A stronger 'presence' for the transit facility – including a clearer entrance statement and better wayfinding
- A more open, attractive, and inviting articulation of Box Hill Central to its surrounding streetscapes
- Creation of a *street-based* urban environment with 'active' frontages along the length of every street in downtown Box Hill
- The re-casting of Box Hill as a series of dynamic 'linked public spaces' that are lively, and thematically or culturally coherent

The connection between infrastructure and economic development

These are exciting opportunities - but it is crucial to recognise the 'contingent' nature of much of Box Hill's investment pipeline. This particular issue forms the crux of this report, and the technical analysis that has been conducted. Many important Box Hill stakeholders and institutions have either a general or a specific intention to invest and upgrade their own property holdings - to capture opportunities arising from population, residential and other growth that is either local to Box Hill, or latent to the eastern suburbs more broadly (see Whitehorse City Council 2014 for more detailed discussion of growth and change). But these same organisations are also able to intelligently appraise the infrastructure and capacity-related questions that impact on the effectiveness of those potential investments. Transport capacity is a known issue, as is the reality that Box Hill Central's future remains somewhat unclear at this point. Participants involved in the Box Hill First stakeholder's group have consistently acknowledged the role that these uncertainties play in their own investment decisions – as a balance to the exuberance created by population-driven growth and change. These major stakeholders also recognise the fundamentally greater opportunity available if a clear and effective resolution of local transport, planning, and infrastructure issues were to emerge (including but not limited to - greater certainty around Box Hill Central as an integrated retail and transit complex). Major local stakeholders and Whitehorse City Council are also generally well appraised of the potential for broad-based economic development impacts arising from a new or renovated transit facility, in conjunction with a new or upgraded shopping centre. This paper will begin to clarify and detail those potential impacts and benefits, and the linkages between them. But from the outset, we should presume that major infrastructure enhancements are invariably worthy of active and timely consideration in an advanced and growing cluster such as Box Hill.

Other modes

This report has primarily focused on bus and rail facilities and conditions, and to a lesser degree related issues in pedestrian and cycling access. A full business case program should engage further and deeper with the needs and opportunities of the active modes, as well as further investigating any impacts and potential benefits for road traffic congestion. Equally, a holistic assessment of public transport at Box Hill should embrace the future of light rail – and any full-scale business case process should acknowledge likely or desirable long-term changes to the configuration of tram stops, stopping locations and corridors.

3. Contemporary directions in integrated infrastructure planning and polycentric development

Activity centre planning in greater Melbourne has a lengthy post WWII history, but an independent view might suggest that full maturity of ideas and outcomes is yet to emerge.

The coming 5-10 year period is likely to see a greater quantum of actual residential and commercial development at Melbourne's major non-CBD activity centres, alongside conceptual and thematic refinement of nodal design practices, and a genuine prioritisation of substantive transport-related infrastructure investments to higher-order centres (see State Government of Victoria, 2015). These factors will connect with a demand for *clearer business cases* to support competing claims for infrastructure investment, and *a more holistic appraisal of economic benefits and impacts* in integrated transport and land use contexts. Against this backdrop, a brief review of national and international trends and practices is worthwhile – especially given the historic propensity for sophisticated nodal development in jurisdictions beyond our own state.

Some lessons from Sydney

Sydney, more than any other Australian city, has delivered a reasonably successful and locally-relevant version of transit oriented planning and poly-centricity over time. In examples such as Parramatta, North Sydney, Chatswood and St Leonards, we observe variations on nodal development that balance an emphasis on rail station enhancement and rail property utilisation with a sustained pipeline of commercial, retail, institutional and residential development in the surrounding precinct. This has usually included sensible and supportive decisions from state government agencies and large corporations regarding the appropriate location for second-order 'back office' functions and workforces (while still demanding easy rail access to the CBD). Local governments in Sydney have also generally co-ordinated their open space, pedestrian and other infrastructure programs to sustain people-friendly outcomes at their priority nodes and locations.

The European view

Polycentric development is a well-understood, long-established and indeed a *preferred* and mainstream approach to planning, design and transport on the European continent. The European version of transit orientation invariably contains several attributes that are worthy of our attention.

Picture: street dining area within a small plaza, Barcelona

Picture: street-focused contemporary urban renewal in Munich

Picture: Cities like Munich demonstrate an inter-linked network of green, attractive spaces

Firstly, European nodal or corridor-based planning tends to afford a robust and central role for public open space enhancement within major projects. This variously includes effort toward; improving local parks, upgrading boulevards and streetscapes, refinement of plaza areas (either at a station entrance, or as a central urban square), the pedestrianisation of entire precincts, growth in al fresco street-based dining (particularly in Mediterranean climes) and enhancements to street greenery and street furniture. Central Melbourne has already adopted the European tendency for coherent street furniture designs (seen since the 19th century in Paris and other cities). But such concepts should now prove invaluable for non-CBD destinations, and precincts throughout Melbourne more broadly.

European cities or regions tend to have less of a focus on specific "CBDs" compared to Australian cities. Emphasis is given to nodal, transit oriented planning and development at a variety of locations throughout any given metropolitan area. At each of these nodes, a threshold level of retail amenity is available, alongside office and civic uses, as well as housing provided in a variety of medium and higher-density formats (for a range of occupiers). European policy tends to 'spatially' integrate transport and urban planning with housing and social policy, health provision and educational facilities - to a greater degree than most Australian jurisdictions have so far achieved.

Picture: Projects like Den Haag Centraal station have been pursued in Dutch cities large and small - to enhance the competitiveness and development of locations other than Amsterdam

Another slightly more recent European innovation is the trend for *substantive investments in major station facilities as a trigger for urban renewal*, economic development, and simply to provide a much better experience for public transport passengers. This trend is amply demonstrated in the Netherlands, where a wave of enlightened station investments has seen the Dutch rail agency emerge as one of the country's biggest retail property holders. These outcomes have been achieved with a keen eye on the value of high quality, aesthetically pleasing, and functional transit station architecture. The Dutch program has also been successful in accentuating and advancing the 'nodal' and 'polycentric' aspects of urban Holland.

Picture: The Dutch have successfully integrated a range of retail offerings and formats within new, high quality station environments

In Holland, smart station redevelopment is now recognised as one of the key tools available to encourage and support a more balanced distribution of growth, including to second and third-tier locations or cities – many with populations similar to City of Whitehorse.

Picture: The nodal character of a metropolis like Tokyo is clearly articulated

Picture: Tokyo nightscape. Leading Asian cities have shown that growth and development can be 'multi-centric' and functional, but also attractive and human scale

Asian cities - learning from our region

Australian planners have traditionally been reluctant to look north for ideas and precedents, but this appears set to change. Many East Asian cities have demonstrated strong developmental, growth management, and sustainability outcomes through an integrated nodal planning approach.

Cities like Tokyo have not been central to the Australian planning outlook, but trends over the past decade are worth re-appraising. During this period there has been a pronounced 'softening' of many Tokyo neighbourhoods or nodes. This is enacted through efforts at greater pedestrian amenity (for example), and extensive work on the aesthetic and visual attributes of what was previously a somewhat hard-edged urban model. Tokyo is now more liveable than ever, and is beginning to demonstrate a break with the old truism that cities invariably become less people-friendly as they grow. Tokyo and other Asian cities also seem to demonstrate a livelier and more *active night time environment*. This aspect of contemporary planning and precinct design has been overlooked too often in Australian projects or renewal exercises.

Picture: Tokyo nightscape.

A location like Box Hill contains both the latent attributes (retail, restaurants, higher education, and convenient transport) and the cultural and demographic mix to support a full expression of the night time economy. But such an outcome would appear possible only through a carefully considered and 'complete' redevelopment of the Box Hill node – to improve the transport, public open space, retail and hospitality profile, and to attract-in new retail tenants, lifestyle offerings, and other necessary ingredients. Asian cities demonstrate the inter-relationship between a lively trading environment late into the evening and a nodal development model based on convenient transit connectivity, with a design sensibility that embraces evening activity.

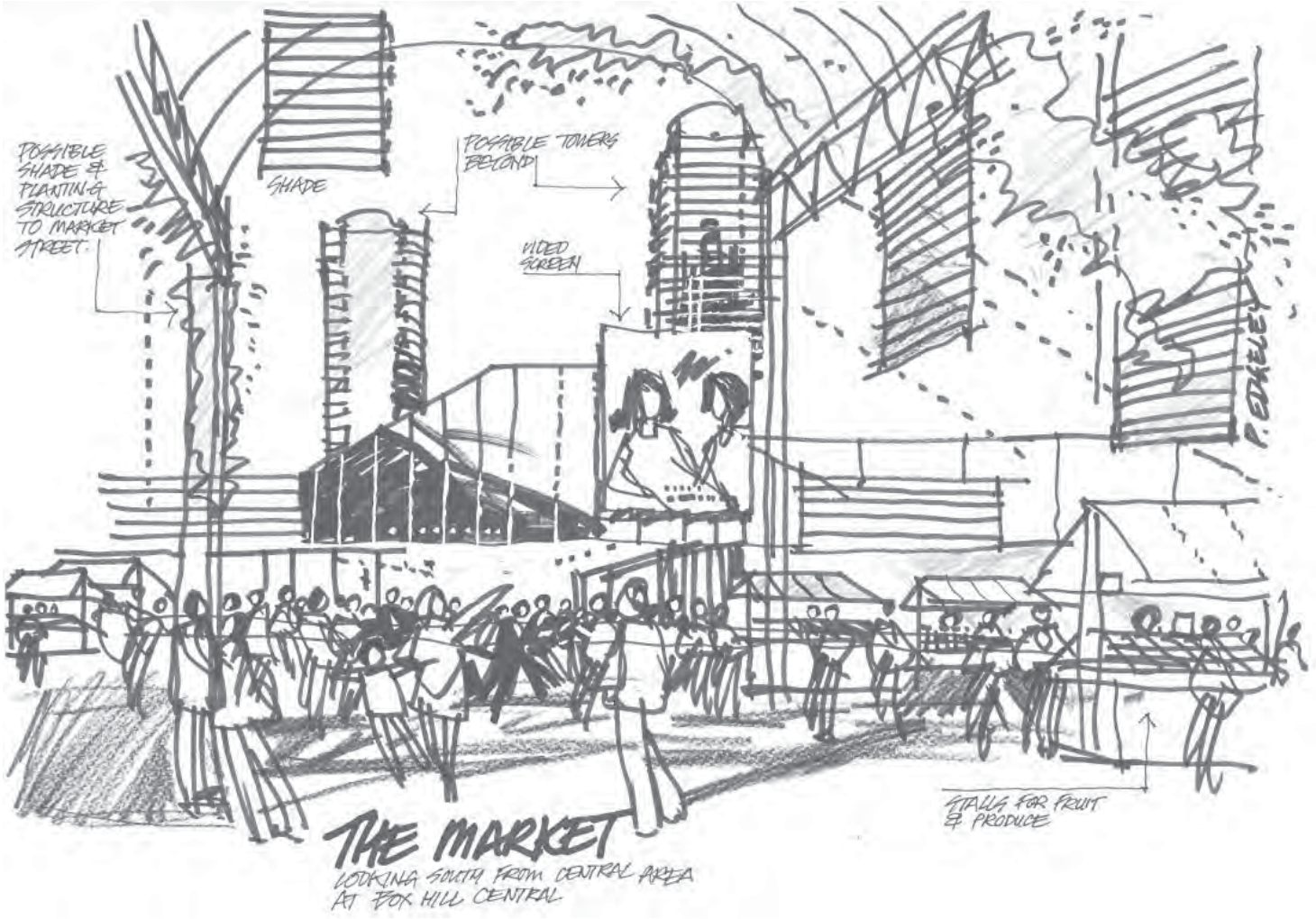


Image: Vision for market-based street environment at Box Hill. Peter Edgeley

4. Transport-related economic benefits from timely infrastructure investment at Box Hill – a preliminary appraisal

The analysis in this paper focuses on four primary pools of economic benefit connected with potential redevelopment of the Box Hill transit interchange, in conjunction with renewal or redevelopment of the Box Hill Central shopping complex and evolution of the surrounding activity centre. A perspective of 'value to the Victorian economy' is adopted, and economic benefits are grouped according to:

- Direct transport-related benefits (addressed here in part 4)
- Broader economic benefits and value impacts - including those arising from property-related or other 'contingent' investments (addressed in part 5)

The analysis here in part 4 summarises and outlines a snapshot of the transport-related economic benefits and impacts that can be unleashed through timely and effective redevelopment of the transit facility. We would ordinarily expect that a large infrastructure commitment of this kind can support a wider array of institutional investment and developmental decisions, delivering real and tangible benefits which are also worthy of appraisal and consideration – and these will be addressed in part 5.

While the economic analysis here is not exhaustive, it should be considered generally indicative of the economic benefits available through timely investment at Box Hill, and stakeholders may read this appraisal of economic impacts as a recommendation toward execution of a full and detailed business case during the 2016 calendar year.

Transport impacts and value – three aspects

In appraising the transport-related economic value available to the Victorian economy through timely station infrastructure investment, three categories stand out - and are analysed here below. The first relates to the economic value delivered by improving passenger facilities for rail passengers. The second comprises similar benefits, but attached to delivery of a high amenity, contemporary bus facility. The third category estimates benefits that may accrue if a benchmark level of time savings can be achieved through infrastructure enhancement, either for passenger's access and egress to-and-from the rail station, the bus station, or in an interchange movement between the two modes.

Notably, there would be a range of potential transport-related benefits beyond those calculations presented here – including in road congestion relief and other areas. The calculations summarised below are pitched only at those benefits that are *most obvious, and most directly related* to a prospective transit facility upgrade.

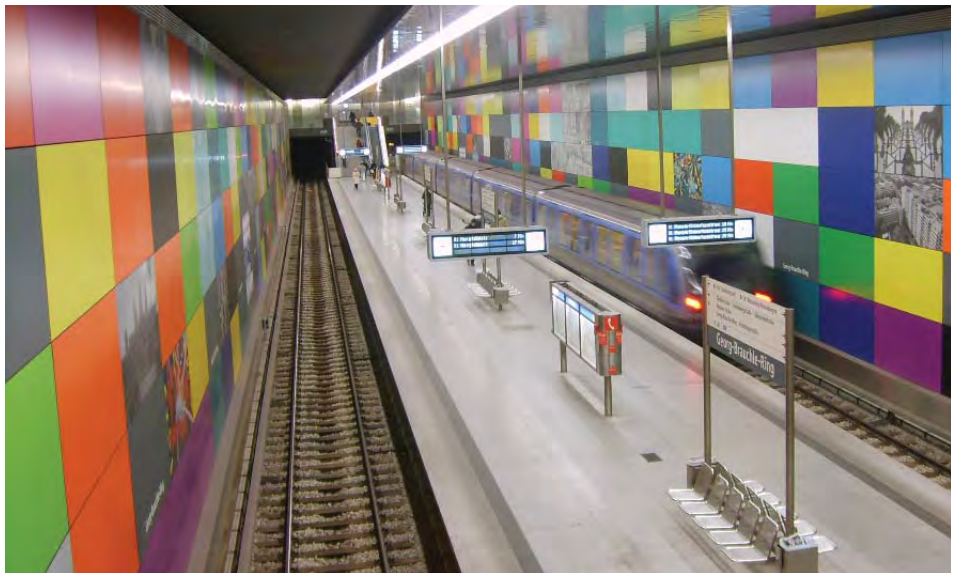
Estimate of economic benefit from better rail facilities

Value to the state economy of delivering better rail station facilities is measured as a form of 'consumer utility'. It is calculated on the basis of the number of daily passengers using the station, the rate of growth in ridership over a defined period, and a multiplier based on the value that can be assigned to passengers' individualised utility, or 'benefit received'. That multiplier has been confirmed through an earlier research exercise conducted by the analyst and author, and funded by PTV during 2013. Passenger growth factors are applied from PTV (2012, p37) figures. Daily rail patronage at the project starting date is estimated by adjusting publically available PTV 2011/12 figures to an assumed project completion year (at 2020) and then over a subsequent life cycle. In practice, this resulted in assumed **rail passenger movements of some 18,890 per day at 2020** (see chart one for a summary).

The spreadsheet analysis assumed 'availability' or flow of economic benefits after completion of project construction at 2020, while those benefits are adjudged to flow for a period of 20 years (see chart two for a visual summary).

Under these basic assumptions, and utilising a discount rate of 5.5%, the ***Present Value (PV) of appraised economic benefits to passengers for a rail station upgrade at Box Hill is in the order of***:

$AUD 76.84 million



Picture: U-bahn stations, Munich

This indicative figure represents an assessment of consumer utility – of value to the economy as a whole. It can be interpreted in a number of different ways – depending not least on the estimated or actual cost of project delivery. But in very basic terms, the application of a benchmark benefit/cost ratio (BCR) hurdle of 1.5 to one would allow state government to comfortably and validly invest in the order of $50 million for comprehensively upgrading the rail station facilities alone (prior to any consideration of wider economic benefits, including those from contingent property or institutional investments).

Methodologically, value to rail passengers is appraised under this analysis through a multiplier that assumes a 'package' of high standard, contemporary, and attractive amenities including: a comfortable waiting room; sufficient and high quality platform seating; availability of high standard toilet facilities; effective weather protection under all climactic conditions; appropriate lighting; a combination of visible security measures (including but not limited to CCTV); the availability of easy-to-access café or kiosk options; a 'modern', attractive, and up-to-date station appearance; a staffed info/ticketing booth; clearly audible PA systems; effective signage and wayfinding; clearly visible clocks; and prominent and easy to read real time service information.

The two most likely impacts that could either increase or decrease the quantum of available economic benefits would be the actual number of daily passengers utilising the facility over the life cycle of the investment, and the discount rate applied (depending essentially on fluctuations in market interest rates). Different assumptions regarding passengers' value of time and the appropriate life cycle of the facility would also vary the outcome, but the analyst considers the selected inputs for these figures to have been particularly robust and appropriate.

Estimate of economic benefit from better bus facilities

Analysis of economic benefits from redeveloping the Box Hill bus facilities follows an identical methodology to that applied for the rail station-related benefits. The level of daily (or annual) ridership at the base year assumption remains an important input variable, as does the assumed rate of ridership growth over the projected life cycle. Both of these input factors were again applied from publically available PTV projections. In practice, this has resulted in an **estimate of some 16,500 bus passenger movements per day at Box Hill during 2020** (see chart two for a visual summary).

This and other input assumptions produced a ***Present Value estimate of economic value arising from redevelopment of the bus station*** at:

$AUD 70.07 million

Picture: Mater Hill, busway station, Brisbane

As per the rail-related figure, this estimate can be interpreted against a benchmark 1.5 BCR – which suggests that the state could feel comfortable investing around (or at least) $47 million to attain the available economic impacts. The bus-related economic value estimate utilises a similar assumed package of new passenger-friendly amenities as those listed-out for the redevelopment of the rail facility. The estimate is dependent on the same or similar key variables as per rail station scenario (ie – discount rate, assumed life cycle, and ridership assumptions over time).

Estimate of economic benefit from better multimodal transit access and interchange

The third source of transport-related economic benefits is based on the *time savings* that might be generated through affecting quicker access and egress to rail or bus transit at Box Hill, or through quicker intermodal connections between the two. In the analysis performed, a travel time savings assumption or benchmark is the key independent variable, which is applied to the same estimates of daily/annual patronage already utilised in the calculations discussed above. 'Value of time' is another important input figure – and for this purpose our calculation mobilises a slight update to a standard PTV-accepted figure.

Aurecon (2010 and 2011) canvassed a range of scenarios that would ordinarily be expected to produce substantive travel time savings for bus and train passengers accessing, egressing and transferring at Box Hill. These included recommendations for new bus lanes, signal priority at key intersections, and bus facility reconfigurations that would ease and speed bus movements in and out of the transit station. Aurecon also made recommendations regarding better internal layouts that would improve and speed-up connections for passengers transferring from bus to rail (or vice versa). And finally, Aurecon and other sources (Whitehorse City Council 2011 for example) have made recommendations concerning potential upgrades to the quality of pedestrian and cycling infrastructure in the approaches to Box Hill Central and the transit facility.

Taking these opportunities in aggregate, it appears reasonable to assess a small potential across-the-board time saving for transit passengers accessing, egressing, or transferring at Box Hill. The performed calculation utilised **a 30 second time saving figure** - which should be achievable through an optimised combination of interventions. This produces a ***Present Value for a 30 second average access, egress and transfer time saving at***:

$AUD 41 million

This figure can be interpreted in a number of ways. Firstly, the 1.5 BCR benchmarking approach suggests that state government could invest something in the order of $27.3 million for access, egress and transfer infrastructure at the Box Hill node – presuming that this investment was able to achieve at least a 30 second time saving on average for passengers (across all access, egress and transfer scenarios and modes). Chart three provides a visual summary of estimated benefit flows.

To release these benefits in practice, infrastructure interventions should focus-in on reasonably clear and present opportunities to:

- **Deliver a quicker, more direct connection between bus and rail platforms.** Depending on the ultimate strategy for redevelopment of the Box Hill Central property, the "30 second" scenario might be easily surpassed. For this particular aspect, it is worth remembering that Box Hill station already sees some 26% of its rail passenger access by bus (implying around 2,000 internal movements per day at 2015, and growing)

- **Provide for dedicated, separated bus lanes or signalling changes at key approaches to the Box Hill bus facility** - as per the recommendations of Aurecon (2011) which were clear that such interventions would, if anything, have positive effects on localised and sub-regional private vehicle traffic conditions. This option also impacts on the roughly 26% of rail passengers arriving and departing by bus. Careful application of new bus lanes also presents as a particularly *cost-effective* access enhancement option

- **Deliver better, quicker, ramp and turning configurations, and bus platform arrangements within the Box Hill Central bus facility.** These options were canvassed in basic terms by Aurecon (2010) under a refurbishment scenario. Any move to completely redevelop Box Hill Central and fundamentally re-arrange internal bus movements would possibly increase the scope for much more substantive travel time savings from this particular source

- **Invest in substantially upgraded pedestrian and cycling conditions, including optimised signal timing at key pedestrian crossings and a range of other measures 'external' to the Box Hill transit facility**. These options have also been identified and elucidated by Aurecon (2011) and would positively impact bus passengers and the roughly 44% of rail passengers currently arriving and departing to-and-from Box Hill transit station on foot (some 3,500 per day at present). Cycling access figures to rail are currently minimal, but projections developed for this exercise suggest that up to 7% of passengers may access and egress Box Hill rail station by bike at 2030, assuming that appropriate supporting infrastructure was integrated into any transport investment and station redevelopment program

- **Re-arrangement of internal shopping centre configurations and transit station interfaces** to deliver faster, more direct internal movements once rail or bus passengers have arrived at Box Hill Central

Summary of implications

Based on these basic initial assessments, it appears likely that sensible infrastructure investments could deliver tangible amenity enhancements and time savings for transit passengers at Box Hill - with related improvements to consumer utility, and economic impacts or benefits.

As such, one of the key recommendations of this paper will be the actioning of further and more detailed development of multimodal access enhancement options, and further more detailed modelling of access time savings based on specified intervention packages. Recommendations will also be made toward the development of detailed station reference designs featuring high standards of amenity, and relevant to the expected passenger flows at Box Hill over a reasonable future facility life cycle. These amenities and proposals can then be further checked against a more detailed and specific analysis of the economic benefits they might trigger.

The development of detailed designs for access/egress/transfer enhancements and passenger amenities will also allow specific and reliable estimates of project cost - against which the economic benefits can be measured.

Picture: Any re-arrangement of rail to bus transfer conditions at Box Hill Central might trigger useful time savings for travellers, with meaningful economic benefits

CHART 2. Estimated annual value of passenger amenities enhanced to higher standards $,000

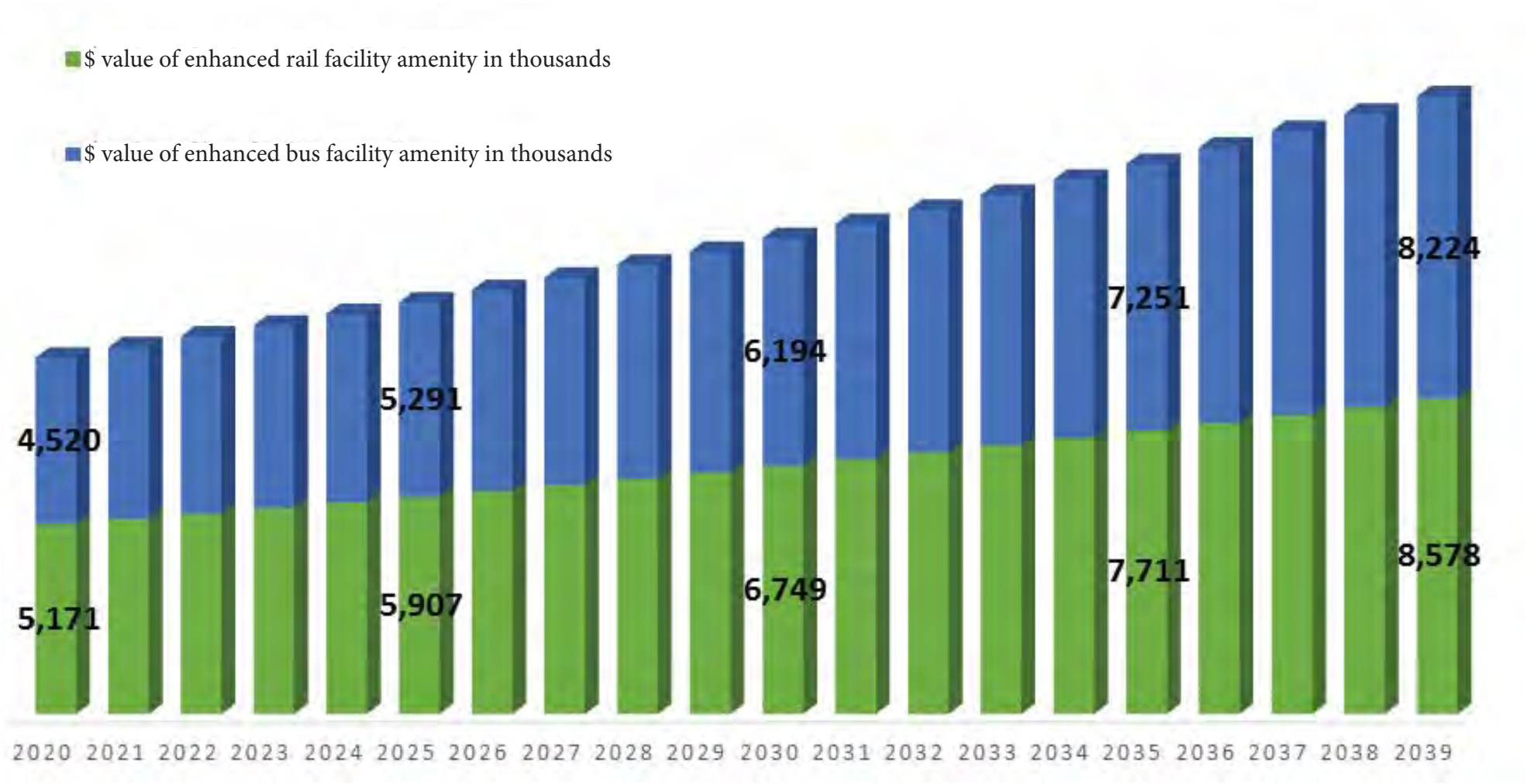
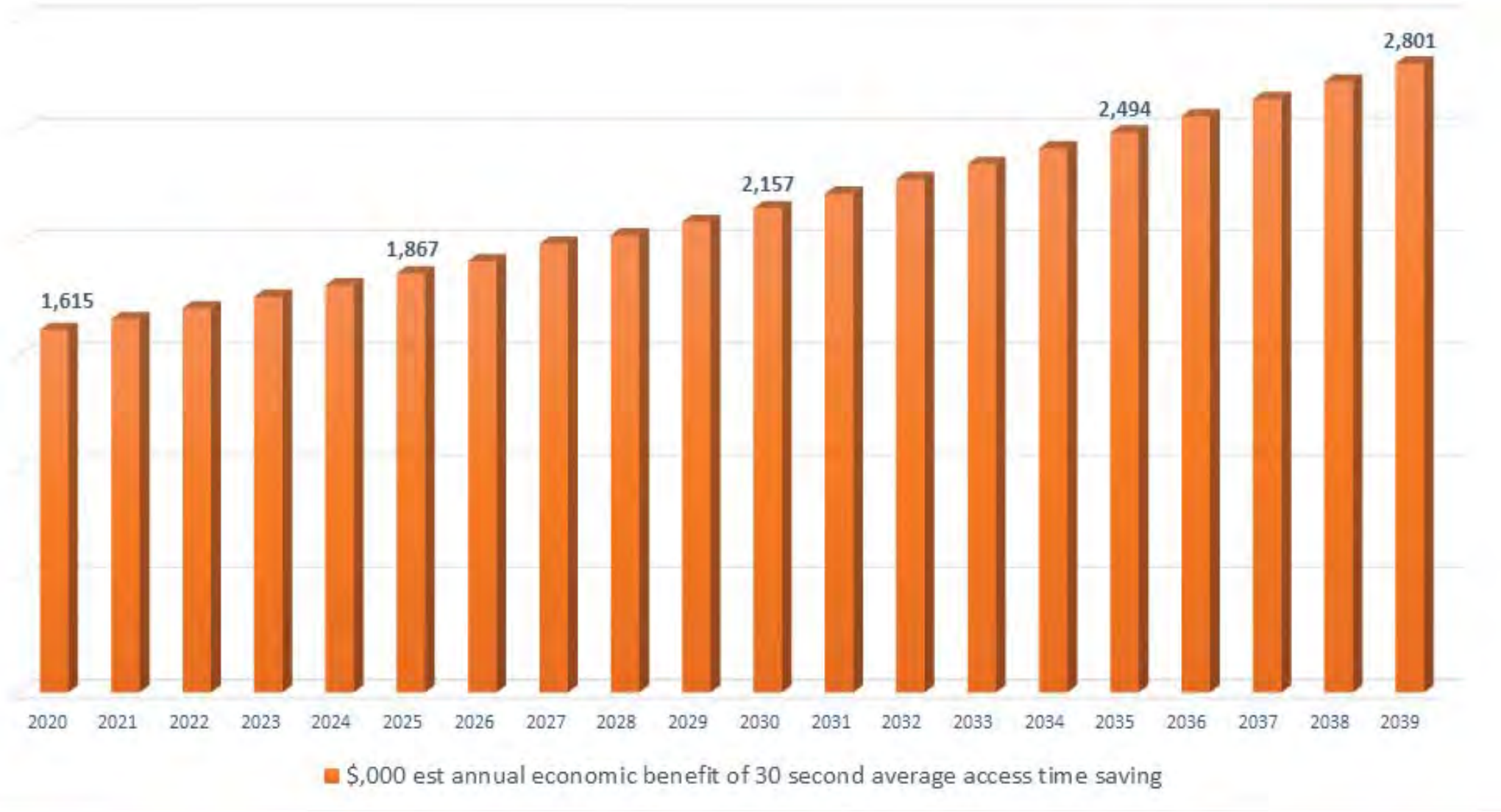


CHART 3. Box Hill Interchange: Estimated annual economic benefit of achieving 30 second time saving for access, egress & transfer movements



5. Broader economic benefits from timely transit infrastructure investment at Box Hill – a preliminary appraisal

Contemporary practice seeks to understand the value of transport infrastructure projects beyond 'traditional' and familiar benefits to transport users alone. These can comprise a range of impacts and aspects, not least **property investment or renewal impacts**, such as the future investment scenario at the Box Hill Central retail property – or for urban development, and institutional investment in upgraded facilities throughout the surrounding area. An investigation and appraisal process to gauge the potential impact from this pool of economic benefits is summarised in this chapter.

Local investment impacts – what to count, and why

While there is a strong current and near-term pipeline of real estate investment apparent for Box Hill, further medium-and longer-term investment decisions will increasingly depend on the emergence of a clear picture regarding the future of Box Hill as a convenient and practically accessible non-CBD hub.

The outlook and clarity regarding renewal of the station facility, enhanced transport movement, and greater transport amenity does play a role in the thinking of many local property holders and institutions. Major investors have initially been attracted into investment at Box Hill due to existing transport-related advantages, but these will come under pressure as growing travel demand rubs against available capacity, deteriorating passenger amenity, and declining fitness-for-purpose in an ageing facility. This narrative has been confirmed through first-hand information-gathering and discussion with important local property or institutional stakeholders.

Calculation of medium and longer-term property development trajectories involves the challenge of gathering accurate input data (and this alone is one possible explanation as to why these impacts have often not been included within traditional benefit/cost approaches). But up-to-date infrastructure thinking ultimately demands a more holistic understanding of project impacts and benefits where state governments must prioritise scarce funds among competing projects, options, and locations. So a broader and more inclusive analysis of economic impacts and project resonance simply provides *a clearer picture for state governments regarding the relative merits of competing projects*. Certainly, if state government's only project criterion or interest lay in direct benefits to transport users, then these other investment-related categories of transport infrastructure benefit would serve no useful purpose. But increasingly this simply isn't the case - and up-to-date, comprehensive outlooks toward infrastructure investment choices are now preferred. As such this chapter will seek to summarise an analysis of property and institutional investment trajectories for Box Hill over a medium to longer-term period.

Assessment of local property development trajectories & potential investments in institutional facilities at Box Hill

The investigations performed for this paper looked firstly at *the entirety of readily identifiable or foreseeable property and institutional investment* at Box Hill across the short, medium and longer-term. This covered the full gamut of intentions or possibilities across residential, retail, other commercial, educational, health-care, and general service-provision properties. The investigation process looked at private landholdings, state government land assets associated with the station, local government landholdings, and the holdings of major institutions. Investment likelihood was appraised through a mixture of direct discussion with

major stakeholders, as well as basic assessments of development capacity based on highest-and-best-use redevelopment scenarios for sites that are currently under-developed. This process does not constitute a full development capacity study and is not entirely exhaustive of every major property in Box Hill and surrounding neighbourhoods – but should be considered reasonably indicative of the scale of immediate and future development activity over a defined period. In summary, the analysis identified a total of at least:

$4.2 billion in identifiable and likely property or institutional investment prospects for the Box Hill activity centre.

It is adjudged that this investment pipeline will likely fully unfold during a period of around 12 years (ie – 10 to 14 years, depending on rate of uptake and market conditions). It should be reiterated that this pool of identified investment prospect is not exhaustive, and several sites or opportunities were deliberately left out of the analysis for a range of reasons, while it is likely that many other sites or investment prospects exist which were simply not identified or brought-up during this particular process.

Short term trajectory

From among this total short, medium and longer-range investment figure of $4.2 billion, it was adjudged that:

At least $1.1 billion in investment is readily apparent for the immediate and short term period of 0-4 years at Box Hill.

This mainly comprises residential and mixed-used private development (either recently approved or in the process of development application), along with a selection of pre-committed institutional investments. While these investment intentions are not directly inter-related to the state government benefit-cost outlook for station renewal at Box Hill, they should be at least recognised as part of a 'servicing need' that is building up - across residential, commercial and other growth at Box Hill, leading to sustained and substantive impacts on transport movements and transit ridership.

Picture: Retail upside is significant

Local investment scenarios for the medium and longer-term

Beyond the immediate and short-term, a substantial quantum of property and institutional investment prospects are likely or apparent for Box Hill. During the medium and longer-term horizon (from around 4 – 12 years) it is adjudged that actual investment outcomes will be increasingly 'contingent' on clarity regarding the renewal of the Box Hill transit facility – because most of these property and institutional investment possibilities are considered to be closely inter-twined with issues of infrastructure capacity, amenity and certainty in Box Hill and at the Box Hill transit interchange. In some cases the investment outcome is *directly* tied-into station renewal decisions (as at the Box Hill Central property, and in the case of VicTrack properties). Whereas in other instances actual investment outcomes are only one step removed from decisions on necessary transport infrastructure and state government infrastructure support (in the case of an array of local government landholdings, institutional holdings, and private holdings that have not yet progressed to development application stage). This medium and longer-term investment pipeline is appraised at:

$3.06 billion in medium and longer-term pools of prospective investment at Box Hill, 'contingent' on clarity from state government regarding required transport infrastructure and station renewal.

Picture: Box Hill is experiencing rapid growth, but the medium and longer term horizon offers greater possibilities.

Summary of implications

A scenario of around $3.1 billion in contingent property and institutional investment at Box Hill over the medium and longer-term comprises a substantive quantum of 'broader' economic benefits available from investment in the station facility and associated works. *On this figure alone, any facility-related investment commitment from state government in the likely cost range of $100 million to $150 million appears to be a highly attractive and competitive project proposition.* But this figure is by no means exhaustive of the entirety of wider economic benefits available (beyond direct transport benefits). Impacts such as agglomeration economies have not been calculated, and nor have a range of social and environmental benefits. These are all invariably substantive and important, although time consuming to calculate and dependent on higher-level inputs derived from carefully-specified modelling exercises based on detailed infrastructure plans and options. As such, a recommendation will be tabled later in this paper that other economic benefits (including agglomeration, and social and environmental benefits) be assessed as part of a full business case exercise based on detailed engineering plans, during 2016.

It should also be noted that the $3.1 billion figure for medium and longer-range contingent investment is not comprehensive, and Box Hill appears to offer substantive opportunity to sustain ongoing property and institutional investment beyond the appraised time horizon of around 12 years, as well as offering the general market conditions to make further investment *likely, should transport-related challenges be addressed*. Indeed, clarity on transport conditions and decisions would likely accelerate the rate of delivery of already foreseeable investment, improve the market conditions that support that rate of investment, and extend and broaden the real estate and institutional pool of investment beyond current and obvious properties and scenarios.

Although there are a number of other high-priority projects of different type either in-process or in planning phases in Victoria at this time, the potential Box Hill transit interchange renewal should be considered on its merits, and with reference to the strengths it offers relative to 'competitor' projects (in terms of direct transport user benefits and other benefits and impacts). It also appears timely for Victorian stakeholders to take stock of the mix and variety of project types under consideration and action. Transit facility upgrades are a particular project type, offering an attractive array of transport and renewal benefits – and so a healthy mix of transport investments and projects for Victoria would invariably include several major station upgrades of the sort offered by Box Hill (and at other locations such as Frankston).

> *The overall effect of these investigations into prospective property and institutional investment pipelines has been to support a robust recommendation that state government actively and comprehensively appraise these aspects of the benefit-cost outlook in greater detail within a full business case process during 2016* (a recommendation that is outlined later in the paper).

Jobs Impacts

Economic impacts and benefits can also be viewed through the lens of prospective jobs creation (rather than purely as a dollar-based economic impact figure). As such, jobs impact calculation have been performed for this paper, through allocation of the $3 billion investment figure to its various component parts of output (ie – commercial activity, retailing, and construction activity). Table one below summarises the outputs of calculations performed using the RemPlan modelling framework – which translates economic activity into estimates of direct and indirect jobs created.

Picture: Box Hill skyline

Table 1. Estimated jobs gained due to Box Hill transit facility renewal

	Jobs direct	***Jobs indirect***
Construction	4,354	2,036
Commercial	1,171*	459*
Retail	2,608*	333*
Totals	**8,133**	**2,828**

*note – new and ongoing jobs

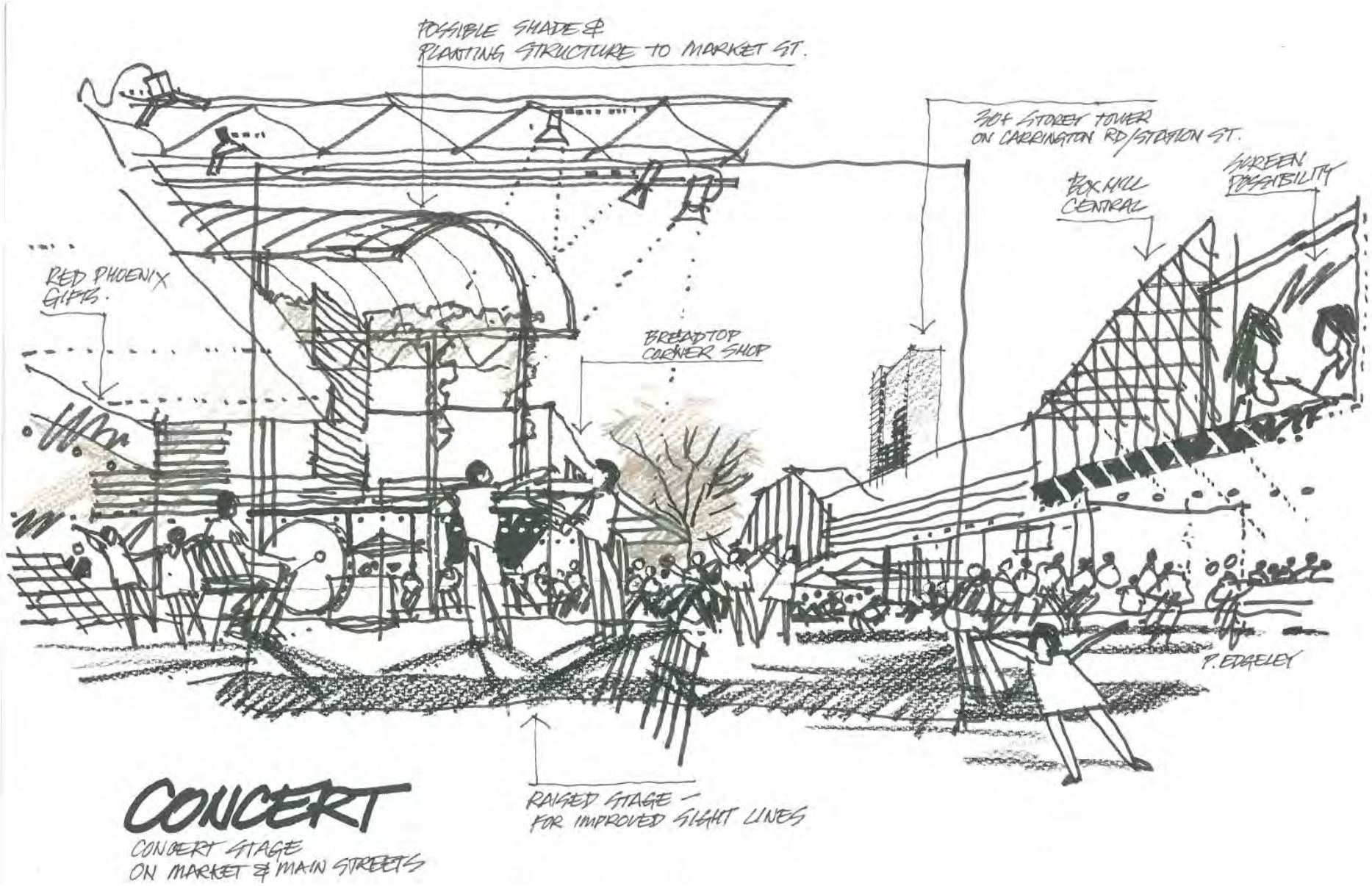


Image: Performance based concept for Box Hill Central. Peter Edgeley

6. Summary of preliminary analysis of economic benefits

The primary purpose of this paper has been to analyse and provide a reasonably holistic *early estimate of the economic benefits that might be delivered through generational investment and renewal at the Box Hill transit facility*. This would hopefully provide an 'envelope' of benefits within which we can judge whether substantive infrastructure investment is possible and attractive (against widely accepted benefit/cost benchmarks, or against foreseeable facility costs).

The potential benefits of mass transit facility enhancement are generally seen to come under the heading of transport-related and 'broader' benefits respectively, of which three of four of the largest, most prominent or obvious sub-pools have been analysed and discussed in this paper. Analysis of transport-related benefits is reasonably familiar in Australian infrastructure circles, particularly anything that surrounds travel time savings. Estimates of passenger amenity are perhaps slightly less familiar, but remain well within common practice, and tend to rest on a reasonably robust set of assumptions and inputs. From the outset, it is invariably likely that a high-throughput facility such as Box Hill, which caters to large numbers of both bus and rail passengers, should demonstrate a compelling investment logic (well beyond the benefit-generating ability of small or even mid-scale transit facilities). The analysis in part 4 of this paper has essentially borne-out that preconception – and substantial benefits seem to be on offer, allowing a reasonable infrastructure budget scope within accepted BCR hurdles, even before other non-transport benefits are considered. The analysis of these 'broader' benefits tends to be seen as a more recent innovation in transport appraisal, but this should be viewed as the fulfilment of the long-established dictum that *infrastructure assessments should seek to identify and monetise all benefits that are calculable or estimable*, based on solid information and input data, and sensible assumptions.

Table 2. Summary of select estimated benefits for rail facility renewal at Box Hill

Category of impact or benefit	*Estimated Present Value of benefit/impact $AUD*
Benefits to **rail passengers** of station redeveloped to high amenity	$76.84 m
Benefits to **bus passengers** of station redeveloped to high amenity	$70.074 m
Benefits of **access/egress/ transfer package delivering 30 second average time saving** per trip	$41 m
Sub-total: appraised transport-related benefits	**$187.91 m**
Urban renewal benefits (ie – from contingent property or facility investments in surrounding area)	**$3.1 billion**
Cost of project to state	TBC
TOTAL est. value/benefit:	***$3.198 billion***

Literature on this topic has long suggested that it is desirable to calculate wider benefits, including urban renewal, or property-related benefits - and limitations toward doing so in the past were often simply methodological or data-related. These methodological updates also connect with Australian stakeholders' attempts to re-appraise the special role that transit infrastructure investments can play in terms of unlocking the full potential of education, health or other government facilities and services, based on better and more convenient access.

On the basic viability of station investment at Box Hill

In summary then, table two above provides an outline of those benefits calculated during this preliminary appraisal exercise. It appears to show **a *total present value economic benefit/impact available*** at around:

> **$3.2 billion**

This comprises direct transport-user benefits appraised at $187.9 million in present value terms, and broader benefits appraised at some $3.06 billion of present value - arising from the unfettering of future urban renewal and institutional investment pipelines in the surrounding area. We can use these figures to inform a sense of appropriate capital investment and proportionate station facility cost. For example, if we apply a benchmark benefit/cost ratio hurdle such as 1.5 to one to the core transport-related benefits listed in table two, then an *appropriate capital investment envelope* presents itself at around: $125 million. Alternatively, a higher-impact 1.7 to one BCR ratio might be attained if the same or similar direct transport benefits can be generated from a capital investment of some $110m. While a slightly lower return hurdle of 1.25 to one on direct transport benefits would allow some $150 million in station renewal funds. So firstly, the core transport benefits appraised in this exercise seem to be appropriate against the likely cost of facility investment, when taking commonly-occurring hurdles into account. In summary, the core transport-related benefits calculated here suggest consideration be actively given toward a *potential capital budget for transport facility renewal of around*:

> **$110 million to $150 million**

Any capital investment in the order of $110m to $150m would presumably be split across a mixture of rail facility enhancements (or total facility redevelopment), bus facility improvements or redevelopment, and investments leading to meaningful access, egress and transfer time savings - presumably delivering between 1.25 and 2.0 to one as a ratio of transport-related benefits to cost. According to the proportion of calculated benefits, it may be sensible to apportion around 41% of available project funds to the rail facility, 37% to the bus facility, and 21% to multimodal access and transfer infrastructure.

These indicative figures seem to pass the test of practical relevance, given the recent capital budgets for announced or delivered rail station projects in Victoria. For example - at Frankston Station, where a somewhat smaller rail throughput (around 17,000 daily movements) is seen, as well as a much less significant daily bus passenger task (at around 1,900 movements per day), a project budget of some $50 million has been proposed. As another example, the Ringwood Station project has been costed at around $66 million, to serve some 4,500 rail movements and 1,200 bus movements per day (approximately). Thus, resource allocations of $50 million and $66 million for the Frankston and Ringwood projects respectively will be utilised in facilities with

around 54% and 40% of Box Hill's daily transport task. If we assume transit facility resourcing is scaled and proportionate to transport need, then a capital budget of between $110 million and $150 million appears generally appropriate for Box Hill at this early stage (even before we consider the varied future growth trajectories at each of these stations).

Broader benefits – what do they tell us…?

The appraised transport-related benefits alone lend support and credence to the possibility of productive infrastructure investment at Box Hill. But in recent practice, active consideration has generally been granted to other, non-transport benefits – in pursuit of a clearer and more holistic picture as to where scarce state resources should be allocated among alternative projects and investment options. On this front, Box Hill appears to be a highly attractive investment proposition for the state, given its apparent trajectory of solid institutional and property investment in the surrounding area (which appears to be essentially contingent on better transport conditions over the medium and longer-term). In summary, a state commitment of around $110m to $150m could sustain and underpin a pipeline of around $3.1 billion in medium and longer-term urban renewal and institutional investment at Box Hill.

This appears to present Box Hill transport interchange as one of the most competitive infrastructure investment opportunities in the state, but this should not be surprising given the widely understood role of Box Hill as a leading activity centre, and the high profile of the transport facility as one of Victoria's most important non-CBD nodes. By the same token, it must be recognised that a failure to act and progress infrastructure enhancement in a timely and constructive manner would likely place some or all of this investment prospect at risk. The $3.1 billion figure for prospective investment should be read as a risk/return opportunity to the state economy, with timely investment in a high-quality infrastructure upgrade representing the core decision on which so much else depends.

Employment impacts

Another perspective on those same appraisals of economic impact can be seen in job creation estimates. As per the discussion in chapter five and table one, there appear to be solid prospects for the creation of some 11,000 jobs through the flow-on effects of sustained real estate development and institutional investment that a timely renewal of the transit interchange would sustain and underpin.

Methodological context and summary of analytical limitations

This preliminary appraisal exercise has not had the full resources – such as a new station reference design or detailed transport modelling inputs - to reliably calculate every aspect or input to a very high degree of accuracy. But the appraisal figures should be read as reasonably indicative for an early-stage exercise – not least because the calculated transport impacts do appear *proportional* to the level of benefit that might ordinarily be expected through redevelopment of a station facility within Box Hill's range of daily passenger throughput. At the same time, the broader non-transport benefits appear proportional to Box Hill's status as one of Victoria's most noteworthy growth concentrations (and are certainly based in reasonably solid data regarding prospective property development activity). So the core estimated benefits for rail and bus passengers are based on reasonably strong input data, sensible assumptions and robust method – and should be considered to hold a reasonable degree of predictive valence and accuracy, all things considered.

Similarly, the process of information-gathering for 'urban renewal' benefits has been first-hand and robust, and the figures presented under this category should be considered reasonably reliable (perhaps only the rate of uptake and delivery remains open to debate). But constraints and methodological considerations to this exercise included at least:

- that an assumption has been relied-on for estimating the value of travel time savings (rather than specific figures based on modelling of specific scenarios and reference designs)
- that no appropriate fully-developed reference design has been available to demonstrate specific benefits such as time savings or design quality of an intended facility (although the Aurecon 2010 document provided basic informational background that at least suggested the validity of assuming time-savings for internal movements)
- similarly, that we are not yet fully aware of whether a renovation or full redevelopment and replacement of the rail and bus facilities is the more likely scenario
- that project costings are not available (for the same reasons)

These basic constraints and limitations notwithstanding, the preliminary appraisal exercise should prove informative, relevant and useful as a foundation for workable and practical recommendations regarding next steps, future project development work, design considerations, and the usefulness and timeliness of investment in a further, more detailed business case development process during the coming 6-12 months.

7. Recommendations

The appraisal process summarised by this paper appears to identify solid prospects and economic value from effective infrastructure investment at Box Hill, particularly if a range of thematic and design-related opportunities are embraced, and if any station facility investment is proportionate to current and projected future passenger volumes. The project seems to be presenting strongly on a range of commonly-promoted government decision criteria including:

Criticality – Moves to support infrastructure enhancement and redevelopment of the transit interchange are crucial for unleashing a range of other investments and positive changes.

Alignment – The possibility of investing in transformative station infrastructure at Box Hill aligns strongly with pre-existing policy commitments toward poly-centricity and transit oriented growth.

Readiness - The station facilities are very close to the end of their practical life cycle, while an array of participants stand ready to support redevelopment and transformation.

Value – Outstanding value prospects are offered, whether on traditional transport-based criteria, or through wider benefits from urban renewal.

Argument – The option of redeveloping Box Hill interchange and town centre contains a consistent and readily apparent logic, and has been demonstrated at face value in this paper to offer solid prospects. A decision that supports timely redevelopment of the interchange would pass the test of common sense. A request for funding to carry out a detailed investigation and business case is logical at this time.

Support – Moves toward further detailed investigation and timely facility renewal have a broad and diverse base of stakeholder support.

Partnerships and Collaboration – There are clear opportunities to engage private and public sector interests, and form partnerships for mutual benefit, at Box Hill.

Opportunity – The opportunity of generational transformation for a leading activity centre is on-offer. Timely moves toward redevelopment of Box Hill transit facility will create and sustain an array of opportunities for private and institutional stakeholders, as well as the possibility of substantial transport improvements at a major node.

Investment – Timely investment at Box Hill appears to support a far greater pipeline of private and institutional investment. The case for funding development of a full business case appears sound at this stage.

Timing – Major decisions loom regarding the Box Hill transit facility in the near term. 2016 is an appropriate time to fully explore the detail of these decisions through actioning of

a full business case. Deliberate steps toward infrastructure transformation appear necessary now.

Growth – Box Hill is a major growth hot spot at the present time and into the medium and longer term.

New business – Better infrastructure supports Box Hill's transition to a new and lively mixture of office, institutional and retail employment.

Economic Enabler – Timely infrastructure investment would enable an array of businesses and investors to advance their agenda for Box Hill as a productive economic base.

Jobs provision – The facility upgrade appears to offer around 11,000 flow-on jobs if actioned.

Detailed recommendations are outlined below.

Primary recommendation

1. That state government commit funding to the development and assessment of a full transport interchange renewal business case during 2016

The appraisal contained in this paper, albeit preliminary, appears to demonstrate strong prospects for solid economic impacts through investment in renewal or redevelopment of the Box Hill transit facility – across both transport-related and broader benefits. At face value these figures warrant further and more detailed investigation, especially if other latent design, transport and policy-related rationales are also taken into account. The strength of existing stakeholder support for Box Hill as a transit-focused centre should also be considered, along with a range of practical realities around facility life-cycle and ongoing growth in passenger demand. *It is recommended that state government carefully consider these conditions through funding for and execution of a full business case during 2016, founded on appraisal of alternative costed designs as well as detailed modelling inputs to support appraisal of ridership and travel time savings for transport passengers.*

Policy-related and general recommendations

2. Engaging constructively with existing stakeholder commitment

Whitehorse City Council and its stakeholder connections have undertaken extensive ongoing discussion regarding the Box Hill transit facility and town centre in recent years. The thrust of these discussions and related analytical documents has invariably been toward the crucial importance of the transit facility, the need to provide certainty regarding its future, and the necessity of timely planning toward delivery of a renewed and appropriate facility.

This consistency and alignment of stakeholders, and their willingness to collaborate, are critical to Box Hill's evolution as a leading activity centre. Stakeholders within the Box Hill First group include Vicinity Centres, VicTrack, Epworth Eastern Hospital, Box Hill Hospital, Deakin University, Box Hill Institute, ATO, and many more. These stakeholders were engaged-with intensively during the investigations for this paper. In addition, state government has recently established a Ministerial Advisory Group for the Box Hill transit interchange. It seems apparent that lack of specific funding presents a key limitation of this group, along with the lack of funds to carry out a full appraisal for redevelopment of the transit facility. A suitable allocation of funds would recognise ongoing stakeholder support, and ensure the work of these groups and all participating stakeholders is meaningful. *It is therefore recommended that the Victorian state government recognise the consistency, broad support, and constancy of these messages - and take steps over the coming 6-12 month period to fully and properly consider actual station renewal, primarily by actioning and funding a full business case and project development process.*

3. Station redevelopment as core urban policy

International jurisdictions and major metropolitan areas have provided fine examples of how to follow-through from contemporary planning directions and ideas (such as those embraced in 'Plan Melbourne') into actual on-the-ground outcomes in which poly-centricity, transit oriented design and 'distributed growth' become workable and successful. The crux of so many of these successful international models appears to be the treatment of the transit node itself, and the investment of time, effort, design care and resources into developing better station facilities for the leveraging of a greater planning good, beyond transport. It appears now time for Victoria to 'join the dots' between its long-held ambitions of balanced, sustainable growth, and the specific public infrastructure investments needed to bring about such outcomes. *It is therefore recommended that state government and supportive stakeholders come together to consider investment in Box Hill as a touchstone exemplar of 21st century activity centre planning and design. In doing this, stakeholders should view the transit facility itself as the key investment option that can unleash a range of other related design values and sustainable growth outcomes.*

4. Box Hill as our 'best option' to demonstrate a poly-centric city through enhancement of a metropolitan activity centre

Documents such as the 'Plan Melbourne Refresh' (State Government of Victoria 2015, esp pp 18-20) allocate substantial space to discussion of the 'polycentric city', metropolitan activity centres (of which Box Hill is one), transit oriented planning, and so forth. But of the activity centres listed, few have the mix of desirable attributes that Box Hill already demonstrates – across existing and projected transit passenger volumes, quantum of intermodal connectivity, diversity of localised employment options and institutional presence, inter-mixture of land uses, housing demand growth, and the benefits of a relatively short public transport commute to the CBD. Other highly competitive locations like Dandenong, Footscray and Ringwood are at a different phase of the transport facility planning cycle, while many others are either 'future' centres yet to fully emerge, or face more substantive challenges to redefine their mix of activity and land use, and their general desirability for inward private investment (in the case perhaps of Frankston, Broadmeadows, or Sunshine). In simple terms, if Victoria is unable to make poly-centricity work at Box Hill, then the concept is essentially meaningless here. Likewise, Box Hill presents as both the most attractive of our activity centres, and the one with the best mix of elements providing 'good timing' for current action. It already offers many of the attributes of a 'national employment cluster'. As such, *it is recommended that recognition be afforded to Box Hill's special status as a leading activity centre among Melbourne's broader constellation of activity centres. This status should be supported through timely infrastructure planning activities, and an open willingness to consider station redevelopment on its merits. State government should also give due consideration to a desire held by Whitehorse City Council stakeholders that Box Hill be embraced as Melbourne's most obvious opportunity to develop a 'second CBD' in the manner of Parramatta's role within greater Sydney. And stakeholders should actively consider formalising recognition of Box Hill as a 'nationally signigificant employment cluster'.*

Transport Recommendations

5. Lifecycle and infrastructure needs of the transit facility

Box Hill transit interchange is one of Melbourne's largest and most important non-CBD transit facilities (by passenger volume, for its crucial role in intermodal interchange, and its strategic position in the Eastern suburbs). The current facility was designed and built around 30 years ago, and project teams and decision-makers at that time would simply not have been in a position to foresee and design-for conditions encountered at this current time, let alone for the future growth and role of the facility well beyond 2015. There are also clear challenges in areas like access for people of lesser mobility (in both compliance-related and practical terms) and the quality of overall passenger experience and impressions. *It is therefore recommended that the Victorian state government and supportive stakeholders take full stock of life cycle realities at the Box Hill interchange, and the quality of current facilities relative to need and passenger expectations. Serious assessments should be undertaken, based on fulsome information regarding future needs and opportunities for the facility over the coming 20 + year horizon.*

6. Passenger volumes and transport role

Because of its crucial role in Eastern suburbs transport, Box Hill is a very high volume station for both bus and rail passenger movements, and for interchanges between those two modes. Reasonable projections also seem to depict a likely doubling of the daily passenger task over the coming 20 years. This scenario, if anything, appears to be somewhat conservative relative to projections from organisations like PTV that metropolitan rail ridership will double within a time horizon much more like 10-14 years. *It is therefore recommended that Victorian state government and supportive stakeholders consider and plan-for a station renewal program that is proportionate to current and future passenger volumes at Box Hill, and 21st century expectations of station design quality, easy access, and positive customer experience.*

7. Provide better bus access to-and-from the facility

As per the discussion in part 4, there appears to be substantial economic value available if travel time savings can be realised for passengers accessing the Box Hill station, including by bus. Aurecon (2011) included a number of recommendations around bus lanes and signal priority at various parts of Box Hill. *It is recommended that key partners such as VicRoads, PTV and Whitehorse City Council work together to bring about useful changes to local street conditions for the purpose of prioritising efficient bus movements. These options should also be explored in more specific technical detail, and fully costed – either as part of a project development program for station renewal, or as a stand-alone but related exercise.*

8. Explore quicker, more effective internal bus movements within Box Hill Central and transit facility

The possibility of economically-valuable travel time savings to passengers was identified in part 4, and there are also presumably similar savings on offer to the *bus fleet and operators* if greater efficiency of movement can be delivered. Although it is difficult to conceive of specific alternative arrangements, it has been recognised by sources such as Aurecon (2010) that internal bus movements are not necessarily optimal for the high-throughput bus movement scenarios seen at the present day, and into the future. It is likely that original designs for the bus facility at Box Hill foresaw a relatively mild future usage of buses as a means of movement – rather than viewing the facility through a genuine 'mass

transit' lens. *It is recommended that further investigation into 'higher impact' station redevelopment options should ascertain the possibility of quicker, perhaps less circuitous internal bus movement within Box Hill Central, across a range of measures. This presumably involves taking a genuine interest in the potential benefits (and costs) involved in a complete redevelopment of the bus facility to enhance its movement elements under a phased process of demolish and rebuild.*

9. Deliver a quicker, more effective connection for passengers transferring from bus to rail

Similarly, the assessment of economic value undertaken in part 4 demonstrated a compelling scenario if transfer time savings can be achieved for passengers transferring between bus and rail, and this is backed by commentary from Aurecon (2010) to similar effect. *Whether the current facilities are essentially retained and refreshed, or entirely new facilities developed, it is recommended that substantive time, design care and attention be afforded to measures that can quicken inter-modal transfer at Box Hill (possibly making it more direct), as well as efforts to make that transfer more legible and easy to understand – especially from the perspective of first-time users.*

10. Deliver greater 'identity and presence' for the transit facility

Recent international precedent has strongly reinforced the notion that transit facilities need strong *identity* for wayfinding and branding purposes. This usually takes effect through the use of powerful and easily-identifiable visual tools that deliver prominence, distinctiveness and character to the rail facility. At present, the rail facility and its access points are somewhat 'buried' within the shopping facility that surrounds it. Depending on whether a low or high impact redevelopment pathway is eventually selected, changes might possibly include creating a distinctive 'station entrance' on several sides of the shopping centre property (or at least the signage and wayfinding aids that provide a clear *expression* of a station entrance, even if spaces for entry and movement are shared with the shopping centre). Stronger wayfinding and branding is certainly called-for in any case, while the station platform areas could do with a more lively, creative and distinctive aesthetic treatment. Concourse areas are also considered crucial to modern transit facilities, and there appear to be options available to carve-out a slightly more 'transit-focused' entrance-adjacent concourse area even within the current shopping centre layout. *It is recommended that design efforts for station renewal carefully consider the role of transit branding and wayfinding, and take every opportunity available to deliver interesting platform environments, a clear and well laid-out station concourse area, and distinctive station 'entrance' points and treatments. Effective branding and 'identity' for transit should be key considerations.*

Urban design and planning recommendations

11. Contemporary design directions A: creating “a network of interconnected public spaces”

Equally, there have been many generic statements around contemporary urban design thinking for Victorian locations over the years, including in very recent documents such as Plan Melbourne Refresh (State Government of Victoria 2015, particularly chapter 2). But in non-CBD locations, visions for better design are yet to fully materialise or even explain themselves clearly to a broad audience. There can be no greater test of Victoria’s ability to deliver genuine urban design excellence than through the treatment of its metropolitan activity centres, among which many independent parties would be willing to attest to Box Hill’s pre-eminence as a test opportunity. Although Australian planners and designers are sometimes reluctant to fully embrace European examples, the medium-sized and larger cities of Europe have consistently demonstrated strong urban design outcomes over an extended period, including at non-CBD stations and locations of suburban renewal. The key success factors of European design tend to boil down to two inter-related aspects in a) an emphasis on public realm investment within renewal projects or activity centre development, and b) the creation of a network of interconnected, attractive, and pedestrian-friendly public spaces. As such, *it is recommended that any actions from state government regarding redevelopment of the transit facility should play a lead role in sustaining an urban design transition for Box Hill that is based around public realm enhancement, and the creation of a network of inter-linked public open spaces that emphasise people and pedestrian movement as well as connections to parkland and recreational assets.*

12. Contemporary design directions B: “from a centre to a destination” - embracing leisure, hospitality and the night-time economy

Along with other steps to refresh and update the Victorian and Australian concept of ‘activity centres’, serious work is needed to reposition our non-CBD centres as *lifestyle destinations* that offer a range of attractions and hospitality offerings. Such strategies are sorely needed for bringing-in people, and delivering high levels of activity and retail turnover well into the evening. A central failing in Australian design and planning of activity centres has been a simple inability to conceive of our centres in their night-time incarnations, including a lack of work and effort toward understanding the visual, lighting-related, and aesthetic values of lively night-time precincts. By contrast, many leading Asian cities already understand and provide for ‘destinational’ centres, including through lively night-time aesthetics, pedestrian friendly environments, a clever provision of activities and uses (including night markets, entertainment, and late-night shopping), high levels of perceived and actual safety, as well as strong and reliable public transport service provision till after midnight. Whitehorse City Council had previously commissioned some creative design imagery with public input – that imagined uses or activity programming at Box Hill such as an ice rink, a concert stage, or a market. Perhaps all three are worth considering… *It is therefore recommended that any activities of state government regarding renewal of the transit facility are conducted in a manner that supports the ability of council and local retail stakeholders to develop a clearer leisure-based ‘destination vision’ for Box Hill, including a strong understanding of preferred new uses and activities. Equally, the shopping centre owner should actively consider incorporating new, leisure-based uses into any centre update plans. This might include offerings such as cinemas, a hotel, and a greater diversity of shops.*

13. Re-arrange interface between transit, shopping and surrounds

Along with such moves, it is important to recognise transit's anchoring role in supporting people movement to-and-from Box Hill. This includes a need to reconceptualise the manner in which passengers arrive and depart from the transit facility – connecting with origins and destinations further afield in Box Hill. Some work in this area was conducted by Aurecon (2011), but this effort seems due at least for a 5-yearly refresh, that could incorporate a stronger urban design sensibility, and a clearer pipeline of costed works and interventions. *It is therefore recommended that state transport and other agencies work with Whitehorse City Council to reconceptualise the dynamics of people-movement to, from and through the Box Hill Central shopping complex and transit facility.*

14. Better prepare for cycling's natural role in transit access

Although a diverse mix of access modes is utilised to the Box Hill railhead, cycling is relatively under-developed and under-represented (even notwithstanding the popularity of current in-station bike parking allocations). Given the projections for strong growth in overall transit usage from Box Hill, it is important to balance-out and support the role of sustainable and cost-effective modes of access other than the private vehicle. This strategy has proven extremely useful in high volume rail markets in Europe (and to a lesser degree Japan). Advanced cycling infrastructure for rail access includes dedicated protected bike lanes converging on the station from surrounding residential catchments (to a distance of 1 – 4 km), as well as high standards of in-station bike parking – which must be weather protected, secure and safe to use. Projections performed for this paper suggested that anywhere between 1,000 and 2,000 bike access movements per day might eventuate during the life cycle of a renewed facility (depending on encouragements and supports provided). Recent innovations from Europe have included the development of paid, commercially-operated bike parking facilities, doubling as bike sales and repair stores. *It is recommended that any facility planning and access-related design work for Box Hill should invest due time and resources into the question of supporting and enhancing bike access to rail.*

15. Undertake further community engagement

Although it was not the focus of this report, Whitehorse City Council has apparently undertaken threshold amounts of community engagement regarding potential redevelopment of the transit interchange and town centre in recent times. This engagement process should continue and deepen. *Community perspectives on the need for renewal, and the nature of any new transit facility should be further sounded and communicated (and addressed to an appropriate* degree *within the full business case process).*

Project strategy and process recommendations

16. Clarifying options and scenarios

The futures of the transit facility and the Box Hill Central shopping centre are as closely inter-twined in policy and planning considerations as they are in terms of actual physical integration. A range of documents and assessments have alluded to this fact, but the previous round of Aurecon-led engineering assessments pulled-short of discussion and planning for all obvious scenarios related to renewal of the combined facility – including the very real option that both facilities might be fully demolished and rebuilt through a carefully phased process. Whether this potential scenario eventuates or not, it is important that all obvious and relevant redevelopment options be fully and properly considered – in order to inform a clear picture for decision-making. *It is therefore recommended that Victorian state government and supportive stakeholders, including the shopping centre owner and VicTrack, take time and effort to collaboratively explore and consider two-or-three main redevelopment options, one of which should include the possibility of 'full redevelopment' including phased replacement of both the transit facilities and the shopping centre buildings. These considerations should traverse engineering, transport, design and architecture, project planning and phasing, and economic viability for each of the main redevelopment options.*

17. Basic steps to unleash the value of the station properties and Box Hill central

During the research exercise for this paper, it has become clear that a number of property-related issues exist at the interface between state transport properties and the Box Hill Central shopping centre. These include:

- vagaries associated with lease, rather than freehold title for the shopping centre
- relatedly – an unclear pathway for the development of the shopping centre properties to highest and best use within an essentially height-unlimited activity centre planning context
- an outdated agreement on the provision of "commuter car parks" that no longer has practical meaning
- challenges in land assembly across adjacent holdings at the core station area
- a perception that greater clarity around development rights, options and pathways could be provided if relevant provisions in the shopping centre lease were updated or clarified

It is therefore recommended that the state government, major stakeholders such as VicTrack, and the shopping centre owner, enter into productive, open and mutually-beneficial discussion of how to best resolve these relatively minor on-paper obstacles. This should include a perspective on how to realise the value of state transport property interests through basic alterations to tenancy/titling arrangements. Given the mix of costs, risks and opportunities presented to these core project parties, a memorandum of understanding, or similar, may provide the framework needed for productive, timely, and progressive discussion around program particulars.

18. Look into project funding options in a holistic, balanced and progressive manner

Contemporary practice emphasises the importance of identifying project beneficiaries and seeking 'value capture' outcomes that lessen the burden on taxpayer funds wherever possible. This should also be the case at Box

Hill, but stakeholders should equally recognise that value capture practice is somewhat under-developed in Australia at this time. A number of potential value capture opportunities have presented themselves so far at Box Hill – including the sale of commuter car spaces, sale of freehold (rather than leasehold) occupation rights to the shopping centre operator, and air rights development of substantial state-owned lands. Other opportunities also exist. *It is therefore recommended that a full value capture study should be executed during 2016. Any discussions and analysis around potential for value capture should be conducted in an even-handed, evidence-based and balanced manner on behalf of all concerned parties. The public sector should rightly seek to attain value capture outcomes where practical and possible, but should do so in a manner that underlines value and benefit to private sector stakeholders, and affords fair recognition to the costs and risks that private parties bear*.

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9. Glossary of Terms

ATO – Australian Taxation Office

CBD – Central business district