ECONOMIC AND LAND USE IMPACTS OF TRANSPORT PROJECTS

Major infrastructure projects can re-sculpt the pattern of urban development. Substantial shifts in accessibility will change the location choices of firms and households, setting in place a new geography of land values. This in turn will signal where new and/or intensified urban development is commercially feasible. The outcome is a shift in urban structure and form with an increase in economic activity.

In considering transport infrastructure initiatives, it is important to note that not all infrastructure is equal in terms of impact on settlement patterns. We have devised a typology of infrastructure projects comprising the following categories:

- **Strategic infrastructure** comprises a relatively limited number of projects, almost exclusively in the transport domain, which have the power to shift relative accessibility. These projects drive the location decisions of households and firms, and can create agglomerations that boost productivity.

- **Structural infrastructure** represents the higher order or ‘trunk’ facilities that provide the skeletal framework for the urban region, including arterial roads, major water storages, major hospitals, and university campuses. Sufficient structural infrastructure is what underpins the economic adaptability of a region.

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1 The authors would like to thank Beth Finney, Marcus Spiller and Armando Mazzei for their help in developing this paper.
• ‘Follower’ services and facilities comprise assets with more localised service catchments. These facilities are vital to community wellbeing and business efficiency, but they neither shape the pattern of development nor provide an overarching structure for settlement and industry development.

1 Introduction

Cities exist and flourish because businesses and households benefit from the city’s competitive advantage that derives from having a dense mix of economic activity coupled with a high level of liveability. In economics a dense mix of economic activity is known as the benefits associated with agglomeration. Agglomeration generates economic benefits by facilitating the sharing of knowledge, infrastructure, and labour. These help to unlock both economies of scope (e.g. specialisation) and economies of scale (e.g. mass production), both of which lead to improvements in productivity and profitability, and subsequently increase the economic capacity of the city. Importantly, for Government this expanded capacity leads to higher taxation revenues (via GST, stamp duty, income and company taxes).

In dense urban environments knowledge and technology is exchanged, both formally and informally between firms and individuals. This sharing of knowledge and technology offers firms that locate within such environments a competitive advantage, and is one reason why for example finance and insurance firms cluster around one another. We see this not just in the Australian cities, but also in Singapore, Auckland, Hong Kong, London, Paris, and so on.

Separate to the sharing of knowledge and technology is the sharing of infrastructure and inputs. Sharing infrastructure and inputs, such as transport networks, printing services and legal services, brings down per unit cost of production (achieved through economies of scale).

Deep labour pools offer employers a larger number of potential workers with a wide variety of skills and experience. Cities with large access to deep pools of labour have a productivity advantage as they have the ability to better match employees to the jobs that meet their abilities and aspirations. This has a productivity benefit and, coupled with a deep pool of clients, leads to specialisation, which further increases a firm and an individual’s productivity.

Agglomeration also helps to improve the quality of labour inputs available by increasing the stock of Human Capital. Human Capital can be described as the productive wealth of workers, i.e. as captured by their skills and knowledge. Providing opportunities for a broad spectrum of society to improve their human capital stocks is therefore a central pillar in promoting equality.

Transport infrastructure and land use development is critical to ensuring strong cities and regions. While routinely taken for granted, the true value of the city’s transport infrastructure only becomes fully apparent when it fails, exceeds capacity, becomes congested, results in long delays, or is deemed unsafe, unaffordable, or unreliable. When such scenarios materialise (as they frequently do), if investment fails to keep pace with growth, households, businesses, the broader economy, and government taxation revenues suffer the costs.

In considering infrastructure initiatives, it is important to note that not all infrastructure is ‘equal’ in terms of impact on settlement patterns. We have devised a typology of infrastructure projects or assets comprising the following categories:

• Strategic infrastructure comprises a relatively limited number of projects, almost exclusively in the transport domain (Sydney Harbour Bridge, City Loop, M7 etc.), which have the power to shift relative accessibility across the metropolis. These projects drive the location decisions of
households and firms, and can create new agglomeration economies thereby boosting productivity.

- Structural infrastructure represents the higher order or 'trunk' facilities and networks that provide the skeletal framework for the urban region in question. These include arterial roads, sub-regional sewers and water mains, major water storages, hospitals, university campuses and the like. These items are distinguished by their sub-regional service catchments and their cost. Sufficiency in the provision of structural infrastructure is what underpins the economic adaptability of a region.

- ‘Follower’ services and facilities comprise assets whose service catchments tend to be more localised. These items are vital to community wellbeing and business efficiency, but they neither shape the pattern of development nor provide an overarching structure for settlement and industry development. Rather, they provide services into a suburb or neighbourhood once the development of these areas has been enabled by investment in higher order infrastructure initiatives.

This paper focuses on understanding and quantifying the role that strategic infrastructure plays in shaping cities and economies.

## 2 Conceptual Benefits and Real World Observations

Agglomeration increase the level of income and taxation created in the economy, and in turn increasing the overall demand for goods and services. In theory, this increased demand can be met with an increase in prices or an increase in supply. An increase in prices will in turn reduce demand until the economy returns to equilibrium. Conversely, an increase in supply – an increase in the productive capacity – lifts the trajectory of an economy. This increase comes about from firms employing more people (some who would have to migrate into the economy) and making further investments in their own infrastructure. A consequence of this larger workforce is that more demand for goods and services, which in turn stimulates further economic activity.

Figure 1. Conceptual Flow of benefits
Agglomeration also helps to improve the quality of labour inputs available by increasing the stock of human capital. Human capital can be described as the productive wealth of workers, i.e. as captured by their skills and knowledge. If a large range of jobs is on offer, a worker can search through these opportunities and best match their skills to the available job, thus maximising their acquisition of skills and experience. Further to this, they have the opportunity to work in a number of different jobs and gain a range of experiences (on-the-job education) which translates to higher productivity. On aggregate, if you improve the range and breadth of jobs available to an individual, over their lifetime they will acquire great levels of human capital, subsequently increasing their productivity and adding to the overall capital stock of the city and region. Providing opportunities for a broad spectrum of society to improve their human capital stocks is therefore a central pillar in promoting equality.

In forming, maintaining, and enhancing agglomeration economies, wise and timely infrastructure investments play a critical role, particularly transport infrastructure investments. Underpinning agglomeration economies are three features of cities: the total numbers of jobs, the density of jobs, and the transport connections that exist between them.

Transport connectivity, and transport infrastructure investments are, if you like, the oil that greases the gears of agglomeration. Particularly as cities grow, transport allows firms to access a wide range of clients and employees, and allows people to access not only these firms, but also family, friends, recreation, retail, and essential health and education services. This is not only good for the economy but also people’s general happiness. A strong diverse economy goes hand in hand with high levels of liveability.

![Figure 2 Auckland Annual Rail Journeys (Millions)](source: Auckland Transport)

New land use and transport investment can also fundamentally change travel patterns. Using Auckland as an example, the developments of the Britomart Transport Centre in 2003 (the opening of which can be clearly seen in Figure 2) and the Northern Busway in 2009 helped increase public transport patronage to the CBD. Heavy investments in the rail network and...
redevelopment of key stations of Newmarket and New Lynn have also contributed to rail patronage increases.

Similar patterns can be seen in Melbourne and Sydney (Figure 3). The opening of the City Loop in Melbourne during the 1980s provided the city with significant capacity for increased passenger numbers and hence employment growth. Sydney’s capacity into the central city was fixed to the requirements of the 1930s. Should capacity increase it would allow the most highly productive part of Sydney to better access workers.

Figure 3. Rail Passenger Journeys, Sydney and Melbourne (Millions)

Source: Historical ABS Year Books and Grattan Institute 2012 ‘Can we afford to get our cities back on the rails. The time series is not complete so data has been interpolated and estimated in certain periods.

Table 1. Conceptual Benefits and Real World Observations

<table>
<thead>
<tr>
<th>Conceptual Benefits</th>
<th>Transmission mechanisms</th>
<th>Real World Observations</th>
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<tr>
<td>Cheaper inputs related to transport improvements</td>
<td>Transport costs are reduced resulting in cheaper inputs for firms. Firms have lower costs which lead to high profits and wages. Decrease costs of outputs which are passed on through the supply chain. More income and reduced prices will see an increase demand.</td>
<td>Western Ring Road and CityLink reduced travel times for transport firms accessing the port. This helped to increase the labour productivity of the Transport &amp; warehousing industry by 20 per cent compared to 10 per cent in Sydney over the same time period.</td>
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<td>Greater economies of scale and scope</td>
<td>Firms can access larger markets due to new road / rail projects which allows them become more productive.</td>
<td>The opening of the CityLink and Docklands help boost Professional services productivity by 25 per cent compared to a 10 per cent fall in Sydney.</td>
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<td>More income and reduced prices results in increased demand</td>
<td>Higher incomes and reduced prices result in higher demand for goods and services</td>
<td>Accommodation &amp; foods services and Retail trade grow over 50 per cent during the 2000s. Almost double the rate of Sydney.</td>
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<tr>
<td>Land use changes following transport investments allowing new forms of development</td>
<td>Improved accessibility fundamentally changes the demand for land in particular locations.</td>
<td>Opening up of western Melbourne for residential and industrial development by the Western Ring Road. The City Loop opened up the northern end of the CBD grid for high rise commercial and residential development.</td>
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Good transport networks reduce the costs of connectivity and promote activity. Poor transport networks can become a barrier or impediment to businesses and residents, resulting in the forgoing of opportunities and a diminishing in quality of life.

Furthermore, major transport infrastructure investments change accessibility patterns and influence the location choices of households and firms. Transport can incentivise dense urban forms, with such urban form increasing the productive capacity of an area and the city more broadly. However, different transport modes have differing abilities to move large numbers of people in and out of dense urban environments (Figure 4) across the world.

In dense urban centres the car is not only an inefficient mode for moving people in terms of land and energy use, but also in terms of carrying capacity. Such inefficient modes simply cannot move the number of people required to feed vibrant job- and service- rich urban cores. They do however provide a viable means of mobility when trip destinations and origins are dispersed, provided congestion is not excessive.

Figure 4. Carrying Capacity by mode (per hour on 3.5 metre lane)

Shaping the direction of a city’s growth, the nature of its urban form and its economy are some of the fundamental reasons to invest in transport infrastructure. These types of benefits to the economy are long lasting and often compound over time.

This is in contrast to traditional transport benefits, such as travel time savings, which can erode after a project’s opening. The long lasting impacts of investments in infrastructure, particularly major roads, rail, international gateways and urban renewal sites is reflected in the expanded productive capacity of the economy. A contrast of traditional versus wider economic impacts is presented in Table 2, in this case in regards to investments in public transport.

The research of Eddington (2009), Graham (2006) and others has shown that major infrastructure projects can, quite literally, re-sculpt the pattern of metropolitan development. Substantial shifts in the accessibility contours applying over urban space will change the location choices of firms and households alike, setting in place a new geography of land values. This, in turn, will signal where new and/or intensified urban development is warranted under commercial market rules. The outcome is a shift in urban structure and urban form.

These processes have been well rehearsed in the theoretical literature for decades. They have been intuitively understood in policy circles and within the wider community – people see, for example, the
The nexus between highway development and increasing land values and housing development in peri-urban regions. But, in Australia the mechanics and lags involved are under-researched and often misunderstood. Moreover, the land use and transport planners are increasingly side-lined in the debates around major infrastructure projects as economic development is the key narrative underpinning the projects.

Table 2. Traditional Versus Wider Economic Impacts

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<th>Traditional Economic Impacts</th>
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<tr>
<td><strong>Public transport user</strong> benefits including in-vehicle, mode transfer and waiting time savings for existing and new public transport users; reduced crowding for existing and new public transport users; and health benefits of walking and cycling for new public transport users.</td>
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<tr>
<td><strong>Resource cost corrections</strong> (financial transfers that are misperceived as economic costs) including vehicle operating costs; avoided parking costs; and fares.</td>
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<tr>
<td><strong>Externalities</strong> (benefits that accrue to the wider community as a result of diverted trips) including reduced road congestion; reduced vehicle accidents; and reduced environmental and noise impacts.</td>
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<table>
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<tr>
<th>Wider Economic Impacts</th>
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<tr>
<td><strong>Agglomeration economies</strong> – benefits which flow to firms from locating in areas which have a high density of economic activity, i.e. productivity benefits that stem from transaction cost savings and improved access to labour markets, customers, suppliers and technology diffusion.</td>
</tr>
<tr>
<td><strong>Human capital enhancements</strong> – benefits which flow to households from locating in areas which have a high density of economic activity, i.e. productivity benefits that stem from a skills accumulation advantage due to their exposure to a richer set of employment and education opportunities.</td>
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Places like Hong Kong and Singapore (perhaps helped by their natural geography) consider wider economic benefits as the core reason for undertaking transport projects. Singapore’s Circle Line and Hong Kong’s Tseung Kwan O Line are designed to open up new urban areas for development to aid in economic development rather than try to achieve travel time savings.

3 Wider Economic Benefits of 3 Melbourne Projects

Three pieces of existing strategic transport infrastructure in Melbourne (City Loop, CityLink and Western Ring Road) have been examined to assess the wider economic benefits that subsequently flowed. A brief history and assessment of each project is provided along with a summary of the wider economic benefits.

3.1 City Loop - Project Background

As early as 1929, the Metropolitan Town Planning Commission recommended the construction of an underground loop, linking the existing eastern and western railway systems, somewhere near North Melbourne and Richmond above-ground stations. At the time Flinders Street was one of the busiest railway stations in the world and suffering from high levels of congestion (Marshall, 2011). The depression and the war years saw interest in the loop wane, but it was renewed in the 1950s, when the Victorian Parliamentary Public Works Committee reported favourably on the provision of a loop.

While the report and committee provoked considerable interest, action was not forthcoming until the 1969 Melbourne Metropolitan Transport Plan. In 1971, an Act of Parliament was passed and the
Melbourne Underground Rail Loop Authority (MURLA) established to oversee the construction and operation of the loop. That same year, the first sod was turned by the transport Minister of the time, Vernon Wilcox.

An aspiration of constructing the loop was to relieve pedestrian congestion at Flinders and Spencer Street stations, enhancing the capacity of the network and providing greater access to the northern areas of the central grid. There was however, disagreement on what the main purpose of the loop was. Some stakeholders, such as the City of Melbourne at the time, saw the loop as a solution to a metropolitan wide train circulation problem, allowing the efficient turning around of east and west bound trains.

The loop was also intended to maintain the accessibility that allowed for the agglomeration benefits of central Melbourne to materialise. Development had continued to occur beyond a convenient walking distance of the existing railway stations (as shown in Figure 5). The loop was expected to stimulate public transport use and reverse the long-term trend of declining patronage. As shown in Figure 3 this expectation was indeed met.

Anecdotally, cost benefit analysis was conducted prior to commitment to the loop, and resulted in a benefit to cost ratio of below one. However, at the time there was little understanding or confidence that inner Melbourne works within a global economic imperative. To this end, building on the capacity of the city to absorb employment, residential and educational growth is critical to its global competitiveness.

Through its construction, the loop provided a quantum increase in the capacity of the rail network. This capacity allowed all metropolitan train services to run through the loop, although in the original planning of the loop not all lines (the Glen Waverley line for example) were intended to. However, the patronage increases from the mid-2000s exhausted the capacity of the loop and, coupled with the scheduling difficulties presented by express and country trains, resulted in the loop nearing operational capacity by the late 2000s.

Along with the transport infrastructure development of the City Loop were several key land use developments that contributed to the success of the loop and the growth of central Melbourne. Firstly, the relocation of rail stabling yards from the centre of the network, around both Flinders and Spencer Street stations, to the end of the respective metropolitan lines enabled land on the edge of the CBD precinct to be redeveloped. Train stabling at the centre of the network was no longer required, as the through running of metropolitan services through the loop resulted in trains no longer having to reverse direction from the platforms of Flinders Street station.
The second major land use initiative was the redevelopment of almost the entire city block above the Melbourne Central loop station. The CBD north of Bourke Street prior to the construction of the City Loop was an unattractive place, covered with two to three storey factories and warehouses, with the State Library and RMIT the only attractors. The Melbourne Central site itself was a collection of working factories before the State Government oversaw the redevelopment of the site. The redevelopment of the site extended the retail core of the city to La Trobe Street and, at the time of completion, housed Australia’s largest office building (City of Melbourne, 1985).

The construction of the City Loop and the redevelopment of the land above it transformed the northern end of the CBD, allowing suburban residents to directly access inner city shopping by rail. This transformation was perceived to be particularly significant in the growth of the City North education precinct and a major catalyst for residential growth within the CBD. Once again it was unlikely at the time that the level of demand for inner city living currently being displayed was fully comprehended by the planners of the time.

Finally, at the time the City Loop was nearing completion, development of the St Kilda Road and Southbank precincts of Melbourne had begun, further centring the heart of city on the Yarra River. There was concern that with the completion of the loop, land use development would not necessarily follow, leading to an underutilisation of the significant infrastructure investment.

The City of Melbourne changed their planning scheme in the mid-1980s, incorporating a number of initiatives, including increased plot ratios, increased parking provisions and sewerage works, to stimulate development specifically around the new loop railway stations and the northern CBD. The City Loop is now an integral part of Melbourne’s transport system and CBD.

### 3.2 CityLink - Project Background

As early as 1929, a proposal for a southern bypass to the CBD was put forward, however, it was the transport planning of the 1950s and 60s where the concept of a southern and western city bypass (later to become CityLink) gained more ground. The 1969 Melbourne Transportation plan advocated for reservations and set aside sinking funds for the new inner-city freeway system.

With the completion of many of the planned freeways of the 1950s and 60s, by the late 1980s Melbourne was served by several freeways that terminated in its inner suburbs, generally five kilometres from the centre. Once traffic left these freeways, it was distributed onto local and arterial roads, resulting in gridlock and some roads of the city, notably King, Spencer and Swanston Streets performing major through road arterial roles. Some residential and urban streets were handling volumes up to 80 per cent greater than their planned capacity (Russell, 2000).

While a degree of this traffic was bound for the CBD, many of the trips were cross town, largely servicing the regions beyond the central city, but forced through the CBD as there was no bypass available. During the 1980s Melbourne City Council advocated for a western bypass for the City, but in the 1990s first under the Labour Government, and then under the Liberal Kennett Government, the concept of a city bypass was taken further, and the project was conceptualised as an east-west connector (Institute of Engineers Australia, 2002).

While the inner core of Melbourne is dependent on mass public transport, the next ring of the city, and particularly the city’s air and sea ports, rely on major road access. This interaction of the inner core with its surrounds allows for a high value services economy to be supported by the adjacent freight and logistics industry. However, prior to the development of CityLink, access and utilisation of the Port of Melbourne and between Melbourne’s individual freeways was poor.
The proposal to build CityLink was first announced in May 1992 and received formal State Government approval in mid-1994. An Environmental Effects Statement was carried out in 1994 for CityLink, with the objectives of the link stated as reducing through traffic on inner city streets; improving environmental outcomes; optimising economic benefits while minimising financial costs; and improving access between industry and the port, rail and airport facilities (VicRoads, 1994). In 1995 the Melbourne CityLink Authority was established to assist development, evaluate submissions, negotiate with contractors, recommend a contractor, facilitate relations between agencies, and ensure the project was delivered according to the Act (VicRoads, 2008).

During the early 1990s, the Victorian economy was in a state of despair as shown by Figure 6. Twenty-one of the 25 locations in Australia with the fastest declining population during this time were in Melbourne, including many inner suburbs that are now home to some of the most expensive property on the planet. CityLink was seen as an opportunity to stimulate the economy both through the creation of construction jobs and the more efficient movement of people and freight.

Figure 6. Fastest Declining Statistical Local Areas in 1993-94

A major challenge of the project was in the development of automated tolling that allowed vehicles to maintain freeway speed. This had not been developed anywhere in the world prior to CityLink. The total value of the project was estimated at $1.5 billion in 1993 prices (Muhammad and Low, 2006). CityLink was built between 1996 and 2000, with stages opened throughout 1999 and 2000. The full link was operational from December 2000.

Originally proposed as a city bypass route, the final design included the Exhibition Street extension that provided CBD access, via Batman Avenue to the Monash Freeway and CityLink. This link provided access over the rail yards east of Flinders Street station and allowed the Route 70 tram to be rerouted to dedicated tracks between the sporting precincts. The City of Melbourne was a primary supporter of this extension, partly because it enabled traffic to enter and exit the city without the use of Swanston Street or local roads in Southbank. There was no mention of implicit land use changes as a result of this project, however, it is likely that it spurred on a greater density of development within its immediate vicinity and off-ramps.
The PPP agreement developed for CityLink had not been conducted in the past and the business case was largely unknown. The PPP model developed during the negotiations of CityLink, known as BOOT (Build, Own, Operate and Transfer) was subsequently adopted throughout Australia.

### 3.3 Western Ring - Project Background

Planning for the Western Ring Road, as part of a much larger Outer Ring Road, dates back to the 1954 Melbourne Metropolitan Planning Scheme and 1969 Melbourne Transportation Plan. The scheme proposed a city ring road as well as a series of concentric ring roads at various distances from the CBD. Initially the reservation was protected by interim development orders, but later through road reservations. It remained in many transport planning documents for several decades, but re-emerged on the agenda in the 1980s, largely as an alternative to major freight traffic congestion on Pascoe Vale Road, between the Hume Highway and Tullamarine Freeway (Rumpf and Kiss, 1994).

Construction of the Western Ring Road commenced in 1989, with initial works centred on Broadmeadows. Over the next decade various sections of the route were completed and opened, with the entire route completed by 1999. Given the relative youth of the ring road, the full economic, transport and land use impacts of the Western Ring Road were still evolving and maturing.

![Western Ring Road Connectivity](image)

The Western Ring Road extends 28 kilometres from the junction of the Princes and West Gate Freeways in Laverton to Sydney Road/Hume Highway in Fawkner. Through this section the Ring Road connects to all of Melbourne’s western and northern highways, namely: the West Gate, Princes, Western, Calder, Tullamarine and Hume freeways.
Eastwards of the Hume Highway, the Western Ring Road joins the much shorter Metropolitan Ring Road (10 kilometres). Together these form the national M80 highway, with the easterly section terminating at Greensborough. Initially the Metropolitan Ring Road was intended to orbit the whole metropolitan area, cutting through Eltham, Templestowe and Warrandyte, and link up with Eastlink.

The Western Ring Road connects the individual freeways that service Melbourne’s sea and air ports, and as such, the movement of freight is a primary function of the road. The road relieves freight traffic from Sydney Road, Pascoe Vale Road and Geelong Road. The completion of the Ring Road was anticipated to deliver major economic benefits to Victoria by linking up the national freight corridors with the Port of Melbourne and Melbourne Airport (VicRoads, 1994a).

The heavy freight use of the connection has spurred industrial growth along the length of the route, resulting in a redistribution of Melbourne’s industry. In the late 1980s the suitability of the wharves (that now house the ‘Docklands’ development) for port functions were being investigated. The decision was made to not rebuild the wharves, and hence the slow birth of ‘Docklands’ began. The construction of the Western Ring Road in the 1990s allowed the existing industries of the Docklands to relocate to cheap industrial land with good access to the port. This relocation freed up the Docklands area for residential and commercial redevelopment. During this same period, retreating industries from the gentrifying areas of Southbank, Richmond and Collingwood also often relocated to new premises along the Western Ring Road.

Funding for the Western Ring Road was provided by both State and Federal Governments. In 1974, the Federal Government established a National Roads Program. Initially Federal funds were only provided to interstate Freeways, but progressively the program was broadened to include Metropolitan roads of significance, largely to improve freight movements. The National Roads Program provided the bulk of the funds for the Western Ring Road, supplemented by State Government funding. Recently there have been substantial improvements made to the road in the order of $2 billion, including additional lanes, dedicated exits, and traffic management systems.

### 3.4 Estimates of Wider Economic Benefits

The benefits flowing from the three transport projects are shown in Figure 8, which presents the annual increase in Victoria’s Gross Domestic Product from each project.

CityLink had a rapid ramp up in its benefit stream. The project improved the accessibility of large sections of Melbourne. A large number of small scale economic development events were able to occur fairly quickly across a large area within a diverse economy. The last three or four years have been impacted by more subdued background activity in the economy so it is difficult to ascertain if the growth in benefits from CityLink has reached a plateau or is merely experiencing a pause resulting from broader trends.

The period since the opening of the City Loop has seen a number of broad swings in background economic activity and this is reflected in the project’s flow of benefits. In Figure 8, 1991 to 1995 (years 11-15) correspond with the recession of the early 1990s and 2000 to 2003 (years 20-23) correspond with the economic slowdown following the introduction of the new tax system in 1999-2000. Those two plateaus also correspond with significant development occurring in Southbank (in the early 1990s) and Docklands (early 2000s). However, following these pauses the availability of the City Loop allowed ongoing private sector investment in the central city economy, generating a range of benefits. The most recent years have been impacted by slowing economic growth in the City of Melbourne.
The Western Ring Road exhibits a similar pattern of impacts to CityLink but the ramp up period is not as pronounced. This could reflect less pent up demand or latent opportunity to generate economic activity compared to CityLink. CityLink was constructed through an established part of Melbourne, meaning it could address existing demand. The Western Ring Road on the other hand generated new demand through its greenfield location, facilitating growth of industrial and residential areas in Melbourne’s west.

![Image](https://via.placeholder.com/150)

Source: SGS Economics & Planning

The levelling off in benefits has been more significant for the Western Ring Road over the past few years. This may be associated with the capacity constraints in the original design of this infrastructure. The profile of benefits shown in Figure 8 is also driven by the different roles of the Ring Road and CityLink within Melbourne. As the names suggests, CityLink helped integrate the north and south east of Melbourne with the central core of the metropolis, while the Western Ring Road has a more limited function, serving the industrial zones of the north west of Melbourne.

The economic development facilitated by these projects enabled employment, population and income growth to be significantly higher than the trends that had been anticipated prior to commissioning. This higher growth provided all levels of government with hundreds of millions of dollars more in taxation revenue than would have been the case without the infrastructure projects.

### 4 Concluding Remarks

In the current global age, cities are vital to the economic prosperity of nations. This is due to knowledge-related activities, including creativity as a tacit knowledge form, becoming central to creating employment and wealth, sustaining economic growth and place-making. Investments in strategic transport infrastructure in Asian cities is common place, while in Australia similar investments are few and far between.
This is due to the economic benefits of strategic transport infrastructure projects in Australia being misunderstood. Examining three projects in Melbourne has helped to demonstrate this. Someone who knew the city before and after the projects were constructed aren’t likely to comment on travel time savings (if any still exist). They would be more likely to comment on the urban development which has sprung up all the transport corridor, and on the economic transformation which Melbourne has undergone over the past thirty years, which these three projects have played a significant role.

The three examined projects are estimated to have helped increased the Gross Domestic Product of Victoria by almost $20 billion (8 per cent) in 2010-11.

With fierce competition from emerging and established Asia Pacific cities, enhancing the opportunities for businesses presented by Australian cities is beneficial not only for the locals of those cities, but also the national economy. A clear way to increase the competitiveness of Australian cities is to invest in strategic transport infrastructure which can unlock agglomeration economies and, in turn, a range of economic and social benefits.

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