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RDA ILLAWARRA

30-MINUTE CITY

Project report prepared by
SMART Infrastructure Facility, University of Wollongong

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**ENABLING A 30-MINUTE CITY
THROUGH PUBLIC TRANSPORT**



About This Document

Title

Enabling A 30-Minute City Through Public Transport

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1. Project Overview



Transportation services play a crucial role in promoting economic development by connecting people to essential services, such as employment opportunities, medical facilities, and social activities. Good transportation infrastructure provides individuals with access to schools, shops, workplaces, and more, which are essential components of urban living. However, many regional areas, including the Illawarra region which consists of the Wollongong, Shellharbour and Kiama Local Government Areas (LGAs), face challenges and need to improve their public transportation services [1]. As regional NSW continues to grow and develop, it is crucial that public transit operators can efficiently transport residents to satisfy their diverse travel demands.

In planning for urban development in regional areas, improving the accessibility and connectivity of public transport services should be a primary focus. This involves reducing the total travel time residents spend to reach their destinations such as workplace and community hubs, which can be achieved through setting a 30-minute city goal. The 30-minute city goal aims to increase the number of residents who can access their nearest metropolitan centre and key destination points within 30 minutes using public transport. To achieve a 30-minute city in regional NSW, decision-makers should assess the existing public transport services and explore different strategies that have the potential to improve overall regional accessibility and connectivity.

In this project, public transport access to community hubs in the Illawarra have been reviewed, namely Wollongong City CBD and the Shellharbour City CBD, which were selected based on public transport patronage as the two most frequently visited destinations in each council area. These two hubs provide residents with employment, shopping, medical, civic, and other community-related services.

Transport for NSW data shows that on an average weekday 4.9% of all trips used public transport and out of those trips 80% only used one public transport leg [2]. This pilot study is limited to one public transport mode as it best represents the way residents use and access public transport in the Illawarra. It must also be acknowledged that the pilot scope of this initial research phase takes into account active transport as part of each journey but is limited to walking only (i.e., cycling, using e-scooters or other micro-mobility modes are not modelled), considering that the backbone of the public transport system in the Illawarra is the bus network, and the majority of passengers walk to bus stops.

In the second part of the study, we focus on Journey to Work. The Wollongong LGA is the location that 72% of Illawarra residents travelled to for work [2]. For this reason, the number of addresses from where people can commute to the Wollongong CBD (the commute Hub) within 30 minutes was mapped. The map was then extended to discover the number of addresses with access to the CBD using public transport within other periods of time beyond 30 minutes.

The origins for both the community hubs and the commute hub are distributed across the entire Illawarra region. Train and bus services in NSW are operated via contracted services by the NSW Government. There are three primary bus operators contracted by Transport for NSW in the Illawarra. Coach services have not been included in the study. All the bus services and stops (excluding school or private services), train services and stations (interchange points) in the Illawarra are covered in this study. In general, all the bus routes operated by Premier Illawarra, Dion's Bus Service and Kiama Coaches in the Illawarra, and the South Coast line connecting Helensburgh and Kiama are included.

2. Why 30 Minutes?

The concept of an x-minute city is an urban planning idea that aims to make cities and neighbourhoods more liveable and sustainable by ensuring that essential goods and services are accessible within an x-minute travel time. This includes destinations for employment, school, healthcare, shopping, recreation, and public transport. The goal is to ensure transport services capable of connecting the neighbourhoods within the specified time period; creating connected neighbourhoods where people can move around the city quickly and efficiently, with less time spent commuting and more time spent on activities that they enjoy. Ultimately, the concept of an x-minute city represents a shift towards more sustainable and

connected urban environments that benefit everyone in the community. Some examples of an x-minute city are provided below.

Portland (USA) explored the potential of 20-minute neighbourhoods in 2010. The analysis indicated locations that had concentrations of commercial services that were within relatively short walking distance of homes. Besides considering the availability of grocery stores and other commercial services, it took into account factors that impact pedestrian access, such as footpaths, street connectivity, and topography. Portland’s Climate Action Plan sets an objective for 2030 calling for vibrant neighbourhoods in which 90% of Portland residents can easily walk or bicycle to meet all basic daily, non-work needs [3]. Their Metro’s High Capacity Transit System Plan called for a focus on three new transit corridors, including two within Portland: the corridor in the vicinity of Powell Boulevard, connecting Gresham to downtown Portland, and the corridor in the vicinity of Barbur Boulevard/Highway 99, connecting downtown Portland to Tigard, as shown in Figure 1.

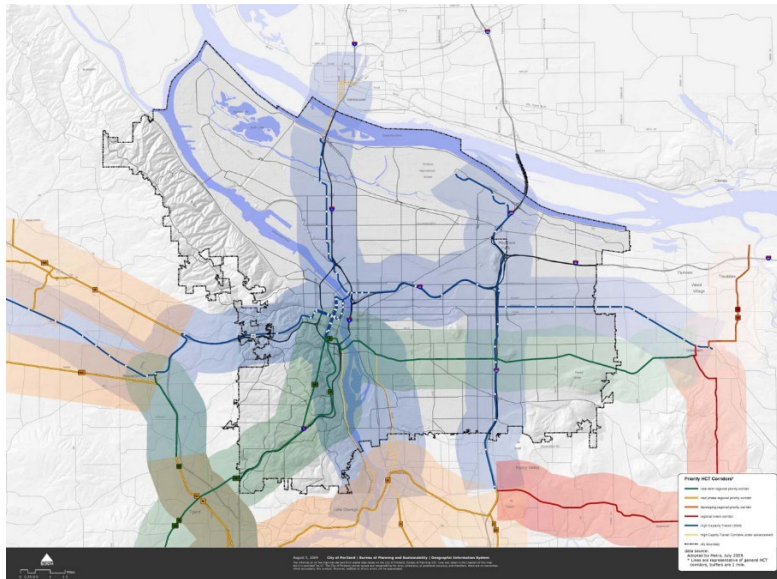


Figure 1. Priority High Capacity Transit Corridors [3]

Melbourne (Australia) launched a 20-minute neighbourhood pilot program in January 2018 in Croydon South, Strathmore, and Sunshine West. The Minister for Planning aimed to test and evaluate the practical delivery of 20-minute neighbourhoods as part of whole-of-government pilots [4]. The 20-minute neighbourhood principle aims to enable people to meet most of their daily needs within a 20-minute walk from home, with safe cycling and local transport options. In this program, a Movement and Place framework was developed that put people at the centre of transport planning, and it was found that 20 minutes was the maximum time that people were willing to walk to meet their daily needs locally, which represented a pedestrian catchment of 800m [5]. Liveable communities should have access to the features shown in Figure 2.



Figure 2. Liveable communities should have access to the features [4]

Waterloo (Canada) aims to move towards a 20-minute city, as shown in Figure 3. Such a 20-minute city is intended to reduce the need to travel long distances, which in turn will reduce vehicular traffic, minimising congestion and travel times with a consequent impact on greenhouse gas emissions. The 20-minute circle includes a dense, direct, and connected road network of high-quality cycling and pedestrian facilities [6]. For example, the Uptown Waterloo and University of Waterloo areas satisfied most of the requirements of a 20-minute city, including grocery stores, schools, and other community services, and these destinations could be reached within 20 minutes of walking.



Figure 3. 20-minute city concept in Waterloo [6]

Based on worldwide examples, it can be found that almost all these x-minute city concepts are built on the massive and rapid public transport system (e.g., train, metro, bus) as the backbone, complemented by active transport (e.g., walking, cycling) to cover the first-/last-mile travel. The transport plan in these cities is predicated on providing infrastructure that supports multi-modal journeys – including active transport (e.g., walking and cycling) as critical linking trips in any journey plan. The service model for public transport is based on the hub, spoke and corridor model with trips within journeys being provided by a variety of modes.

The choice of 30 minutes for this study has been derived from strategic planning documentation, the direction of Future Transport 2061 and the setting of goals by Transport for NSW and the NSW Department of Planning*. The concept of an x-minute city suits the geography of the Illawarra, the services within main city centres, and the locations of jobs in the region.

*The NSW Government is committed to the international concept of “Movement & Place” and utilizing this framework when developing and creating cities.

3. Data Collection and Analysis



This study employs a data-driven problem-solving methodology, which involves data collection, processing and analysis based on multiple data sources to acquire a comprehensive understanding of the 30-minute city challenge. Table 1 and Table 2 show the multi-source data collected and new datasets created, respectively, in this project. The complete data processing and analysis procedure is illustrated in Figure 4.

Table 1. Multi-source data collected in this project

Data	Description
Illawarra Addresses	<p>The Address Layer includes all addresses in the Illawarra region (consisting of LGAs of Wollongong, Shellharbour and Kiama). The data was collected at the LGA level and duplicates at the LGA borders were required to be removed.</p> <p>The Illawarra Address dataset is a subset of data from the Geocoded Urban and Rural Addressing System (GURAS) is a 'property' based address database.</p> <p>The GURAS database is commonly used by all levels of government for emergency services, computer aided dispatch systems, postal and delivery services, and to identify location. © State of New South Wales (Spatial Services, a business unit of the Department of Customer Service NSW). For current information go to spatial.nsw.gov.au.</p>
Illawarra Roads and Rail	<p>The Illawarra Roads and Rail layer includes:</p> <p>The Illawarra Roads dataset is a subset of data taken from the NSW Transport Theme. © State of New South Wales (Spatial Services, a business unit of the Department of Customer Service NSW). For current information go to spatial.nsw.gov.au.</p>
Illawarra Bus Stops	<p>The Illawarra bus stop data was taken from the open-source Transport for NSW Transit Feeds. The bus stop dataset contained all current and historical bus stops. The bus stops were manually checked against the current Illawarra bus routes</p>
Bus Routes and Timetables	<p>The Illawarra Bus route and Timetable dataset was created using a combination of information on both the bus operator and the Transport for NSW sites. The Bus routes were drawn using GIS Tools using open-source software</p>

Table 2. New datasets created in this project

Data	Description
x minute train	<p>The x-minute train dataset displays the number of addresses that can access the various city hubs within a given amount of time by train. There is also a road network companion dataset as travellers may take to the road/footpath to the train station, i.e. using multi-modal transport.</p>
x minute bus	<p>The x-minute bus dataset displays the number of addresses that can access the various city hubs within a given amount of time via the bus. There is also a road network companion dataset as travellers will take to the road/footpath to the bus stop.</p>
x minutes train and bus	<p>The x-minute train and bus dataset display the number of addresses that can access the various city hubs within a given amount of time via the train or the bus. There is also a road network companion dataset as travellers will take to the road/footpath to the public transport stop.</p>
400 meter all stops (road network)	<p>This dataset looks at all train and bus stops in the Illawarra and describes how many addresses are within a 400-meter walking distance from a bus stop (800 meters for the train station). There is also a road network dataset that displays the 400 meters on the road network.</p>
400 meter all stops (crow flies)	<p>This dataset shows the number of addresses within 400 meters (as the crow flies) to a bus stop or train station.</p>

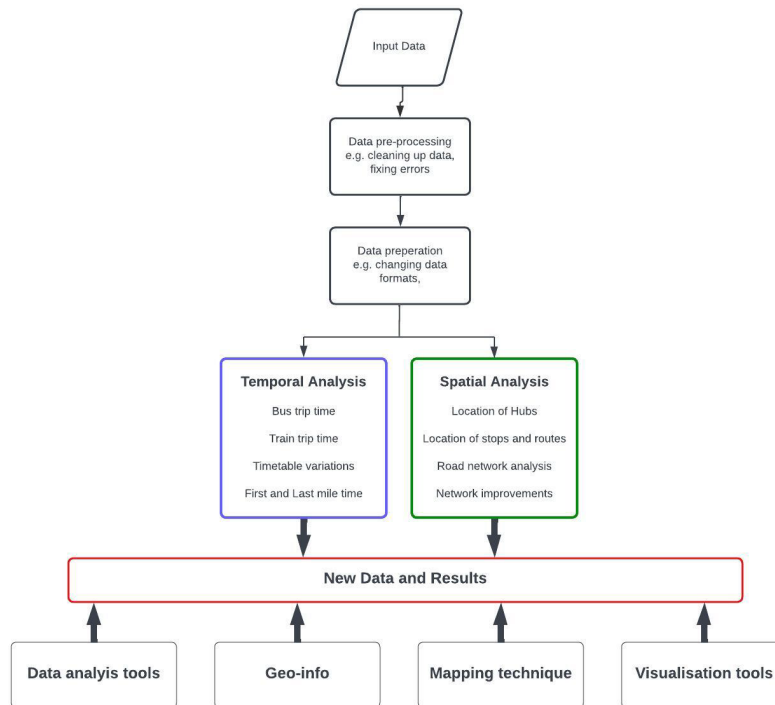


Figure 4. The procedure of data processing and analysis in this project

After pre-processing the data (e.g., addressing missing data and data errors), extensive data analysis and visualisation work were conducted primarily from spatial and temporal perspectives, with aid of various data analysis and visualisation tools.

To obtain detailed-level information, the Illawarra region's train lines, interchanges, bus routes, and bus stops were integrated in this project. All the train and bus timetables, walking distance and infrastructure were analysed to determine which routes and stops passengers could use to reach their hub destinations within 30 minutes. Figure 5 illustrates the process by adding routes and stops. Road network analysis is conducted to determine which roads are accessible to the bus or train stops identified as being within the 30-minute coverage zone. Finally, addresses were analysed to determine the number of addresses located within this coverage.

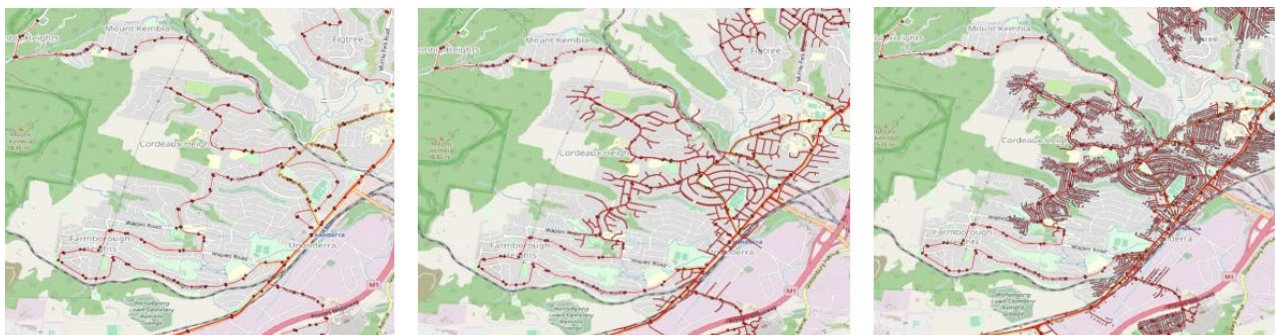


Figure 5. Illustration of transport network evolution

4. Two City Hubs – Results and Discussions

In this section, the 30-minute travel coverage map for the two major hubs in the Illawarra region, namely the Wollongong CBD and Shellharbour City Centre are analysed. These two hubs were selected based on their popularity as travel stops for buses, as evidenced by the public transport patronage collected and averaged over a three-week period before the COVID-19 pandemic. Figure 6 shows the top 10 most visited stops [7].

In this project, each hub is divided into its own neighbourhood. Residents of the Wollongong LGA were considered for the Wollongong CBD hub, while those of the Shellharbour LGA were considered for the Shellharbour City Centre hub. For the purpose of the two-city community hub model, it is assumed that passengers will use only one mode of public transport (outlined earlier one mode covers 80% of all trips) and travel on foot from their origins to their interchange points and destination.

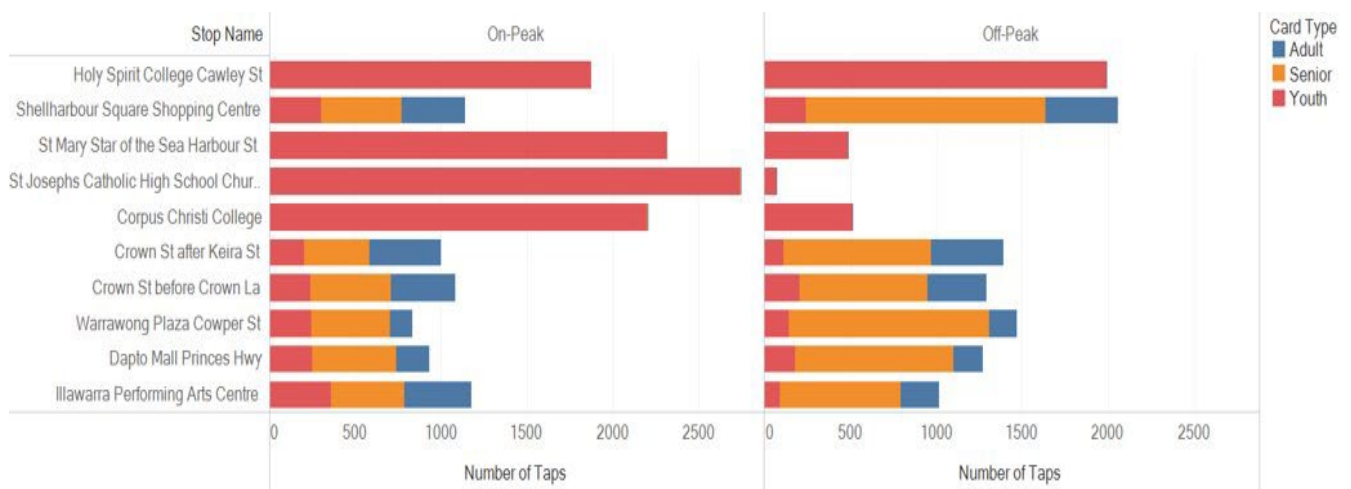


Figure 6. Top 10 most visited bus stops

The Shellharbour City Centre Hub

Figure 7 shows the 30-minute coverage map for the City of Shellharbour, where residents within the pink zones can access their city centre within 30 minutes via public transport. The findings revealed that despite Albion Park, Tullimbar, and Calderwood being covered by multiple bus services, none of these services provide access to the Shellharbour City Centre within 30 minutes.

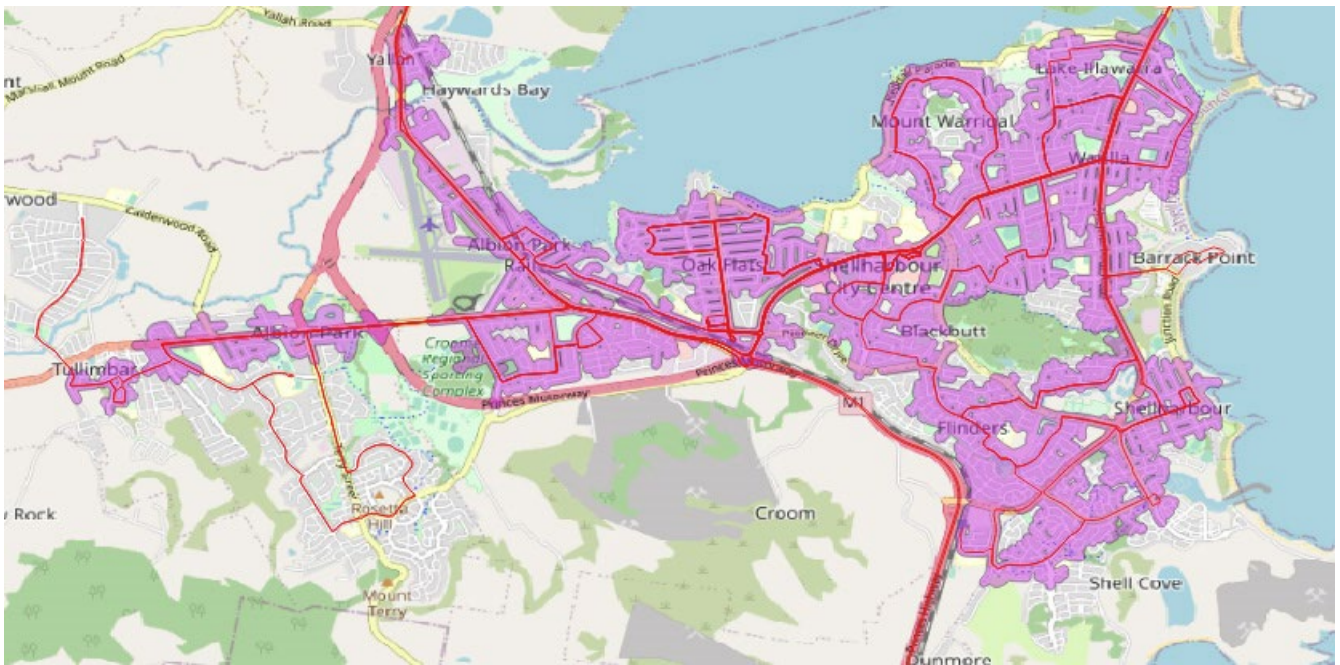


Figure 7. Addresses with access to the Shellharbour City Centre within 30 minutes

To address this issue, Figure 8 illustrates the same coverage map in consideration of a new bus route using the East-West link instead of Tongarra Road and the Princes Highway as a corridor. This new service provides an additional 4,016 addresses with access to essential services within 30 minutes. This accounts for a significant 11% of the Shellharbour LGA addresses.

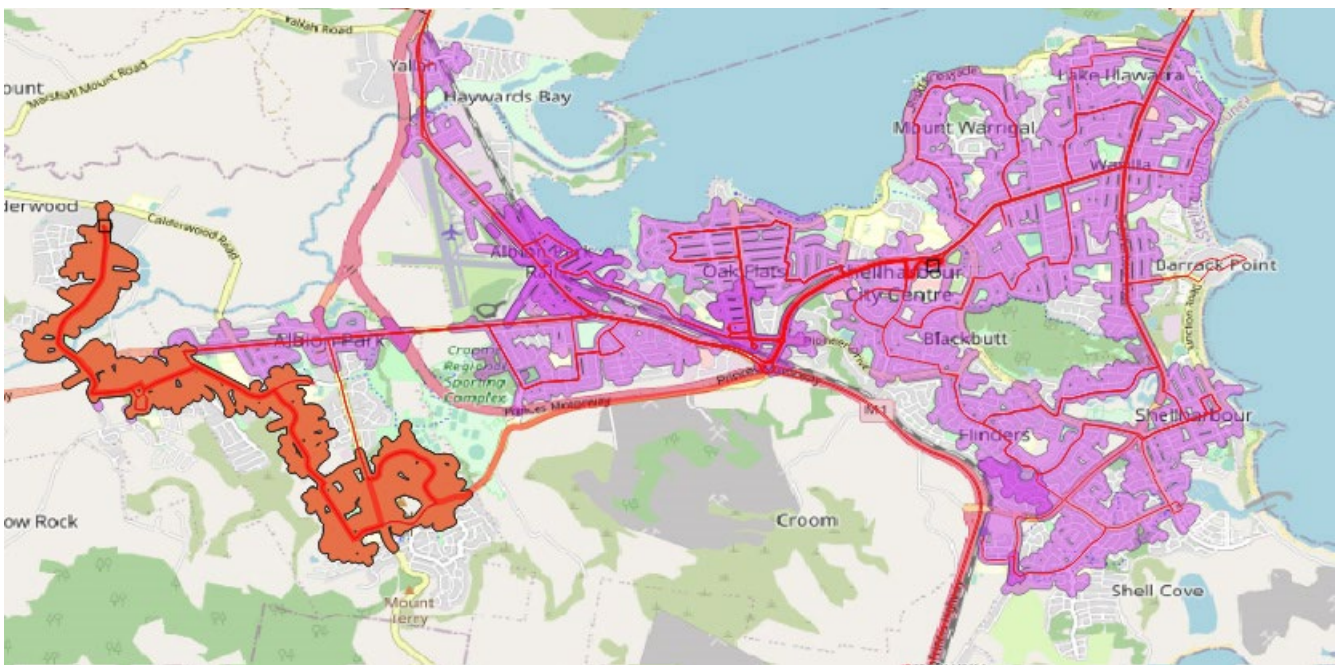


Figure 8. Addresses with access to Shellharbour City Centre within 30 minutes (improved service/planning)

Table 3 shows the total number of addresses within 30-minute coverage. It is recommended that the implementation of an East-West link would unify this community. Further, it demonstrates the substantial impact that can be made from minor modifications to service planning. With this change in place, 83.3% of all residences within the Shellharbour LGA would have access to public transport, who can reach the Shellharbour CBD within 30 minutes.

Table 3. Addresses in the Shellharbour LGA with 30-minute public transport coverage

	The number of addresses with 30-minute public transport coverage	Total number of addresses	Percent (%)
Train	2,820	35,764	7.8
Bus	22,916	35,764	64.1
Shellharbour in total	25,736	35,764	72.0
East West Link extra addresses	4,016	35,764	11.2
Shellharbour in total (revised)	29,779	35,764	83.3

The Wollongong CBD Hub

Figure 9 displays the 30-minute coverage map for the Wollongong CBD. Highlighted in orange represents the area reachable by public transport within 30 minutes. The study highlights that even with the bus infrastructure in place and the absence of distance or geographical constraints in several areas, many significant population areas cannot reach their community hub within 30 minutes. The research findings indicated that the M1 Freeway was not utilised for any bus services, despite the M1 freeway being a vital corridor that connects the southern region of the city to the CBD. By leveraging this corridor and updating the bus services to allow the use of this corridor, 9,220 additional addresses can be covered by the 30-minute city map. Figure 10 represents the same coverage map incorporating the M1 Expressway as a bus corridor.

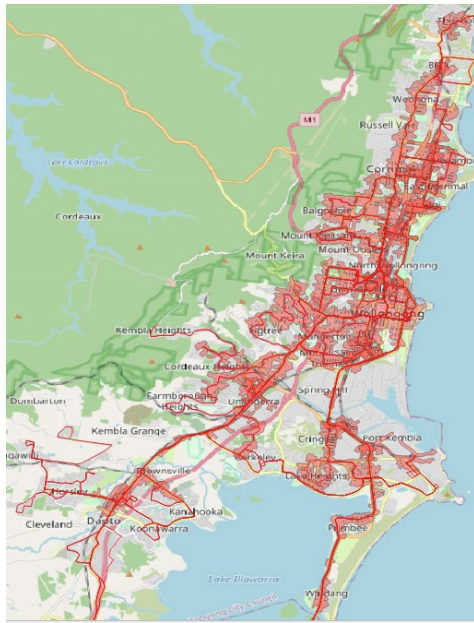


Figure 9. Addresses with access to the Wollongong CBD within 30 minutes

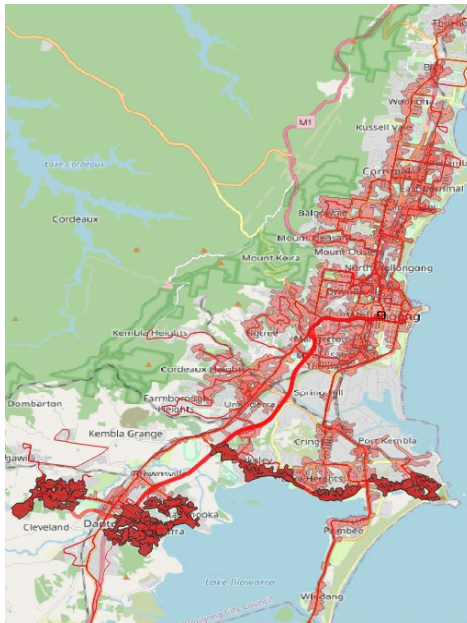


Figure 10. Addresses with access to the Wollongong CBD within 30 minutes (improved service/planning)

Table 4 provides an overview of the results regarding addresses located within the 30-minute coverage map. The change in services plan for the Wollongong CBD hub model could be viewed as a type of hub-and-spoke model. The hub-and-spoke model is recognised as the most efficient model for delivering public transport services and relies on efficient timetabling of multi-modal services to build desirable customer journeys. Utilising the hub-and-spoke model, enables improvement on the public transport services plan that the Illawarra needs to bring its communities together. A small change in the public transport services plan will provide an additional 9% of the Wollongong LGA residents access to the Wollongong CBD withing 30 minutes by public transport. This is a staggering amount considering no change to any infrastructure is needed. Only a small change to the service delivery plan is required.

Table 4. Addresses in the Wollongong LGA with 30-minute public transport coverage

	The number of addresses with 30-minute public transport coverage	Total number of addresses	Percentage (%)
Train	10,938	102,408	10.7
Bus	47,328	102,408	46.2
Wollongong in total	58,266	102,408	56.9
M1 extra addresses	92,20	102,408	9.0
Wollongong in total (revised)	67,486	102,408	65.9

5. Wollongong CBD Commute Hub



A neighbourhood-based approach to the 30-minute city concept only works when the hub you need to reach has all of the services, facilities, and jobs that the local community requires. In the Illawarra region, most of the jobs are located in Wollongong. 71% of commuters in the Illawarra commute to the Wollongong LGA. To explore this further, a travel map of the Wollongong CBD was created. This map is similar to the 30-minute city maps; however, the coverage maps show access to the Wollongong CBD at numerous other time scales in addition to 30-minutes.

In this section, the focus was on analysing the entire train and bus network and assessing how each route connects to the Wollongong CBD. Maps were created that showed 25, 30, 40, 50, and 60-minute travel times from different origin addresses to the Wollongong CBD. It was found that some areas were not accessible at all to the Wollongong CBD via public transport, while some residents living reasonably close to the CBD cannot commute to the CBD within an hour. For instance, Wongawilli, one of the fastest-growing regions, is accessible by bus to Dapto, but the Dapto Interchange, which is one of the most frequented train interchanges, does not operate as an efficient transfer point for Wollongong CBD commuters. The service pattern and the connectivity of the bus service and parking capacity implies that Dapto station is a point of transfer but it could do with some improvements to make the transfer a better experience for the Illawarra commuters.

The public transport service plans do not work together to provide an efficient journey for commuting in that not all bus services stop at Dapto train station. The No. 32 and 33 bus services only stop at the station to transfer passengers to the trains that would get commuters to work in the Sydney CBD by 9am. These bus transfers line up perfectly with the train. The bus that people would need to catch to

get them to work in Wollongong by 9am does not stop at the station. They need to walk a distance and cross a road to get to the train station. This is inefficient for all and affects people with mobility issues and more importantly highlights that the public transport services do not prioritise trips within the Illawarra. It appears service plans have been developed to service the Journey to Work trips external to the region and not for local CBD hubs. Travel to Sydney has been prioritised, however the same level of service to commuters who travel to Wollongong is not provided. As stated earlier, the Wollongong LGA is the destination for 72% of all the trips to work for commuters who live in the region. Figure 11 shows a small portion of the Wollongong CBD commute map.

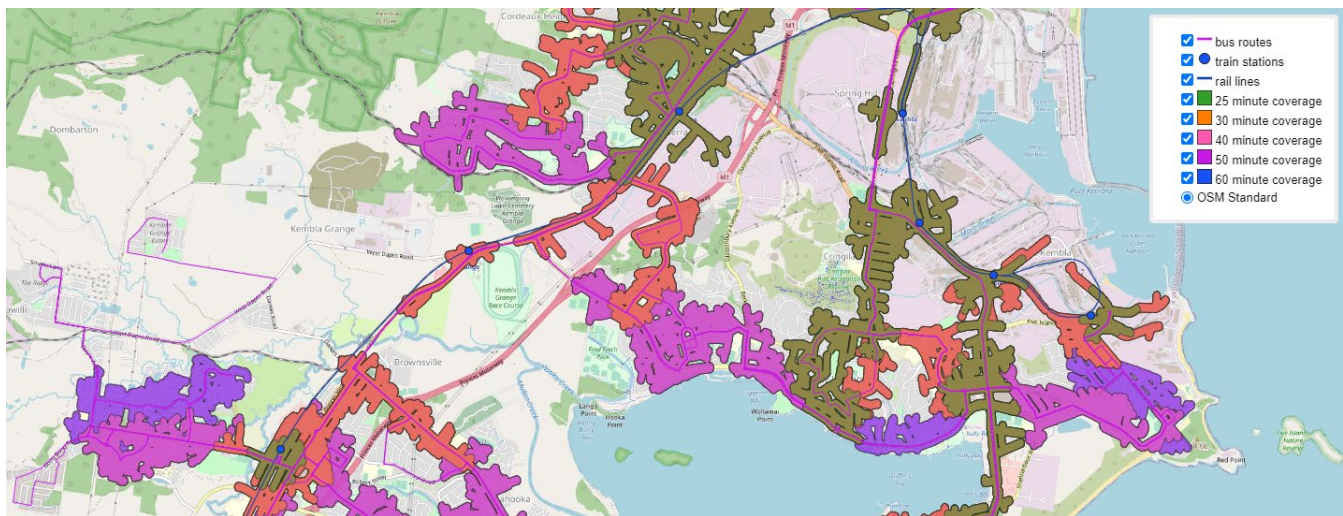


Figure 11. An example of the Wollongong CBD commute map

Table 5 shows the number of addresses within each coverage time period. Access to a complete and interactive map can be made available (contact the SMART Infrastructure Facility at the University of Wollongong for access).

Table 5. Addresses with access to the Wollongong CBD within x minutes

	The number of addresses with x-minute public transport coverage	Total number of addresses	Percentage (%)
25 minutes	37,700	151,603	24.9
30 minutes	58,266	151,603	38.4
40 minutes	69,768	151,603	46.0
50 minutes	79,489	151,603	52.4
60 minutes	86,285	151,603	56.9

6. A Case for Better Planning and Guidelines

Encouraging people in the Illawarra region to use public transport for their daily commute to Wollongong can greatly help reduce traffic congestion. The region experiences heavy traffic congestion during peak hours, which not only causes inconvenience to commuters but also results in significant economic losses due to time wasted on the poor public transport services. By shifting to public transport, not only can individuals save time and avoid the stress of driving in traffic, but they can also contribute to the reduction of traffic on the roads, resulting in a more safe, efficient and sustainable transportation system.

Moreover, investing in public transport infrastructure and appropriate service planning that deliver services to identified hubs within the Illawarra CBDs is crucial. The hub-and-spoke model is dependent on services plans that are seamless with efficient interchanges and multi-modal to provide improved connectivity to surrounding areas. This can be done by developing a comprehensive public transport services plan for the region. It is vital that these features are embedded in the public transport network and are a requirement of the service plan that is developed by Transport for NSW that covers all modes and is delivered by the contract service plans. The provision of reliable and accessible public transport services can incentivise people to leave their cars at home, leading to a significant reduction in traffic congestion, safer roads, improved air quality, a better quality of life for residents, and economic development in the region.

The Integrated Public Transport Service Planning Guidelines for the Outer Metropolitan Area [2] are in need of an update and could be tailored to the unique characteristics and needs of the Illawarra region. The guidelines emphasise the importance of service coverage, stating that 90% of households should be within 400 meters of a transport stop as the crow flies. However, Figure 12 highlights the need to revise the guidelines to reflect how people move around their neighbourhood using streets and pathways, rather than straight lines.

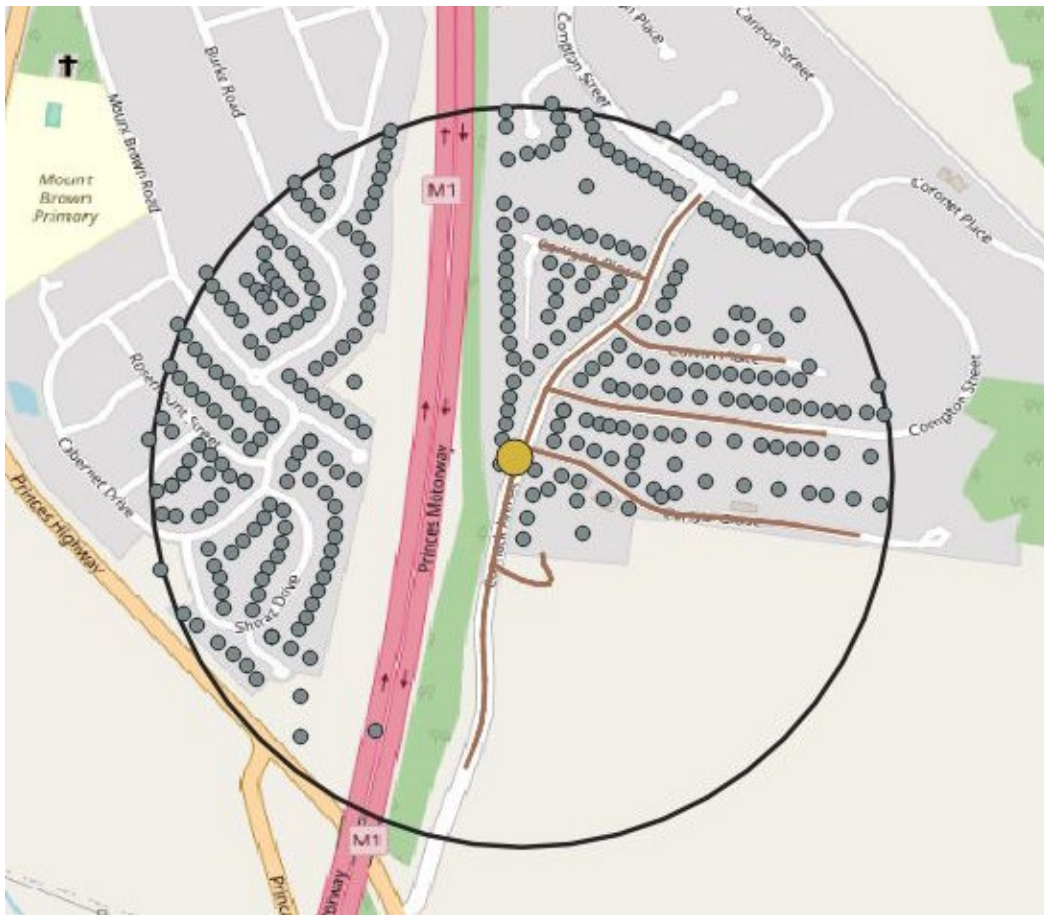


Figure 12. Network analysis of a catchment area with 400-meter radius around a bus stop

In Figure 12, it shows the coverage with a 400m radius around a bus stop. This example shows a freeway dividing the middle of the service area. Addresses to the west of the freeway within the radius still count as acceptable coverage according to the guidelines for this bus stop. The Illawarra meets the 90% target when using the regional cities guidelines' metrics, and only 73% of the addresses within the study area are within 400 meters when considering the roads, footpaths, and cycleways that people use to travel to a transport stop. The analysis results showed that when residents actually travel to a bus stop only 110,270 addresses out of 151,603 fell within this range of 400 meters.

Providing services in the Illawarra in accordance with the Transport for NSW Guidelines is challenging, as part of the region is classified as “Outer Metro” (Wollongong) and part is Regional (Kiama and Shellharbour) despite the fact that the intense urbanisation of Shellharbour in recent years has resulted in an urban form (or character) better aligned with “Outer Metro”.

7. Recommendations

The Top 5 recommendations from our findings of the study are as follows:

1. **Development of an Integrated Multi-Modal Services Plan for the Illawarra that includes seamless interchange between modes**
2. **Customer-centred design thinking utilised to develop the Integrated Multi-Modal Services Plan, which prioritizes an intra-regional Illawarra commuter focus**
3. **Implementation of the Illawarra Integrated Multi-Modal Services Plan, including changes to current operator service plan**
4. **Provision of Service-driven infrastructure improvements to support the Illawarra Integrated Multi-Modal Services Plan implementation, such as:**
 - a. **Additional East West Link for Shellharbour City Centre Hub (extending 30-minute access from 72% of residents in Shellharbour to 83%, or an additional 4,016 homes)**
 - b. **Additional M1 alignment in Services Plan for Wollongong CBD Commute Hub (extending the 30-minute access from 57% Wollongong homes to 66%, or an additional 9,220 homes)**
5. **Integrated ticketing system across all transport modes, utilising Opal-enabled services.**

Some of the key principles of an Illawarra focused public transport multi-modal services plan and future guidelines should consider:

- **Strategic planning:** Transport planning should be conducted at a strategic level with a **focus on intra-regional trips**, considering the needs of the entire Illawarra network and the wider social, economic, and environmental impacts of transport decisions [12].
- **Multi modal services, plan:** Different modes of transport, such as buses, trains, active and on-demand transport, should be coordinated to provide passengers with easy connections and seamless transfers between different modes. Furthermore, Illawarra transport service providers should **share information** on schedules, delays, and disruptions **in real-time** to ensure that passengers are informed and can plan their journeys accordingly [8]. More flexible transport services and travel modes are needed to cover the first-/last-mile travel, such as more widely available bike lockers, and introducing e-scooters and shared e-bikes in the Illawarra [9].

- **Integrated ticketing:** A single and integrated ticketing system should be in place across all modes of transport, allowing passengers to use one ticket to access multiple services. Mobility-as-a-Service (MaaS) [10] appears as a promising solution with a successful trial of Opal digital cards in Sydney, which allows an integrated platform or mobile app to make booking and payment for different travel modes. We note that some Illawarra services have been Opal enabled, but understand this is not integrated as yet.
- **Customer-centred design:** Transport infrastructure and services (including service providers' websites and apps) should be designed with the needs of passengers in mind, with a focus on providing access to up-to-date services and information, as well as safe and comfortable travel options, which can include transfers between travel modes to ensure these prioritise the Illawarra patrons [11]. It is noted that Services drive Infrastructure, and that this lens is appropriate for the development of customer-centred service.

8. Case Study



The Wollongong CBD

Imagine a scenario where public transport in the Illawarra region operates as a seamless, well-coordinated system designed to facilitate efficient passenger commutes. For instance, consider Sally, a resident of Wongawilli who works at Wollongong City Council. Although most Wongawilli residents own two cars, Sally opts to cycle to the train station on pleasant days. With the implementation of a dedicated cycleway between Wongawilli and the train station, as well as an abundance of bicycle lockers, commuters like Sally can secure their bicycles at the station. The 4-kilometer journey takes approximately 10 minutes, followed by a 13-minute train ride to Wollongong, which makes a smooth park-and-ride experience.

Upon arrival, Sally may either utilize the Wollongong Shuttle service, which is timed to coincide with the train's arrival, or walk to her office. In either case, her commute lasts a mere 30 minutes. During inclement weather, Sally may board a bus to the train station, and the integrated MaaS system allows her to tap on at the origin and off at her destination by using different transport modes. The coordinated bus and train services provide a unified experience for commuters, with Dapto train station functioning as a central hub for multi-modal transportation.

A more likely scenario is one where Sally, like many others typically drives to work. Sally is unable to drive tomorrow and must rely on public transportation. In this scenario, Sally consults the timetable and

notes a train is scheduled to arrive in Wollongong at 8:56 am, which does not allow sufficient time to reach her workplace by 9:00 am. Sally identifies an earlier train, arriving in Wollongong at 8:36 am and departing from Dapto station at 8:23 am. To reach Dapto Station by the specified time, she must take a bus. Sally is unable to ride her bike as there is nowhere to leave her bike at work, and the train station has and only 6 bike lockers, which cannot be hired for the day. If Sally takes a bus and train to work, she needs to leave home over 60 minutes before she starts work. This case study demonstrates various obstacles to a smooth intra-regional Journey to Work including: a lack of a bicycle shed, limited availability of bicycle lockers, a bus route that bypasses the train station. This case study demonstrates that it takes 35 minutes longer to use public transport than driving to work and will cost more. Sally therefore resumes car Journeys to Work, along with the majority of Illawarra intra-regional commuters.

The University of Wollongong

Dave and Steve both work at the University of Wollongong. Dave, a local resident of the Illawarra, recently bought his first house in the growing area of Calderwood. Steve lives in Sutherland but doesn't mind the commute to Wollongong after previously working in Sydney.

Both Dave and Steve start their workdays at 9:00 am. Steve's commute begins at 7:50 am when he leaves his Sutherland home and walks to the express train service heading for North Wollongong. He usually manages to get some work done during the journey, except for the parts where the South Coast Line has no internet connectivity. At 8:50 am, Steve gets off the train at North Wollongong Station and hops on the North Gong shuttle, reaching the University just in time for his shift. His total travel time on public transport is 70 minutes and has cost him \$7.24.

Dave's morning routine is a little different because his wife is on maternity leave and needs the car. Since he has to rely on public transport, Dave leaves home at 7:40 am for a quick 4-minute walk to the bus stop. He catches the 7:44 am bus, which takes him to Oak Flats Train Station. From there, he transfers to a train that gets him to North Wollongong Train Station at 8:39 am. Dave then boards the North Gong Shuttle and arrives at his office shortly before Steve. To make it to work on time, Dave has to leave home 80 minutes before his shift starts, and his public transport journey has cost him \$7.35.

These examples highlight the pressing need for prioritising public transport service improvement within the Illawarra region. By considering the experiences of Sally, Dave and Steve, it becomes clear that a well-functioning customer-centred public transportation system is essential to support the region's growth and ensure smooth and efficient commutes for its residents.

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