



ACT
Government

TRANSPORT CANBERRA

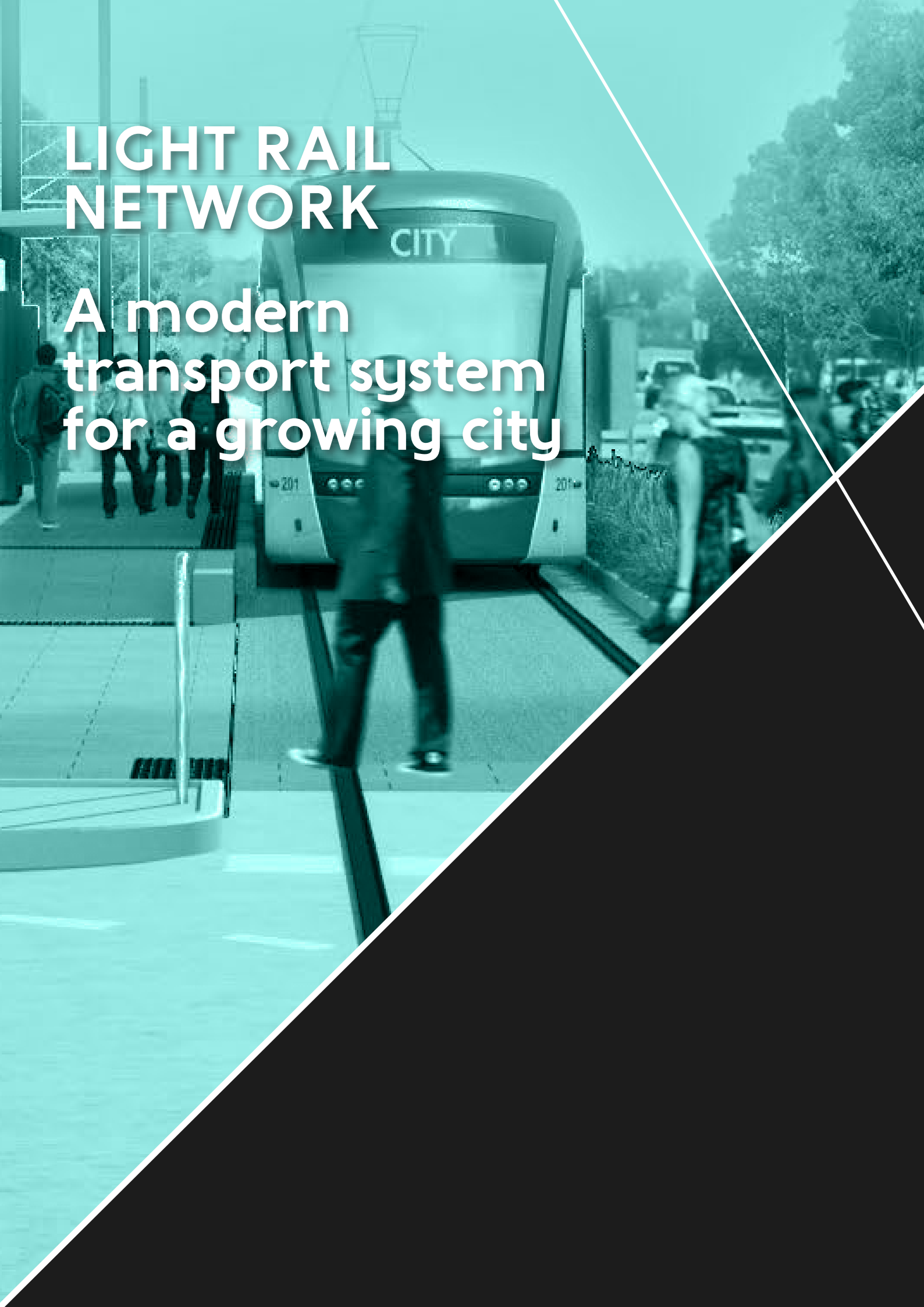
LIGHT RAIL NETWORK

Delivering a modern transport system for a growing city



LIGHT RAIL NETWORK

A modern
transport system
for a growing city



INTRODUCTION

Minister
Mick Gentleman



The ACT Government is planning for Canberra's transition into a significant world city. One that not only celebrates its status as the world's most liveable city today, but one that actively builds on its current sound foundations and opportunities to promote its world class status in the future.

Therefore, as our city grows we will continue to support and promote an integrated public transport network to encourage people to leave their car at home. An integrated transport network with light rail at its heart is fundamental to that strategy.

Light rail is integral to ACT Government planning, transport, climate change and health strategies. More people using public transport like light rail and buses will help reduce congestion on our roads and greenhouse gas emissions.

Across Australia and around the world, light rail is a proven solution. At a national level, Prime Minister Turnbull recently observed

"Infrastructure like light rail helps relieve congestion and makes our cities and regional towns more liveable."

The population will be healthier when more people walk or ride to and from their public transport stop.

Light rail will support increased growth in centres and along transport corridors, which is necessary to house our growing population without changing the unique character of our established suburbs.

This work considers how we could extend light rail across Canberra in the future. Because of the synergies between different public transport modes, it also explores where we could build demand for bus priority lanes or bus rapid transit to support light rail over time.

I look forward to hearing your views. Your opinions and comments on future light rail corridors are important to help us finalise the Transport Canberra - Light Rail Network.

WHAT IS THE TRANSPORT CANBERRA NETWORK?

The Transport Canberra Network is the ACT Government's vision for a modern transport system that showcases Canberra as a prosperous, sustainable and liveable city.

The Transport Canberra - Light Rail Network shows future stages of the light rail network. It is a 25-year vision that highlights the opportunities and drivers

for building convenient and reliable light rail across our city.

The Transport Canberra - Light Rail Network builds on the Transport for Canberra Frequent Network and future growth identified in the ACT Planning Strategy.



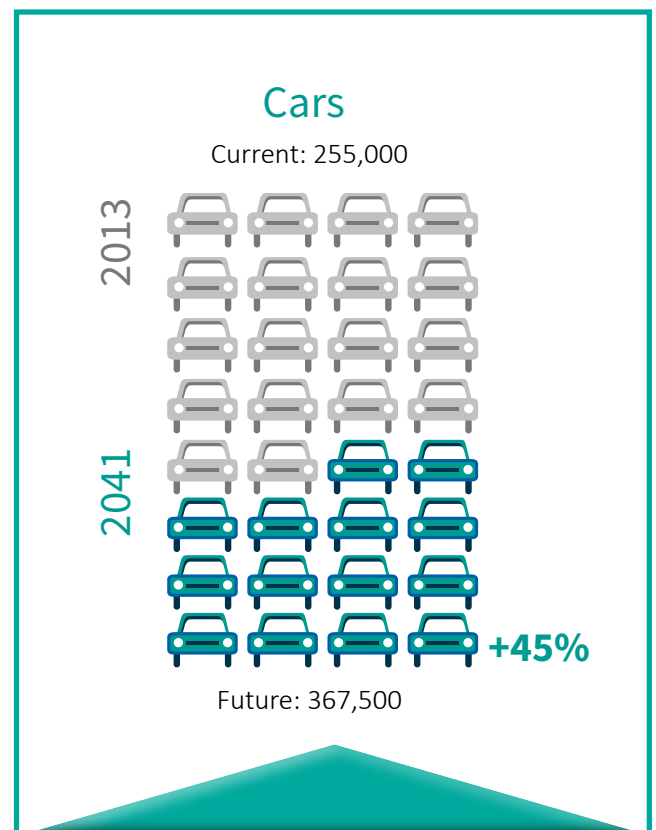
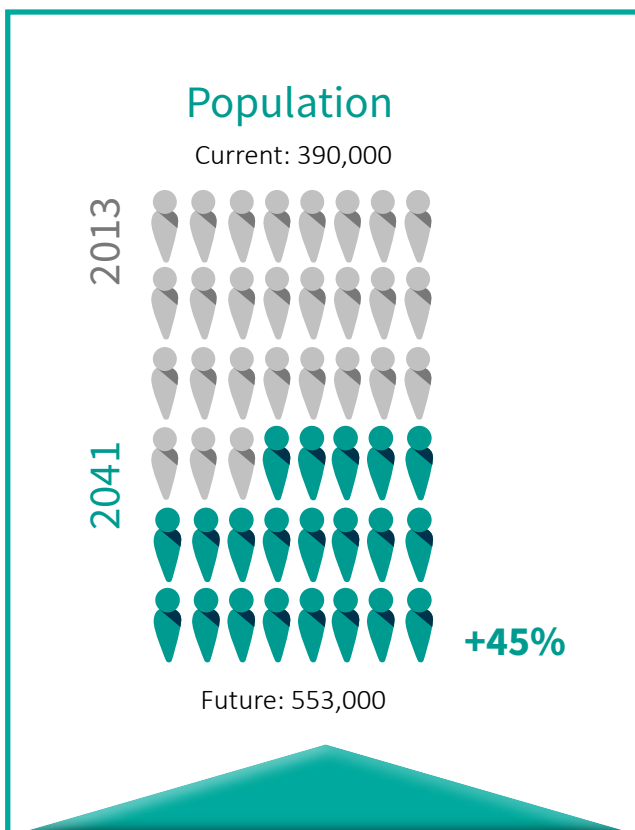
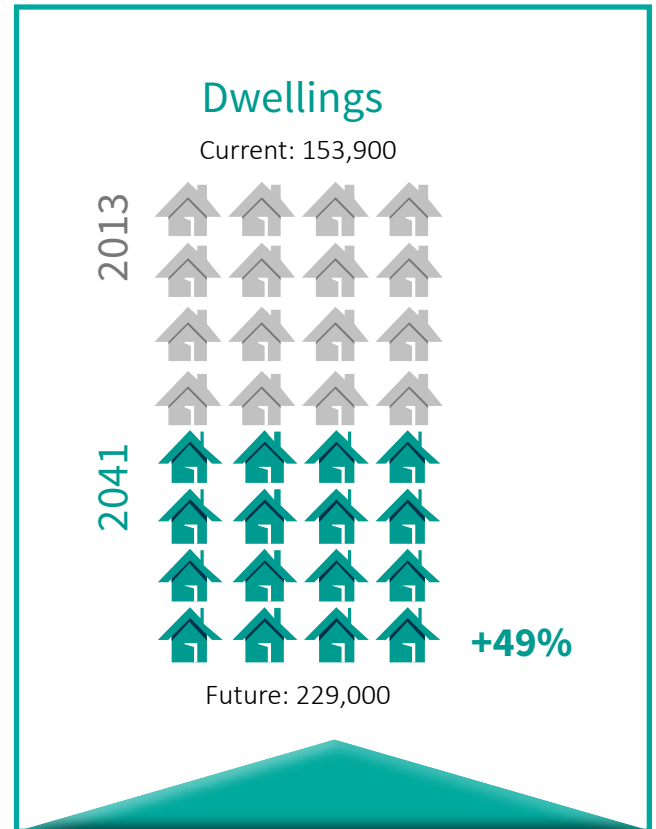
CANBERRA IS GROWING

Canberra's population is projected to increase over the next two decades from 390,000 to over 500,000.

With the highest car dependency of any Australian capital city, our growing population will mean more cars on our roads and more congestion.

The world's best and most liveable cities all have excellent integrated transport networks, designed and planned in tandem with land use to create walkable, people-friendly communities with a range of transport options.

Growing Canberra around a reliable public transport network will guide our city to become increasingly more sustainable, compact and well connected, maintaining the world class standard of living experienced by Canberrans.



LEADING INVESTMENT FOR A GROWING CITY

Canberra's light rail network will be built as 'leading infrastructure'.

We will invest in corridors where we know there is a future need. We will also use light rail as demand-driving infrastructure to help shape the way the city grows with higher density and more compact urban form along light rail corridors. By coordinating our planning and key projects to support development in each corridor, we can stimulate economic and social activity across our city.

We cannot leave public transport investment until traffic delays reach unacceptable levels and impose high social, environmental and economic costs to the community.

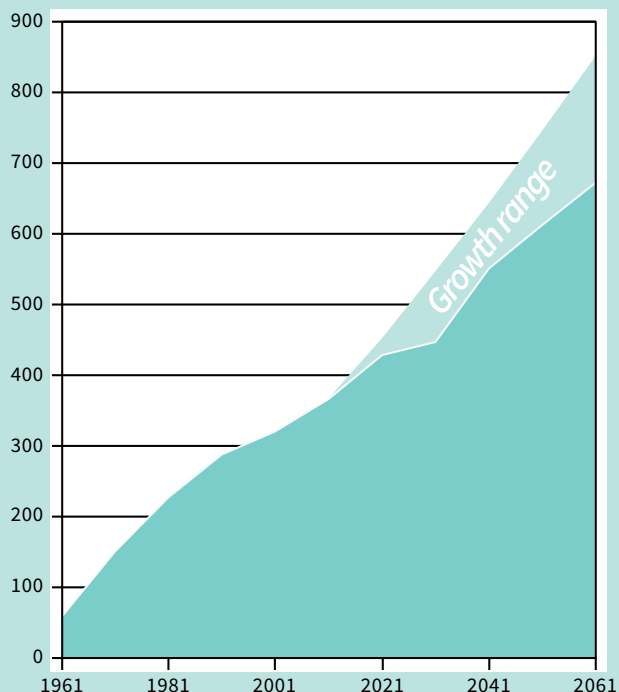
The Australian Infrastructure Audit Report prepared by Infrastructure Australia (May 2015)

found that without additional investment, the cost of road congestion in the ACT will increase from \$208 million per annum in 2011 to \$703 million per annum in 2031.

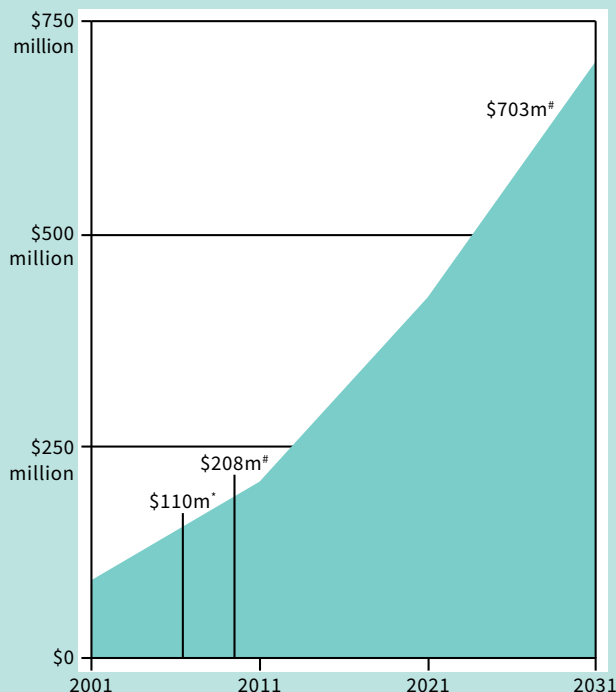
Capital Metro is bringing the first stage of light rail to the area where our city is already experiencing significant growth and congestion. The City to Gungahlin corridor is developing at a rapid rate. Capital Metro will be developed to meet the demands of this corridor well into the future.

We will develop a business case for each corridor to guide the timing and extent of future investments and to help the highest priorities. The ACT Government will also work with the Commonwealth Government to develop potential partnership funding arrangements for high priority corridors of mutual interest.

Canberra's growing population ('000)



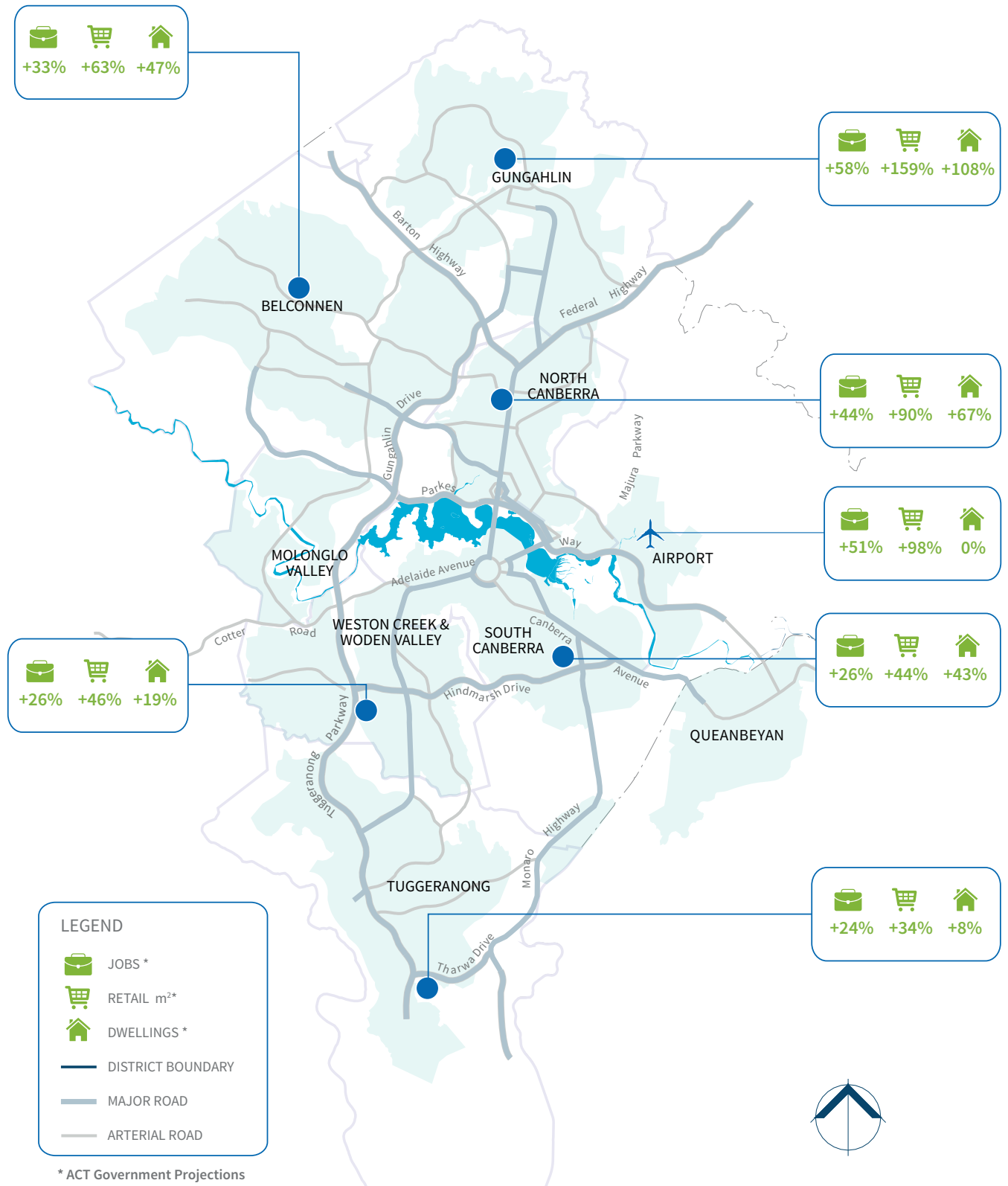
Canberra's growing travel congestion costs (year)



Infrastructure Australia 2015

* Bureau of Infrastructure, Transport and Regional Economics 2005

25 YEAR GROWTH FORECASTS





LIGHT RAIL - TRANSFORMATIVE, DEMAND-DRIVING INFRASTRUCTURE

Light rail is recognised as far more than just a way to move around a city. Experience in over 400 cities worldwide has shown that efficient and reliable light rail solutions can transform cities into more prosperous, sustainable and liveable places. Research has found that people will walk further to use light rail and that it has a strong ability to catalyse urban renewal along transport corridors.

In many cities, light rail has successfully integrated with the fabric of the city to create a more liveable space for all sections of the community. When part of a convenient and well-integrated transport system, light rail provides for high levels of access and mobility across cities. Light rail helps to shape more compact, walkable and liveable cities, with vibrant community spaces and places.

Light rail will have a transformative effect in Canberra by:

- **Revitalising our urban centres and supporting active lifestyles** - Light rail will encourage a higher proportion of Canberra's population growth in centres and public transport corridors, which helps our local economy, health and wellbeing.
- **Stimulating suburban renewal** - High levels of amenity in our suburbs and quality public transport connections will support the renewal of the city, town centres and other key centres, as well as along transport corridors.
- **Increasing economic activity** - Significant commercial opportunities arise near light rail stops, taking advantage of passenger traffic and increased housing density nearby, to grow and diversify the economy.
- **Reducing Canberra's high level of car dependency** - Providing high quality public transport connections allows people to make more choices about their car usage and purchases.
- **Providing efficient environmentally responsible public transport** - Encouraging a shift from private vehicles to public transport reduces overall emissions, particularly as light rail will also be powered by electricity generated from 100% renewable sources.

FUTURE TRANSPORT CANBERRA

The Light Rail Network (LRN) shows future stages of light rail for Canberra. It also explains some of the opportunities and drivers for building on our transport network in a manner that supports future conversion to light rail.

Gungahlin to City (first stage)

- One of the busiest and fastest growing corridors in Canberra
- Business case shows a positive return for the Canberra community
- A major opportunity to showcase investment leading urban renewal and development along the corridor
- Supports economic diversification of the local economy
- Enhances public realm and active travel initiatives
- Extension to Russell under consideration

Parliamentary Triangle

- This is a high priority corridor
- Connects to central Canberra creating a precinct of employment and economic activity holding 60% of all ACT jobs
- Connects Inner Canberra with enhanced access between the Inner South and North
- Supports the travel of more than 5 million visitors annually to national and local institutions
- Showcases Canberra as a vibrant, connected city in a nationally significant precinct
- Opportunity to partner with the Federal Government
- Enhances the movement through and across the whole of Canberra
- Opens connections for future stages in Canberra's south

Woden to City

- This is a high priority corridor
- Major transit corridor connecting Woden/Weston and Molonglo to the City
- Complements master planning in partnership with local communities
- Supports the identity of town and group centres
- Immediate focus on active travel, rapid bus services and additional Park and Ride facilities
- Opportunity to develop key transit nodes as walkable, connected communities

Tuggeranong to Woden (Athllon Corridor)

- Significant public transit corridor for the future with immediate focus on active travel and rapid bus services
- Build as a viable alternative to private car travel on orbital parkways
- Reinforces Tuggeranong town centre identity and supports Mawson, Wanniasa and Kambah group centres
- Investment leads urban renewal and development along the corridor at transit nodes
- Enhance accessibility through additional Park and Rides at Blue Rapid connections

Eastern connections (Fyshwick and Airport)

- This is a high priority corridor
- Capitalises on our key economic flows between City, Russell, Barton, Fyshwick and Majura
- Supports growth in tourism and future direct international flights from Canberra Airport
- Infrastructure Australia data says these corridors are under pressure
- Supports compact growth in our eastern residential and commercial areas – Kingston, Eastlake, Fyshwick and Eastern Broadacre
- Investment leads urban renewal and development along the corridors at key transit nodes

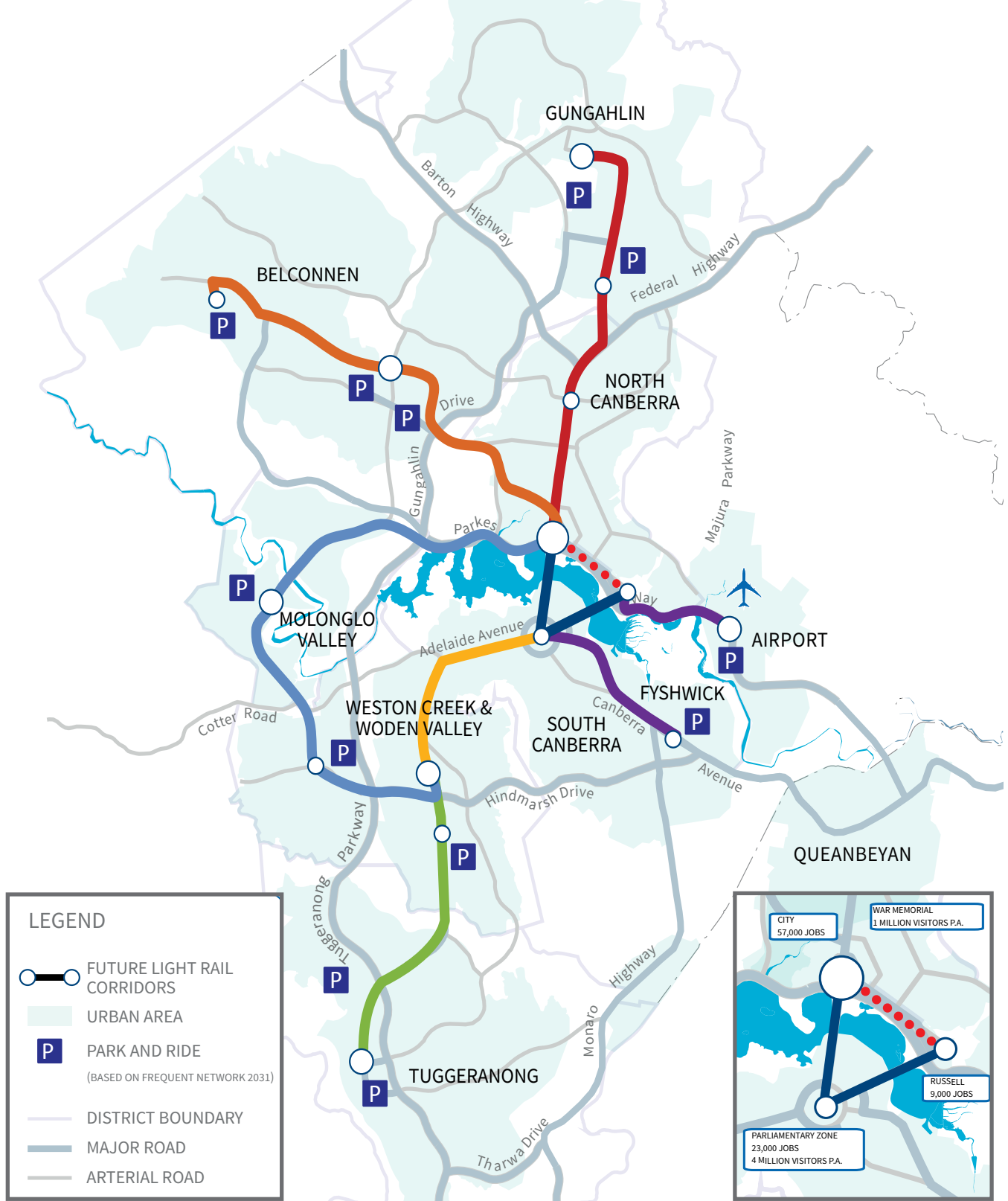
Belconnen to City

- Well-served by the dedicated bus corridor in the short and medium term and converted to light rail in the future
- Future development in West Belconnen increases transport demand
- Opportunity for new Park and Ride nodes at group centres such as Kippax, connecting to existing bus priority
- Work with local communities to develop master plans to accommodate and support transition
- Enhance accessibility through additional Park and Rides at Blue Rapid connections

Molonglo to City

- Future major transit corridor connecting Molonglo and Weston to Woden and the City
- Capitalises on the central access of these districts to other major centres in Canberra
- Immediate focus on active travel, Park and Rides and rapid bus services as the population grows in the future
- Opportunity to shape lifestyle decisions of new residents in the Molonglo Valley
- Molonglo Valley is a young district with significant growth potential in the west and north

LIGHT RAIL CORRIDORS DRAFT NETWORK





VISION FOR A MODERN TRANSPORT SYSTEM



TOWARDS TRANSPORT CANBERRA - LIGHT RAIL NETWORK

Supporting and investing in public transport is pivotal to realising the Transport Canberra - Light Rail Network (LRN).



Deliver Capital Metro

Capital Metro is the first stage of light rail, which will form the spine of our integrated public transport network. Development starts in the Northbourne corridor—a busy part of our city with brilliant possibilities for the future.



Public Transport Improvement

Through our Public Transport Improvement Plan, we will continue to provide better bus services.



Active Travel

Walking and cycling paths will provide convenient access to public transport and major centres. This will help incorporate healthy exercise into people's daily lives.



Suburban Renewal

A coordinated and well planned approach to suburban renewal in centres and along transport corridors will provide housing, employment, education and recreation choices for people who want to have high access to the integrated transport network. Master plans for town centres and key group centres will ensure we have an integrated longer term planning vision for our city.



Park and Ride and Bike and Ride

Park and Rides and Bike and Rides will provide convenient access to transport services and build a base for future light rail stations.

HAVE YOUR SAY

Your views on this important investment for Canberra are important and you can have your say in several ways.

Go to www.haveyoursay.planning.act.gov.au to:

- take a survey, leave a comment or join a forum
- keep informed about plans and progress for the corridors that you use most

Make a written submission to:

- transportplanning@act.gov.au
- Transport Planning, Environment and Planning Directorate, GPO Box 158, Canberra City 2601 or
- call Access Canberra on 13 22 81 for more information

Community engagement on the draft master plan runs from 28 October to 11 December 2015.

Where do we go next with our Light Rail Network?

Which corridor would you build next? Why?

Are there additional benefits and opportunities in particular corridors that you would like to tell us about?

We particularly want to hear your comments on the following:

- Should the network expansion be based on serving the needs of commuters from broader parts of Canberra, or on intensifying public transport use closer to our major business and government employment centres and tourist areas?

For example, the next stage of light rail could connect the network to:

- the Parliamentary Zone, the employment centre of Barton and cultural institutions such as the National Gallery of Australia, the National Archives of Australia, the National Library of Australia, Questacon, the National Portrait Gallery, the High Court of Australia and the Museum of Australian Democracy
- a southern corridor towards Woden, Mawson and Tuggeranong – bringing forward an opportunity to stimulate additional urban renewal and mixed-used development along the transport corridor, and bringing new businesses and jobs to town centres and group centres along the corridor
- eastern connections to the airport and/or Fyshwick to serve our city's growing appeal to tourists and the economic benefits they bring and the expansion of business activity and other mixed uses in our eastern industrial and commercial area.

GUNG AHLIN TO CITY

Transport

Canberra's growing car dependency has led to traffic congestion and slow travel times, in particular along the Northbourne Avenue and Federal Highway corridor. Congestion is expected to worsen in coming years with the rapid growth of Gungahlin and other areas in northern Canberra. By 2031 the peak hour commute from Gungahlin to the City is estimated to take more than 50 minutes if Capital Metro is not built.

Land use and development

In combination with other complementary ACT Government policies, light rail has the potential to drive beneficial land use changes. Capital Metro is expected to accelerate urban densification within the light rail corridor, supporting Canberra's continued population growth within the Territory's constrained boundaries.

Benefits of densification within the light rail corridor include:

- more cost efficient delivery of public infrastructure and services
- increased economic productivity
- reduced carbon emissions
- changing the utilisation of land along the corridor to higher value uses.

Implementation

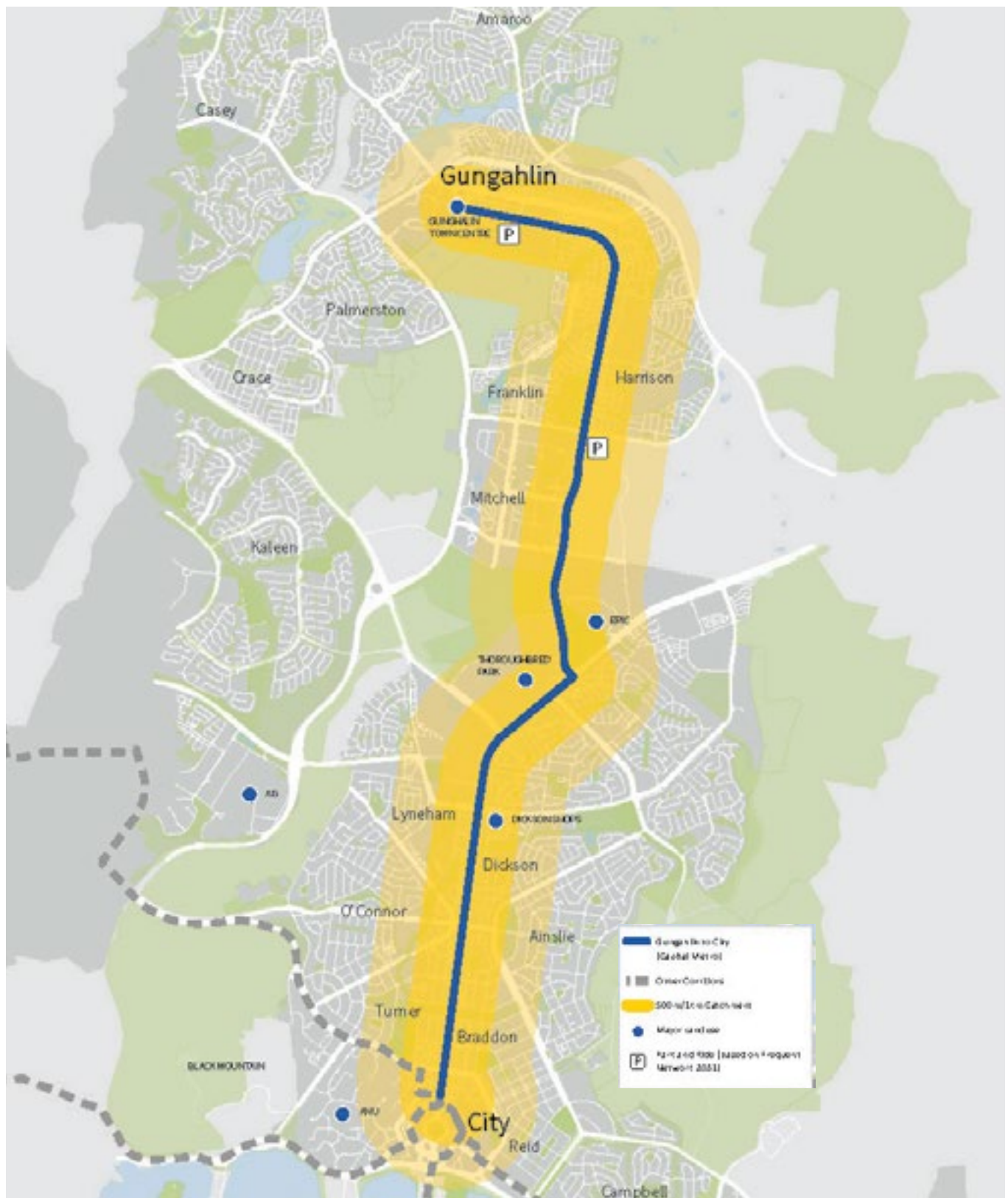
The Government has already committed to implementing Capital Metro Stage One. Capital Metro is expected to generate economic benefits of almost \$1 billion over 30 years. For every dollar we invest we anticipate our community will obtain \$1.20 in benefits.

Transformation and demand-driving opportunities

Light rail is a proven city-shaping tool; it changes the value of land and activity surrounding it. Capital Metro will provide business and investment certainty along the corridor, stimulating significant economic activity as land surrounding the light rail increases in value and is used more efficiently. This investment will stimulate a much needed transformation to the entrance of the nation's capital.

In addition, Capital Metro will act as a catalyst for urban renewal in the rail corridor helping to make Northbourne Avenue a more active and socially connected precinct, and a more fitting gateway to the nation's capital.

GUNGAHLIN TO CITY MAP



PARLIAMENTARY TRIANGLE

High priority corridor

Introduction

The Parliamentary Triangle (including City, Russell and the Parliamentary Zone) is the centre of the public transport network, providing connections to the rest of the Canberra network. Connecting light rail to this important zone south of the lake also opens up future corridors in Canberra's south.

Transport

The central Canberra area, including the Parliamentary Triangle and surrounding areas, is a significant generator of demand for public transport. The Gungahlin, Belconnen, Airport, Fyshwick and Woden corridors all converge on the Parliamentary Triangle. Connecting this inner area with light rail will provide a more integrated Inner Canberra and encourage movements across the lake for social, economic and tourism purposes.

Land use and development

Land uses include national legislative, administrative and executive functions. It is also home to important national cultural institutions such as the National Gallery, the National Library and Questacon.

Employment in the Parliamentary Zone is projected to increase by around 50% between now and 2041, with the small existing residential population in the Triangle anticipated to increase tenfold from around 300 people to around 3,000. This will result in greater intensification of transport demand.

Implementation

Implementation challenges include the crossing of the lake, configuration of the network to maximise network performance and the high quality design requirements of the site and surrounds.

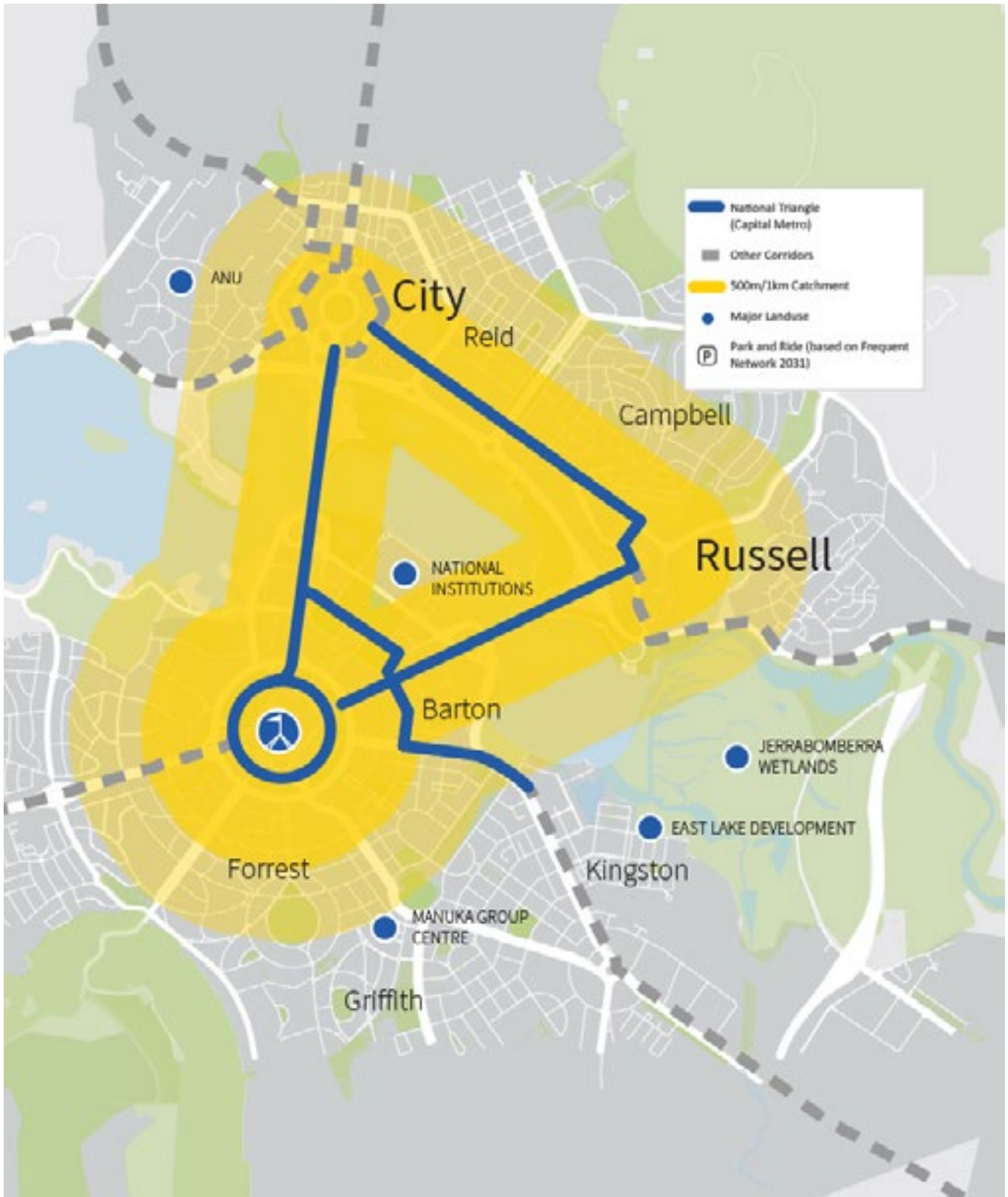
There will be opportunities for the ACT Government to partner with the Federal Government and key agencies such as the National Capital Authority and Infrastructure Australia to create a project of value to the city and the nation.

Transformation and demand-driving opportunities

A well connected centre will support Canberra's growing tourism and education sectors and will capitalise on the potential for agglomeration benefits of Inner Canberra. There is significant infrastructure demand potential in residential areas including Barton, Campbell and Reid and economic potential within the City, Russell and Parliamentary Zone.

It will also build a substantial central transport hub to support later connections to the town centres.

PARLIAMENTARY TRIANGLE MAP





Artist's impression
Light Rail Network - Woden



Artist's impression
Light Rail Network - Belconnen

WODEN TO CITY

High priority corridor

Introduction

The City to Woden corridor connects the city with the Parliamentary Triangle and Woden Town Centre. This corridor serves the districts of Inner South, Woden, Weston Creek and further on to Tuggeranong.

Transport

The corridor's main length, Adelaide Avenue, is a high speed arterial road with a large central median. The corridor has very little active frontage and is primarily a cross-city traffic link. This rapid section of the Woden to City corridor is highly valued by public transport passengers. Providing seamless interchange with other services in the Parliamentary Triangle will be important to providing good access to the wide range of employment and tourist destinations.

Land use and development

The corridor consists of two major anchors: the Parliamentary Zone¹ and Woden Town Centre, which includes other facilities such as the nearby Canberra Hospital. Providing light rail along this route would support the role and identity of Woden Town Centre and provide economic development opportunities at key centres along and adjacent to the corridor.

Implementation

Implementation challenges include the crossing of the lake, the configuration of the network to maximise network performance and the high quality design requirements of the site and surrounds. Further cost and implementation challenges relate to the provision of pedestrian access to the road corridor along Adelaide Avenue due to the grade separation between residential areas and the road and the narrow road widths on Capital Circuit around Parliament House.

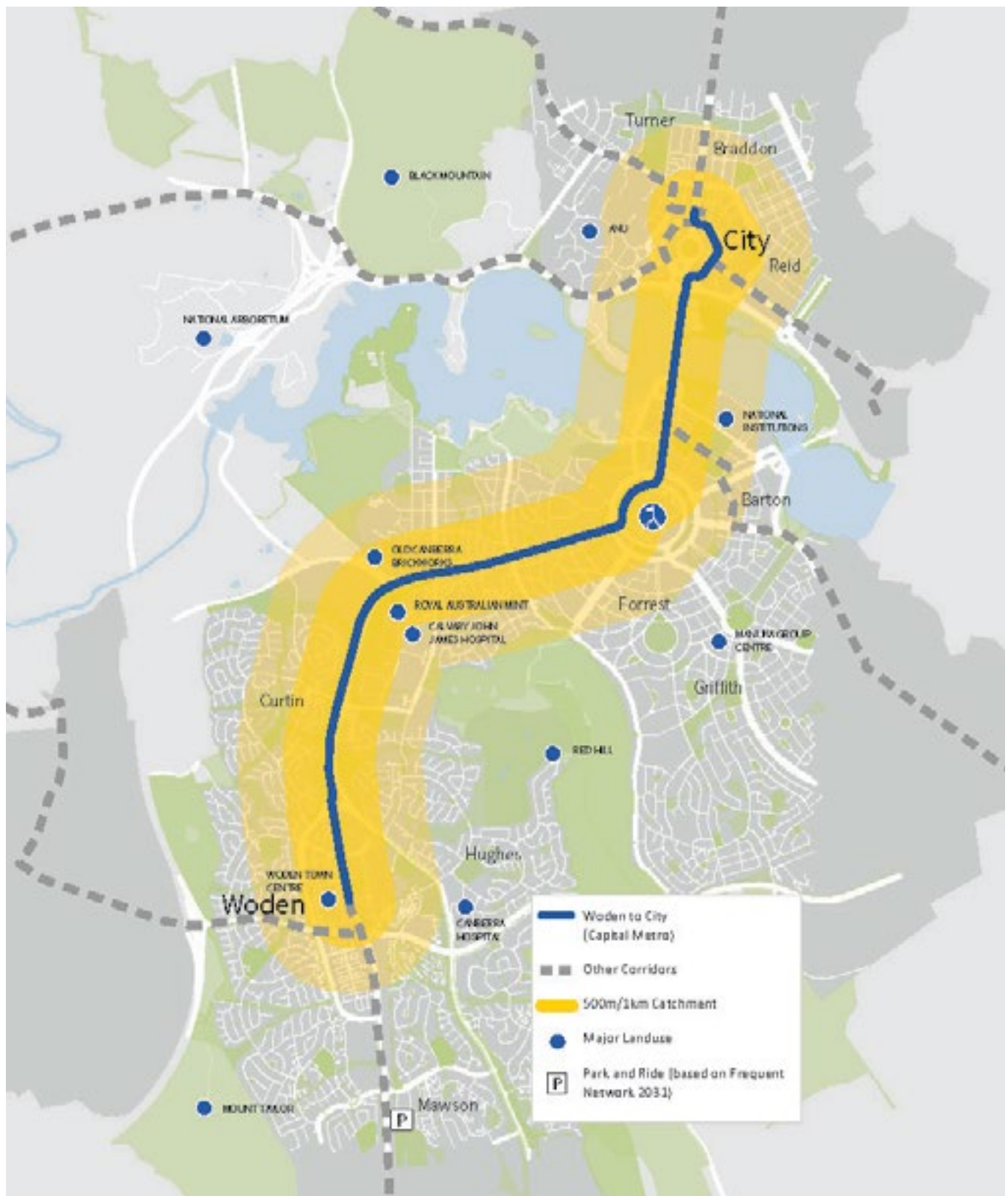
Transformation and demand-driving opportunities

Woden Town Centre is a key market for future development in housing and employment, which will be strong drivers for the implementation of light rail. Transit-oriented development in the corridor will be challenged on sections where residential areas are grade separated from the road but this will allow more focused activity and connectivity at existing commercial precincts.

Light rail provision has already been incorporated into master plans currently being prepared by ACT Government to support this potential growth and to develop these locations as walkable, connected communities.

¹ The Parliamentary Zone refers to the area of the Parliamentary Triangle to the south of Lake Burley Griffin.

WODEN TO CITY MAP



TUGGERANONG TO WODEN – Athllon Corridor

Introduction

The Tuggeranong to Woden corridor provides a light rail connection for south Canberrans to Woden, the City and beyond. Two options exist for providing light rail between Woden to Tuggeranong. Option A follows the Athllon Drive Corridor and enters Tuggeranong to the north, while Option B follows the existing rapid bus alignment along Erindale Drive.

Transport

The corridor currently serves as one of several corridors between the Tuggeranong district and the City. Other north-south arterials include Erindale Drive, Tuggeranong Parkway and the Monaro Highway. These road corridors provide a high level of service for road users into the future which will offer strong competition to future light rail.

Land use and development

Tuggeranong mainly consists of low density housing with some medium to high density around the town and group centres. These higher densities will help support levels of patronage necessary for light rail in the future. However higher densities would be required throughout the corridor to support future investment. Tuggeranong is a significant employment hub for the district with 27% of all Tuggeranong residents working in the district, mainly the town centre.

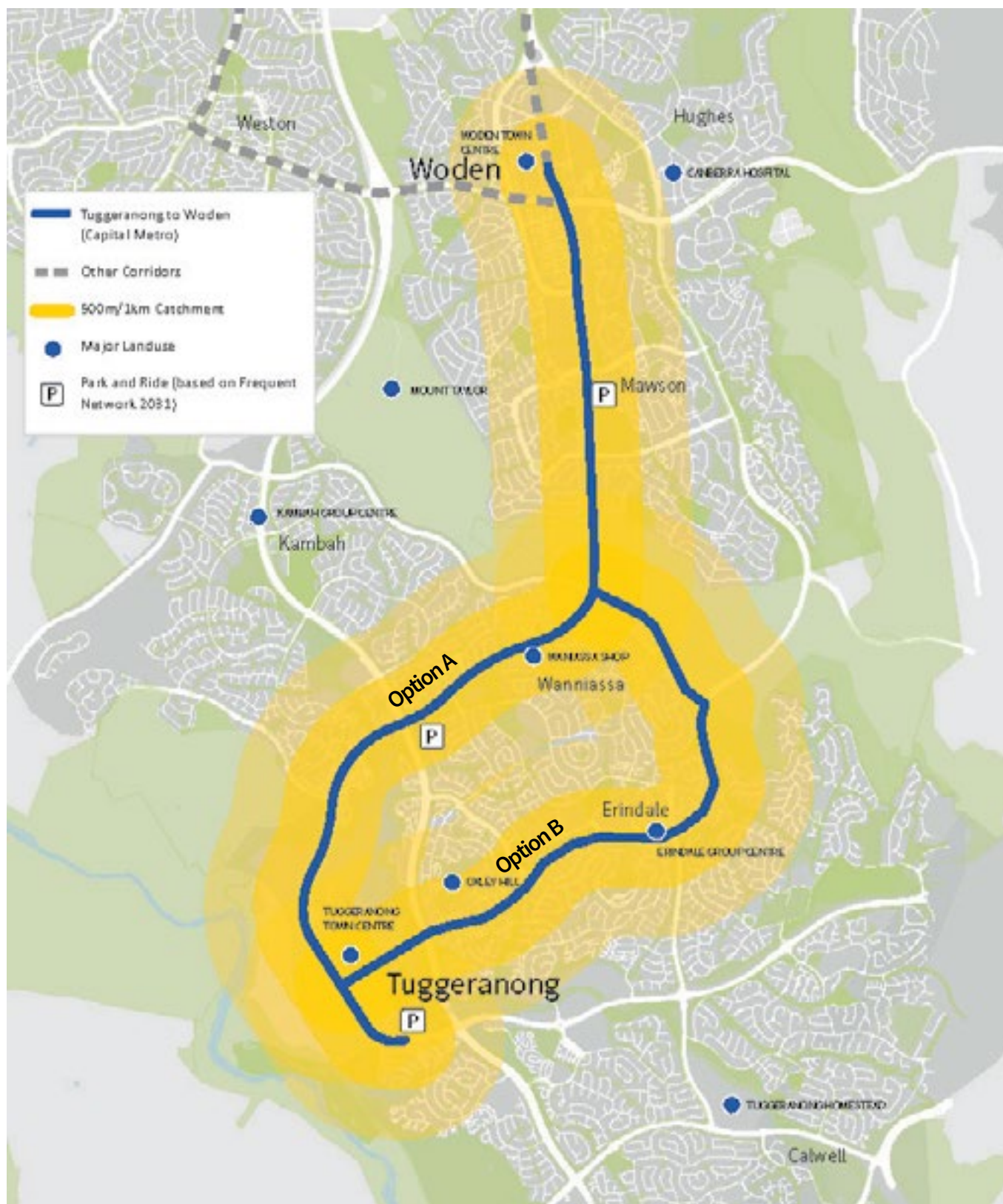
Implementation

Both the Erindale Drive and Athllon Drive corridors attract similar levels of demand for light rail. The Athllon Drive alignment (Option A), however, has fewer constraints than the Erindale Drive alignment (Option B) with lower grades and a shorter overall length. Both corridors require the negotiation/upgrade of large roundabouts. The Lake Tuggeranong dam wall has been identified as an important yet manageable constraint for the Athllon Drive corridor.

Transformation and demand-driving opportunities

With generous road reserves on Athllon Drive, the northern and southern sections of the corridor demonstrate strong transit readiness with the opportunity for constructability depending on market conditions. There is significant opportunity within the town centre to increase residential populations that enhance public transport demand. Demand-driving opportunities also exist in the strategic location of future park and ride facilities in the town centre and near the intersection of Drakeford Drive.

TUGGERANONG TO WODEN MAP





Artist's impression
Light Rail Network - Tuggeranong



EASTERN CONNECTIONS – Fyshwick And Airport

High priority corridor

Introduction

The eastern network provides a public transport connection between the city and the economic centres of the airport precinct and Fyshwick. The City to Fyshwick corridor connects Fyshwick, Kingston and the Parliamentary Triangle to the City and beyond.

Transport

Both Canberra Avenue and Pialligo Avenue have been identified by Infrastructure Australia as roads under significant pressure. Traffic congestion is anticipated to increase along these corridors as development increases. This will be coupled with strong bidirectional flow to Queanbeyan.

There is a strong opportunity at the termini of both eastern corridors to support light rail through the provision of park and ride connections to attract Queanbeyan commuters.

Although the major driver of demand on the airport corridor is likely to be employment rather than air passengers, Canberra Airport data shows strong demand for travel between the airport and Parliamentary Triangle, with 65% of all airline passenger arrivals destined for the City or Parliamentary Triangle.

Land use and development

The Fyshwick corridor passes several growing employment and residential precincts and is able to carry people to a range of locations including the Parliamentary Triangle, Manuka/Kingston and Fyshwick.

The high density development at Kingston and the future development of East Lake are also important markets for this corridor with the potential for transit oriented development along the corridor similar to that planned for the Northbourne Avenue corridor.

Although quite constrained between the airport and Russell, the airport corridor offers significant potential for development at its western and eastern sections with residential and commercial capacity along Constitution Ave/Russell, as well as commercial development at the Majura and airport precinct.

Implementation

Implementation challenges include the crossing of the lake, the configuration of the network to maximise network performance and the high quality design requirements of the site and surrounds. The Fyshwick corridor has a wide central median which is advantageous to light rail provision while the airport corridor has some slight but manageable challenges to accommodating light rail in existing traffic lanes.

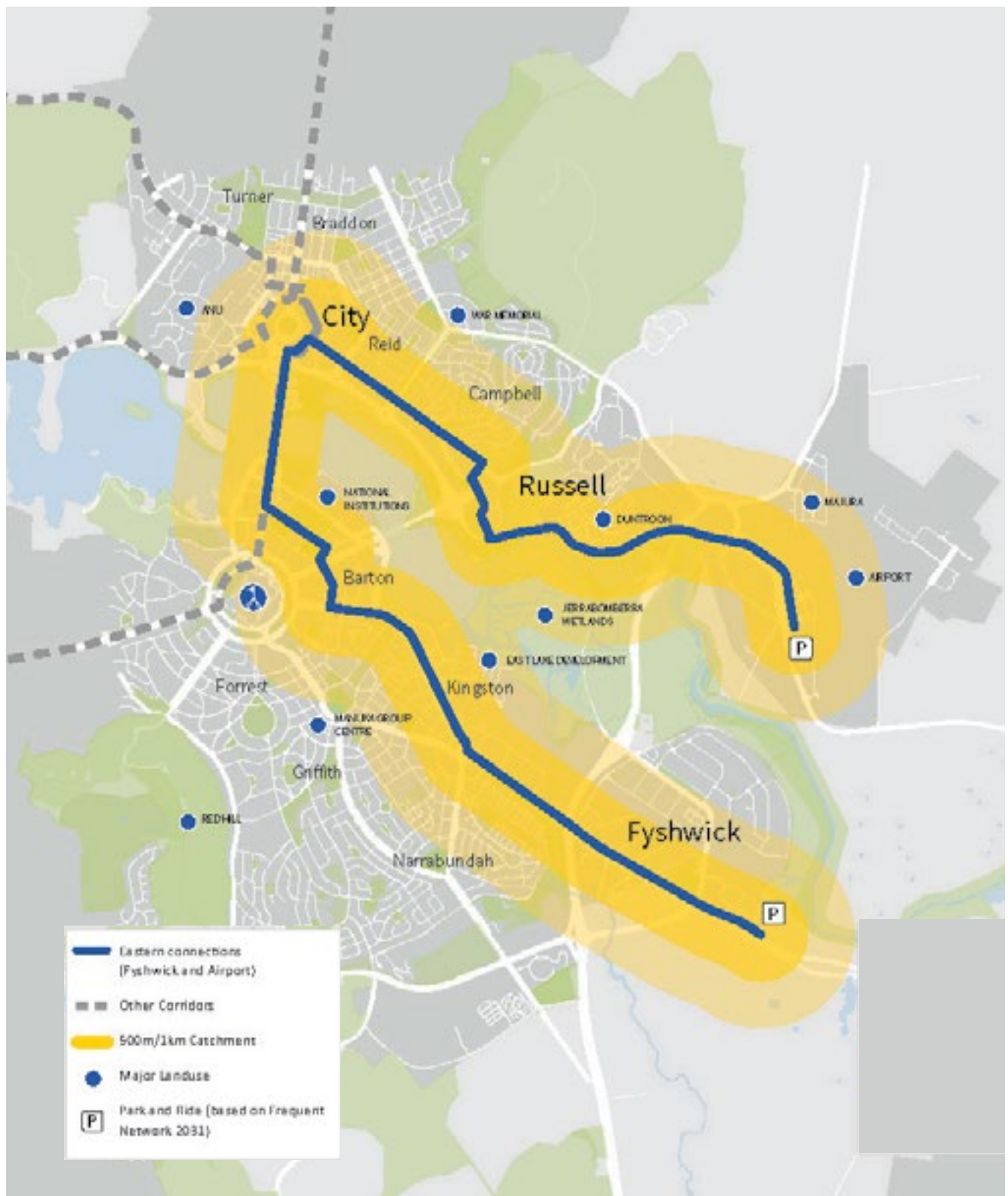
There will be opportunities for the ACT Government to partner with the airport and Federal Government to build these corridors.

Transformation and demand-driving opportunities

There is significant opportunity to demand drive development between Narrabundah and Barton as well as along Constitution Avenue. The high density development at Kingston and the future development of East Lake are also significant centres for this corridor, in addition to the catchment of Barton, which has strong potential for growth.

Both corridors demonstrate high transit readiness and opportunity for further mixed-use high intensity development at a number of locations along their lengths.

EASTERN CONNECTIONS MAP



BELCONNEN TO CITY

Introduction

The Belconnen to City corridor provides a light rail connection to the north-west of Canberra via Southern Cross Drive, connecting Belconnen to the City via Kippax, Belconnen Town Centre and Barry Drive.

Transport

The Kippax – Belconnen – City corridor is one of the busiest public transport corridors in Canberra. Traffic congestion is anticipated to significantly increase along this corridor over time. The Government's existing investment in the Belconnen Bus Transitway has capacity to serve the Belconnen Corridor over the next 10-15 years or more, with a higher capacity public transport service required in the longer term.

Land use and development

The Belconnen to City corridor has established town centres at either end and key demand centres along the corridor. The corridor connects Canberra's second largest town centre, Belconnen, to the City as well as other key activity areas providing significant demand-driving opportunities such as the Bruce precinct, Calvary Hospital, Canberra University and the Australian National University.

Implementation

The steep grades on short sections of Barry Drive may have specific light rail rolling stock requirements; however this is considered a manageable impact.

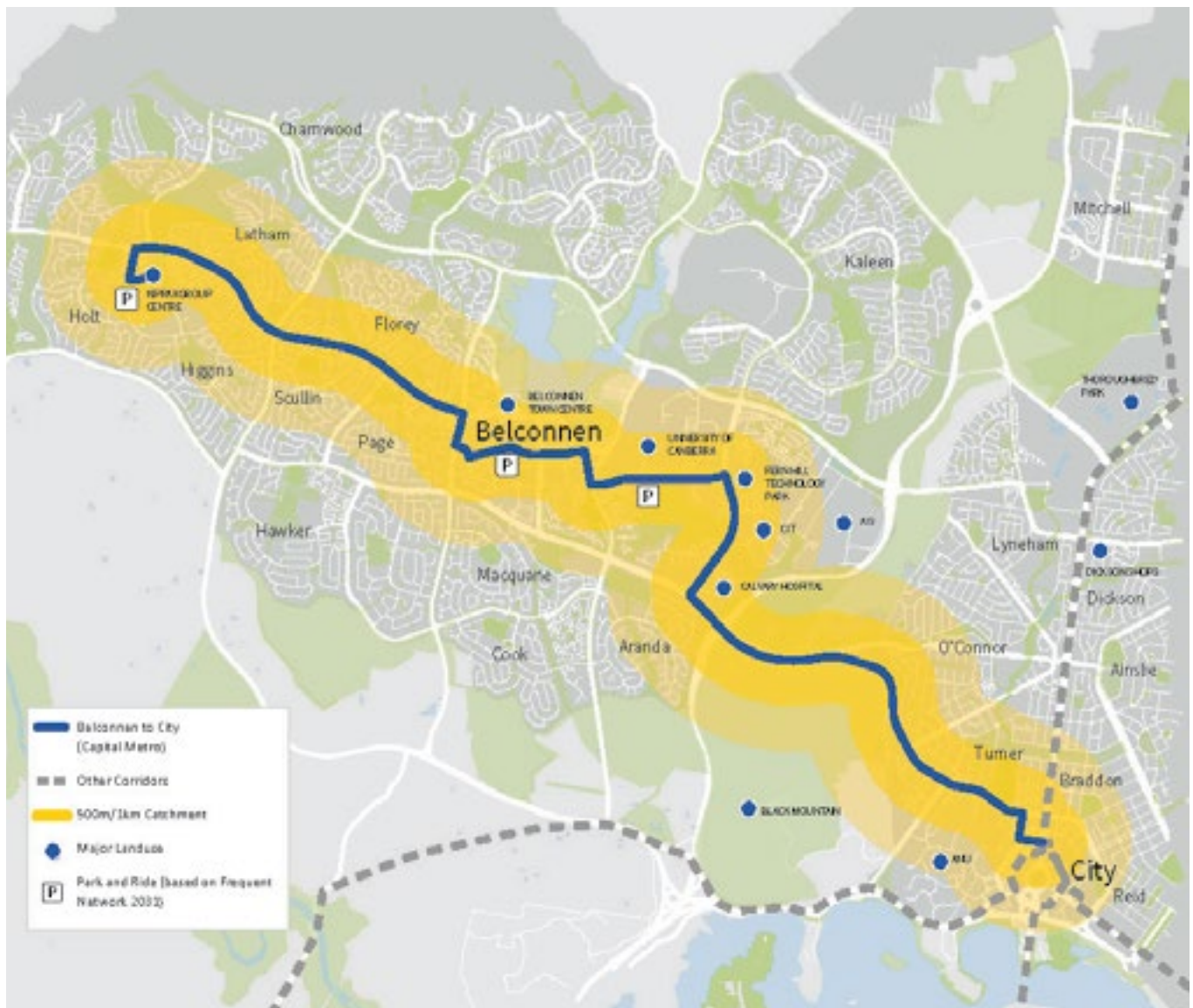
Transformation and demand-driving opportunities

In the future this would be a key market for public transport given the employment and development nodes along the corridor at Belconnen, Bruce, the ANU and the City. Future development in West Belconnen with a potential 30,000 additional residents is a key driver of transport demand between Belconnen Town Centre and Kippax Centre.

Unlike the Gungahlin to City corridor, there is little opportunity for infill development along the corridor between Bruce and the City. Opportunities for demand-driving infrastructure, however, do exist at existing activity nodes, particularly at the Belconnen Town Centre and surrounding precincts.

Light rail provision has already been incorporated into the Belconnen Town Centre Draft Master Plan, being prepared by the ACT Government to support growth and develop the centre as a walkable, connected community.

BELCONNEN TO CITY MAP



MOLONGLO TO CITY

Introduction

The Woden to City via Weston Creek and Molonglo corridor connects Woden by Hindmarsh, Streeton and John Gorton drives (through Weston Creek and Molonglo) and Parkes Way to the city centre.

Transport

Forecasts suggest the travel from Molonglo will be multidirectional and spread between various employment centres. This, along with the spatial development patterns of Molonglo, presents challenges in connecting all population and employment centres via a single route.

Land use and development

The Molonglo district is expected to experience significant population growth over the next 25 years. The Weston Group Centre Master Plan anticipates growth within the centre over time. The population of Molonglo will increase considerably as this new district grows and this will stimulate growth in activity at key centres as well as travel demand on the corridor.

Significant urban expansion opportunities to the west and north would generate significant public transport demand in the longer term.

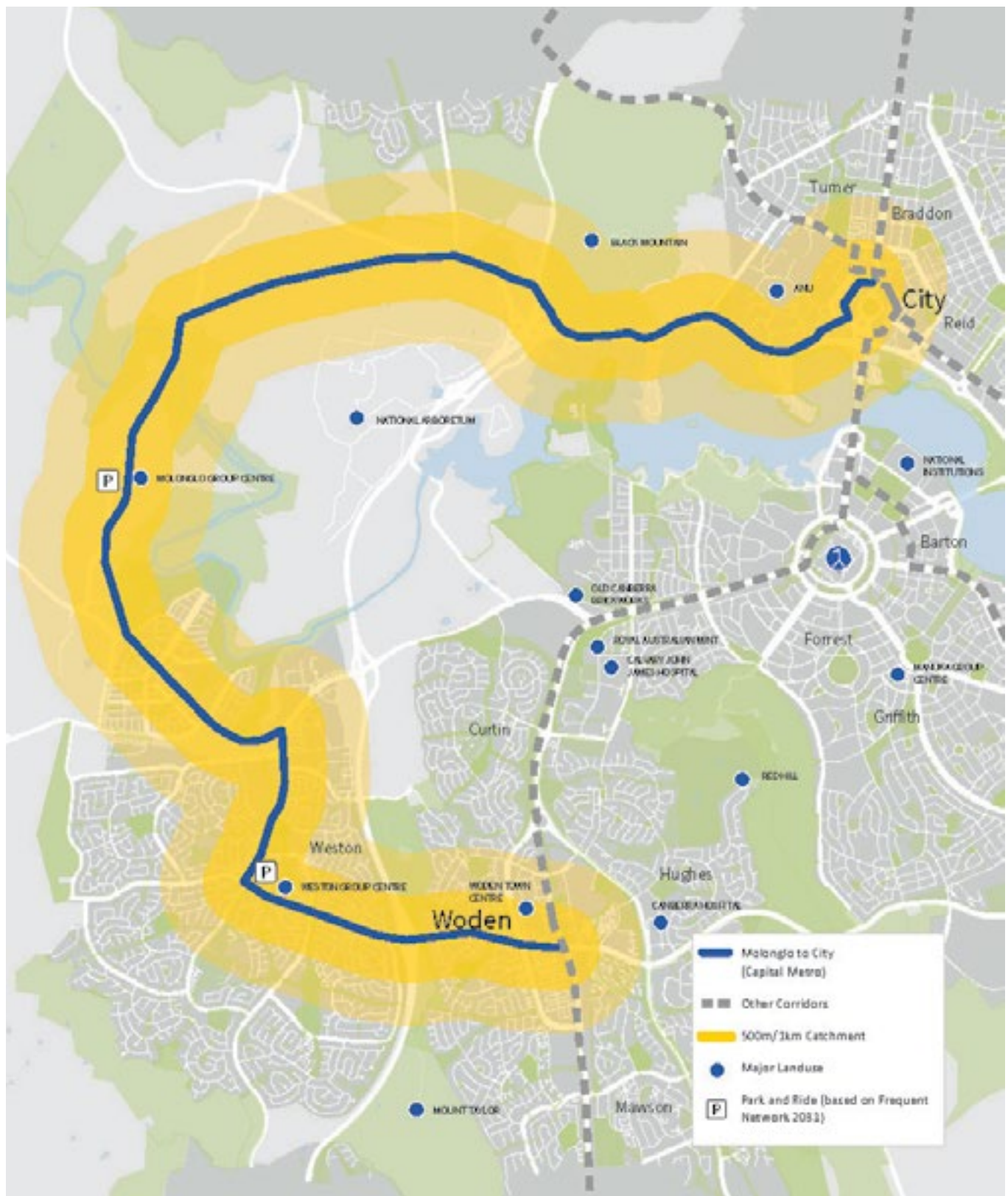
Implementation

Implementation of light rail along the corridor will be constrained by the cost of future waterway crossings. However, given the planned upgrades of the road network in the future there is potential to include light rail provision within these works.

Transformation and demand-driving opportunities

Given the high residential development rates forecast on this corridor there is significant opportunity to shape lifestyle and travel behaviours of future residents. This will help increase demand along the corridor and enhance the liveability of the districts as it matures in the future.

MOLONGLO MAP



MAKING CANBERRA AN EVEN MORE SUSTAINABLE, MODERN AND LIVEABLE CITY







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