

A CITY PLANNING FOR GROWTH

Melbourne will be a leader in planning for growth and technological advancement. We will guide and influence the future development of the city for the benefit of all city users and in a way that values and celebrates its historical and cultural identity.

Acknowledgement of Traditional Owners

The City of Melbourne respectfully acknowledges the Traditional Owners of the land, the Boon Wurrung and Woiwurrung (Wurundjeri) people of the Kulin Nation and pays respect to their Elders, past and present.

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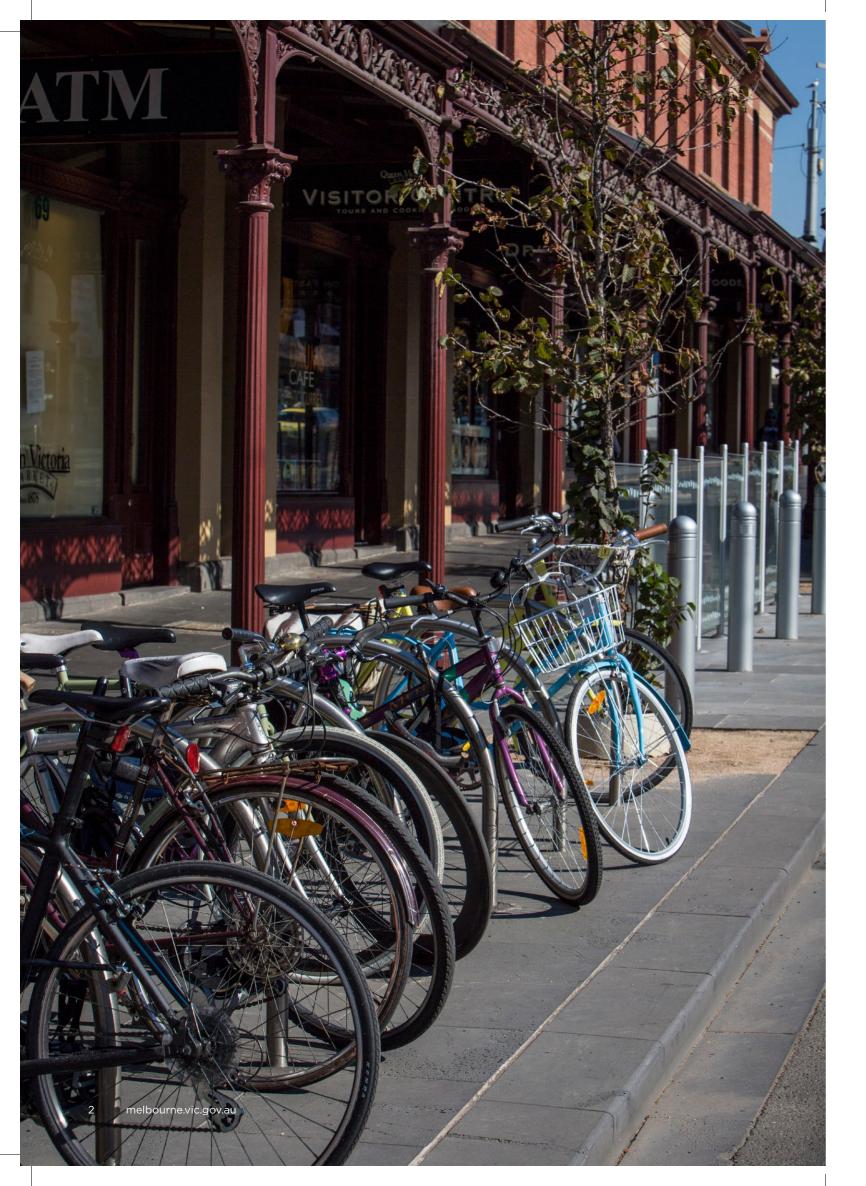
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FOREWORD

This is a draft MID City North Urban Realm Action Plan for community engagement. It will be considered by the Future Melbourne Committee on 13 November 2018 for endorsement for community and stakeholder engagement over late 2018 - early 2019. If the draft action plan is endorsed by the Future Melbourne Committee, a Foreword will be inserted here.

1. INTRODUCTION

This action plan outlines the steps needed to enhance the urban realm of the City of Melbourne's university area to the north of Melbourne's central business district. It has the dual and complementary aims of creating great places for people to live and work, and creating places that support innovation activities.

The area is called Melbourne Innovation Districts (MID) City North and represents the first district of the MID partnership established in 2016 between the City of Melbourne, RMIT University and the University of Melbourne.

The MID partnership will work together in a number of Melbourne locations to create a network of innovation districts. Innovation districts are defined as (The Brookings Institute, 2018):

Places that build on and revalue the intrinsic qualities of cities - proximity, density, and vibrancy - to facilitate the creation and commercialisation of new ideas and jobs to support metropolitan economies

The MID partnership has selected MID City North as the first of its innovation districts because of its unique potential to spur inclusive economic development through startup formation and growth, research commercialisation, social innovation and other innovation activities. MID partners share a common strategic interest to see outcomes from activation in MID City North benefit the whole city. In effect, MID City North becomes a test bed for the rest of Melbourne.

This plan proposes interventions that facilitate testing, showcasing, and engagement. It encourages better inter and intra-district transport mobility to enable face-to-face connections between the people that make innovation happen, and it enhances the amenity and function of the urban realm to make MID City North a great place for all people.

Background

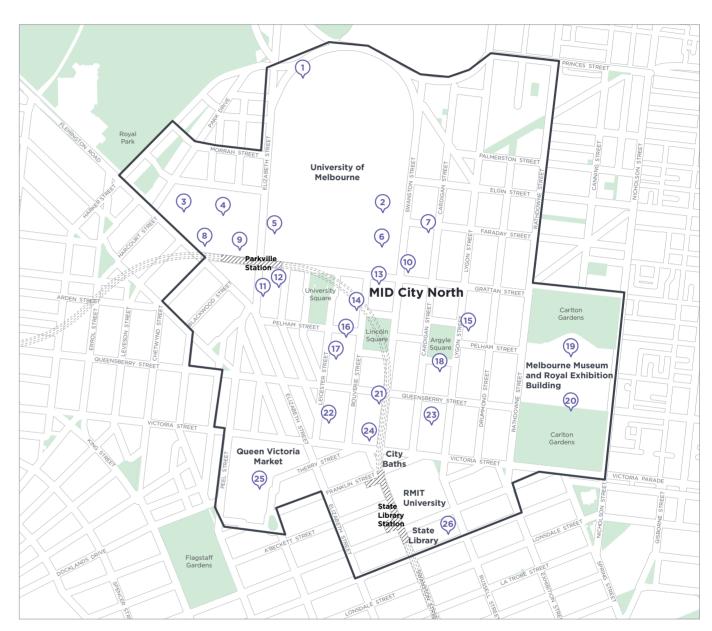
The partnership believes innovation districts play a pivotal role in responding to new pressures and possibilities as the city evolves from a mid-sized metropolis of 4.5 million people to a world city with an estimated population of more than 8 million people by 2051 (The State Government of Victoria Department of Environment, Land, Water Use and Planning, 2016).

The area that makes up MID City North has a long and successful history in innovation. Its success is underpinned by the co-location of RMIT University, the University of Melbourne and other research and education institutions, extensive investment in infrastructure and facilities for the generation of knowledge and ideas, and the positive synergy effects from the many professionals, researchers and students working and studying within the area.

Despite its history of success, there remains untapped potential to create broader value for the benefit of the whole city. In particular, there is potential for the conversion of knowledge advancements and innovation into local economic prosperity and social and community development.

In addition, MID City North is currently being transformed by a number of infrastructure and property redevelopment initiatives. RMIT University and the University of Melbourne are reshaping their campuses, the City of Melbourne and our community are reshaping the Queen Victoria Market precinct, and the Victorian State Government is investing in transport infrastructure projects. The most prominent example of this investment is Melbourne Metro Rail, a major rail project that tunnels through the district with stations to be constructed close to both RMIT University and the University of Melbourne. In the short term, this project will create some disruption in and around a number of sites within the district. In the long term, patterns of people moving to and around MID City North will change and allow better access for up to 18,000 additional workers and students, including from some of Melbourne's other renewal areas, Arden Macaulay and Fishermans Bend.

The coincidence of these developments creates a unique opportunity to grow partnerships and share investment in infrastructure that will make it possible to turn exciting new innovations into large-scale solutions.



- 1 Wade Institute for Entrepreneurship
- 2 Australian Urban Research Infrastructure Network (AURIN)
- 3 Bio21 Institute
- 4 Walter and Eliza Hall Institute
- 5 Howard Florey Institute
- 6 Microsoft Social NUI Centre
- 7 Kathleen Syme Library and Community Centre
- 8 Royal Women's Hospital
- **9** The Royal Melbourne Hospital
- 10 Melbourne Connect
- 11 Peter Doherty Institute for Infection and Immunity
- 12 Victorian Platform Technology Network
- 13 The Grattan Institute

- **14** Centre for Neural Engineering
- **15** IBM Research Australia
- 16 Australian Red Cross
- 17 Oxfam
- **18** The Conversation
- 19 Melbourne Museum
- 20 Royal Exhibition Building
- 21 Slack tech startup
- 22 Australian Conservation Foundation23 RMIT Advanced Manufacturing Precinct
- 24 RMIT The Design Hub
- 25 Queen Victoria Market
- **26** State Library of Victoria

Figure 1: Map of MID City North

MID City North is an area encompassing the northern fringes of Melbourne's central business district and parts of Parkville and Carlton. The district includes the main campuses of MID partners RMIT University and the University of Melbourne, as well as the Queen Victoria Market, the Victorian State Library, the Parkville West biomedical and hospital precinct, and the Melbourne Museum and Royal Exhibition Building.

2. ABOUT THIS ACTION PLAN

Urban realm refers to publicly accessible areas of a city. It comprises streets, laneways, footpaths, parks, squares, and public buildings and facilities. It also includes private property that has been made accessible, either temporarily or permanently, for community use.

The urban realm influences the function and character of districts within a city. It impacts the appeal of districts as places to live, work, study or set up businesses. It also impacts the movement of people, and the interactions people have with each other and their surroundings. The planning and design of the urban realm therefore has far-reaching implications for the liveability of cities.

Urban realm plans provide direction for enhancing and connecting spaces to make them accessible, inclusive, safe and inviting. This urban realm action plan seeks to achieve these outcomes but also has an added targeted outcome: to ensure the district's spaces support innovation, research, experimentation and engagement activities as a part of its function as an innovation district.

The plan outlines enhancements to the streets, open spaces and other areas of the urban realm to be undertaken by the City of Melbourne. Section A introduces the MID partnership (including the vision and principles that will guide its work) and describes the MID City North district. Section B highlights the streets, spaces and other opportunities for urban realm enhancement and outlines the specific urban realm actions to be delivered by the City of Melbourne through phased projects over a five-year timeframe from 2018 to 2023.

The development and use of this plan

The action plan has been developed following multiple stakeholder workshops, site research and analysis, and analysis of existing context, strategies and policy.

The opportunities identified in Section 5 of this document were presented to City of Melbourne by independent consultants to inform the development of actions as outlined in Section 6.

The action plan addresses:

- resident, worker and student behaviour
- use of public spaces
- pedestrians and cyclists
- parking and traffic
- pre-existing work underway in the district

This version of the plan is a draft for consultation with the district's community and key stakeholders. There are a number of existing and approved strategies, precinct-level masterplans, and structure plans that have influenced the development of this draft version and will continue to apply to MID City North (line 1 in Figure 2). This plan has been developed to support or add to these existing plans, the most aligned being the City North Structure Plan developed by the City of Melbourne in 2012.

The City North Structure Plan provides a framework to guide urban renewal and to fulfil the area's potential as an extension of the central city. While the geographic boundaries of the area addressed in the City North Structure Plan differ to those of MID City North (which extends slightly more eastward to encompass the whole of RMIT University city campus, the State Library and the Melbourne Museum and Royal Exhibition Building) the two plans are complementary. Indeed, this plan acts as an accompanying plan to the City North Structure Plan to update it with the specific focus on enhancing the urban realm to support innovation activities.

Following community consultation and Council endorsement, this plan will be used across Council to assist with the planning, design and management of urban spaces in the district, and when considering the yearly budgets for capital works (line 4 in Figure 2). The plan is intended to be a 'living' document which will require regular updates and revision every four to five years to ensure it remains relevant and useful.

Figure 2: The strategic context of the MID City North Urban Realm Action Plan. This action plan sits within a hierarchy of influencing and influenced plans.





3. THE MID PARTNERSHIP

MID aligns the City of Melbourne, RMIT University and the University of Melbourne in a historic, collaborative partnership, formed to achieve our common goals in creating new jobs, enterprises, services, and spaces that will contribute to Melbourne's success as it grows.

The MID partnership began with the creation of a shared vision to guide and align the individual and joint actions of the partners:

'Our vision is to develop a world-class urban district and environment that supports and develops next-generation Melbourne – a place designed to leverage emerging technologies and innovation, and build on our city's unique characteristics to enhance education and economic outcomes, create new knowledge and city experiences, and enrich inclusion and public amenity.'

The partnership is a response to the social and economic imperatives of the city today, and the opportunities presented through a number of city and campus-shaping projects. It capitalises on opportunities to establish shared projects and places to enhance the experience of participants in the Melbourne's innovation, research and education systems. Together, the three partners can:

- transform the mix of experiences and activity in MID City North
- plan and design the land owned by the three partners, and the broader urban realm
- engage our respective communities in development and better use of the area
- share and advocate for investment in delivering the vision
- build wider partnerships and support new ways of collaborating.

The partnership is collaborative in its approach to:

- achieve greater impact through expanded participation in the innovation ecosystem
- foster new forms of local leadership and skills
- · craft co-designed solutions for local conditions
- stimulate industry clusters and other public-private connections
- improve innovation through better communication and knowledge transfer.

The role of the MID partnership is unlocking the innovation potential of MID City North. This will be achieved by encouraging new connections, collaborations, culture and practices combined with a physical reshaping of the urban realm in the district to support innovation. The MID partnership will implement five workstreams as part of its joint-effort framework.

- The urban realm rethinking the ways spaces can enable innovation activities such as testing, showcasing and engagement.
- Enterprise activation providing targeted support for startups and small to medium enterprises to establish and grow within the district, and make productive connections with other parts of the innovation ecosystem.
- Advanced technology enabling better analysis, insight and collaboration through accessible state-of-the-art and experimental technology.
- Social innovation developing, collaborating and researching in new ways and combinations to better meet social needs.
- Institutional design purposefully designing institutions and district 'sub-culture' to foster dynamics of collaboration, learning and creativity.

The role of the City of Melbourne

The City of Melbourne will play a range of roles across the five workstreams outlined above. In coordination with RMIT University and the University of Melbourne, we will identify our optimal role in a given context with consideration of:

- the interests of the community, stakeholders and beneficiaries and their feedback as to the City of Melbourne's optimal role
- the City of Melbourne's jurisdictional powers
- the policies and initiatives of state and federal governments and other placemaking and economic development agents
- existing assets, capabilities and resources.

Through this urban realm action plan, the City of Melbourne assumes four principal roles that seek to achieve our vision:

- Provide where the City of Melbourne leads the delivery of work
- Partner where we partner with other strategic stakeholders and/or community groups to deliver work
- Facilitate where we assist others to lead delivery by bringing interested parties together
- Advocate where we actively lobby and promote the community's interests to other responsible decision makers and delivery agents.

Barcelona's 22@ initiative

The 22@Barcelona initiative began in 2000 with the aim of transforming 200 hectares of low-density and largely inactive industrial land into a district suitable for knowledge-intensive activities.

The successful transformation of the Poblenou Quarter, close to Barcelona's city centre, has seen it become an exemplar case for the development of innovation district initiatives elsewhere. In particular, there are lessons in how 22@Barcelona attracted an influx of diverse new district users: enterprises of varying scales and maturity, university and other research and development entities, and public service agencies. Importantly, the 22@Barcelona planners designed the district not only to attract professionals, but also to create a vibrant place for new residents to live.

The coexistence and integration of these district users was seen as the defining success factor to encourage the types of interactions and networking that lead to innovation and entrepreneurial outcomes.

The model adopted to achieve this mix prescribed a balance between private land (70 per cent), open space (10 per cent), university space (10 per cent) and social housing (10 per cent). Planning controls within the jurisdiction of Barcelona City Council were used as the mechanism to achieve the desired district composition of activities, and the most appropriate built forms to support them. The planning controls determined building heights and building floor-to-height ratios, the protection of heritage character, and the prevalence of open spaces in the district.



Design principles

In undertaking the above roles, the City of Melbourne will be guided by five principles as it undertakes the design, planning and implementation work in the urban realm of MID City North:

- A learning lab for inspiring, engaging and sharing. MID City North will be a 'living lab', committed to testing, learning and sharing knowledge about our best possible futures in public, in the urban realm.
- Integrated technology and hyper-connection.
 New technology and data governance will be integrated into the public and digital realms to monitor, assess and improve the quality of the social and urban environments.
- 3. A place that supports innovators, creatives and startups, and welcomes all people. The urban realm of MID City North will support, enable and enhance the visibility and viability of creative and social disciplines, the knowledge and innovation sectors, and startup ecosystem.
- Active, adaptive and flexible places. MID City North will foster responsive environments and adaptive, flexible places, capable of rapid, iterative augmentation and ongoing activation.
- Sustainable and healthy environments. Activities in MID City North will actively address the environmental sustainability of our future city and seek to create healthy environments.

MaRS Discovery District

Toronto's MaRS Discovery District is North America's largest building-precinct innovation hub. It provides a range of accommodation, business networking and other support services to the city's innovation ecosystem, and in particular to its startups looking to start, grow or scale.

Its aim is to create the chemistry for innovation and commercialisation to flourish. Through the co-location of science and research based organisations, the MaRS precinct and its associated programming services, stimulate collisions between groups that wouldn't normally interact.

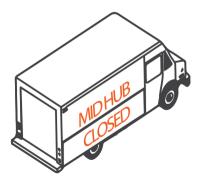
At any given time, MaRS accommodates 150 tenants across 1.5 million sq. ft. of offices and science labs.

Current tenants include:

- a number of Torontonian startups;
- capital and service providers such Autodesk,
 Facebook, PayPal, Airbnb Inc., Merck & Co. and Jlabs;
- academic or public-sector institutions such as the University of Toronto.

The programming aspects of services aim to connect startups with venture funding or business partnerships opportunities with other tenants or from potential investors and partners from across North America.

Much like the partnership that created MID, MaRS was borne and continues to benefit from the collaborative efforts of a number of city institutions including its city and state government and its university sector.



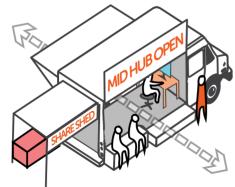




Image 1. Vans, trucks or trailers modified to act as mobile innovation hubs are examples of design principles 3 and 4.

 $Image\ 2.\ Interactive\ technologies\ that\ encourage\ learning,\ inspiration\ and\ playfulness\ are\ reflected\ by\ design\ principles\ 1\ and\ 2.$

4. MID CITY NORTH

About MID City North

MID City North encompasses a crucial junction point for Melbourne. Its central location spans links to key north-south and east-west transport corridors, and sits immediately adjacent to the central business district. MID City North merges with other important centres such as the Parkville health and biomedical precinct and retail centres. open space corridors and residential areas. It is also home to a significant number of 'think tanks', research institutes of a range of fields, and social and non-profit enterprises.

MID City North is home to buildings and places of rich cultural and historical significance. It features heritage buildings, mixed-use building types and university campuses that integrate with the city. It is also characterised by its wide streets, parks and a network of under-utilised laneways.

The following is a snapshot of MID City North today.

- Almost two thirds (64 per cent) of the population of MID City North is aged from 15-24 years (City of Melbourne, 2016).
- 56 per cent of all residents attend an educational institution (City of Melbourne, 2016).
- The majority of residents (77 per cent) were born overseas (City of Melbourne, 2016).
- The streets in MID City North contain 2535 on-street car parking bays. Compared to the rest of the municipality, a high proportion of streets have on-street parking (City of Melbourne, 2018).
- The largest landowners in the district are MID partners. with University of Melbourne property (owned or occupied) spanning 45 hectares, and RMIT University property spanning 9 hectares (City of Melbourne, 2016).

History of innovation in City North

MID City North has always been Melbourne's innovation epicentre. It is home to Victoria's first university, the first technical college, the Royal Exhibition Building - once Australia's largest building, and the Royal Women's Hospital - the first to offer training in obstetrics and gynaecology. Following the establishment of the University of Melbourne and adjacent hospitals in the latter 1800s, the district began to mature as a hub of knowledge activity. More organisations have located themselves in the area since then and synergistic relationships between them continue to strengthen.

New players continue to enter the district to this day, adding to its remarkable history. Leading technology companies, such as IBM, have set up facilities in the area. New public policy institutes and think tanks have found their home in the district, as have social enterprises and non-government organisations. Each new entrant brings new ideas, new dynamics, and new possibilities for ingenuity.

Why MID City North, and why now?

The unique mix of attributes described above make MID City North an ideal place for innovation. These attributes have characterised MID City North since the early years of Melbourne, sustaining the area's reputation as Victoria's preeminent location for knowledge generation, education and innovation from the mid-1800s to this day.

Why then, have we now designated MID City North as the partnership's first district?

- The district's existing attributes are important foundations for any coordinated district-shaping actions. In many cases, MID interventions will be adding to pre-existing momentum to unlock potential and efficiencies.
- 2. There is a rare opportunity to leverage a coincidence of major planned projects in the district.
- 3. The area connects to the main campuses of two universities. This makes it a prime location to support research commercialisation, for-profit and social enterprise development, and community exposure to innovation. These are all vital roles the Council can play in addressing the city's economic and social development imperatives in a time of growth and structural changes
- 4. The district has wide streets and large amounts of on-street parking. It also has an under-utilised network of laneways. Together these present an opportunity to create new open spaces or temporary activation spaces.
- 5. There is a lack of activities in the urban realm, particularly at night and on the weekends, leading to areas feeling unsafe at these times.
- 6. There are significant pedestrian barriers in the form of major roads such as Victoria Street and Haymarket roundabout.
- 7. MID City North's streets present an opportunity to re-prioritise pedestrians over motor vehicles to enhance and foster active connections between institutions, and between MID City North and the rest of the city.



Image 3. A feature of MID City North is the large amount of unused space in the urban realm. A small open space on the corner of Queensberry and Barry Streets (top). The Queensberry St car parking in the lower image is now all gone due to metro works; Queensberry St has had lanes added

People and activity

A strength of MID City North is the people that congregate there to live, work and study. The district's innovation ecosystem benefits from ready access to a community of leading professionals and students who are attracted to the area for a number of reasons. It offers the very best facilities and infrastructure across a range of disciplines, and an appealing network of peers, mentors and services.

People are also attracted to this area because the nearby residential and lifestyle possibilities of inner Melbourne are excellent. These liveability factors have contributed to the 'internationalisation' of the community over recent decades, which in turn has strengthened MID City North's global academic and business connections. The international character of this area is particularly evident within its student population. More than 46 per cent of students enrolled at RMIT University and 36 per cent of students enrolled at the University of Melbourne are from overseas. They have come from countries all around the world to benefit from the high-calibre learning and research at these institutions.



Image 4. MID City North is home to one of the world's most prominent biomedical precincts.

While the MID City North ecosystem is a global leader in life sciences and other Science, Technology, Engineering and Mathematics (STEM) fields, it has genuine strengths across all disciplines and sectors. This places the MID City North ecosystem in a unique position to make significant contributions to the urban challenges facing Melbourne and the world.

Existing major projects in MID City North

MID City North is undergoing significant transformation with a number of large-scale infrastructure and property redevelopment projects planned or being undertaken by MID partners or the Victorian State Government. These projects directly influence the urban realm and represent major investment in the area. This plan identifies opportunities to coordinate with and influence major projects in City North to minimise disruption and enhance the experience of people.

Some of these major projects are highlighted in Figure 3 below and profiled below.

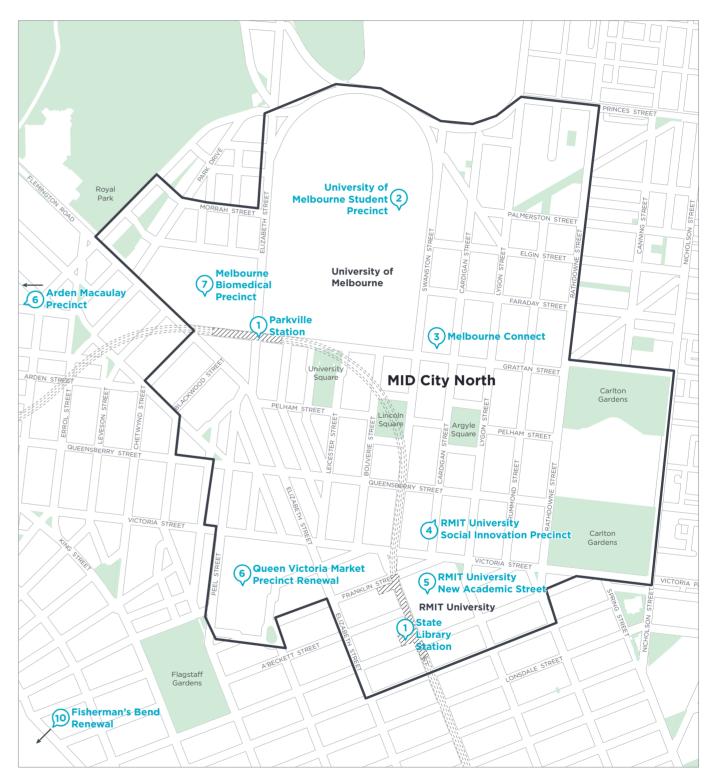


Figure 3: Existing major projects in MID City North.

Melbourne Metro

The Melbourne Metro Rail Project will create a rail line connecting Melbourne's west to the south-east, with high-capacity metropolitan trains. Five new underground stations will be built, including stations next to the main campuses of RMIT University and University of Melbourne. These stations will change the shape of MID City North, creating a new flow of people and providing a unique opportunity to create new value and connections with other parts of Melbourne. Early works to prepare major construction sites are taking place throughout 2018 and construction will continue through to 2025.

The project will also alter the landscape of the district itself, both temporarily during construction and permanently once the rail line is in operation. There is a need to both mitigate construction disruption and leverage the opportunities created by construction disruption for experimentation around road and streetscape usage over the next several years.

Image 5: The development of Melbourne Metro stations is a source of disruption but also an opportunity to use temporary conditions for innovation.

The University of Melbourne's New Student Precinct

University of Melbourne's New Student Precinct will be located at its Parkville campus between Monash Road to the north, Grattan Street to the south, and Swanston Street to the east. The precinct aims to revitalise the on-campus student experience by co-locating a range of student services, study and recreation activities, and hospitality and retail facilities. The precinct is being co-created by the students themselves with over 1500 students having provided input into the design stages of the initiative.

The University of Melbourne's Melbourne Connect

Melbourne Connect is the University of Melbourne's flagship innovation precinct. Melbourne Connect will include a major redevelopment of the former Royal Women's Hospital site (Image 6) incorporating space for co-location of industry, the University's Engineering School, startup incubator space and a home for the Melbourne Accelerator Program. The precinct will act as a platform to showcase technological innovation and research outcomes and will have new public and student spaces, exhibition spaces (including the Science Gallery Melbourne) and student accommodation.



Image 6: The Melbourne Connect initiative by the University of Melbourne will redevelop the site of the former Royal Women's Hospital into a multi-use hub of innovation, exhibition and student activity

RMIT University's Social Innovation Precinct

RMIT University's Social Innovation Precinct will transform a block with MID City North defined by Cardigan Street, Victoria Street, Lygon Street and Queensberry Street. This area currently comprises diverse buildings of varying ages, styles and uses including warehouses, storage, teaching, studio and manufacturing spaces. RMIT's proposed approach is to design and create a 'social innovation cluster' which enhances the accessibility and practical usefulness of the built infrastructure for learning, collaboration and enterprise, and creates flexible and scalable spaces for future use. The activity mix for the precinct will bring RMIT's design, technology and enterprise expertise to bear on the social challenges of health, inclusive and vocational education, justice, family and social services.

RMIT University's New Academic Street

RMIT University's New Academic Street project has re-oriented its city campus, creating new openings to Swanston Street, a garden building and terraces, and a series of arcades and laneways between Swanston and Bowen Streets (see Image 7). The development has included upgrading facilities for students – the Swanston Library, the Student Hall, collaboration spaces, retail and food options – to improve life on campus, as well as a state-of-the-art media precinct for media production. New Academic Street was completed in 2017 creating a new connection between the city and the RMIT campus, and a gateway to MID City North.

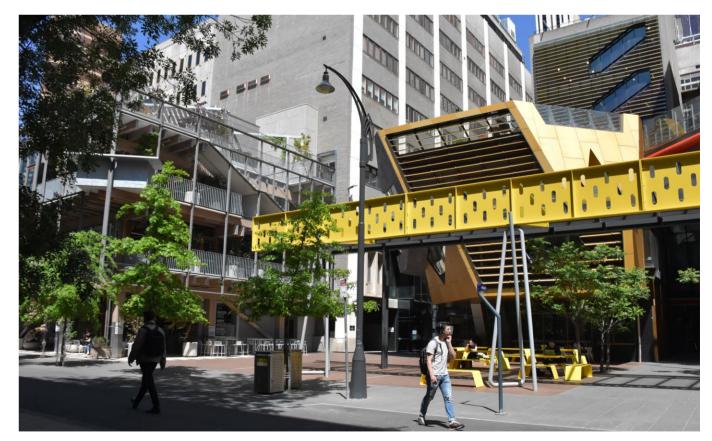


Image 7: A revitalisation of Bowen Street (Melbourne) was a part of RMIT University's New Academic Street initiative.

Queen Victoria Market precinct renewal

The Queen Victoria Market precinct will undergo significant redevelopment from 2018, with a \$250 investment in its future. Construction of the new mixed-use development of the Munro site is poised to commence and represents an important milestone for the renewal program. It will deliver a new Community Hub and relocate 500 car parking spaces from the market freeing up the current carpark site for a major new public open space. The Community Hub on the Munro site includes childcare, a community kitchen, community services and meeting spaces and affordable housing, it will adjoin a new hotel, apartments, retail and hospitality facilities on the site. A 40-person People's Panel, comprising market traders, customers, residents and critical stakeholders been established to deliberate on how best to integrate much-needed new facilities and car parking in the market precinct. The People's Panel is scheduled to present recommendations to the Council for consideration later this vear or early next year.

The precinct renewal provides a vehicle for exploring wider opportunities for the district, including;

- public realm improvements involving innovative approaches to planning, engagement, sustainable design and implementation
- innovation surrounding food and waste systems, including circular economy systems
- retail and business model innovation, particularly from small businesses in the food sector
- food tech and food supply chain innovation
- urban logistics and freight innovation

The Parkville Biomedical Precinct

The Parkville Biomedical Precinct has established itself as a major global research and teaching powerhouse with its 25 clinical, research and academic partners sharing a formidable history of ground-breaking medical discoveries and developments.

Institutions within the precinct include the Royal Melbourne Hospital, Walter and Eliza Hall Institute, Peter MacCallum Cancer Centre, Biomedical Research Victoria and CSL Ltd, Royal Children's Hospital, Royal Women's Hospital, the Murdoch Children's Research Institute, the Florey Institute of Neuroscience and Mental Health and CSIRO. The strength of these institutions, their relationships and existing collaborations along with their co-location means that the precinct can rival the top biomedical precincts in the world.

Arden-Macaulay renewal precinct and Fishermans Bend urban renewal

The industrial area north of the city identified as the Arden and Macaulay precincts will be redeveloped as a major employment hub based on knowledge industries. Like MID City North, this area will benefit from the construction of Metro Melbourne Rail and offer a mixture of housing for over 15,000 residents.

In Fishermans Bend, approximately 485 hectares is earmarked for urban renewal, to create a large employment precinct that will be home to approximately 80,000 residents and provide 60,000 jobs by 2050.

MID City North will have strong transport links to both of these urban renewal areas and will be a hub to connect sites of innovation across the city, including centres of urban renewal, research, and industry.

Australian Integrated Multimodal Ecosystem (AIMES)

AIMES is a transport technologies test bed area located partly within MID City North (see Figure 4).

The goal of AIMES is to test connected transport technologies at a large scale, and in a complex urban environment. It will include a range of distributed sensors and other technologies communicating data across multiple transport modes, including light and heavy vehicle travel, public transport commutes, cycling, and walking.

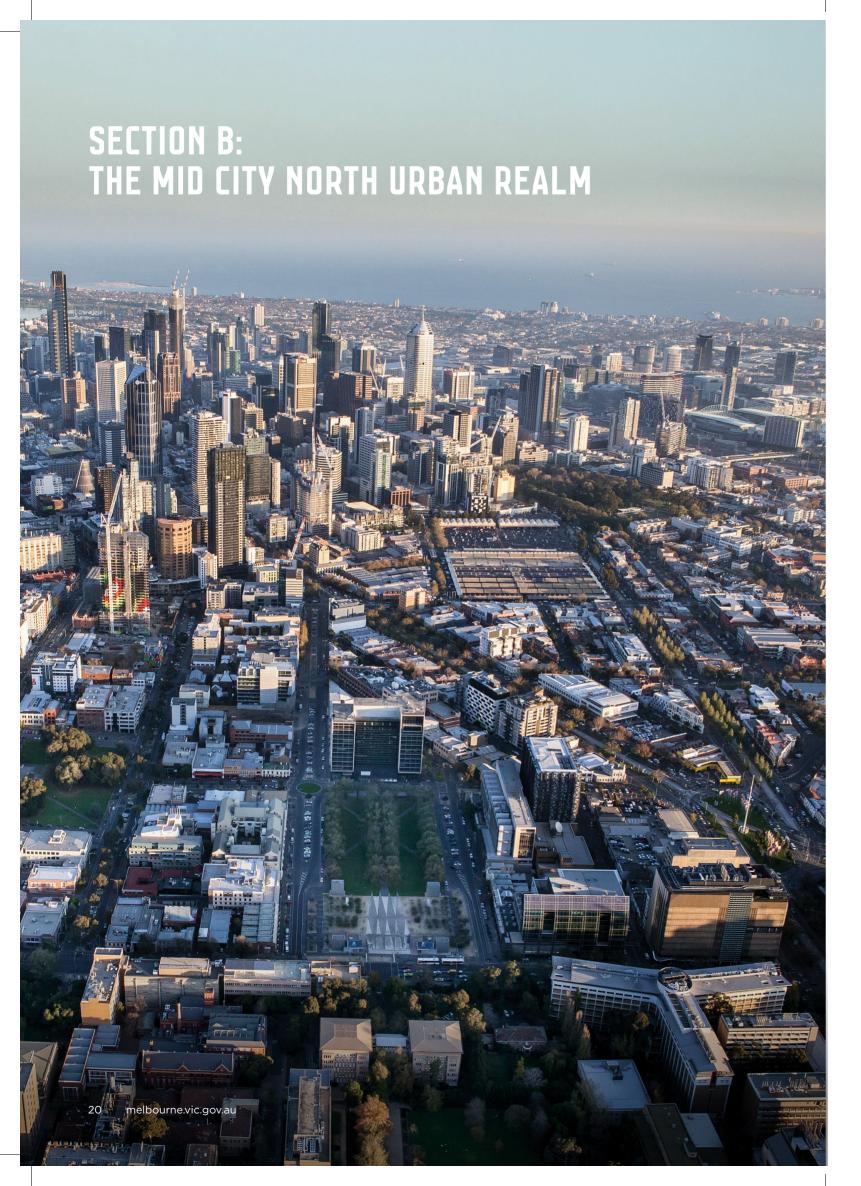
The project is being led by the University of Melbourne, and involves a consortium of over 30 stakeholders from across industry, academia and government, including the City of Melbourne, the City of Yarra, VicRoads, Public Transport Victoria, and the Victorian State Government Department of Economic Development, Jobs, Transport and Resources.

City of Melbourne existing capital works projects

A number of major capital works projects have additionally been endorsed or considered by the City of Melbourne within MID City North, including (but not limited to) significant upgrades to University Square and Lincoln Square, and an expansion of Argyle Square.



Figure 4: Inner Melbourne areas with strategic linkages to MID City North.



5. OPPORTUNITIES FOR ENHANCEMENT

To develop this plan, a district-wide analysis was undertaken to understand what opportunities and constraints applied to sites across MID City North. The analysis sought to determine what types of innovation activities and urban realm enhancements could take place, and where they are most appropriately located. The following opportunities were identified and are discussed in this section:

- 1. enhance mobility and connectivity
- 2. undertake innovation in infrastructure and environmental management
- 3. set up test and engagement sites
- 4. establish innovation streets and spaces
- 5. set up innovation hubs
- 6. review planning controls.

Mobility and connectivity

The urban realm of a well-functioning innovation district should support walkability, cycling and a range of short and long-distance transport modes. Such districts should be porous and accessible to allow connectivity between nodes of activities and to encourage social and professional interactions.

Initial assessments of MID City North suggest that enhancements to the urban realm can improve its mobility and connectivity attributes. Opportunities exist to create street and open space networks that better support active and sustainable modes of transport, and safe night-time walking and cycling.

Four intersections have been identified to act as key intersections to enable safer and easier pedestrian and cyclist access within MID City North:

- Leicester Street and Victoria Street
- Franklin/Cardigan Street and Victoria Street
- Queensberry Street and Cardigan Street
- · Queensberry and Leicester Street

These intersections have been identified as pedestrian barriers which inhibit the flow of people from north to south and east to west. They are at the nexus of streets that have received increased vehicular traffic volumes as a result of the closure of Grattan Street for the construction of the Parkville Station of Melbourne Metro Rail. These intersections also present an opportunity to trial new traffic and pedestrian management measures as the Melbourne Metro Rail disruption unfolds across the district. The timing of any enhancements to the four intersections in this Action Plan will need to be carefully aligned to short- and medium-term works for the Metro rail tunnel construction.

Innovation in infrastructure and environmental management

In addition to supporting Melbourne's innovators, the City of Melbourne is an active innovator itself. We pursue innovation across the full gamut of our local government functions in order to achieve service excellence and operational efficiency.

MID City North is an ideal place for such innovation and can act as the preferred prototyping location for new forms of infrastructure and environmental management before it is deployed elsewhere in the city. MID City North is therefore an opportunity for City of Melbourne designers, strategic planners, engineers and environment managers to explore and trial new designs, techniques or materials in the urban realm (see Image 8 for an example).

The district is ideal for the prototyping of municipal innovation due to:

- the current and future disruption caused by major projects in the district
- the close proximity of students and researchers who may be involved as contributors or observers of innovation
- a range of ecosystem attributes (e.g. open and forested spaces, varied topology) and civic infrastructure and facilities (e.g. squares, libraries) that allow innovation trialled there to be replicated elsewhere in the municipality.



Image 8: 'Solar tree' (Birrarung Marr, 2018) is an award-winning example of innovation developed by City of Melbourne's own designers. The tree captures solar energy to charge LED lighting and USB sockets.

Test and engagement sites

District analysis found that MID City North offers potential to accommodate innovation activities in specially arranged urban realm sites. The sites can hold engagement or demonstration activations or installations of prototypes to be tested with an interacting public. They can enable researchers, students, startups and community groups to test their innovations with potential users.

The main aim for such sites is to be as visible as possible in order to enable public engagement, inspiration and collaboration. Sites can be inside campuses, parks, laneways or street spaces. As outlined in Figure 5, a permitting framework could manage any potential risk with respect to the positioning of different types of activations in the urban realm. Images 9 and 10 are international examples of test site initiatives).

No risk to others

- · Limited, or potentially no signage required
- Can be close to other public uses
- Public can openly engage
- · Permits are easy to acquire

For example: a simple display structure without any fragile or moving parts.

Minor risk to others

- May need warning signage
- Set back from other public uses
- May require physical barriers and security present
- · Public can engage with caution
- Permits are moderately easy to acquire

For example: a structure with some fragility or moving parts.

Potential risk to others

- Fencing, physical barrier or indoor venue required
- · Security presence required
- Warning signage required
- Waiver form signed before public can engage

For example: A structure with machinery or electrification, moving parts or other potential hazards

Figure 5: A sample permitting framework for test and engagement sites.



Image 9: The Block by Block installation as part of the Living Innovation Zone in San Francisco, USA.



Image 10: An urban agriculture prototyping temporary site, London. UK.

Innovation streets and spaces

Innovation streets and spaces are prime locations for the test and engagement sites described above. They are areas of the urban realm that demonstrate suitability for temporary activation due to their idleness or under-utilisation, high visibility to passers-by and logistical feasibility to accommodate testing and engagement activity.

Innovation streets are also key connecting streets within the district, linking key destinations (including MID partner properties) or public open space. As they are typically 30 metres wide, they have extensive, but often under-utilised, on-street parking and large amounts of space for increased pedestrianisation and public use.

Enhancing connectivity in these key streets will support the innovation and knowledge activities in MID City North, much of which relies on face-to-face interaction between people in the district. There is a strong relationship between connectivity and productivity, which is why dense urban centres are so important to the economic prosperity of cities. The large number of people located in close proximity to each other allows ideas to be quickly generated, refined into knowledge and put to work solving complex problems (City of Melbourne, 2014,p. 6).

The innovation streets profiled below are Cardigan Street, Franklin Street, Leicester and Barry Streets and Pelham Street. The innovation spaces profiled below are parks and laneways in the district.



Image 11. Cardigan Street (Carlton) was temporarily prototyped as an Innovation Street during Melbourne Knowledge Week 2018.

Cardigan Street

The southern end of Cardigan Street directly connects with Melbourne Metro, RMIT University's New Academic Street. Further north it connects with Argyle Square, University of Melbourne's Carlton Connect and City of Melbourne's Kathleen Syme Library.

There is potential for significant changes to pedestrianise the street, establish test sites and other innovation spaces and new infrastructure along the length of Cardigan Street. By reducing parking, consolidating lanes of traffic, and repurposing central median strips, there could be an increase in public open spaces and an opportunity to integrate new public uses along the street.

Franklin Street

Franklin Street connects Queen Victoria Market (QVM) at its western end to the new State Library Metro station and RMIT's City Campus in and around Swanston Street. It is under significant change due to the construction of the station and an opportunity exists to develop new streetscapes as an outcome of this development. In particular, there is an opportunity to develop new public open space along sections of Franklin Street.

Any development along Franklin Street should reflect the history and knowledge of Aboriginal culture. Cultural walks already exist within this street, and the street links important Aboriginal historical sites at QVM, the old Melbourne Gaol and the monument to Tunnerminnerwait and Maulboyheenner. Therefore, there are significant opportunities to integrate Aboriginal storytelling and interpretive elements on Franklin Street. The elements could be engaging and teach the history, culture and practices of Aboriginal culture or offer interpretive design features.

Leicester/Barry Street

The northern portions of Barry Street and Leicester Street connect with Grattan Street and the future Parkville Metro Rail station. These streets offer direct connection with QVM via Therry and Queen Streets and are already considered key thoroughfares of pedestrian activity on market days.

The public realm works associated with the University Square Master Plan are under construction (in 2018) with staging of this project synchronising with Metro works. Through the Master Plan's implementation, both Barry and Leicester Streets will have increased pedestrian priority. This pedestrian prioritisation can be extended along the entire length of both streets; Barry Street is already being redesigned by City of Melbourne. There is long term opportunity for the University of Melbourne to coordinate its key thoroughfares with these streets and further activate the urban realm, especially as many of their buildings already exist on these streets.

As with Franklin Street, any development along Barry Street should reflect the history and knowledge of Aboriginal culture. Barry Street connects directly with the QVM burial site, and Billibellary's Walk currently runs to the University of Melbourne. There could be potential to expand upon this network.

Pelham Street

Pelham Street presents an opportunity to activate the district through test and engagement sites. It is 30 metres wide, has little through traffic, connects with multiple public squares, and offers one of the only strong east-to-west pedestrian connections between key destinations in MID City North. Pelham Street has also been identified in multiple City of Melbourne plans and strategies as a biodiversity corridor within MID City North.

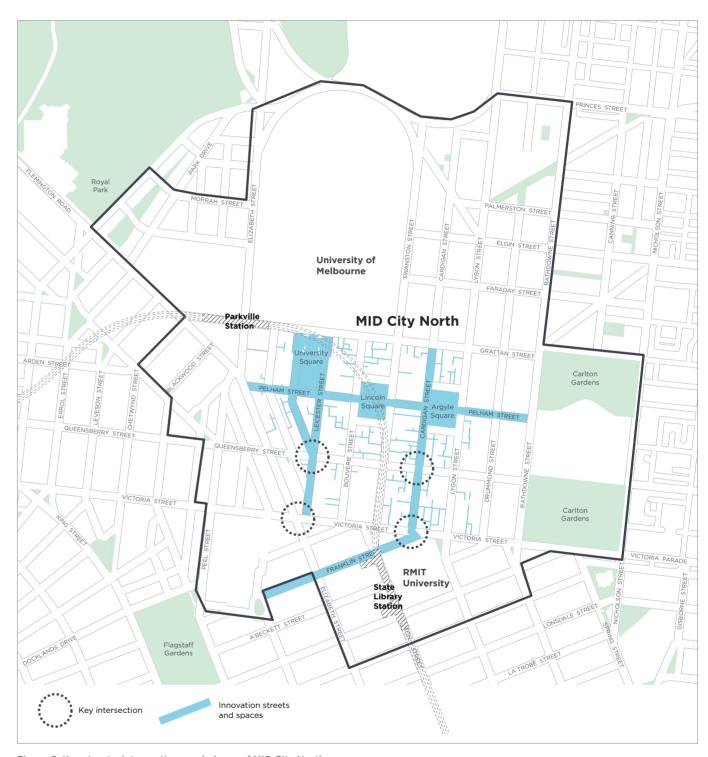


Figure 6: Key streets, intersections and places of MID City North.

MID City North current street character



Figure 7: MID City North streets - current typical street character. 3D image of Leicester Street



Many MID City North streets are wide, have low traffic volumes and existing traffic-calming measures or dead ends. There is also frequently middle-of-street parking and ample under-utilised space on, or at the margins of, these streets.



Leicester Street is 30m wide with extensive parking and vehicle prioritisation over pedestrians.

MID City North alternative street character



Figure 8: MID City North streets - alternative street character.



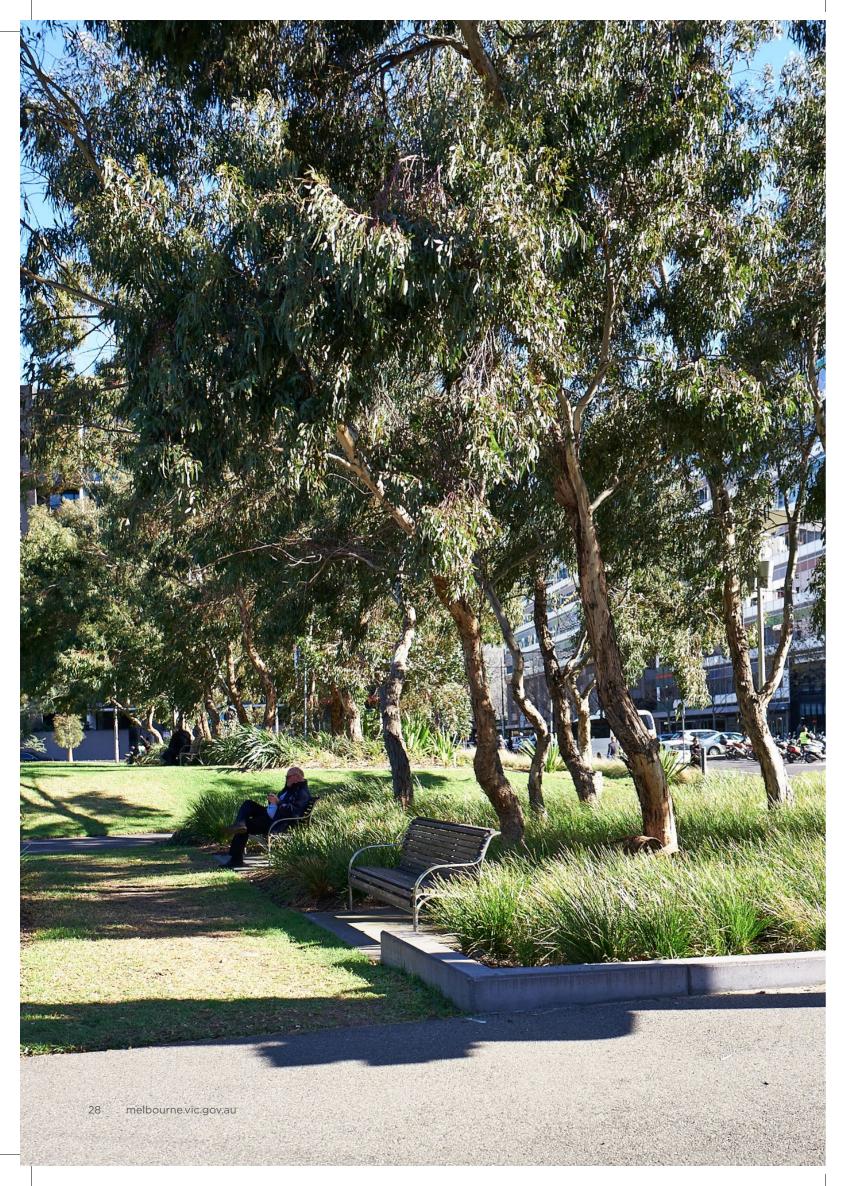




2 Image 13 - Vehicles and trailers suitably modified are effective engagement and showcasing units.



Image 14 - Facades, street furniture, screens, etc. can be designed to be interactive enlightening, and provide creative stimuli.



Parks

MID City North is home to a number of important and historical parks and open spaces including Lincoln Square, University Square and Argyle Square. These parks were identified as potentially hosting test and engagement sites for creative and learning activities, prototyping and other community uses. The potential use of parks for temporary activation as innovation spaces is demonstrated by Argyle Square in Figure 9.

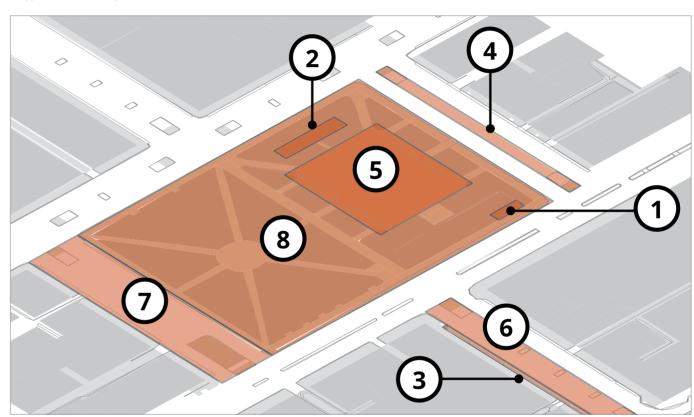


Figure 9: Argyle Square (Carlton) used as an example to highlight the diversity in scales of innovation spaces

- 1. Small event or prototyping area (2.5 x 10m) 2. Disused area (6 x 28m)
- 3. Footpath widening (129 x 2.4m)
- 4. Median use (110 x 6m)
- 5. Median use and partial road closure (105 x 15m)
 6. Existing plaza use (50 x 40m)
- 7. Full street with median closure (25 x 110m) 8. Entire square use

The planned major upgrades to these three parks are also opportunities for the City of Melbourne to be innovative in park infrastructure and engineering.

Laneways

MID City North is home to a network of laneways running through the heart of the district. While they are often not clear thoroughfares, many have the potential to offer increased connectivity from east to west. This network of laneways presents an opportunity to enhance people's navigation through MID City North by developing unique and innovative wayfinding techniques. There is also the potential to develop more public space in these underutilised nooks.

Innovation hubs

Innovation hubs are places that bring together industry, researchers, students and other district stakeholders to enable collaboration and knowledge-sharing, and to offer co-working, learning and other services to support innovation activities.

There is opportunity to establish such a hub to act as a "front door" to the district - providing a welcoming service to connect people with services and the innovation community. Boston's District Hall is an example of an innovation hub serving the city's innovation district.

Centrally located within its innovation district, District Hall operates under a public-private partnership model to "connect, support, and strengthen innovators while expanding the reach, visibility, and benefits of Greater Boston's innovation economy" (Venture Café Foundation). A similarly co-sponsored hub could achieve the same outcomes for MID City North.

Innovation hubs can also be smaller, mobile and/or temporary. For MID City North, such hubs can be put in place either as an interim or supplementary offering to the establishment of an ongoing central of the type described above.

Planning controls

MID City North includes retailing, residential, education and health services areas. The planning controls that determine the type of activities that are permissible in areas within the district are zones, overlays and provisions. The zones that are in currently in effect in MID City North are:

- the Capital City Zone, which was recently expanded from the Central Business District to areas south of Grattan Street and west of Swanston Street
- a Mixed Use Zone south of Grattan Street and east of Swanston Street
- a Commercial Zone along Lygon Street and Elgin Street
- Public Park and Recreation Zones
- Residential Zones, particularly in the north-east of MID City North

An opportunity exists to revisit the existing land use and other planning controls to reflect the vision of the MID partnership. Recently devised zones in other parts of Melbourne have demonstrated the appetite of the State Government to apply tailored zones to innovation precincts, and an exploration of all planning control options potentially available to the City of Melbourne is prudent.

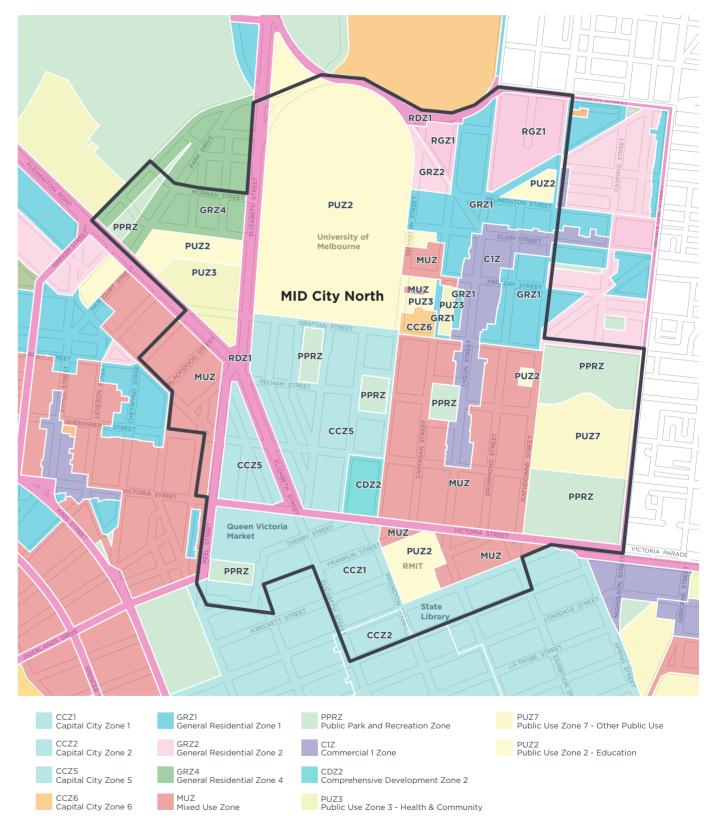


Figure 10: Planning zones of MID City North.



6. ACTIONS

The opportunities found through district analysis described in section 5 have informed the development of five over-arching action areas and a suite of actions. The action areas align with City of Melbourne's role in urban realm improvement (as identified in section 3), and the vision and design principles of the MID partnership.

Action areas

The action areas and the rationale for each are:

- Enhance the amenity and function of the district's built environment, streetscapes and open spaces to make a great place for people.
 This objective aims to create places that attract people to live, work and play through a coordinated and holistic approach to placemaking.
- 2. Use the urban realm as a testbed for City of Melbourne innovation in infrastructure and environmental management. This objective aims to make MID City North an exemplar in urban infrastructure and environmental management by utilising the most advanced design and technology, and new processes, to support operational efficiency, service excellence and a resilient thriving urban ecology.
- 3. Facilitate the use of the urban realm by businesses and researchers for testing, demonstrating and engaging new ideas. This objective aims to adapt, manage and regulate urban spaces to enable public demonstration of new technologies, applied research, and business ideas to inspire and engage, build literacy, and stimulate economic growth.
- 4. Influence design and delivery of external infrastructure and urban realm projects. This objective aims to ensure that there is alignment, integration and consistency between the MID vision and principles and the major infrastructure and urban realm projects delivered by RMIT University, the University of Melbourne, the State Government and its major infrastructure bodies, and private developers.
- 5. Improve transport, mobility and connectivity.

 This objective aims to create a district that is hyperconnected and accessible via all modes of transport throughout the area and to other areas of Melbourne.

Five-year action plan

The urban realm action plan (overleaf) outlines City of Melbourne contributions to urban realm improvement in MID City North for the next five years. The specificity and maturity of action details vary as some actions are preexisting and therefore either planned or scoped. Others are new activities, conceptualised for this plan and therefore unplanned and unscoped.

Many of these actions align with and support existing City of Melbourne strategies, plans and programs of work, as indicated in the following table. Implementation of the actions will be planned to align with existing Council activities and funding mechanisms as much as practical. Opportunities will also be sought to co-fund selected activities with external partners, where appropriate.

ACTION AREAS	ACTIONS	IMPLEMEN		OUR ROLE		
		PRELIM. 15/16 -17/18	YEAR 1 18/19	YEAR 2 19/20	YEAR 3 - 5 20/21 - 22/23	
1. Enhance the amenity and function of the district's built environment, streetscapes and open spaces to	1.1. Develop an advanced design masterplan for MID City North to sequence and prioritise an annual implementation schedule aligned with Council Plan and capital works across the district, encompassing actions 1.2 to 1.5 below.	~	~	✓		Provide
make a great place for people. N A new action E An action aligning to an existing City of Melbourne plan, strategy or program of work	1.2. Deliver a series of urban realm interventions and upgrades from advanced design through to construction and activation along priority streets and spaces (see Section 5 above), including: Cardigan Street Pelham Street Barry Street Leicester Street		~	~	✓	Partner
	• Franklin Street. 1.3. Commence planning and design work to enhance pedestrian and cycle movement across four key intersections, with capital works to be undertaken following the completion of the above-ground construction of Metro Rail stations in MID City North.* • Leicester Street and Victoria Street • Franklin/Cardigan Street • Queensberry Street and Cardigan Street • Queensberry and Leicester Street. *The timing of enhancements to the four key intersections in this Action Plan will be reviewed annually in consultation with relevant City of Melbourne and external stakeholders, to align with short-				~	Provide Advocate
	and medium-term works for Metro Rail tunnel construction.					N Durani I
	1.4. Identify opportunities to create new open spaces and activate underutilised spaces through interventions in MID City North's laneway network (such as expansion of City of Melbourne's Greening your Laneways and Small Spaces program).				~	Provide Advocate

ACTION AREAS	ACTIONS	IMPLEMEN	OUR ROL			
		PRELIM. 15/16 -17/18	YEAR 1 18/19	YEAR 2 19/20	YEAR 3 - 5 20/21 - 22/23	
1. Enhance the amenity and function of the district's built environment, streetscapes and	1.5. Identify minor capital works and urban realm upgrades (such as permeable paving, bike racks, smart bins, greening, etc.) for rapid delivery in MID City North.			√	✓	Provide
open spaces to make a great place for people. N A new action E An action aligning to an existing City of Melbourne plan, strategy or program of work	1.6. Identify opportunities to futureproof urban realm works to minimise further intervention for the provision of new digital infrastructure. For example, consider installing sufficiently sized plastic cabling conduits during earthworks to cost-effectively enable future cabling provision.		~	~	✓	Partner
	1.7. In consultation with residents, reconfigure parking arrangements in streets that demonstrate high potential to increase the proportion of space afforded to pedestrians and new activities.				~	Provide
	Investigate potential amendments to planning controls to ensure future development in the district is optimised for the vision of MID.		~			Provide
	1.9. Assess night-time luminosity levels at select sites, streets and laneways to determine the adequacy of lighting infrastructure to encourage night-time activities and perceptions of safety.			~	~	Provide



Image 15: Modified shipping containers used as engagement sites within Prototype Street - a Melbourne Knowledge Week 2018 activation (see more on page 41).

ACTION AREAS	ACTIONS	IMPLEMEN	ITATION SC	HEDULE		OUR ROLE
		PRELIM. 15/16 -17/18	YEAR 1 18/19	YEAR 2 19/20	YEAR 3 - 5 20/21 - 22/23	
2. Use the urban realm as a testbed for City of Melbourne innovation in infrastructure and environmental management. N A new action E An action	2.1. Integrate new materials (e.g. permeable paving), technologies (e.g. sensors devices to monitor infrastructure) and practices (e.g. incorporating indigenous knowledge and concepts of wellbeing) into planned and emerging streetscape and open space projects such as upgrades to: • University Square • Lincoln Square			~	~	Provide Partner
aligning to an existing	Argyle Square.					N
City of Melbourne plan, strategy or program of work	2.2. Deliver a biodiversity corridor along Pelham Street to connect the three squares in Action 2.1, comprising the creation of connecting open spaces (where possible), understory planting, and selective plant species selection as part of the urban forest strategy.			✓	✓	Provide Partner
	2.3. Continue implementation of the City of Melbourne's Climate Adaptation Streetscapes Program in MID City North, including for Lygon Street, Barry Street and Leicester Street.				~	Provide
	2.4. Develop creative interactions and integrate with digital wayfinding and physical signage to enhance connectivity between and within nodes within the district.		~	~	✓	Provide Partner

ACTION AREAS	ACTIONS	IMPLEMENTATION SCHEDULE				OUR ROLE
		PRELIM. 15/16 -17/18	YEAR 1 18/19	YEAR 2 19/20	YEAR 3 - 5 20/21 - 22/23	
3. Facilitate the use of the urban realm by businesses and researchers for testing, demonstrating and engaging new ideas. N A new action E An action aligning to an existing City of Melbourne plan, strategy or program of work	3.1. Identify and make available a number of sites (E.g five to ten; ranging in size from a car park to a street) within the district to act as test sites available under an appropriate permitting framework for researchers, students and businesses to test and demonstrate innovation. Planned open space developments, such as a forecourt extension next to Kathleen Syme Library on Faraday Street and a redevelopment of Franklin Street (west of Stewart Street) will be investigated to determine suitability to host test sites.			~	~	Partner
	3.2. Undertake necessary capital works (such as the provision of electricity, shade, protective barriers) to ensure the sites identified in action 3.1 are suitable for use as test sites.				✓	Provide
	3.3. Activate the urban realm through a program of street and open space animations that range from displays, pop-up installations, games, public workshops, signage and events.	✓	~	~	✓	Provide Partner
	3.4. Install public artwork across the district. Commence with temporary activations. Within the University Square development, temporary work will be commissioned around the theme of knowledge. Following this a brief for permanent work within University Square will be developed.	✓	~	~	✓	Provide Partner

ACTION AREAS	ACTIONS	IMPLEMENTATION SCHEDULE				OUR ROLE
		PRELIM. 15/16 -17/18	YEAR 1 18/19	YEAR 2 19/20	YEAR 3 - 5 20/21 - 22/23	
4. Influence design and delivery of external infrastructure and urban realm projects. N A new action E An action aligning to an existing City of	 4.1. Provide support where appropriate to MID partners, RMIT University and University of Melbourne in the delivery of their campus-shaping initiatives: Social Innovation Street (Cardigan Street) by RMIT University Melbourne Connect (Swanston Street and Grattan Street) by University of Melbourne Student Precinct (Swanston Street) by University of Melbourne. 	~	~	~	✓	Advocate
plan, strategy or program of work	4.2. Work with Rail Projects Victoria and the Cross Yarra Partnership to ensure there is high quality placemaking in and around Melbourne Metro Rail station entrances at Parkville Station (Grattan Street and Royal Parade) and State Library Station (Franklin Street).			✓	✓	Partner
	4.3. Work with the State Government in identifying the optimal route and station locations for Melbourne Metro Rail 2.		~	✓		Advocate
	4.4. Work with QVM renewal planners and developers to ensure new streetscapes and open spaces in the QVM precinct are conducive to small group gatherings and a range of innovation activities.		✓	√	~	Advocate
	4.5. Work with private developers to encourage the adoption of MID design principles and a consideration of the mission of MID in major property developments in MID City North. E.g., advocate for throughplot connectivity, building setbacks and publicly-welcoming open spaces to support the functioning of the district.		~	✓	✓	Partner
	4.6. Work with all external project owners to jointly mitigate disruption (environmental, wayfinding, accessibility, etc.) in MID City North due to major construction, capital works or road closures.		~	✓	√	Partner

ACTION AREAS	AREAS ACTIONS IMPLEMENTATION SCHEDULE					OUR ROLE
		PRELIM. 15/16 -17/18	YEAR 1 18/19	YEAR 2 19/20	YEAR 3 - 5 20/21 - 22/23	
transport, mobility and connectivity. N A new action E An action aligning to an existing City of Melbourne plan, strategy or program of work	5.1. Work with relevant state government transport agencies to ensure the district is well-connected to other parts of Melbourne and reduce pressure on the central city through the provision of new bus services, initially through routes to and from the east and west of the district.			✓	✓	Provide Facilitate
	5.2. Identify appropriate streets (where there is significant demand from pedestrians and cyclists) for transformation into shared zones - where pedestrian and cyclists are given greater priority. Undertake capital works to communicate the shared environment to users of the street, including contrasting paving (e.g. cobblestone), removing kerbs, positioning of trees and street furniture.			✓	✓	Partner
	5.3. Determine resident and district user demand for the application of reduced speed limits (to 30 km per hour) for all City North streets under Council jurisdiction.			~	✓	Provide
	 5.4. Enhance pedestrian and cycling infrastructure to encourage walking and cycling as priority transport modes within MID City North, including: Protected bike lanes on key connector streets The identification of appropriate streets for transformation into shared zones - where pedestrians and cyclists are given greater priority The piloting of a "cool routes" program using shade, less reflective paving surface materials and other measures to enhance thermal comfort along key pedestrian routes. 		~	✓	✓	Provide
	5.5. Determine ways to be proactive and responsive to future transport technologies as they emerge, and accommodate these where appropriate within MID City North. Ensure that new technologies (such as shared electric and conventional bikes and stand-up scooters) support council transport goals without negative impacts on the city.		✓	✓	✓	Facilitate Partner

Prototype Street

Prototype Street was run as an activation in City of Melbourne's Melbourne Knowledge Week to pilot a future test sites program within MID City North.

The test sites program will see the establishment of designated activation spaces for prototyping and testing new technologies, business models and citizen experiences within the urban realm across our municipality.

The Prototype Street activation functioned as a mini 'future streetscape', allowing students, residents and visitors to experience some of the characteristics of a future innovation district street.

Participants were invited to try out water-sensitive permeable pavement, experience the latest innovations in 3D printing and manufacturing, and learn about cycle-friendly streets with free bike servicing. Prototype Street also allowed City of Melbourne to test new ways of working and learning through the set up of a free co-working space and student lab throughout the week.



7. APPENDIX

Image and graphic credits

Image 1. Aspect Studios, Mobile Innovation Hubs, 2018. Pg10

Image 2. Electroland, The Enteractive, 2006. Pg11

Image 9. Stephanie Secrest/Kenneth Rainin Foundation, Block by Block by Marissa Farnsworth, 2015. Pg22

Image 10. Better Bankside, *Urban Orchard, 2016*. Pg22

Figure 7. Aspect Studios, Leicester Street, 2018. Pg26

Figure 8. Aspect Studios, Leicester Street, 2018. Pg27

Image 12. Andrew Curtis, Laugh Out Loud 1, 2016. Pg27

Image 13. Project for Public Spaces, Placemaking Week, 2017. Pg27

Image 14. Electroland, The Google Touchwall, 2012. Pg27

Figure 9. Aspect Studios, Argyle Square, 2018. Pg29

ACKNOWLEDGEMENTS

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