

SMART CITY & INNOVATION STRATEGY

A vibrant, sustainable and
connected Parramatta



| PARRAMATTA

2024 – 2033



This Strategy has been developed in consideration and coordination with other Council Strategies and Plans, ensuring alignment of priorities, objectives and actions over the next 10 years to 2033.

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FIRST NATIONS ACKNOWLEDGEMENT

**Nunanglanungdyu baramada gulbanga
mawa naa Baramadaḡal dharuḡ ngurrawa
badura baramada dharuḡ yura.**

**We respectfully acknowledge the
Traditional Owners and custodians
of the land and waters of Parramatta,
the Dharuḡ peoples.**

**The City of Parramatta Council recognises
the Dharuḡ people as Traditional Owners
of the lands and waters that we call the
City of Parramatta today.**

For more than 60,000 years, Dharug people have provided stewardship of this Country, this land was never ceded.

First Nations people have long been a society of innovators, with many of their inventions used today despite significant technological change. The weirs and fish traps, stone tools, cultural burning, bush medicines and thermoplastic resins are just some of the things that are still used, and influence the way we live in modern Australia.

As the longest surviving continuous culture, First Nations people have cared for and nurtured the land and waters of the Parramatta LGA, and continue to do so today.

Parramatta has always been an important meeting place for First Nations people, particularly the Parramatta River and the land around Parramatta Square. These places have long provided life and vitality for both local people and for visitors.

City of Parramatta recognises the significance of this area for all First Nations people as a site of early contact between the First Australians and colonists. Council acknowledges that Parramatta has a complex history, fraught with trauma but also stories of survival and resilience.

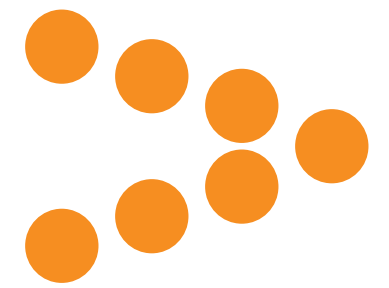
First Nations peoples continue to play a vital role in the ecological, economic, social, and cultural life of Parramatta. The principles of caring for Country, the primacy of family, and the leadership of Elders have been shared with the Parramatta community.

Smart city technologies can play a role amplifying the voices of First Nations people by preserving and documenting history, knowledge, and language, and supporting decision-making around environmental resilience. Innovation may include collaborating with Dharug people to preserve and share artefacts through augmented reality for the broader community to enjoy.

At the City of Parramatta Council, we imagine a future where the cultures, histories and rights of all First Nations peoples are understood, recognised, and respected by all Australians. The City of Parramatta is committed to making this future a reality.

**Always Was, Always Will Be,
Aboriginal Land.**

LORD MAYOR MESSAGE



On behalf of the City of Parramatta, I am pleased to present our Smart City & Innovation Strategy. This Strategy presents a vision for our city to be a vibrant, sustainable and connected centre of innovation that fosters the exchange of ideas.

Parramatta has been on its smart city journey for more than a decade. Our Smart City Masterplan was released in 2015, making our City one of the first Australian Council's to formalise its commitment to becoming a smart city. From these foundations, Council seeks to continue to lead by embracing emerging technologies and innovative ideas.

To inform the Strategy, we engaged with key external stakeholders, students and the community to understand what are the opportunities and the challenges for Parramatta as a Smart City.

We heard a strong desire from our community for Parramatta to be a leading smart city, particularly around improving our transport system, addressing climate change, improving the night-time economy and fostering a culture of entrepreneurship. Our community seeks opportunities for new employment and learning, particularly in the arts and creative industries, as well as enhanced digital access for all.

This strategy takes a strong community-first approach. It is committed to applying technology and innovative solutions, where they are the best fit to solving an identified problem, keeping the needs and wants of our community at the forefront. We put people first, technology second, and never the other way around.

The Strategy has been developed in consideration with other Council Strategies and Plans, ensuring alignment of priorities over the next decade to 2033.

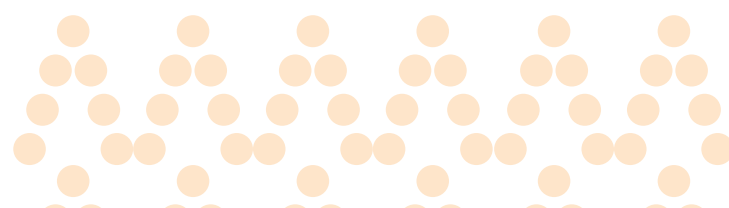
Some of the key directions this strategy sets include:

- Supporting our innovation ecosystem, with its world-renowned universities, a burgeoning startup culture, a professional services hub in our city centre and a top-tier innovation precinct. We will continue to foster this ecosystem by collaborating with industry, researchers and the community.
- Harnessing technology and innovation to solve problems in our city, such as reducing the impact of climate change by addressing urban heat and monitoring water quality to facilitate recreation on our river.

We will work together with industry and our community to achieve our aspirations. Council will monitor progress on our action plan annually, to ensure we are achieving our goals and also responding to opportunities as they emerge.

I look forward to working with our community to ensure the City of Parramatta continues to be a vibrant and connected city with a thriving innovation ecosystem.

**Councillor Pierre Esber, Lord Mayor
Chair of the Smart City Advisory Committee**



FOREWORD FROM THE ADVISORY COMMITTEE

This Smart City Innovation Strategy reflects the aspirations of the City of Parramatta to become a truly vibrant, sustainable, and connected centre of innovation. It also lays out much of the “how” in the pragmatic approach to achieving this Smart City vision.

Data and digital technologies play important roles in the strategy and will help to bring to life the Strategy’s underpinning principles:

Community-first; Transparent; Collaborative; Experimental; Resourceful and Inclusive.

Data allows us to understand the world around us: the environment, the needs of community and how people are engaging with the city. Data also powers the digital services which increasingly make our lives more connected, more productive and even more enjoyable.

Data about people, and digital services that connect with people, must be treated with care and respect. This Strategy draws on best practice, and international standards, for data and digital frameworks.

The integration of smart digital technologies into precincts and infrastructure projects will increasingly help ensure efficient use of resources and lay the foundations for smarter uses of infrastructure.

Fostering and growing the globally connected innovation ecosystem within Parramatta will drive further economic outcomes and generate many other benefits. Creating opportunities for communities to express themselves creatively and engage with digital tools will help enable and increase inclusiveness.

This is an ambitious strategy comparable to that of leading cities globally. I trust you enjoy the many, ongoing developments in Parramatta as the City takes its next steps to becoming a truly Smart City.

Dr. Ian Oppermann
Deputy Chair of the Smart City
Advisory Committee,
Industry Professor, UTS



STRATEGY

AT A GLANCE



VISION

A vibrant, sustainable, and connected centre of innovation that fosters the exchange of ideas.

Our vision for Parramatta is a thriving hub where people connect, collaborate, and exchange ideas. Building on the long-term vision established in our Community Strategic Plan 2018–2038 (CSP) and through consultation with the community and stakeholders, the Smart City and Innovation Strategy outlines our plan to make this vision a reality.

PRINCIPLES

The Strategy is founded on six principles. These principles guide the implementation of our actions:

- ▼ **Community-first:** We put the needs of our community first and use technology only where it makes a difference.
- ▼ **Transparent:** We build trust around our collection and use of data.
- ▼ **Collaborative:** We work with stakeholders to experiment and deliver solutions.
- ▼ **Experimental:** We trial and test new ideas and use that information to make decisions.
- ▼ **Resourceful:** We create efficiencies and minimise waste through innovative solutions.
- ▼ **Inclusive:** We use technology to break down barriers and support equitable access.

PRIORITIES

To achieve our vision for Parramatta this Strategy establishes six priorities over the next 10 years:

- ▼ **A data-led and innovative organisation:** We are committed to building a culture of innovation within Council where data is utilised to make evidence-based decisions.
- ▼ **Climate adaptation and circular economy:** We implement smart and sustainable technologies to prepare our community and environment for the impacts of climate change.
- ▼ **An intelligent and connected transport system:** We prioritise innovative projects that improve the accessibility of our transport system.
- ▼ **Transformative urban technology:** We integrate smart technology into our precincts and infrastructure projects to ensure efficient use of resources, to create a city that thrives in the digital age.
- ▼ **A thriving innovation ecosystem:** We work with our partners to develop a collaborative ecosystem renowned for producing and commercialising innovative ideas.
- ▼ **Digital participation and experiences:** We will create opportunities for our community to engage with digital tools, and improve their digital literacy, leaving no one behind.

ACTIONS

To realise the aspirations outlined in this Strategy, we must actively build upon our City's smart and innovative capabilities. This will allow us to achieve our goals and respond quickly to opportunities as they emerge.

Our actions outline what Council will do over the next four years to help us reach the objectives within our priorities and position our City for continued success.

These actions will be monitored annually and will be updated after four years to ensure continued progression of the Strategy's implementation.

INTRODUCTION

01



"I am very proud to be part of innovative projects at PHIVE, where Council provides a venue for local communities to access cutting edge technologies, gain essential digital skills and learn critical business knowledge."

Lailei Huang, community educator



OVERVIEW

WHAT IS A SMART AND INNOVATIVE CITY?

Smart cities harness the power of sensors and devices, data and cutting edge technologies to identify efficiencies and make evidence-based decisions. Smart cities can provide environmental, social and economic benefits. For example, using urban heat data to deliver cool spaces, provide digital experiences for our community to support their digital literacy or sharing data with startups to enable them to develop new products.

Smart cities also leverage digital platforms to interact with residents, gather feedback, and tailor services to meet specific needs. By using data to inform policy decisions, these cities continuously evolve, adapting to new challenges and opportunities in an ever-changing urban landscape.

Innovative cities foster a culture of creativity and collaboration. They encourage public, private, and community sectors to work together, solving urban challenges through novel ideas and approaches. This collaborative environment enables start-ups, accelerates technological advancements, and promotes inclusive growth, ensuring benefits reach all community members.

A combined smart and innovative city leverages these approaches to apply data, technology, novel ideas and collaboration to develop a leading city which enhances the quality of life of the community, while planning and managing the urban landscape to ensure the city evolves with the needs of diverse users.

BEST PRACTICE CITY PROFILE

The City of London launched the Smarter London Together project in 2018, with an aim to make London the smartest city in the world. Over the last five years, the city has fostered a smart city approach to cross-sector collaboration and a budding entrepreneurial scene. This has been achieved, in part, through investment in new businesses, interconnected spaces and co-location of education and industry, as well as the extensive cultural offerings. London is home to many top-ranking universities and business schools. Four of the 18 universities in London are in the global top 50.

As a result of London's impressive educational opportunities, 59% of its residents hold a bachelor's degree or higher. London has a highly skilled workforce and is a city that supports new businesses to thrive. It has fostered an entrepreneurial culture and now houses more start-ups and programmers than almost anywhere else in the world. In 2021, technology companies in the city raised \$25.5 billion in venture capital funding, doubling the 2020 total.

Investments in cultural infrastructure support the innovation ecosystem by providing amenity that encourages people to utilise the city outside of work. The 33 boroughs that make up the City of London provide major funding to venues and activations. They also provide event programs and are strategic brokers for key partner networking.

The cultural infrastructure of London is supported by the London Culture Forum, a network of representatives from the 33 boroughs that meet to discuss local arts and cultural events, share practices, and identify opportunities for collaboration and advocacy.

Parramatta has been on its smart city journey for more than a decade. Our Smart City Masterplan was released in 2015, making Parramatta one of the first Councils in Australia to formalise its commitment to becoming a smart city.

WHY DOES PARRAMATTA NEED TO BE A SMART AND INNOVATIVE CITY?

As Sydney's Central City, Parramatta faces significant challenges on its journey to becoming a global city, such as increased density, congestion, and environmental risks including rising temperatures and floods.

To manage these and other issues that may arise, we need to invest in innovative ideas to create efficient solutions at local, regional, national and global levels.

Data collected across the local government area (LGA) can provide valuable insights into how our City functions, how our community moves around, and what we need to do to make Parramatta more vibrant, sustainable, and connected.

This data helps Council staff, other government departments, our community, and our industry partners to make evidence-based decisions, and to implement new technology and processes.



Credit: Westmead Institute for Medical Research (WIMR)

OUR JOURNEY

The City of Parramatta has been a leader in the smart city space, and was one of the first local governments in Australia to adopt a smart city plan. Council began its smart city journey by working on ad hoc projects in 2009, before releasing its first Smart City Masterplan in August 2015.



Credit: City of Parramatta

Since 2015, the City has developed a range of smart initiatives, including:

- ❖ **Melrose Park – Climate Responsive Neighbourhood:** A pilot of smart technology to capture, analyse and visualise local environmental data in real-time through a public dashboard to measure developer compliance.
- ❖ **Floodsmart Parramatta:** A digital service that uses geospatial mapping for the Upper Parramatta River within the Parramatta LGA that helps residents and businesses understand if their property is at risk of flood. FloodSmart also provides a text-based flood warning service.
- ❖ **CBD Parking Finder:** An online platform showing the location, availability, and type of parking across Parramatta's CBD.
- ❖ **Phillip Street – Smart Street:** A streetspace update which involved installing water misters, and technology to monitor pedestrian and vehicle counts, which allows the street to be responsive to the climate and different user groups.

ONGOING WORK

Council has demonstrated its commitment to digital innovation through the recent development of the Parramatta Square precinct and PHIVE, a new community, cultural and civic hub.

In addition, the City has supported the development of the strategic vision of Westmead Health and Innovation District, including the North Parramatta Start-up Hub.

Parramatta was also one of the first Councils to sign the NSW Smart Places Customer Charter and has received support from the NSW Smart Places Acceleration Program to enhance air quality and the planning process.

THE FUTURE FOR COUNCIL

As an organisation, the City of Parramatta will strive to lead innovation in the public sector by embracing emerging technologies and developing clear policy positions on how we will operate as a smart city.

Council will continue to enhance our processes for collecting and using data. All Council staff will have access to quality, integrated, and analysed data that will support evidence-based decision-making and improve the lives of our community.

By harnessing the potential of data, technology, and innovative problem-solving, we can uncover new ways to improve the quality of life in Parramatta. This means we can support the community to adapt to change and help us to overcome the complex challenges facing our cities such as urban heat, efficient resource management, rapid population growth, and accessibility of transport systems.

THE FUTURE FOR THE CITY

As Parramatta's population grows over the coming decades, large-scale urban development projects will help us meet community needs.

Key infrastructure projects include Sydney Metro West, the Powerhouse Parramatta, Civic Link, and the transformation of the Parramatta North heritage core.

In addition to developing new infrastructure, we will continue to bring Parramatta into the digital age.

Technology is evolving at a rapid pace and changing the way we live, work and play. Over the next 10 years, we will see Parramatta embrace both physical and digital transformation to become a more vibrant, sustainable, and connected place.

OUR INNOVATION ECOSYSTEM

A connected and collaborative ecosystem creates a culture of innovation and encourages the implementation of new technologies and the development of innovative solutions that improve the lives of the people who live, work and play in Parramatta.

This page highlights some of the key attributes, infrastructure and demographics that contribute to creating a thriving ecosystem. Parramatta's innovation ecosystem is built on partnerships between different stakeholders, such as government agencies, research institutes, local businesses, and interested community members.



Credit: City of Parramatta



Smart People HIGHLY EDUCATED

Parramatta is one of the most highly educated communities in the country, with 44.4% of residents possessing a tertiary qualification compared to the NSW average of 27.8%, and double the rate of post-graduate qualifications compared to the NSW average.



Smart Environment GREEN STAR BUILDINGS

Council has led the way building PHIVE, a 21st-century smart building. Its cutting-edge design targeting a 6-Star Green Star Design rating from the Green Building Council of Australia.



Smart Economy WESTMEAD INNOVATION DISTRICT

\$1 billion is being invested into the redevelopment of Westmead Health and Innovation District, along with a \$53.8 million investment in Parramatta North to create the Western Sydney Start-up Hub, which opened in October 2022.



Smart People YOUNG & DIVERSE

In 2021, 19.4% of people in Parramatta were young workers (25–34), compared with 15.5% in Greater Sydney. More of our residents also speak another language other than English, compared with Greater Sydney (56.4% compared to 37.4% in 2021).



Smart Governance COMMUNITY PARTICIPATION

Participate Parramatta, Council's online engagement platform, has been accessed by over 196,000 unique visitors and viewed more than 380,000 times since launching in 2020.



Smart Economy BUSINESS GROWTH

Whilst Parramatta had a comparable growth rate to the Sydney CBD in 2021–22 (5.3% compared to 5.1% respectively), we are experiencing high growth in our key precincts. Westmead saw a 10.3% growth in new businesses, whilst Sydney Olympic Park recorded a 15.4% annual increase.



Smart Mobility PUBLIC TRANSPORT ACCESS

Approximately 390,000 Greater Sydney residents can access employment in the Parramatta CBD within 30 minutes by public transport. The Metro West and Parramatta Light Rail development will increase this further.



Smart Governance DIGITAL CHANNELS

Council's digital channels are being used more frequently since COVID-19, with 56% of businesses surveyed in 2021 using the Council website for queries, compared to just 19% of who visited an in-person service centre.



Smart Living POWERHOUSE PARRAMATTA

Powerhouse Parramatta is set to be the largest museum in NSW at over 18,000sqm. The space will boost Parramatta's visitor economy with 2 million people to visit within the first year of opening, as well as creating new jobs in the creative, education and hospitality sectors.

HOW WE DEVELOPED THIS STRATEGY

BEST PRACTICE RESEARCH

In preparing the Strategy, Council developed a research paper to examine the following areas:

- **Best practice strategies in other cities:** A horizon scan of successful smart and innovative cities around the world to identify best practices. This involved reviewing case studies and analysing the implementation approaches of leading cities. Key lessons were applied to a Parramatta context.
- **The future of Parramatta:** An analysis of future trends for Parramatta to determine where innovative approaches could be best utilised to support the liveability, sustainability and prosperity of our City.

THE SIX CHARACTERISTICS OF A SMART CITY

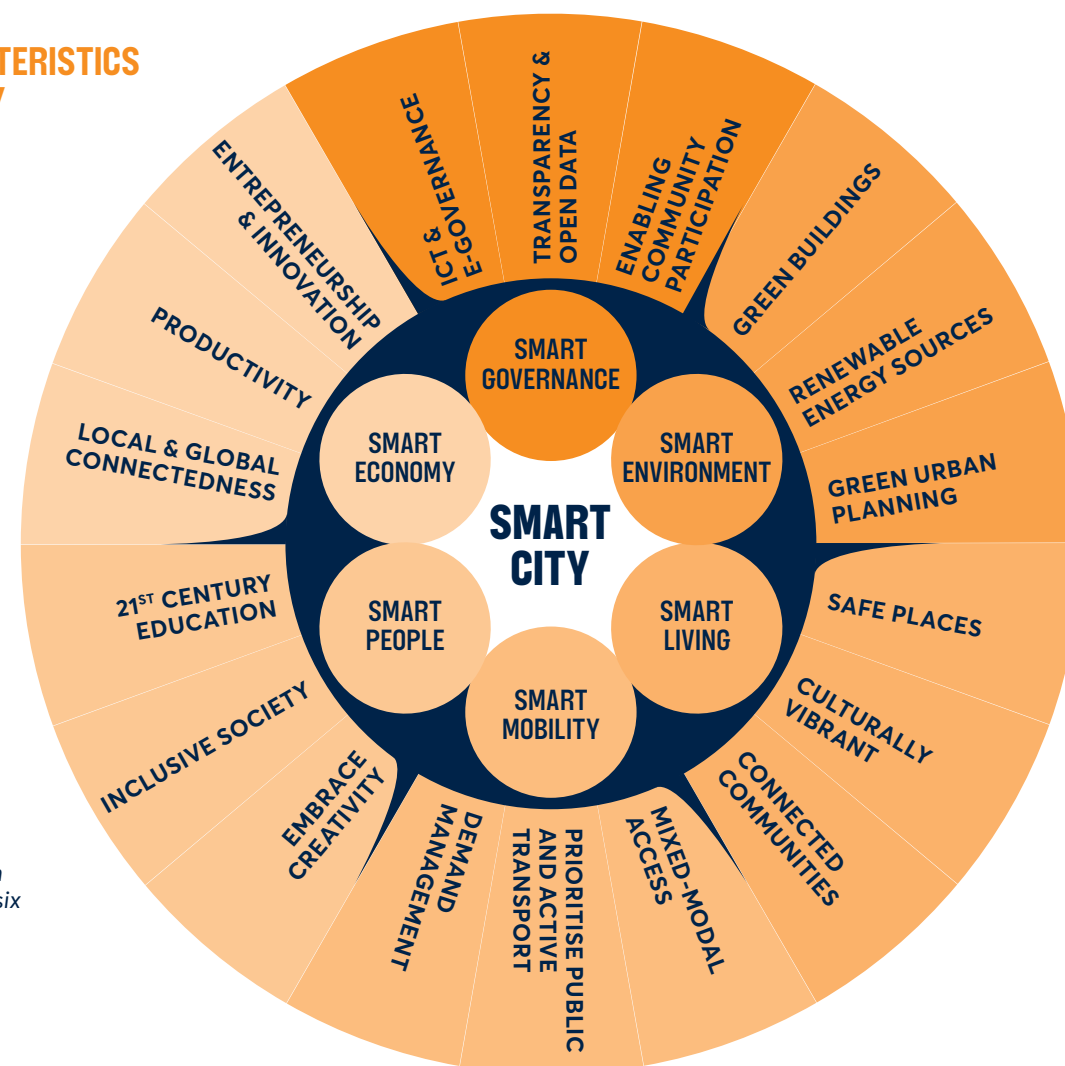


Figure 1: Adapted from Giffinger et. al. (2007) six characteristics of a smart city

COMMUNITY AND STAKEHOLDER ENGAGEMENT

Council conducted extensive engagement with the community and key stakeholders to identify how smart city and innovation international best practice could be applied in our unique city.

Though this process we engaged with over **450 community members and stakeholders**.

The insights gained from the consultation process ensured that the needs and priorities of our community are reflected in our Strategy.

We consulted with:

- **40+ stakeholders** such as state agencies, major employers, universities, private sector, technology experts and neighbouring local councils.
- **10+ smart city experts** including Council's Smart City Advisory Committee.
- **100+ internal staff and Councillors.**
- **100+ primary and high school students.**
- **200+ community members** including residents, businesses, workers, and visitors (via pop-ups kiosks, online and paper surveys, and online focus groups).

EMERGING THEMES

SMART ECONOMY

- Improve the night-time economy and activations after dark.
- Foster a culture of entrepreneurship in Parramatta.

SMART PEOPLE

- Create new employment and learning opportunities, particularly in the arts and creative industries.
- Highlight our First Nations and colonial heritage, as well as our multi-cultural community.

SMART GOVERNANCE

- Provide digital access to the community to improve participation, but don't leave anyone behind.
- Improve data management and governance structures.

SMART MOBILITY

- Improving connectivity within the LGA and Greater Sydney by active, public, and private transport.
- Move away from fossil-fuelled public and private transport.

SMART ENVIRONMENT

- Better manage our resources to reduce our impact, with a focus on circularity.
- Display leadership in creating greener, more sustainable places and jobs.

SMART LIVING

- Use data to improve quality of life, including creating safer and more welcoming spaces.
- Improve internet connectivity across the LGA and provide free public Wi-Fi.

STRATEGIC CONTEXT

STRATEGIC ALIGNMENT

This Strategy draws on a number of strategic directions, policies and initiatives from the local to global level (see Figure 2). Two of the key State drivers, the Smart Central River City Blueprint and the Smart NSW Roadmap, set out the NSW Government’s vision for the use of data and technology to improve places in NSW.

Smart Central River City Blueprint 2022:

The Central River City is made up of six LGAs. The Blueprint envisages the Central River City as Sydney’s true, connected, unifying centre. A place where technology and data are fully utilised to create a liveable and sustainable region with appropriate levels of housing and employment. The City of Parramatta works closely with other LGAs to achieve this vision.

SmartNSW Roadmap 2022–2027:

The SmartNSW Roadmap provides guidance on the use of smart solutions to improve places and services for citizens and businesses across NSW. The Roadmap establishes actions (across three streams: foundations, enablers and programs) for creating successful smart places.

OTHER POLICY AND FRAMEWORKS

INTERNATIONAL AND NATIONAL STANDARDS

In 2022, Standards Australia published a Data and Digital Standards Landscape document which identified eight areas of standards that cover the data and digital space: artificial intelligence, data management and interchange, information security, cybersecurity and privacy protection, Internet of Things (IoT), cloud computing and smart cities.

Council will utilise guidance from Standards documents to ensure our work is aligned with best practice. Key Standards that will be used include Smart Cities and Digital Engineering. The City of Parramatta Council is well positioned to play a leading role in scaling Standards to suit the local government context.

STATE FRAMEWORKS AND LEGISLATION

- Privacy and Personal Information Protection Act 1998
- Data Governance Toolkit
- Smart Places Data Protection Policy
- Smart Infrastructure Policy
- Internet of Things (IoT) Policy
- Cyber Security Policy
- Infrastructure Data Management Framework
- Artificial Intelligence (AI) Assurance Framework and AI Ethics Policy.

ASSOCIATIONS

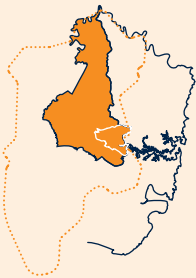
- Signatory of NSW Smart Places Customer Charter
- Member of Australian Smart Communities Association.



LOCAL

Parramatta LGA

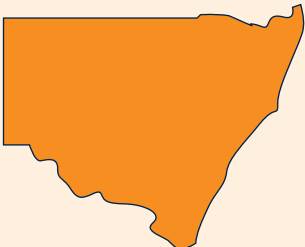
- Sydney Olympic Park 2050
- Westmead 2036 Place Strategy
- Camellia-Rosehill Place Strategy.



REGIONAL

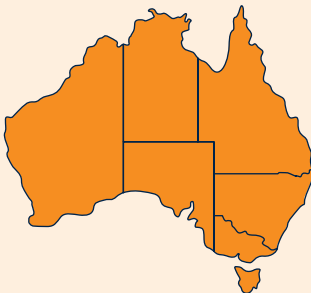
Dharug Nation (dotted)
Central River City (solid orange)

- Central City District Plan
- Smart Central River City Blueprint
- Greater Parramatta to Olympic Park Peninsula Place-based Infrastructure Compact.



STATE

- NSW Smart Places Strategy 2020 and Playbook
- The Six Cities Region Discussion Paper
- SmartNSW Roadmap 2022–2027
- NSW Future Transport Strategy 2056
- Connecting with Country Framework, NSW Government Architect
- NSW Public Spaces Charter and NSW Smart Public Spaces Guide
- Artificial Intelligence Strategy.



NATIONAL

- Australian Smart Cities Plan 2016
- Statement of Principles for Australian Innovation Precincts
- Closing the Gap Targets and Outcomes (Target 17: By 2026, Aboriginal and Torres Strait Islander people have equal levels of digital inclusion).



GLOBAL

- UN Declaration on the Rights of Indigenous Peoples
- UN Sustainable Development Goals (Goals 9: industry innovation and infrastructure, and 11: sustainable cities and communities).

Figure 2: Local to global policies and initiatives that influence, guide, and support this Strategy

HOW WE PLAN

INTEGRATED PLANNING AND REPORTING

All planning at Council is conducted within the Integrated Planning & Reporting (IP&R) framework – a mandatory framework for all NSW councils (Figure 3).

City of Parramatta’s Community Strategic Plan 2018–2038 (CSP) is the leading plan in this framework. The CSP sets out the City’s long-term goals and outlines our vision to become;

“Sydney’s Central City: sustainable, liveable and productive – inspired by communities.”

COUNCIL’S ROLE

Council plays a very broad role in delivering strategy across the City and our level of control over outcomes can vary. To provide clarity on our levels of responsibility, this Strategy uses a deliver, partner, advocate model.

DELIVER

Council delivers a wide range of programs and services including waste collection, libraries, childcare, maintenance of local roads and public spaces, recreation facilities and programs, community care, special events and regulatory functions.

Example: We can directly contribute to creating a smart city through the provision of connected infrastructure, improved digital platforms, and research and policy development.

The Smart City and Innovation Strategy has been developed in response to the CSP and addresses the challenges currently facing the community. It supports our CSP vision by establishing further priorities and action areas that foster a vibrant, sustainable, and connected Parramatta.

PARTNER

Council builds strategic partnerships with federal and state government agencies, the private sector, community organisations, and a range of other stakeholders that will contribute to delivering the Strategy’s objectives.

Example: We can partner with community, industry, universities, and other government organisations to deliver broader strategic objectives such as the development of a mature innovation ecosystem across Western Sydney.

ADVOCATE

When we are not in a partnership or do not have direct control over an issue, Council gives voice to the needs and aspirations of the community through advocacy. We advocate for action or policy changes to government and industry to bring about the best outcomes for our community.

Example: We can advocate for planning and legislation changes at state or federal government levels that will support our smart city journey, such as Transport for NSW to improve transport data collection.

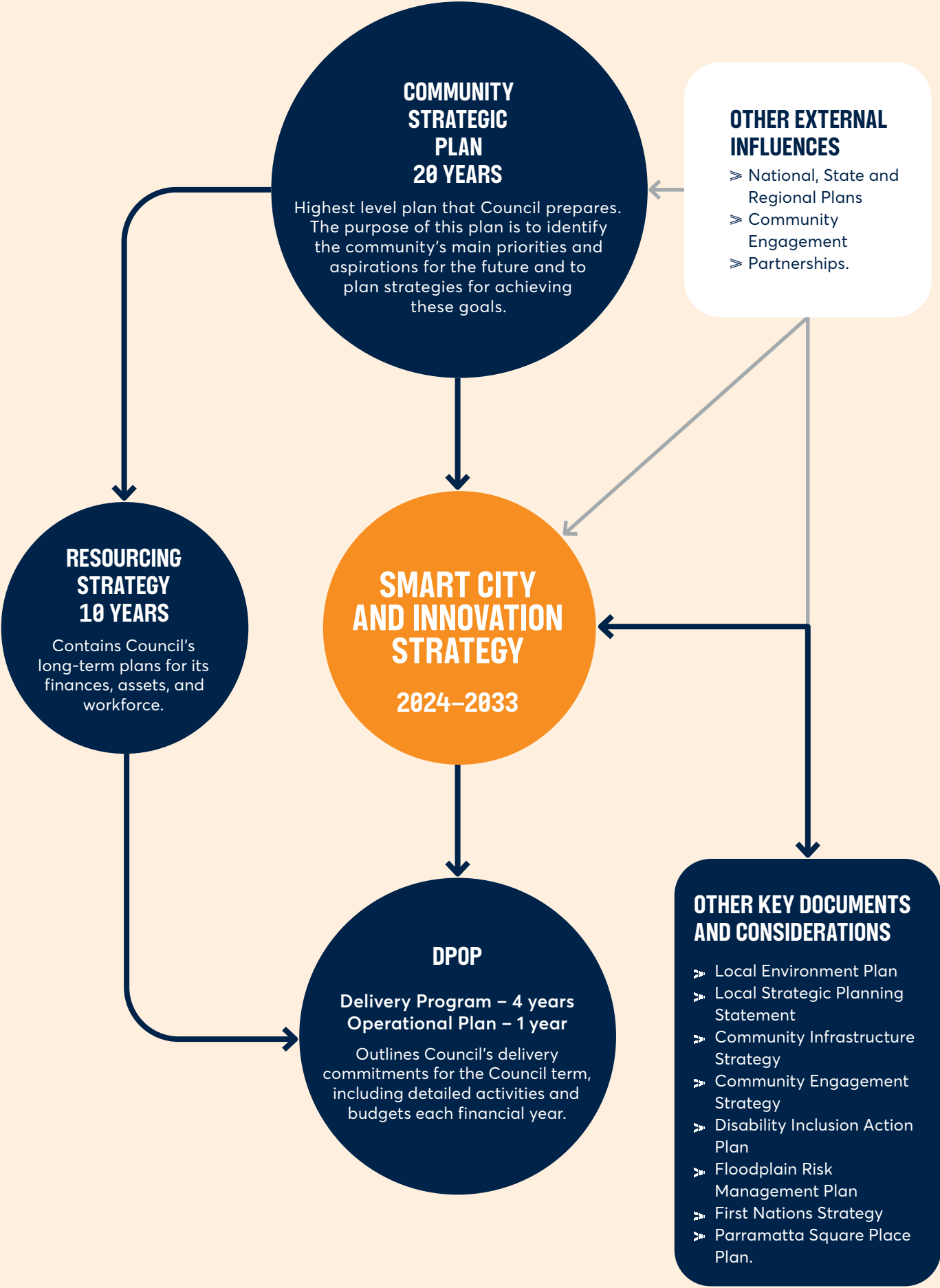


Figure 3: Council's Integrated Planning and Reporting framework

THE STRATEGY

02



"We need physical spaces
diffused across the city
so it's not just university
incubators, but innovation
being supported and
encouraged everywhere"

Executive Director, Western Sydney University



OUR VISION, PRINCIPLES, AND PRIORITIES

OUR VISION

A vibrant, sustainable, and connected centre of innovation that fosters the exchange of ideas.

We believe the young, diverse, and educated population of our area forms the foundation of Parramatta's innovative potential. At the geographic centre of the Sydney region, Parramatta's flourishing economy is built on collaboration between enterprise, research institutions and residents, promoting a culture of innovation and driving economic competitiveness.

We are dedicated to improving quality of life in our City. We leverage data, technology, and innovative approaches to solve the problems faced by residents in Parramatta.

Our vision is supported by the following global drivers and enablers:

DRIVERS

- **Humanising smart cities:** The benefits to our communities, elevating diversity and creating equity are at the heart of everything we do in the smart city space.
- **Green and adaptable:** Striving towards a more sustainable and circular city that is adaptable to climate changes now and into the future.
- **Embracing digital:** Leaning into the global shift towards digital experiences, future-proofed public domain, autonomous systems and data-led economies to improve productivity and create efficiencies.

ENABLERS

- Technological infrastructure
- Data policies and standards
- Digital connectivity
- Resourcing and capability building of staff within Council and externally
- Governance frameworks
- Funding and financing of projects
- Partnerships and collaboration.

OUR PRINCIPLES

The Smart City and Innovation Strategy is founded on six core principles determined through engagement with our residents, government and industry stakeholders. Each principle serves as a value-based guide applied to all smart city and innovation projects in our City.

These principles reflect our community's expectations about the way we work, particularly where technological advancements are everchanging.

COMMUNITY FIRST

We put the needs and interests of our community first, learning from First Nations' wisdom, and using technology only where it makes a meaningful difference to our environment or to the lives of our community.

TRANSPARENT

We build trust with our community by making information accessible, only collecting the minimum viable data, and never sharing or purchasing identifiable information.

RESOURCEFUL

We will use technology to make the most of what we have, maximising efficiency and minimising waste.

COLLABORATIVE

We work collaboratively with stakeholders to create a culture that supports experimentation and creative thinking to develop solutions.

INCLUSIVE

We aim to leverage technology to break down barriers and to support equitable access to opportunities and services for everyone in our community.

EXPERIMENTAL

We trial and test new ideas to ensure our decisions are evidence-based and supported by data.

OUR PRIORITIES

Our priorities provide long-term directions and a framework for guiding Council to support our community, businesses, and City to achieve our vision. Our six priorities are:

- **A data-led and innovative organisation:** We are committed to building a culture of innovation within Council where data is utilised to make evidence-based decisions.
- **Climate adaptation and circular economy:** We implement smart and sustainable technologies to prepare our community and environment for the impacts of climate change.
- **An intelligent and connected transport system:** We prioritise innovative projects that improve the accessibility of our transport system.
- **Transformative urban technology:** We integrate smart technology into our precincts and infrastructure projects to ensure efficient use of resources, to create a city that thrives in the digital age.
- **A thriving innovation ecosystem:** We work with our partners to develop a collaborative ecosystem renowned for producing and commercialising innovative ideas.
- **Digital participation and experiences:** We will create opportunities for our community to engage with digital tools, and improve their digital literacy, leaving no one behind.

Each priority delivers city, community and organisational smart city and innovative solutions relevant to Parramatta as a place, best practice evidence, and aspirations which have been identified by our community.

PRIORITY 01

A DATA-LED AND INNOVATIVE ORGANISATION

We are committed to building a culture of innovation within Council where data is utilised to make evidence-based decisions.

Quality data and innovative digital tools are an important component of an informed, evidence-based decision-making process. Better decisions mean smarter spending and better outcomes for the City of Parramatta Council.

Data is the foundation of most smart and innovative initiatives. Reliable, quality data can be harnessed to inform a range of different decisions including allocating resources, prioritising projects, writing policy, building business cases, and evaluating our own performance.

Quality data allows Council to be more decisive and to resolve issues faster, resulting in improved environmental, social and economic outcomes. Data can also enhance the efficiency of processes by making Council more agile, and ready to capitalise on opportunities, such as grant funding and pilot programs.

Enhancing the existing approach to data management will unlock new opportunities to use our current data. Over the next 10 years, new digital tools will be introduced across Council to process, analyse and understand our data. The consistent and appropriate use of these tools is supported by the application of data standards.



Credit: City of Parramatta

Developing a culture of innovation means providing our staff with access to quality data and tools, as well as opportunities to improve digital literacy skills. Staff are supported to find solutions by imagining how things could be done differently including applying approaches from different fields, such as systems or design thinking. Programs and initiatives to support and celebrate novel ideas, experimentation and innovation will be central to our success.

Data leadership supports all other priorities outlined in this Strategy, contributing to more efficient service delivery, and enabling Council to monitor and adapt to its environment proactively.

WHAT COUNCIL IS ALREADY DOING

Council collects significant amount of data across the organisation, from information about waste to road conditions, to community perceptions and attendance at events. The data we collect provides us with information that we can use to deliver projects more successfully in the future. As the volume of information that Council collects increases, it is important that we invest in data integration that allows us to overlay multiple datasets to see the impact of different variables.

WHAT WE HEARD

You told us that considering data is often at the core of smart and innovative city concepts. It will be vital to ensure Council's systems are streamlined and set up for success. You want:

- Clear communication about what data is being collected by Council and how it will be used.
- Adoption of Australian Standards for data collection.
- Stronger data privacy and cyber security protections.
- Improved capabilities in relation to the way Council collects, analyses, uses and maintains data.
- Improved data access so that the community can obtain data in an easy and intuitive way.

"We want Parramatta to be a city that is 'live', meaning collecting metrics and measurement to enable us to experiment to enhance the lived experience of the city."

Community member

BENEFITS OF DATA-LED DECISIONS



MINIMUM VIABLE DATA

To keep our community safe, we have a commitment to only collecting the data that's required by Council, or our partners, to make informed decisions. We don't collect additional information from community members that isn't needed. This way, we reduce the risk of privacy breaches and information being accessed by unauthorised sources.

A GLIMPSE INTO THE FUTURE

Derek is a newly hired staff member working at City of Parramatta. As part of his onboarding, he is required to complete a comprehensive data and privacy training program.

The program covers Council's data policies and data management best practices, as well as training on the handling and destruction of sensitive information, cyber security, and data breaches. The program also includes training on how to interpret and understand data that is collected by Council which will support Derek to make evidence-based decisions.

Throughout the training, Derek is given real-world scenarios and examples to better understand the importance of data and how it can support his work within the Council. He is also provided with resources and tools to help him upskill in the use and management of data.

Later, Derek is running a survey with community members about upcoming upgrades to the City's parks. As Derek has received suitable training, he knows to only collect minimum viable data from his survey participants. He does not collect the names of participants. He only asks for their age, gender and postcode for the purpose of demographic analysis. After collecting the data, Derek ensures that it is stored securely to protect it from potential cyber security breaches.

CASE STUDY

BOSTON, USA

The 'Data-Driven Boston' program is a city-wide initiative implemented by the city in partnership with Boston University, to increase the use of data and analytics in decision-making.

A key component of the program is the creation of the Boston Analytics Platform, which provides a single point of access to over 500 datasets from city agencies.

This allows city staff and residents to easily access and analyse data on topics such as crime, transportation, and housing.

The platform also includes a variety of visualisation tools to help users make sense of the data and identify patterns and trends.

Additionally, the program provides data training and resources to city employees, as well as funding and support for data-related projects proposed by city staff and community organisations.

WHAT WE ARE DOING

These are Council's objectives and actions relating to a data-led and innovative organisation.

| OUTPUT | NO. | ACTION | YEAR | RESPONSE TO CSP | COUNCIL'S ROLE | INDICATOR | TARGET |
|---------------|--|---|------|--------------------|---------------------------|--|--------------|
| OBJECTIVE 1.1 | Implement data standards and governance frameworks | | | | | | |
| | 1.1.1 | Implement a data governance framework | 2 | Fair Innovative | <div>D</div> | Staff perception of how data is used across the organisation | Baseline TBC |
| | 1.1.2 | Establish policies and procedures for effective data management that complies with relevant standards | 2 | Fair Innovative | <div>D</div> | | |
| | 1.1.3 | Implement a data integration framework | 2 | Fair Innovative | <div>D</div> | | |
| OBJECTIVE 1.2 | Embed innovation in Council's culture | | | | | | |
| | 1.2.1 | Improve existing corporate and project reporting systems | 2 | Innovative | <div>D</div> | Number of Council projects that incorporate innovative digital tools | Baseline TBC |
| | 1.2.2 | Scope world's best practice in innovative planning approaches to understand potential application to the Parramatta context* | 4 | Innovative | <div>D</div> | | |
| | 1.2.3 | Investigate and recommend improvements for user-friendly Geographic Information System (GIS) and capital works monitoring systems* | 4 | Innovative | <div>D</div> | | |
| | 1.2.4 | Create an internal data portal to improve access to quality data | 2 | Innovative | <div>D</div> | | |
| | 1.2.5 | Create an internal data analytics function | 4 | Innovative | <div>D</div> | | |
| | 1.2.6 | Upskill Council staff in data literacy | 2 | Fair Innovative | <div>D</div> | | |
| | 1.2.7 | Enable internal innovation through programs and incentives | 2 | Innovative | <div>D</div> | | |
| | 1.2.8 | Support implementation of NSW Government digital tool trials, such as Artificial Intelligence (AI) and Machine Learning (ML) projects | 2 | Innovative | <div>D</div> <div>P</div> | | |

HOW TO READ THE ACTION PLAN

Year refers to the year that the action will be completed by. Our first program of work will be completed in the next 2 years (by 2026) and then next within 4 years (by 2028).

Response to CSP reflects the relevant CSP goal that this work will contribute to (Fair, Accessible, Welcoming, Green, Thriving, and Innovative).

Council's role refers to the Deliver (D), Partner (P), Advocate (A) model of work adopted in the CSP.

* The preparation of the scope and investigative research will identify options and resourcing requirements prior to a decision on implementation of the action.

PRIORITY 02

CLIMATE ADAPTATION AND CIRCULAR ECONOMY

We implement smart and sustainable technologies to prepare our community and environment for the impacts of climate change.

Council must monitor and protect Parramatta's river, waterways and parklands. We are also responsible for leading conversations, generating new ideas, and supporting solutions to climate related challenges.

It is essential that we harness the power of technology to prepare the City and the community for the impacts of climate change. Rising temperatures, increased flooding, and severe storms have made climate-related risk evident to our community.

This Strategy will support other Council environment-related documents by providing data and technology to support project planning and delivery.

Data and technology can help create climate-responsive urban systems, buildings and public spaces. Climate-responsive design can lessen some of the impacts of climate change. For example, flexible structures can be installed in public spaces that can be adjusted to suit weather conditions, like extreme heat or rain events, to ensure the spaces remain comfortable.

Council can provide our residents with access to environmental data. This empowers residents to make informed decisions on how to use and protect the City's highly valued blue and green spaces. For example, this data can help residents find a cool place nearby to go on a hot day, or help them decide whether it is safe to swim in the Parramatta River. Access to environmental data also spurs 'citizen science' projects such as community reporting on issues including water quality.



Credit: City of Parramatta. Netvox R712 temperature and humidity sensor

Resource management is an important part of the conversation in a growing city like Parramatta. Council aims to adopt a circular and regenerative approach to our resources. In collaboration with our local industry and residents, we will move away from the traditional linear model of 'take-make-waste' and instead find ways to recapture and reuse waste products.

Innovative manufacturing techniques and digital technology play an important role in the transition to circular resource use. For example, Council began its circular economy journey by using recycled materials as road base in the Granville Smart Street Project. By leveraging advances in technology, we can reduce our resource consumption, improve waste management, and create new products and services from waste.

WHAT COUNCIL IS ALREADY DOING

The City's commitment to environmental monitoring and the use of data to guide decision-making is a step in the right direction. Projects like the Phillip Street – Smart Street use technology to respond to the environmental conditions, while Council's FloodSmart service provides critical information to communities to help them understand and prepare for flood risks in their area. The Melrose Park Climate Responsive Neighbourhood project piloted real-time information to residents about noise and air quality to help them understand the impact of construction activity near their home.

WHAT WE HEARD

You told us Parramatta has the potential to be a world-class exemplar for environmental sustainability. You want:

- Technology that teaches you about the environment and helps to foster a connection with nature.
- A city that takes action in relation to rising temperatures and flooding using advancements in data and technology.
- More environmental data to help inform city planning and decision-making.
- Improved access to environmental data for residents to guide everyday lifestyle choices.
- More efficient use of existing resources.
- More local opportunities in the circular economy sector.

"Environmental challenges like urban heat and flooding along the river are major issues, smart thinking should help mitigate them and support our communities to be better prepared for them."

NSW Health staff member



Credit: City of Parramatta

A GLIMPSE INTO THE FUTURE

Riya is a small business owner whose main goal is to run a profitable and sustainable business that provides jobs and supports the local economy. She faces many challenges in her business, including a limited budget, competition from larger companies, and a lack of access to information about available materials. It requires time and effort for her to find and purchase the right materials.

Council's new digital resource platform has revolutionised the way she procures materials and has helped address her resourcing challenges. She now uses a data portal to search for and purchase second-hand materials for her business.

She finds the portal to be a valuable tool because it allows her to easily access information about the availability of materials, to compare prices, and to connect with suppliers. The portal provides a simple and cost-effective way for Riya and other business owners to adopt sustainable business practices.

CASE STUDY

SINGAPORE

The City of Singapore has implemented a smart water management system to ensure the quality of its water supply. The system uses a network of sensors and real-time monitoring to detect potential issues and alert operators to leaks, spills, and changes in water quality.

It also uses advanced analytics to optimise treatment processes, improve the overall efficiency of the water treatment system, and reduce energy consumption.

The system also uses smart water meters to monitor water usage in individual households and buildings, which helps to detect and prevent water wastage.

It uses weather and demand forecasting to optimise the production of water and ensure a steady supply to meet the needs of the population.

WHAT WE ARE DOING

These are Council's objectives and actions relating to climate adaptation and circular economy.[#]

HOW TO READ THE ACTION PLAN

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Council's role refers to the Deliver (D), Partner (P), Advocate (A) model of work adopted in the CSP.

| OUTPUT | NO. | ACTION | YEAR | RESPONSE TO CSP | COUNCIL'S ROLE | INDICATOR | TARGET |
|---------------|--|--|------|------------------|---------------------------|--|--|
| OBJECTIVE 2.1 | Protect our community from climate change using innovative solutions | | | | | | |
| | 2.1.1 | Improve local urban heat data to identify and communicate place-based conditions impacting local climate | 2 | Green Innovative | <div>P</div> | Community satisfaction with climate adaptation solutions | Baseline TBC |
| | 2.1.2 | Identify a suite of heat mitigations solutions supporting Council projects and planning* | 2 | Green Innovative | <div>D</div> | | |
| | 2.1.3 | Investigate real-time water quality monitoring technologies* | 2 | Green Innovative | <div>D</div> | | |
| | 2.1.4 | Trial remote stormwater monitoring technologies to identify improvement opportunities* | 4 | Green Innovative | <div>D</div> | | |
| | 2.1.5 | Identify and fill gaps in data collection to support resilience planning | 2 | Green Innovative | <div>P</div> | | |
| | 2.1.6 | Scope opportunities to improve environmental warning networks* | 4 | Green Innovative | <div>D</div> | | |
| OBJECTIVE 2.2 | Facilitate circularity within the LGA | | | | | | |
| | 2.2.1 | Identify opportunities to utilise new technologies and data to enhance waste avoidance and resource recovery within Parramatta | 4 | Green Innovative | <div>P</div> | Community waste diverted from landfill | 85% diversion rate for community waste by 2038 |
| | 2.2.2 | Identify enabling infrastructure required for circularity within precincts to inform advocacy to the State Government and planning within Council* | 4 | Green Innovative | <div>P</div> <div>A</div> | | |

[#]Further detailed environment-related delivery actions are led by the Environment Sustainability Strategy and will be supported by relevant teams across Council. This Strategy focuses on the data and technology innovations that support program delivery.

* The preparation of the scope and investigative research will identify options and resourcing requirements prior to a decision on implementation of the action.

PRIORITY 03

AN INTELLIGENT AND CONNECTED TRANSPORT SYSTEM

We prioritise innovative projects that improve the accessibility and efficiency of our transport system.

A well-connected and easy-to-navigate transport system is the foundation of a liveable city. The goal of this priority is to improve the transport network experience for residents and visitors, and to identify additional and complementary transportation services.

As Parramatta's population continues to grow, we need a greater variety of transport options so that work, home and leisure activities can be accessed with ease. Increasing sustainable travel options will enhance liveability, ease congestion, and simplify navigation for our residents and visitors.

This Strategy will support other Council transport-related documents by providing data and technology to support project planning and delivery.

Parramatta is the geographic centre of the metropolitan Sydney transport network. As a major transport interchange, there is significant opportunity for Parramatta to continue to grow and expand into innovative modes of transport like micro-mobility and rideshare options.

Projects like Parramatta Light Rail and Sydney Metro West will improve connections and expand travel choices within our area and to other parts of Greater Sydney.



Credit: City of Parramatta

To maximise the benefits of these major infrastructure projects, technology can be used to enhance the customer experience. For example, Mobility as a Service (MaaS) platforms can provide a seamless and personalised experience. Micro-mobility options, and first and last-mile links will require Council to reconsider shared spaces, particularly carparks and kerbside lanes, to maximise public benefit.

By collecting data about people movement and being open to scaling successful transport innovations, Council can work with partners like Transport for NSW to improve movement in our area.

WHAT COUNCIL IS ALREADY DOING

Council is committed to being a test-bed for transport innovation. Council has invested in numerous sensors across the local government area to help us make decisions that improve network connectivity. Council has installed people counters in Parramatta Square and bike counters across our cycleway network to measure how people are using our spaces and make informed decisions about any changes. Council is also trialling new technology, such as video analytics, that can help us to review transport hazards and make our places safer.

WHAT WE HEARD

You told us that public transport and mobility is the top priority for future smart city initiatives. You want:

- Prioritisation of, and improved investment in, last mile connectivity and micro-mobility choices.
- Transport planning to be informed by traffic flow data.
- Creativity and innovation in how we re-allocate existing road space so that all modes of transportation can coexist.
- Increased partnerships between government and private sector to implement smart and innovative mobility solutions.

"The real question is how do we remove the need for private vehicles? We have to trial these emerging mobility technologies and see what works and then scale them here in Parramatta."

Transport for NSW staff member

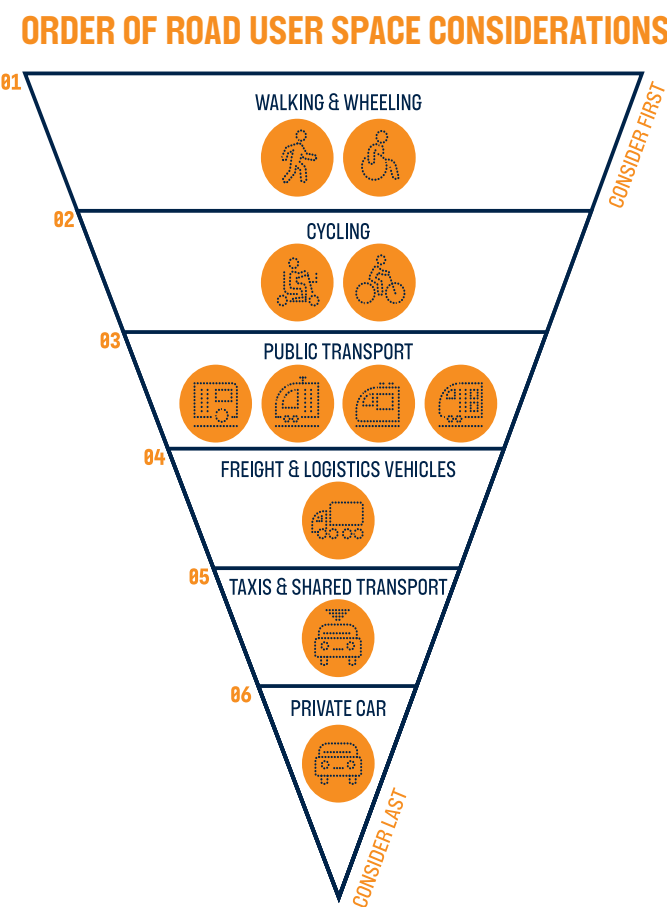


Figure 5: Prioritisation order of road user space considerations

A GLIMPSE INTO THE FUTURE

Rory is a recent graduate who lives in a new development in Epping.

He used to drive to Parramatta CBD for work, but his commute has changed dramatically in recent years. He now takes advantage of a fully integrated transport system, which allows him to access a variety of transportation options easily.

He walks to a nearby bike station, borrows a bike with a transport card, rides to work and returns it, saving money while reducing his carbon footprint.

He also uses a car-sharing service for errands or trips outside the City.

He plans, books, and pays for his trips on an integrated platform, providing him with more flexibility and reducing the need for a personal vehicle.

CASE STUDY

HELSINKI, FINLAND

The Helsinki region has extended an open invitation to companies, both Finnish and international, to participate in the development of a Personal Mobility as a Service (PMaaS) system.

The goal is to allow users to access a variety of transportation options such as cars, buses, trains, and bikes via a single platform. This will provide a convenient and efficient way for people to travel by allowing them to easily plan, book and pay for different modes of transport on one platform.

Companies can participate in different ways, such as by offering technology solutions, transportation services, or consulting services.

For example, the Jätkäsaari Mobility Lab, set up on the streets of the Jätkäsaari-Ruoholanti district provides a real-world environment to test solutions in real traffic with real customers. The lab provides companies with access to infrastructure, data, and other resources that they need to test and develop new solutions.

WHAT WE ARE DOING

These are Council’s objectives and actions relating to an intelligent and connected transport system.#

| OUTPUT | NO. | ACTION | YEAR | RESPONSE TO CSP | COUNCIL’S ROLE | INDICATOR | TARGET |
|---------------|--|--|------|--------------------------|----------------|--|--------------|
| OBJECTIVE 3.1 | Utilise data and technology to improve the transport network | | | | | | |
| | 3.1.1 | Scope technology capability to support transport planning* | 2 | Accessible Welcoming | D | Residents’ perception of adequacy of public and active transport | Baseline TBC |
| | 3.1.2 | Utilise data to advocate to the NSW Government to improve how people get around the City | 4 | Accessible Innovative | A | | |
| | 3.1.3 | Support scaling of successful transport innovations into the Parramatta LGA including micro-mobility, shared mobility and Mobility as a Service (MaaS) | 4 | Accessible Innovative | P | | |

HOW TO READ THE ACTION PLAN

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#Further detailed transport-related delivery actions are led by the Integrated Transport Strategy and will be supported by relevant teams across Council. This Strategy focuses on the data and technology innovations that support program delivery.

* The preparation of the scope and investigative research will identify options and resourcing requirements prior to a decision on implementation of the action.

PRIORITY 04

TRANSFORMATIVE URBAN TECHNOLOGY

We integrate smart technology into our precincts and infrastructure projects to ensure efficient use of resources, to improve community experience, and to create a city that thrives in the digital age.

Well-equipped and thoughtfully designed public spaces help a city to thrive. By incorporating smart city concepts, leveraging data-driven insights, and collaborating with key stakeholders, we can unlock the full potential of transformative urban technology.

The rapid advancement of smart and innovative technology has revolutionised the planning, design, and management of public spaces in cities across the world. Data can provide information and insights that help us to build public spaces that are welcoming, inclusive, and safe, while also maximising social, cultural, environmental, and economic benefits.

Existing technologies, such as smart lighting and Internet of Things (IoT) sensing, will be increasingly leveraged to enhance safety in our City. We can use smart technology in new ways

such as digital art and soundscapes, or a public safety app.

To create dynamic and responsive places that cater to the evolving needs of the community, we must consider smart city concepts when planning our precincts. For example, work and recreation is increasingly moving online. As such, as a smart city, it is crucial that internet infrastructure is considered in the planning or upgrading of any public space. Our public spaces should be equipped with the capabilities to support equitable access to the internet. Council will utilise resources like the NSW Digital Connectivity Index to prioritise the delivery of public domain upgrades.

Smart city technologies and improved data collection provide Council with the capacity to proactively manage our assets and to make improvements in near real-time. Quality data will also allow Council to understand and interrogate



existing issues with asset maintenance and inform Council about how to improve operations.

Furthering partnerships with stakeholders like government and industry partners will allow Council to share data and insights and collaborate on the design and management of public spaces, which will lead to more effective and efficient use of resources and more positive outcomes for the community.

Future-proofed connectivity in upcoming infrastructure projects, like Civic Link, are key Council investments to ensure we are prepared for the coming years.

The NSW Government has already invested in trialling innovations that enhance the safety of communities, with a particular focus on women, girls, and non-binary people. Council is committed to supporting both pilots and scaled interventions in our City.

WHAT COUNCIL IS ALREADY DOING

Council has already committed to trialling technology in urban places to improve how these are experienced by our community. Council has embarked on climate responsive pilots in Melrose Park, trialled recycled roadbase in Granville and installed smart infrastructure on Phillip Street in the CBD.

The Melrose Park Climate Responsive Neighbourhood piloted smart technology to capture, analyse and visualise environmental data during the construction of a new housing development, ensuring that developers complied with regulatory requirements.

WHAT WE HEARD

You recognise that technology can be leveraged to enhance people's place experiences. You want:

- Our City to be a safe place for everyone, at all times.
- Our public spaces to be accessible, both in terms of physical and digital access.
- Public spaces to be better activated to suit the needs of our community by using data and insights.
- Digital infrastructure to support Council staff to operate our assets more efficiently.
- Innovative ideas and technology used to update our public spaces to suit the needs of the growing population.
- Council to try new things and test new technologies.

"We need to consider how we can improve safety with the use of information and smart devices to support our people, not just install CCTV and IoT devices, but also crowd source information. It will be great to have those capabilities."

University of Sydney academic



Credit: City of Parramatta. Smart street furniture

A GLIMPSE INTO THE FUTURE

Maria is a young nurse who works at Westmead Hospital. She prefers to walk to her apartment in North Parramatta through the scenic path in Parramatta Park because it is quick, and she knows it is safe and activated at night with recent smart infrastructure upgrades.

She knows the park has smart lighting that automatically adjusts to the ambient light levels – increasing at night when the park is less busy, providing extra visibility and security.

The park also has CCTV cameras that are connected to a central monitoring system that allows the authorities to quickly respond to any incidents.

The park also has a mobile app that allows visitors to report any incidents or issues, and request for assistance if needed. This makes Maria feel more secure as she knows that there's a way to reach out for help.

CASE STUDY

CITY OF NEWCASTLE, AUSTRALIA

In 2021, the City of Newcastle identified three underutilised areas within their local government area where higher-than-average anti-social behaviours were occurring. Through the Night Spaces Project, an initiative jointly funded by the City of Newcastle and the NSW Government under the Community Safety Fund, an innovative solution was sought to enhance the safety of these places.

The City of Newcastle partnered with the University of Newcastle and a local industrial design business to create bespoke light boxes, referred to as the 'Henges', which promote not only safety but also vibrancy in these places. The light boxes were built from sustainable materials, including green concrete, are solar powered and feature sensor-based lighting.

Local artworks along with soundscapes were selected for each location to encourage interaction with the piece. Augmented reality was also utilised to provide information about the artwork and enhance the digital interactivity.

These lightboxes have a dual function of both providing light to dark places, but also attracting people to underutilised locations and increasing the passive surveillance of the spaces. These factors can contribute to the reduction of anti-social behaviour.

WHAT WE ARE DOING

These are Council's objectives and actions relating to transformative urban technology.

HOW TO READ THE ACTION PLAN

Year refers to the year that the action will be completed by. Our first program of work will be completed in the next 2 years (by 2026) and then next within 4 years (by 2028).

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Council's role refers to the Deliver (D), Partner (P), Advocate (A) model of work adopted in the CSP.

| | NO. | ACTION | YEAR | RESPONSE TO CSP | COUNCIL'S ROLE | INDICATOR | TARGET |
|---|-------|--|------|--------------------------------|---------------------------|---|--------------|
| OBJECTIVE 4.1 Include smart infrastructure in precinct planning | | | | | | | |
| | 4.1.1 | Identify internet connectivity needs across the LGA including public domain and urban renewal areas | 2 | Fair Thriving Innovative | <div>D</div> | % of public domain projects that include smart infrastructure | Baseline TBC |
| | 4.1.2 | Develop a smart infrastructure guideline, which considers precinct level requirements for smart technology such as sensors, smart lighting, and other smart city public domain upgrades like charging stations | 2 | Accessible Innovative | <div>D</div> | | |
| | 4.1.3 | Investigate the inclusion of smart infrastructure in precinct planning, including Development Control Plans* | 4 | Innovative | <div>P</div> | | |
| OBJECTIVE 4.2 Enhance places with smart city solutions | | | | | | | |
| | 4.2.1 | Implement smart city technology and design principles to enhance place activation or improve safety | 2 | Welcoming Innovative | <div>D</div> <div>P</div> | Community perception of safety in the LGA | Baseline TBC |
| | 4.2.2 | Support 'seed to scale' smart places projects developed by the NSW Government | 2 | Thriving Innovative | <div>P</div> | | |
| | 4.2.3 | Investigate options to trial new energy efficient smart infrastructure in the public domain* | 2 | Thriving Innovative | <div>D</div> | | |
| OBJECTIVE 4.3 Proactively maintain our assets | | | | | | | |
| | 4.3.1 | Scope opportunities to apply technology to asset maintenance* | 2 | Innovative | <div>D</div> | Number of projects that utilise data or technology for predictive maintenance | Baseline TBC |
| | 4.3.2 | Create a data model for predictive asset maintenance | 4 | Innovative | <div>D</div> | | |

* The preparation of the scope and investigative research will identify options and resourcing requirements prior to a decision on implementation of the action.

PRIORITY 05

A THRIVING INNOVATION ECOSYSTEM

We work with our partners to develop a collaborative ecosystem renowned for producing and commercialising innovative ideas.

Creating a thriving innovation ecosystem is instrumental in positioning Parramatta as a hub of technological advancement and economic growth.

Innovation ecosystems are created when different stakeholders such as government agencies, businesses, and the community, collaborate to develop and implement new technologies and solutions to improve efficiency and liveability. Fostering these ecosystems can attract knowledge-intensive jobs, create new employment opportunities, and promote growth.

To support a thriving innovation ecosystem, Council will prioritise actions including sharing data to seed opportunities and ideas, investing in novel climate adaptation solutions and growing innovation across the breadth of the LGA.

This includes partnering with industry and academics to support the development of novel products and solutions.

Parramatta has attracted many global institutions, universities and research organisations, and innovative start-ups. The City is also already home to many innovation anchors such as the Westmead Health and Innovation District (including the Western Sydney Start-up Hub), Sydney Olympic Park and several universities specialising in science and research.

Precincts like Camellia-Rosehill and Silverwater present future opportunities for innovative jobs and housing precincts that support our existing ecosystem. By leveraging the partnerships between these key players and promoting collaboration, we can boost productivity and grow the entrepreneurial and start-up culture across the broader Parramatta LGA.



Credit: Westmead Institute for Medical Research (WIMR)

The future of work and the skills required in new and emerging industries will be determined by technological and digital innovations. By fostering innovation, we can continuously upskill the community and ensure employment pathways are future-focussed.

Transparent data sharing builds trust, and enables stakeholders to leverage valuable insights. These insights and data can lead to the creation of innovative solutions to existing and future problems, through informed decision making and enhanced collaboration.

Improving connectivity and co-location in these areas will create an environment conducive to idea exchange and collaboration, while improved amenity and activation across the ecosystem will provide more opportunities for people to connect and collaborate.

WHAT COUNCIL IS ALREADY DOING

Council is working closely with the NSW Government to develop the innovation ecosystem in Parramatta by bringing stakeholders together for regular meet-ups for coordinated delivery.

Additionally, shared data is key to the collaboration of stakeholders in the ecosystem. Whilst open data is not yet available, Council shares available data with partners such as the State Government and industry.

WHAT WE HEARD

You told us you believe Parramatta is already making significant strides towards becoming an innovation capital, and you want us to build on our strengths through:

- More collaboration to be encouraged and facilitated, so we can learn from each other and grow together.
- Clearly communicating the value proposition of situating businesses in Parramatta.
- Making grants and funds available to encourage entrepreneurship.
- Improved place-making and connections between innovation areas.

"[In the Westmead Health & Innovation District] we have two major universities, four large hospitals, plenty of space and really great planning to be able to develop some commercial office space, as well as potentially some manufacturing space. The last thing we want is to really contain and create some sort of segmented or bubbled areas. We really want to create a place where people are welcome everywhere."

Western Sydney Start-up Hub staff member

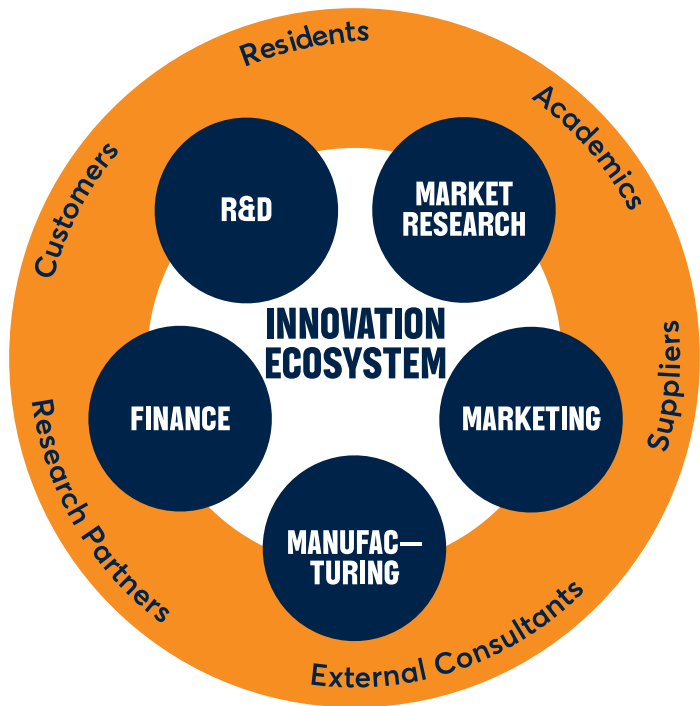


Figure 6: Innovation ecosystem actors (orange) and internal departments (navy)

A GLIMPSE INTO THE FUTURE

Robotics start-up owner Rahul lives in North Parramatta. He works from home with high-speed internet a few days a week but chooses to work from a co-working space in the Parramatta CBD so he can learn from and collaborate with other like-minded entrepreneurs. Through Parramatta's start-up network, Rahul learns about the City's annual Innovation Challenge. The Innovation Challenge this year is focused on improving the pedestrian movement around the Westmead Health and Innovation District. As Rahul is familiar with the area and the challenges of navigating between the hospital buildings, research institutes and retail spaces, he chooses to enter.

Rahul partners with one of the local universities to develop a robot and AI software tool that scans the spaces and recommends improvements. Rahul uses insights published on the City's open data portal to feed existing information about people movement and usage of the Westmead area into the AI program. This makes the recommendations more appropriate for the people who use the space and wins Rahul the challenge. Rahul then works with Council to implement the technology and scale it to other locations in the LGA.

CASE STUDY

CITY OF LONDON, ENGLAND

A group of organisations at the Queen Elizabeth Olympic Park in London have formed a new district called SHIFT, which serves as a living testbed for urban innovation and collaboration. The name SHIFT represents the collective effort needed for a thriving, fair, and resilient future of cities.

SHIFT brings together organisations such as University College London, London College of Fashion, Loughborough University, Here East, Lendlease, Plexal, and the London Legacy Development Corporation to tackle challenges facing cities and citizens.

The district aims to address issues such as the climate emergency, urban health and wellbeing and the movement of people and goods in urban environments. It uses the park as a location to pilot initiatives like zero carbon micro-mobility trials and urban farming.

WHAT WE ARE DOING

These are Council’s objectives and actions relating to a thriving innovation ecosystem.

HOW TO READ THE ACTION PLAN

Year refers to the year that the action will be completed by. Our first program of work will be completed in the next 2 years (by 2026) and then next within 4 years (by 2028).

Response to CSP reflects the relevant CSP goal that this work will contribute to (Fair, Accessible, Welcoming, Green, Thriving, and Innovative).

Council’s role refers to the Deliver (D), Partner (P), Advocate (A) model of work adopted in the CSP.

| OUTPUT | NO. | ACTION | YEAR | RESPONSE TO CSP | COUNCIL’S ROLE | INDICATOR | TARGET |
|---------------|--|---|------|------------------------|----------------|---|--------------|
| OBJECTIVE 5.1 | Utilise data and digital tools to support collaboration, research and business decision-making | | | | | | |
| | 5.1.1 | Create an open data portal for the public to access | 4 | Fair Thriving | D | Number of publicly available datasets Usage of Council APIs | Baseline TBC |
| | 5.1.2 | Investigate gaps in Council’s data collection that inhibit innovation and collaboration for industry, researchers and the community* | 2 | Innovative | D P | Industries, researchers and community satisfaction with digital tools provided by Council | Baseline TBC |
| | 5.1.3 | Facilitate innovation challenges to provide opportunities for innovators to solve complex city problems | 2 | Thriving Innovative | D P | | |
| OBJECTIVE 5.2 | Support the innovation ecosystem in Parramatta | | | | | | |
| | 5.2.1 | Investigate potential innovation uses for emerging jobs precincts, including Silverwater, to complement and grow existing key industries in Parramatta* | 4 | Thriving | D | Number of new businesses in target industries | Baseline TBC |
| | 5.2.2 | Advocate for improved amenity and connection across the innovation ecosystem | 2 | Thriving Innovative | A | | |

* The preparation of the scope and investigative research will identify options and resourcing requirements prior to a decision on implementation of the action.

PRIORITY 06

DIGITAL PARTICIPATION AND EXPERIENCES

We will create opportunities for our community to engage with digital tools and experiences, and improve their digital literacy, leaving no one behind.

New technologies can revolutionise the way we engage with the world around us. From providing technology to build digital skills in our community, to improving the user experience of our websites and delivering digital-based community experiences, Council is committed to equitable access.

Technologies present a wealth of opportunities for our City to improve the visitor economy, activate public spaces, and share stories that will help to strengthen our sense of place. Data and digital platforms can be leveraged for creative activations and experiences for diverse groups within the community.

From digital wayfinding in the public domain to virtual skills programming in community hubs, Council is committed to improving the digital experience for people across Parramatta LGA. For example, augmented reality applications are being used in global cities to enhance guided tours, allowing visitors to see and learn about historical landmarks and buildings in a more interactive and engaging way.

Cutting-edge technological advancement also offers unique opportunities to strengthen connections with Country and the First Nations community. First Nations knowledge can be utilised through the co-design of projects that allow for stories, historical and ongoing, to be shared with the broader community. Digital archives, virtual reality, and augmented reality in physical spaces can be used to create immersive experiences that allow people to learn about and engage with First Nations histories.



The City of Parramatta area has a young, diverse, and creative population who are interested in learning and discovery through digital tools. By providing the relevant platforms, we can create avenues for the community to harness technology to share stories, skills, and experiences with each other.

Digital literacy is an important consideration to create equity in our City and ensure that everyone is able to be included. Residents of our City require digital literacy skills now and into the future, to access Council services, participate in decision-making and access creative experiences. Council must prioritise measures to improve digital skills and access for the whole community.

WHAT COUNCIL IS ALREADY DOING

Council provides our community with a range of digital literacy and skills programming through libraries and community hubs across the LGA. Our libraries also offer access to new and emerging technology including 3D printers and virtual reality headsets.

Additionally, many of Council's programs already include digital elements. For example, the Parramatta Lanes festival, an annual event that transforms the City's streets and laneways into vibrant spaces for art, music and food. This event attracts thousands of locals and visitors each year. Previous festivals have included various digital lighting installations and music-making robots.

WHAT WE HEARD

You told us you are proud of Parramatta's diverse cultures and want technology to celebrate our diversity through:

- Smart city thinking to champion and celebrate First Nations culture.
- Data and insights to better inform the cultural offering in our City.
- Using technology to preserve our heritage and tell stories of our past, present and imagine our future together.
- Innovative technology to offer an integrated cultural experience that draws more visitors to Parramatta.

"Technology can do good things or bad things, it is up to us to decide what we are going to use it for and who we are going to highlight. First Nations people have always been left behind in the smart city journey. We would like to see technology strengthen connections to our culture."

The Gaimaragal Group

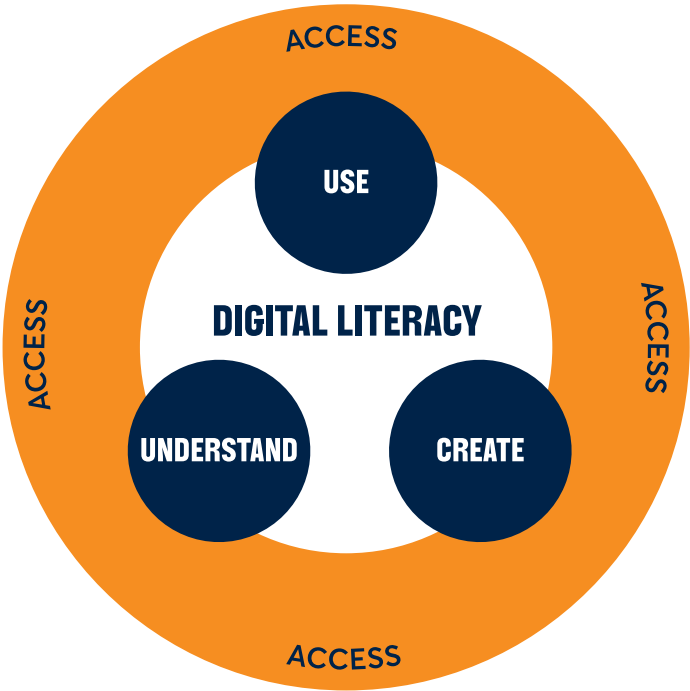


Figure 7: Components of digital literacy

A GLIMPSE INTO THE FUTURE

Abdul, a Lebanese national, has recently moved to Parramatta with his family. They are excited to explore the local area and learn about the First Nations community. To make the most of their time, they decide to use an interactive app to plan their trip.

Their first stop is Harris Park, where they follow a virtual Heritage trail that takes them on a journey through the history and culture of the local First Nations community. Next, they head to the CBD for a First Nations art walk, where they use augmented reality to reimagine Parramatta Square and the river as traditional meeting places prior to development.

After the art walk, they stop at the Multicultural Kiosk in the CBD, where they use augmented reality to explore the history and culture of diverse cultural groups in the area, such as the Chinese, Indian, and Arabic communities.

Abdul is also able to switch the language to Arabic, which allows him to fully understand and engage with the information provided.

CASE STUDY

CITY OF SYDNEY, AUSTRALIA

Wellama is a modern and innovative interpretation of the traditional Welcome to Country ceremony. Commissioned for the Cutaway entrance in Barangaroo Reserve, it is a 10-minute audio-visual work that celebrates the rituals, ceremonies, and stories that have been practiced on Country since time immemorial.

The name "Wellama" means "to return", which symbolises the return of visitors to the land of the Gadigal people, the Traditional Custodians of the area. Using state-of-the-art technology, it takes visitors on a journey through the land, showcasing the traditional stories, customs, and practices of the Gadigal people.

The use of soundscapes, projections, and lighting effects create an immersive experience that allows visitors to feel connected to the land and its people.

In addition to being an educational experience, Wellama is also a powerful tool for reconciliation and cultural awareness. It allows visitors to gain a deeper understanding of the Gadigal people's connection to the land and to learn about the importance of respecting and preserving First Nations culture.

WHAT WE ARE DOING

These are Council's objectives and actions relating to digital participation and experiences.

| OUTPUT | NO. | ACTION | YEAR | RESPONSE TO CSP | COUNCIL'S ROLE | INDICATOR | TARGET |
|---------------|---|---|------|-----------------------|-------------------------------------|---|--------------|
| OBJECTIVE 6.1 | Facilitate digital inclusion and capacity building | | | | | | |
| | 6.1.1 | Identify gaps in digital skills, knowledge and access of the community and trial new programs to address needs* | 2 | Accessible Innovative | <div><div>D</div><div>P</div></div> | Digital service usage | Baseline TBC |
| | | | | | | Community satisfaction with digital services | Baseline TBC |
| OBJECTIVE 6.2 | Support a consistent customer experience in the City | | | | | | |
| | 6.2.1 | Collaborate with partners to share data and align information across the Central River City | 2 | Thriving Innovative | <div><div>P</div></div> | Community and visitor satisfaction with wayfinding in the LGA | Baseline TBC |
| | 6.2.2 | Develop a digital solution for City exploration and wayfinding | 2 | Thriving Innovative | <div><div>D</div></div> | | |
| | 6.2.3 | Align and unify Council digital products to improve customer journeys* | 4 | Thriving Innovative | <div><div>D</div></div> | | |
| OBJECTIVE 6.3 | Implement digital experiences that allow creative expression of our community | | | | | | |
| | 6.3.1 | Provide digital skills and literacy programming and innovative experiences in libraries and community hubs | 2 | Thriving Innovative | <div><div>D</div><div>P</div></div> | Community satisfaction with digital experiences provided by Council | Baseline TBC |
| | 6.3.2 | Support the delivery of First Nations digital projects | 3 | Welcoming Innovative | <div><div>P</div></div> | | |

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SUPPORTING INFORMATION

03



"Smart cities should respond to the demographics and population of the area, their needs and interests."

Business Western Sydney



GLOSSARY

| TERM | DESCRIPTION |
|---|---|
| Artificial intelligence (AI) and machine learning (ML) | AI is a field encompassing the development of computer systems capable of performing tasks that typically require human intelligence. ML is a subset of AI that involves training algorithms to learn and make decisions based on data. |
| Circular city | A precinct wide approach based on the concept of circular economy. It's whole-of-system approach which tackles climate change, biodiversity loss, waste and pollution across the city. Circular cities are places where finite resources are continuously reused and remade, delivering environmental, economic and social benefits to communities, businesses and our natural environment. |
| City/ our City | All areas within the City of Parramatta Council local government area. |
| Climate change | Changes to global and region climate patterns as a result of human use of fossil fuels that have increased the levels of carbon dioxide and other greenhouse gases, such as methane in the atmosphere. Some of the changes include increasing temperatures, rising sea levels and more frequent natural disasters. |
| Co-location | Co-location refers to key organisations being located in close proximity to one another to provide opportunities for collaboration. |
| Innovation | Introducing and implementing new ideas, methods, products, or services that result in advancements, improvements, or changes to operational efficiency, customer experience or quality of life for our community. |
| Innovation area | A defined area with condensed economic activity marked by co-location, that actively promotes the sharing of ideas and collaboration. The two key innovation areas in Parramatta LGA are the Parramatta CBD and the Westmead Health and Innovation District. |
| Innovation ecosystem | A network of interconnected actors and partners whose collective actions produce innovative outcomes. |
| Internet of Things (IoT) sensors | Devices that are connected to the internet and collect data from the physical environment. The sensors collect information such as temperature, air quality, noise, wind speed and direction. |

| TERM | DESCRIPTION |
|-------------------------------|--|
| Precinct | A defined area of land that has a particular interest to Council with economic, social or environmental benefits. Some key precincts include Parramatta Square, Sydney Olympic Park, Camellia- Rosehill and North Parramatta. |
| Smart city | Utilisation of information and communication technologies to increase and improve efficiencies of operations, services and programs of a city. This could include the implementation of smart sensors to gather specialised data to influence planning and design. |
| Sustainability | Sustainability is about managing the relationship between growth and liveability, as well as creating the right balance between the urban and the natural environment. |
| Virtual Reality (VR) | VR refers to computer-generated environments that simulate a realistic experience, often through the use of specialised headsets. |
| Augmented Reality (AR) | AR overlays digital information onto the real world, typically through devices like smartphones or smart glasses. |

| ACRONYM | TERM |
|-------------|------------------------------------|
| CBD | Central Business District |
| CSP | Community Strategic Plan |
| GIS | Geographic Information System |
| LEP | Local Environment Plan |
| LGA | Local Government Area |
| LSPS | Local Strategic Planning Statement |

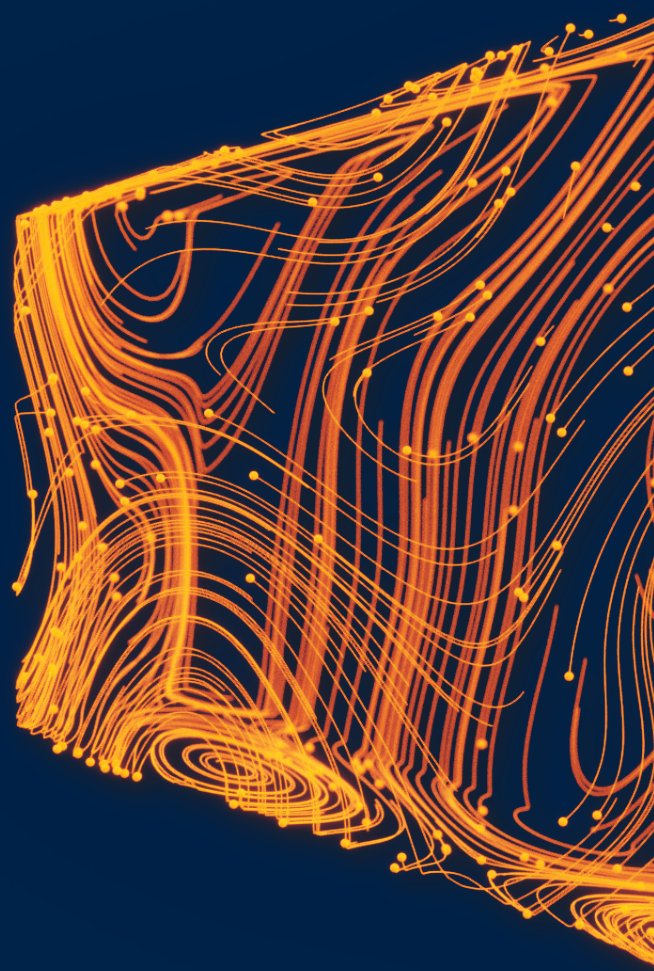
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|----------|--|
| Address: | 126 Church St, Parramatta PO Box 32, Parramatta NSW, 2124 |
| Phone: | 1300 617 058 |
| Email: | council@cityofparramatta.nsw.gov.au |
| Web: | cityofparramatta.nsw.gov.au |
| Social: | @parracity @cityofparramatta @cityofparramatta |

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| | |
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SMART CITY & INNOVATION STRATEGY

A vibrant, sustainable and connected Parramatta



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