PARRAMATTA

SMART CITY MASTERPLAN

ISSUE 1.0 AUGUST 2015

PARRAMATTA
WE'RE BUILDING
AUSTRALIA'S NEXT GREAT CITY

"Parramatta will be a Smart City that leverages the foundations of good urban planning, transparent governance, open data and enabling technologies that will underpin our position as a vibrant, people-centric, connected and economically prosperous city."

Parramatta's Smart City Vision

Issue 1.0

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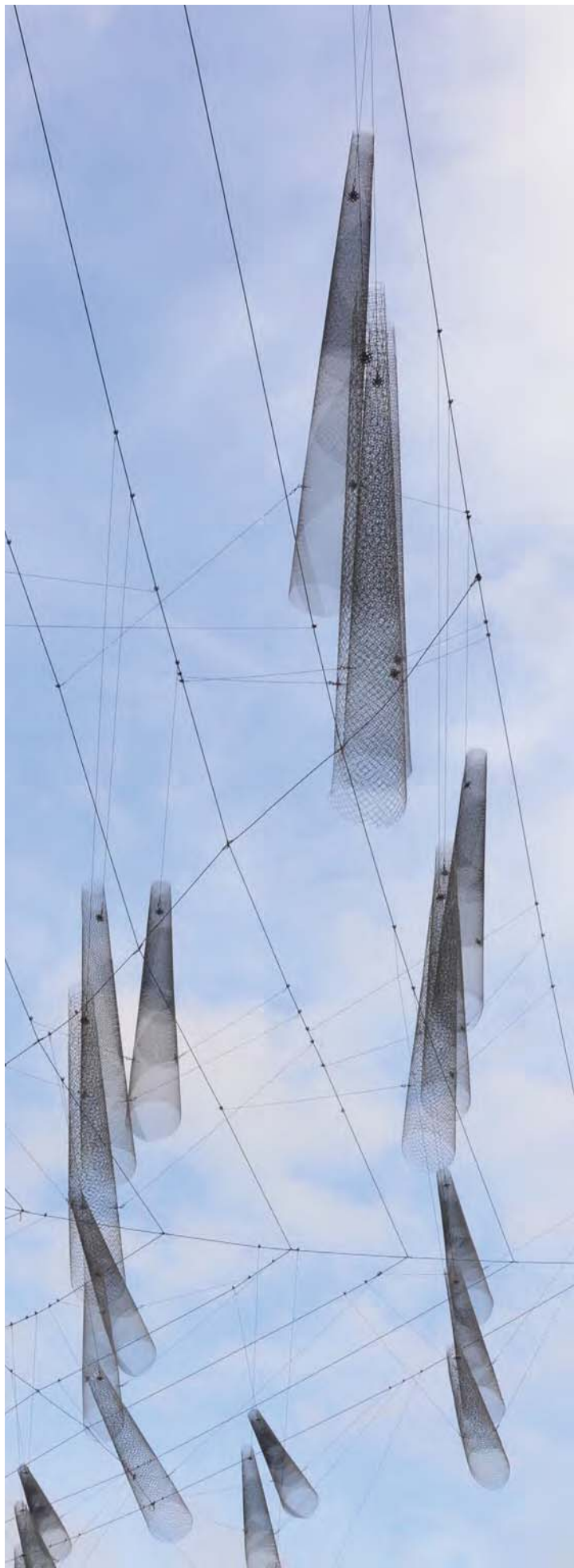
"A hallmark of the creation of Smart City is the fostering of collaboration between various stakeholders."

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Scott Lloyd

Lord Mayor
City of Parramatta

INTRODUCTION

Parramatta is on the move. Widespread redevelopment is happening across the Parramatta Local Government Area. Businesses, residents, workers and visitors are beginning to see a new Parramatta unfold before them. Over $8 billion is currently being invested in a range of building and construction opportunities. We're developing a world-class city.

Internationally, cities around the world like Parramatta are raising the bar on what it means to be a great city.

Underpinning this drive is the need for a combination of: good urban planning, improved governance, innovative technologies and better community and business collaboration that will result in what is known as a Smart City.

Smart Cities achieve these outcomes using advancements in the capabilities of smarter infrastructure and the use of information and communications technology to sense, collect and analyse data for use by Council, local businesses and the community in meaningful ways.

The Smart City approach is being used by Local Governments worldwide as a means to:

– better service their local community needs;
– to improve the efficiency of their operations;
– to improve the services they provide;
– to achieve higher levels of sustainability;
– to stimulate economic activity.

To be a great city however, also means we need to be smarter in the way we go about developing it.

Despite the capital being invested, we need to be more innovative and efficient in our methods of meeting the needs of the people who live, work and visit Parramatta.

In this technologically driven age we need to look towards new approaches, innovative information technologies and smart infrastructures to assist us. We need to embrace that change is good and that in order to be great we need to lift the bar on the approaches that otherwise we have traditionally undertaken.

This Smart City Masterplan is our next step in realising our Smart City vision. Contained within this Masterplan is our vision for a Smart City that complements our Parramatta 2038 strategy.

Our vision is that Parramatta will be a Smart City that leverages the foundations of good urban planning, transparent governance, open data and enabling technologies that will underpin our position as a vibrant, people-centric, connected and economically prosperous city.

This masterplan sets out a set of guiding principles and a framework that will be used in our planning and prioritisation of current and future initiatives. To stimulate your understanding of what a Smart City could look like, we have also included a range of International best practice examples and highlighted some of our own achievements in Parramatta to date.

Achieving a Smart City is an involved process, but ultimately we see it as a necessary step in building Australia's next great city.

LORD MAYOR'S STATEMENT

The development of our Smart City Masterplan comes at an opportune time. With so much urban renewal taking place across the city, Parramatta City Council is committed to be a leader when it comes to finding innovative solutions.

By helping communities design, develop and deploy solutions and services, we can leverage the foundations of good urban planning, transparent governance, open data and enabling technologies.

Applying the Masterplan to development areas such as Parramatta Square will serve to guide the types of standards and approaches that Council will follow in its planning and which developers should adopt in their building designs.

The plan not only focuses on technologies, but looks for outcomes that drive economic competitiveness, improving safety, mobility and environmental sustainability – a plan that also enriches social and community connections, embraces cultural diversity and celebrates our heritage.

A hallmark of the creation of smart cities is the fostering of collaboration between various stakeholders. Community engagement is key to our plan as we look to strengthen and develop relationships with local chambers of commerce, retailers, community, health, education and special interest groups as well as residents.

With this Masterplan, Parramatta City Council will become a highly liveable, technology enabled, active and desirable place to live, work and visit as we strive to build Australia's next great city.

Scott Lloyd
Lord Mayor
City of Parramatta

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SMART CITY MASTERPLAN

WHAT IS A SMART CITY?

The definition of what is a Smart City is evolving and the City of Parramatta will help to write a part of this story.

Cities that aspire to be Smart Cities aim to significantly improve their competitive position, improve the level of services and their attractiveness to residents, businesses, investors and visitors as being a great place to live, work and play.

Smart Cities can no longer afford to rest upon the way they have always done things. They need to look towards smarter, more collaborative, innovative and technologically superior ways of achieving outcomes that are relevant to their city and the strategic direction it needs to undertake.

DEFINITION

There are many working definitions of a Smart City that have been defined and described by various Cities, Local Governments, vendors and analysts worldwide. Even the term 'Smart City' is varied with alternate terms such as 'Digital City', 'Intelligent City' and 'Cybercity' being in use.

What is emerging is the more consistently adopted and recognised term 'Smart City'.

Whilst definitions of a Smart City vary, the explanations are similar in describing the need for a people-centric and holistic approach to solving common city problems that can utilise a mix of smart infrastructure and information and communications technologies.

The working definition of a Smart City adopted for use in this masterplan is the following:

DRIVERS

Parramatta, like many other modern cities is experiencing a range of social, economic and environmental opportunities and challenges relating to its growth, including these top ten drivers:

1. Increasing population;
2. Increasing regulatory demands;
3. Increasing demands upon aging infrastructure such as the roads and transport systems;
4. Growing economic competition regionally, nationally and internationally;
5. Increasing community expectations in areas such as transport, education, health, amenities and local government services;
6. Increasing expectations for an improved quality of life;
7. Evolving social, cultural and community needs;
8. Increasing environmental challenges;
9. Increasing utility costs; and
10. Increasing technological capabilities.

In order to address these opportunities and challenges, cities like Parramatta need to adopt new methods and approaches to make best use of the limited resources they have available and to harness the capabilities that new technologies offer.

The challengers and drivers we face in Parramatta are similar to many other cities around the world. In developing Parramatta as a Smart City we also recognise the need for a more collaborative, innovative and technologically driven approach. The likely outcome of this approach is that our community will also be a source of great ideas and opportunities that we have yet to identify.

Smart City

A city based upon the foundations of good urban planning, economic competitiveness, environmental engineering and sustainable practices that use information and communication technologies to enhance liveability, sustainability and workability.

BENEFITS

So why adopt a Smart City approach?

Faced with the increasing demands of a modern city and recognising the need for change, many Smart Cities narrow down the key benefits of adopting a new approach to three key areas: liveability, sustainability and economic prosperity.
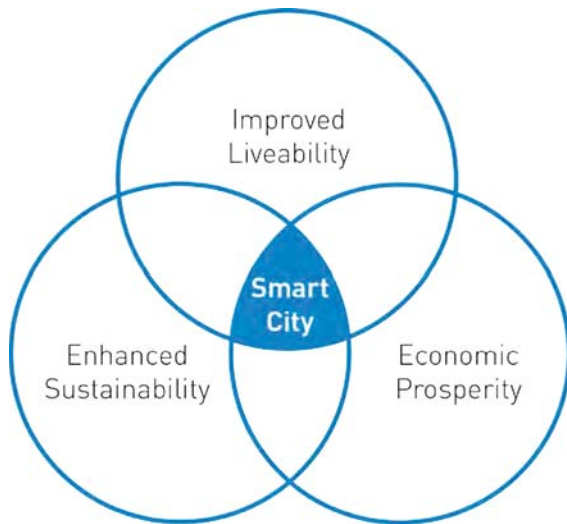
These same Smart City benefits also align to the six key strategic objectives of Parramatta.

Improved Liveability

Improved liveability is simply a better quality of life for the people who live in Parramatta.

Most people want to live in an environment that supports a clean, healthy, safe and comfortable lifestyle.

People place a high value on places that have good transport, safe neighbourhoods, good schools and universities, green parks and gardens, clean waterways, clean air, good medical facilities, excellent social services, high speed Internet connectivity, great food and a diversity of entertainment, sport and cultural options.

Enhanced Sustainability

 Increasingly, there is an awareness and demand to collectively preserve the limited resources we have available to us.

One of Parramatta's strategic objectives is to be an "eco-efficient city" that aims to improve and protect the environment.

A more sustainable approach to managing a city is to make better use of available resources so that they are not depleted or permanently damaged. These resources are not only environmental (nature), but also economic (finances) and social (people).

Ultimately, being sustainable is about making the most of the finite resources that are available so that they can last longer.

Economic Prosperity

Essential to the prosperity of any city, region or country is economic stability.

One of Parramatta's strategic objectives is to improve economic growth.

The economy is driven by a large number of factors that are affected by the availability of enabling infrastructures such as efficient transport, affordable housing, available commercial office space, a range of retail options, reliable power, excellent Internet and data connectivity and most importantly, jobs for workers.

STRATEGIC ALIGNMENT

This Smart City Masterplan is closely aligned to Parramatta's 2038 Community Strategic Plan. That plan identifies six strategic objectives to help deliver the broader vision for Parramatta. These strategic objectives are:

1. **Economy** – "Parramatta's economic growth will help build the City as a centre of high, value-adding employment and the driving force behind the generation of new wealth..."

2. **Environment** – "Parramatta will be an eco-efficient city that effectively manages and uses the City's growth to improve and protect the environment."

3. **Connectivity** – "Parramatta will be a city with fast, reliable transport and digital networks that connect people to each other, to the information and services they need and to where they need to go."

4. **People & Neighbourhoods** – "Parramatta will be a world-class city at the centre of Sydney that attracts a diversity of people: a city where people can learn, succeed and find what they need; a city where people live well, get together with others, feel like they belong and can reach their potential."

5. **Culture & Sport** – "Parramatta will be a place where people want to be: a place that provides opportunities to relate to one another, the City and the local area; a place that celebrates its cultural and sporting heritage; and a place that uses its energy and cultural richness to improve quality of life and drive positive growth and joy."

6. **Leadership & Governance** – "Parramatta will be widely known as a great city, a centre of excellence [...] with inspirational leadership and good governance."

Source: Parramatta 2038 – Community Strategic Plan

PARRAMATTA WE'RE BUILDING AUSTRALIA'S NEXT GREAT CITY

RECOGNISING COMMUNITY NEEDS

What is abundantly clear from the many examples of Smart Cities around the world is that Local Governments cannot achieve the objectives of a Smart City in isolation.

A Smart City requires a collaborative approach between a wide range of stakeholders within various communities. The approach undertaken has to recognise people's various needs and to respect their value in helping to identify and contribute to solutions.
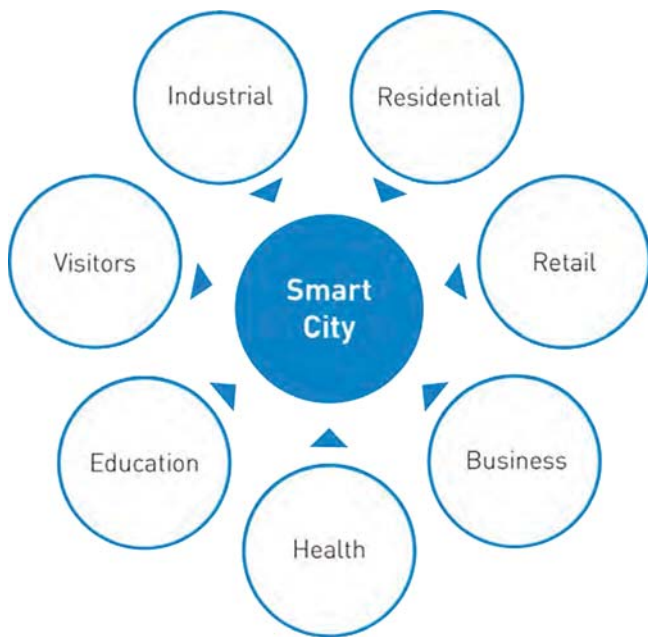
Ask any of these stakeholder groups what their view of a Smart City is and you are likely to get different answers each time.

These diverse views need to be acknowledged and aligned to a range of common topic areas.

Traditionally, the role of a Council is often viewed as a one-way relationship. However, successful Smart Cities have demonstrated a significant capability to foster collaboration between various stakeholders such as local businesses, investors, developers, retailers, community groups, special interest groups, visitors and residents.

A mark of success for a Smart City is to engender a level of trust within these communities and to develop better working relationship between all parties.

In developing our Smart City we recognise the importance of our diverse range of communities and the specific needs of individuals.

HOLISTIC APPROACH

With such a diverse range of needs, there are a large number of infrastructures, technologies and approaches that are potentially required. Therefore a holistic approach needs to be undertaken when considering how the impacts of one Smart City project might effect another.

The range of project categories that various Smart City initiatives may fall under include areas such as the following:

- Art and Culture
- Economy
- Education
- Energy
- Environment
- Finance
- Fire and Emergency Response
- Governance
- Health
- Recreation
- Safety
- Shelter
- Solid Waste
- Telecommunications and Innovation
- Transportation
- Urban Planning
- Waste Water
- Water and Sanitation
- Profile indicators

ROLE OF TECHNOLOGY
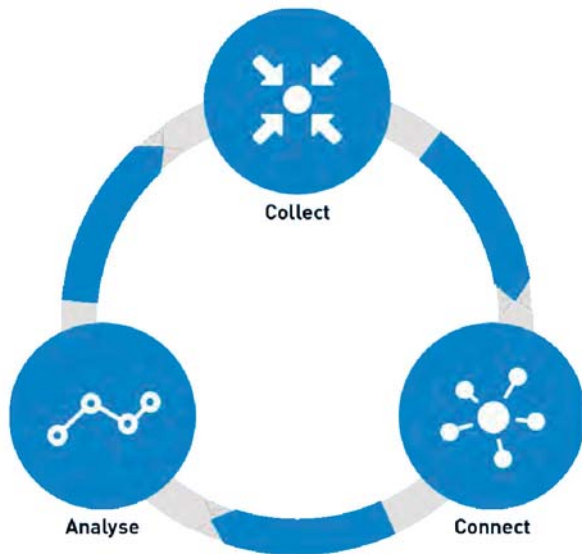
The role of technology in creating Smart Cities is typically focused in two key areas:

- **Data as a Utility** – providing an ability to collect, communicate and analyse data.
- **Smart Infrastructure** – utilising new smart infrastructure technologies.

Source: NYC Open Data

Data as a Utility

Councils, Government agencies, research institutions, public and private industries, all collect various forms of data to use in their daily operations. In a Council environment this includes data relating to urban planning, land use, building use, assets, transport and various local government services.
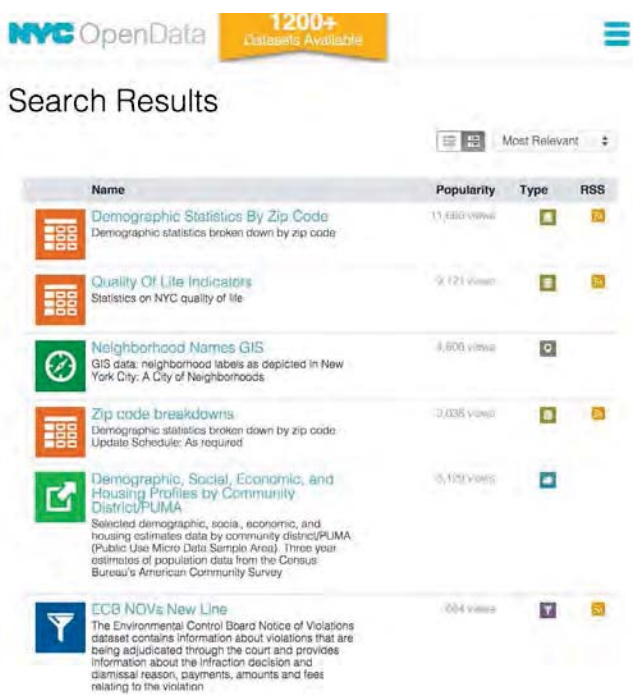
Data provides an ability to measure, process, analyse and inform people regarding a current state as well as being used in planning and predicting a desired future state.

The value that can be derived from more accessible access to reliable data sets is so powerful that it in the context of a city, it is now being referred as a 'Utility'. That is, the use of data can be thought of in the same way as we do traditionally about water, power, gas and transport. Data can be used as an essential service that provides better inputs affecting the way we live and work.

Fortunately, the methods and costs of collecting data using a range of sensor types and software systems are becoming cheaper and more prevalent by the day.

In this Internet age, the methods for formatting and presenting data in maps, structured databases and web sites is becoming more and more standardised. The use of open standards allows public data to be made more accessible and provides companies, organisations and individuals with the means to make more informed decisions affecting their business or daily lives.

The use of open data allows for the easy exchange of information sources and the creation of new products and services. Once data is standardised it also provides a means to more easily benchmark a status quo and to identify whether improvements are being made.

"The possibilities for how cities can use that data to improve lives – and improve the way services are provided to citizens – are limitless."

Michael Bloomberg
Former Mayor of
New York City

Smart Infrastructure

In addition to the use of open data, many cities are also using new forms of infrastructure technologies across a range of areas including:

- **Smart Meters** used for metering of power, water and gas that can provide real time measurement of energy consumption.
- **High Speed Internet** services such as Fibre to the Home.
- **Public WiFi** services for mobile Internet access in public locations.
- **Central Thermal Plant** for centralised power generation and district heating and cooling.
- **Energy monitoring** systems that can measure calculate and report on the consumption of resources.
- **Renewable energy** systems for the generation of power including solar, hydro, thermal and fuel cell technology.
- **Smart LED street lighting** that incorporates light sensors and communication devices to allow lights to communicate with other nearby lights and to be controlled at a city level.
- **Smart buildings** that contain an array of sensors and technologies that improve, safety, security, energy efficiency and usability.
- **Waste Management** solutions that detect the levels of waste in garbage bins and the effective management of collection.
- **Environmental Sensors** that detect the condition of air, water and soil.
- Electric Vehicle charging stations.
- **Smart Parking** systems for car parks and street parking locations.
- **Smart Irrigation** systems for automated watering of parks and gardens.
- **CCTV** systems for public safety, crowd management and people counting.
- **Smart Cards** used for identification, travel
- and payment.
- **Smart City Operations Centre** used for monitoring and management of a range of government, transport, environmental and emergency services.
- **Smart Traffic Light** system used for automated sensing and management of traffic.
- **Telecare** services that provides remote access to health services.

WHAT IS A SMART CITY MASTERPLAN?

BACKGROUND

This Smart City Masterplan aligns to Parramatta's 2038 vision; its six strategic objectives; current local, regional and state masterplans; the Parramatta Development Control Plan and various other existing initiatives such as the Parraconnect program.

The City's current Corporate plan identifies the imperative to develop a Smart City Strategy/Master plan in both the 'Major Priorities' and 'Strategic Objectives'.

This masterplan will be used to inform and guide the use and integration of technology in a range of new development areas in the City such as Parramatta Square. It will position the City to achieve its ambition as Australia's Next Great City.

Definition of a Masterplan

A masterplan is a long-term planning document. It establishes a vision, framework and key elements for a plan that will serve to guide those who are working to achieve a series of strategic objectives.

A masterplan combines the goals and aspirations for a city or precinct and identifies a realistic approach towards implementation.

Creating a masterplan is essential to providing a strategy for implementing industry best practices in design.

A masterplan used in town planning defines a vision for a future state, key elements, various design parameters and an appropriate mix of land uses.

Similarly, a technology masterplan, or in this case, a Smart City masterplan, defines a vision and the various elements, technologies and approaches that are required to create a Smart City.

DOCUMENT PURPOSE

The purpose of this Smart City Masterplan is to provide a plan that:

- Aligns to the Parramatta 2038 vision;
- Provides a Smart City vision, mission and guiding principles;
- Provides a framework that defines the relationship between various elements;
- Provides a context for current and future initiatives;
- Identifies a range of potential Smart City initiatives;
- Identifies a governance process;
- Provides a document that can be used to guide and inform a wide range of stakeholders;
- Provides a set of recommended next steps; and.
- Is intended to updated and evolved on a regular basis.

WHAT THIS DOCUMENT IS NOT

This masterplan is intended to be strategic in nature.

- It is not an advocacy document positioning the need for Smart Cities;
- It is not intended to be prescriptive as to recommend specific technologies or vendors;
- It is not intended to provide detailed plans on creating a Smart City.

WHO WILL USE THIS MASTERPLAN?

This masterplan can be used by a Smart City Steering Group, elected members of Council, Council staff and members of the Parramatta community who wish to participate in contributing to the development of Parramatta as a Smart City.

SMART CITY VISION

The Parramatta Smart City vision aligns with Parramatta's 2038 vision:

> "Parramatta will be the driving force and heart of Australia's most significant economic region; a vibrant home for diverse communities and a centre of excellence in research education and enterprise."

Parramatta 2038 Community Strategic Plan

Our Smart City Vision

Parramatta will be a Smart City that leverages the foundations of good urban planning, transparent governance, open data and enabling technologies that will underpin our position as a vibrant, people centric, connected and economically prosperous city.

SMART CITY MISSION

Parramatta's mission as a Smart City is that:

– Parramatta will be a highly liveable, technologically enabled, active and desirable place to live, work and visit as Australia's next great city.

– Parramatta will develop an environment that encourages and leverages the synergies between centres of excellence in research, technology, education, health, enterprise and creativity.

– Parramatta will plan for outcomes that drive economic competitiveness, improves safety, enhances mobility, improves environmental sustainability, enriches social and community connections, embraces cultural diversity and celebrates our heritage.

SMART CITY GUIDING PRINCIPLES

Ten guiding principles have been identified to help guide us in the planning, design and implementation of projects that will support our Smart City vision.

The following guiding principles will be used by the City for any initiative that is put forward to test its alignment to our vision.

The principles aim to drive continuous improvement in the following areas.

TEN GUIDING PRINCIPLES

1. **Improve liveability**
Ensure that the City offers vibrant, efficient and enjoyable experiences that improves the experience of living, working and visiting Parramatta.

2. **Improve efficiency**
Ensure that Council is efficient in its delivery of online services, physical services and the management of its assets, resources and budgets.

3. **Support economic growth**
Encourage activities that support economic growth and local employment.

4. **Enhance the environment**
Achieve long-term sustainable outcomes.

5. **Enhance safety and security**
Ensure the ongoing safety and security of people and assets.

6. **Improve connectivity**
Improve transport, people movement and digital connectivity in all its forms.

7. **Encourage learning**
Improve learning individual development, community engagement and connectedness within our neighbourhoods.

8. **Embrace our cultures**
Support awareness of our diverse cultural, heritage, creative and sporting interests.

9. **Lead by example**
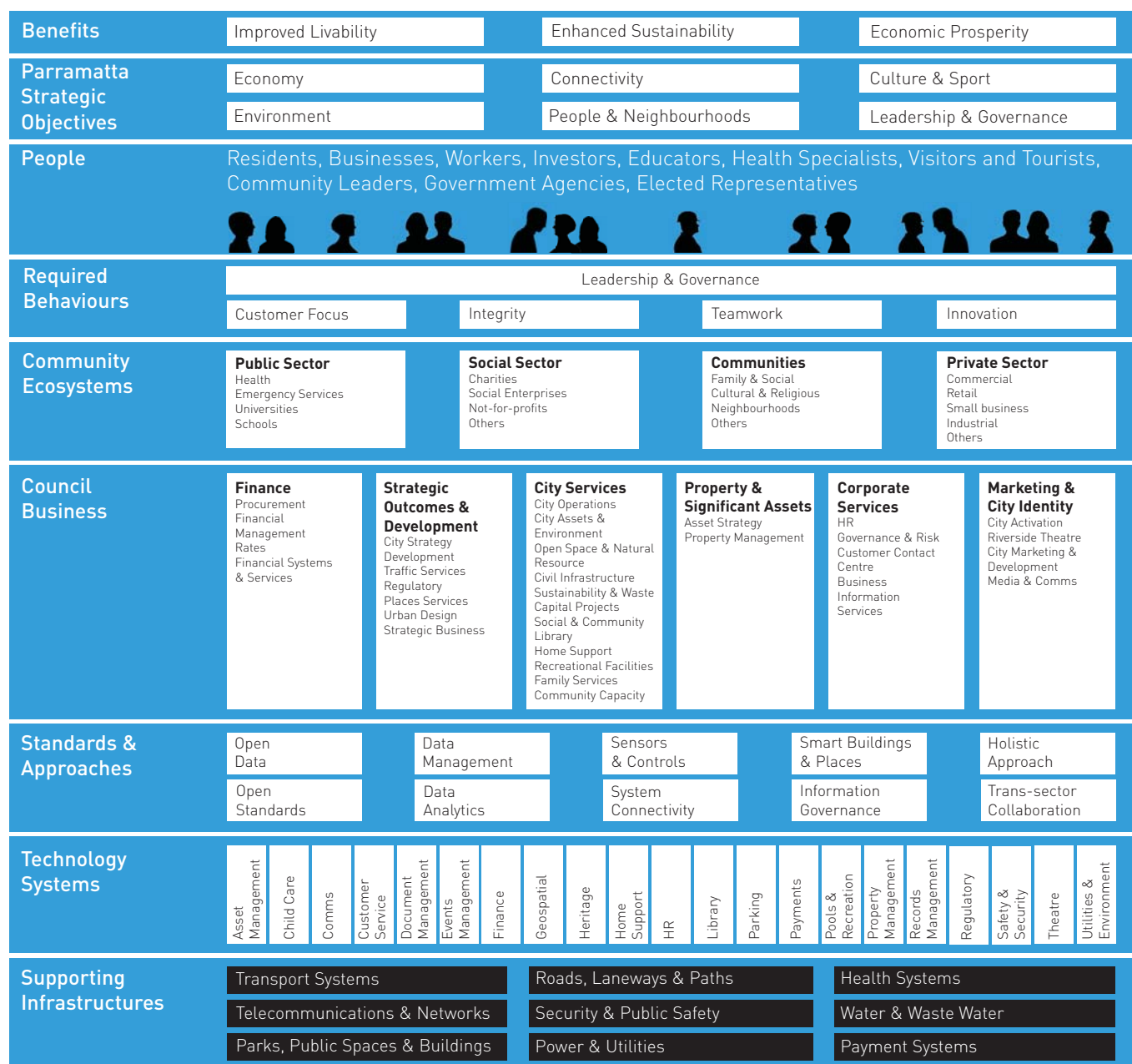Promote and encourage good leadership and collaborative behaviours that will foster innovation and trust.

10. **Be open in our approach**
Embrace the principles of open government, open data, open systems and maintain a balance between private and public information.

SMART CITY FRAMEWORK

The following Smart City framework provides a context for various components of the Parramatta Smart City Masterplan.

The framework is arranged in layers that describe the various types of infrastructure, systems, standards, organisational structures, behaviours and strategic objectives that sit behind the Smart City vision for Parramatta.

Benefits	Improved Livability	Enhanced Sustainability	Economic Prosperity

Parramatta Strategic Objectives	Economy	Connectivity	Culture & Sport
	Environment	People & Neighbourhoods	Leadership & Governance

People
Residents, Businesses, Workers, Investors, Educators, Health Specialists, Visitors and Tourists, Community Leaders, Government Agencies, Elected Representatives

Required Behaviours

Leadership & Governance

Customer Focus	Integrity	Teamwork	Innovation

Community Ecosystems

Public Sector	**Social Sector**	**Communities**	**Private Sector**
Health	Charities	Family & Social	Commercial
Emergency Services	Social Enterprises	Cultural & Religious	Retail
Universities	Not-for-profits	Neighbourhoods	Small business
Schools	Others	Others	Industrial
			Others

Council Business

Finance	**Strategic Outcomes & Development**	**City Services**	**Property & Significant Assets**	**Corporate Services**	**Marketing & City Identity**
Procurement	City Strategy	City Operations	Asset Strategy	HR	City Activation
Financial Management	Development	City Assets & Environment	Property Management	Governance & Risk	Riverside Theatre
Rates	Traffic Services	Open Space & Natural Resource		Customer Contact Centre	City Marketing & Development
Financial Systems & Services	Regulatory	Civil Infrastructure		Business Information Services	Media & Comms
	Places Services	Sustainability & Waste			
	Urban Design	Capital Projects			
	Strategic Business	Social & Community			
		Library			
		Home Support			
		Recreational Facilities			
		Family Services			
		Community Capacity			

Standards & Approaches

Open Data	Data Management	Sensors & Controls	Smart Buildings & Places	Holistic Approach
Open Standards	Data Analytics	System Connectivity	Information Governance	Trans-sector Collaboration

Technology Systems

Asset Management · Child Care · Comms · Customer Service · Document Management · Events Management · Finance · Geospatial · Heritage · Home Support · HR · Library · Parking · Payments · Pools & Recreation · Property Management · Records Management · Regulatory · Safety & Security · Theatre · Utilities & Environment

Supporting Infrastructures

Transport Systems	Roads, Laneways & Paths	Health Systems
Telecommunications & Networks	Security & Public Safety	Water & Waste Water
Parks, Public Spaces & Buildings	Power & Utilities	Payment Systems

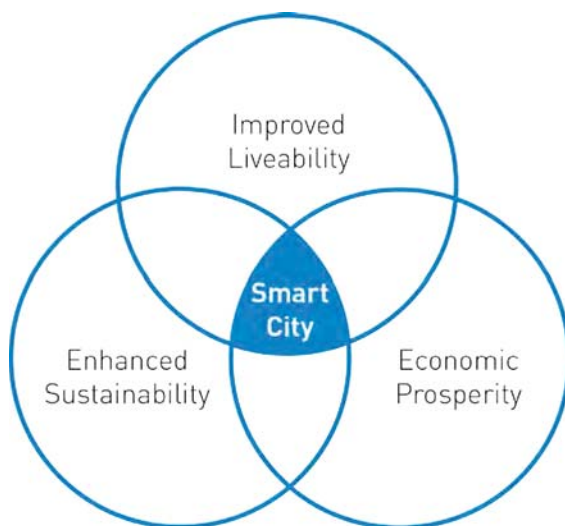The following pages describe each of the layers of the Smart City framework.

Benefits

The benefits of a Smart City are the highest level of the framework.

The big picture is that Parramatta aims holistically to:

– Improve liveability;
– Enhance sustainability; and to achieve
– Economic prosperity.

Strategic Objectives

The framework aligns to Parramatta's 2038 vision and its six strategic objectives that will be used to help deliver the overall vision for Parramatta. The objectives are:

Economy	Environment	Connectivity
People and Neighbourhoods	Culture and Sport	Leadership and Governance

Source: Parramatta 2038 – Community Strategic Plan

People

Core to the success of a Smart City are its various stakeholders. These are the people that will help to create, manage, collaborate and work together to achieve the prosperity of living and working in a Smart City.

- **Residents**
- **Businesses**
- **Workers**
- **Investors**
- **Educators**
- **Health Specialists**
- **Visitors and Tourists**
- **Community Leaders**
- **Government Agencies**
- **Elected Representatives**

Required Behaviours

The framework identifies a range of desired behaviours that are attributes Council wishes to lead, encourage and adopt.

Leadership & Governance – This is the means by which Council provides leadership and governance in the way it operates.

The following four pillars of behaviours express the principals that Council has adopted in the way it operates.

1. **Customer Focus** – "We communicate openly with our customers, are responsive to their needs and create new relationships as our city grows."
2. **Integrity** – "We deliver on promises, act ethically, take responsibility for our actions and speak up respectfully. Integrity is the foundation upon which everything is based."
3. **Teamwork** – "We support the role of leadership, collaborate within and across our teams and build effective partnerships with colleagues and our community to achieve our goals."
4. **Innovation** – "We build our strengths, champion creative solutions and seek new and sustainable ways of delivering superior outcomes."

Community Ecosystems

Within Parramatta there are a range of community ecosystems and sectors including:

- **Public Sector** – The providers of public services such as health, education and emergency services.
- **Social Sector** – The groups that provide a range of social services and support.
- **Communities** – The various cultural, religious and community groups that make up the rich fabric of society.
- **Private Sector** – The groups that drive the economic prosperity of the region.

Council Functions

Parramatta Council organises itself into six key functional groups. These functions provide a diverse range of services to the region and the community. The Council team is responsible for the following key areas:

- **Finance**
- **Strategic Outcomes & Development**
- **City Services**
- **Property & Significant Assets**
- **Corporate Services**
- **Marketing & City Identity**

Standards & Approaches

Smart Cities are built on a range of open industry standards and approaches that need to be put in place to ensure that data relevant to the city and its occupants can easily be collected, communicated and analysed for the benefit of the community.

Having a structured and open data approach ensures that informed, fact based decision-making can be achieved. Some of the key standards and approaches are:

1. **Open Data** – A key capability being adopted by Smart Cities and Governments worldwide is Open Data. This principle supports the publishing and use of Government data that can lead to more informed, empowered decision-making.

2. **System Connectivity** – All technology systems will require a level of connectivity in order to communicate the types of data being collected. These are the wired and wireless networks that will provide high speed, high-capacity digital connectivity across the region.

3. **Open Standards** – An important principle in the design and use of modern technology systems is to adopt open standards. Open standards are non-proprietary in nature and define the ways that data can be more easily encoded, stored and exchanged. By using open standards, computing systems and data sets can be more easily published.

4. **Information Governance** – An open data approach requires diligence in effectively managing and protecting the balance between private and public information.

5. **Data Management** – In order to achieve the use of open data, Parramatta will need to have well-structured, well-managed technology systems that use open, standards-based structured data sets. Where appropriate, these data sets will be capable of being published and openly accessible via online web services to businesses, residents, researchers and others who need to make informed decisions relating to their work and daily lives.

6. **Data Analytics** – A core capability in addition to collecting and storing data, is the ability to interpret it. The use of data analytics provides the ability to easily see trends and forecasts leading to informed decision-making.

7. **Smart Buildings & Places** – Increasingly, buildings are become smarter as they adopt technologies that allow them to be safer, more comfortable & productive for occupants & more operationally efficient for owners.

8. **Sensors & Control** – In a range of environments across the city, sensors can be used to collect data from buildings, structures, roads, utilities, railways, rivers, air and other environments to tell us more about their status and performance. Certain systems also allow the capability to be remotely controlled.

9. **Holistic Approach** – In addressing the broad range of stakeholder needs and potential technology solutions, a holistic approach needs to be undertaken. A holistic approach considers a wide range of inputs and ideas to achieve a common goal.

10. **Trans-sector Collaboration** – In a Smart City, collaboration between various government, business, health, education and community groups is essential. A trans-sector approach consistently looks towards new ways of working together to identify new solutions to common problems.

Technology Systems

Parramatta utilises a large number of technology systems to manage its assets, operations and services. This layer of technology generates and manages large amounts of data in the form of text, graphics, drawings, 3D models and maps.

These systems include:

- CCTV and related security systems
- Civil infrastructure management
- Energy systems
- Environmental monitoring systems
- Central metering and monitoring
- Transport information
- Health and human services systems (such as child care)
- Car park management systems
- Tender management systems
- Rates, billing and payment systems
- City 3D model and BIM systems
- Geospatial systems (such as GIS)
- Facilities, property and asset management systems
- Venue management and booking systems (theatres, libraries, pools)
- Customer support services
- Communication systems
- Document management systems
- Parraconnect card system
- Waste management systems
- Maintenance systems
- Websites
- Smartphone applications

Supporting Infrastructures

The foundation elements of a Smart City are the underlying infrastructures that are used for:

- Travel
- Transportation
- Communications
- Power
- Water
- Safety
- Security
- Health
- Commerce

The City does not control all of these infrastructures, but they are essential to the amenity, utility and liveability of the city. Therefore, the capability and extent of these infrastructures must be well co-ordinated in the planning of Parramatta.

SMART CITY SAMPLE INITIATIVES

The following examples are representative of a range of initiatives and approaches that have been adopted by Smart Cities around the world. These approaches, topics and ideas are indicative of the types of undertakings that Parramatta will consider in our Smart City planning.

Categorisation of Examples

The classification system used in the presentation of these examples has been developed to illustrate the potential alignment of the sample initiative to the Parramatta 2038 strategic vision, this masterplan and other relevant attributes.

Strategy

For each example, an indicative alignment to the Parramatta 2038 vision and its six strategic objectives is shown:

- Connectivity
- Culture and Sport
- Economy
- Environment
- Leadership and governance
- People and neighbourhood

Category

Each example is categorised under one of the 18 categories defined in the ISO 37120 standards on Sustainable Development of Communities:

- Economy
- Education
- Energy
- Environment
- Finance
- Fire and emergency response
- Governance
- Health
- Profile Indicators
- Recreation
- Safety
- Shelter
- Solid waste
- Telecommunication and innovation
- Transportation
- Urban planning
- Waste water
- Water and sanitation

An additional category for Arts & Culture has also been added.

Method

Each example is categorised to indicate the way in which it could be realised using one of the following methods:

- Behaviours
- Built environment
- Campaigns and incentives
- Software, web and apps
- Standards and approaches
- Transport
- Infrastructure
- Utilities

Key Beneficiaries

Each example is classified to indicate the top 4 stakeholder groups that could benefit including:

- Commerce
- Education
- Health
- Industry
- Local Government
- Public
- Resident
- Retail
- Small business

Supports Smart City Guiding Principles

Each example is provided with an indicative alignment to the ten Parramatta Smart City guiding principles.

Conventions

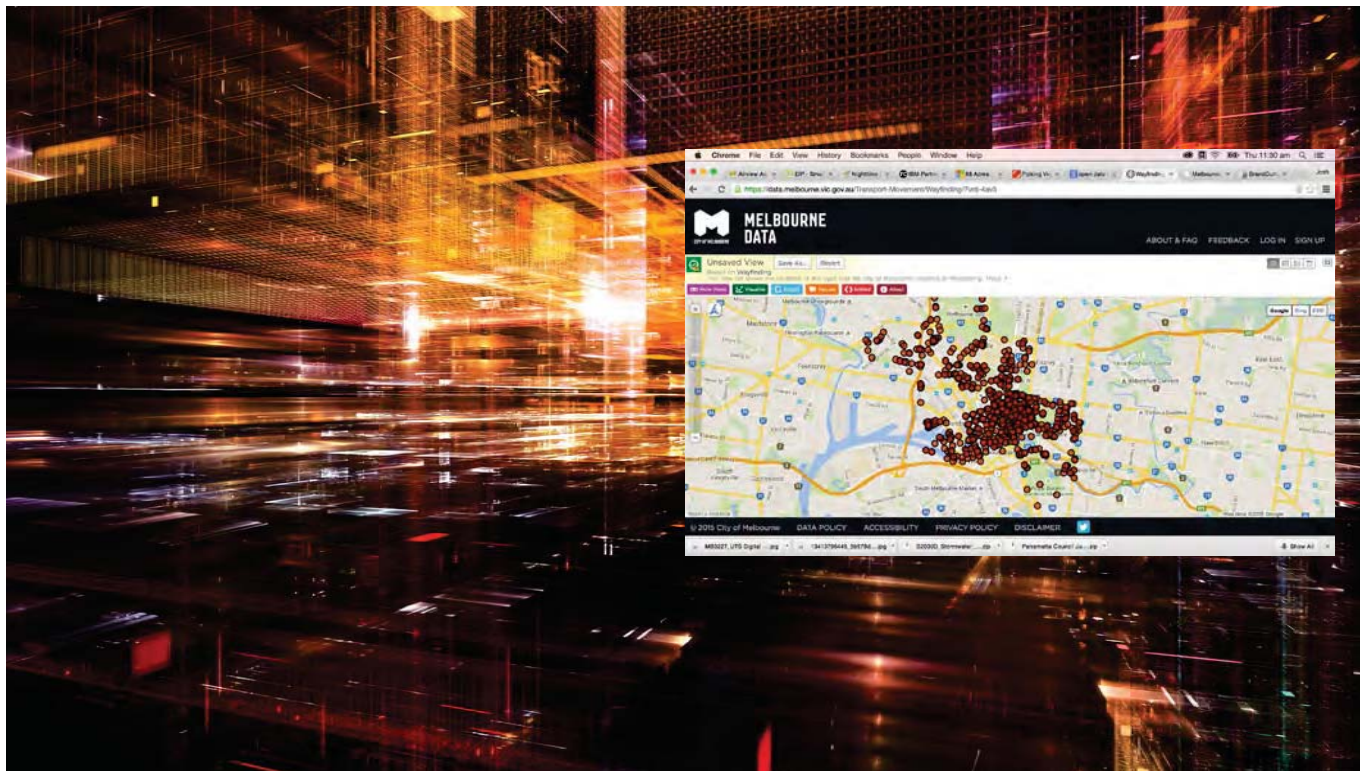For each area of categorisation,

A solid symbol is used to indicate that this classification applies.

A grey symbol is used if the classification does not apply.

OPEN DATA

Source: Shutterstock & data.melbourne.vic.gov.au

An Essential Foundation for all Smart Cities

Internationally and across Australia, the Open Government and Open Data approach is being adopted as a powerful and effective means of increasing efficiencies, communicating information and ultimately stimulating economic development.

Open data is a means of utilising open industry standards to structure and share data that would otherwise be locked away in proprietary and stand-alone systems. These include data sets relating to mapping information, infrastructures, transport, environment, health, safety and statistics. Open data is free to be used, modified and shared by anyone for

any purpose.

The adoption of an open data platform is a consistent capability of practically every Smart City in the world with hundreds of thousands of data sets now available.

In February 2015, over 110 cities around the world participated in an Open Data day to develop new techniques and solutions for using government data.

Strategy

Economy

Category

Telecommunications and Innovation

Method

Standards and Approaches

Key Beneficiaries

Public

Commercial Sector

Retail

Local Government

Supports Smart City Guiding Principles

Liveability

Efficiency

Growth

Environment
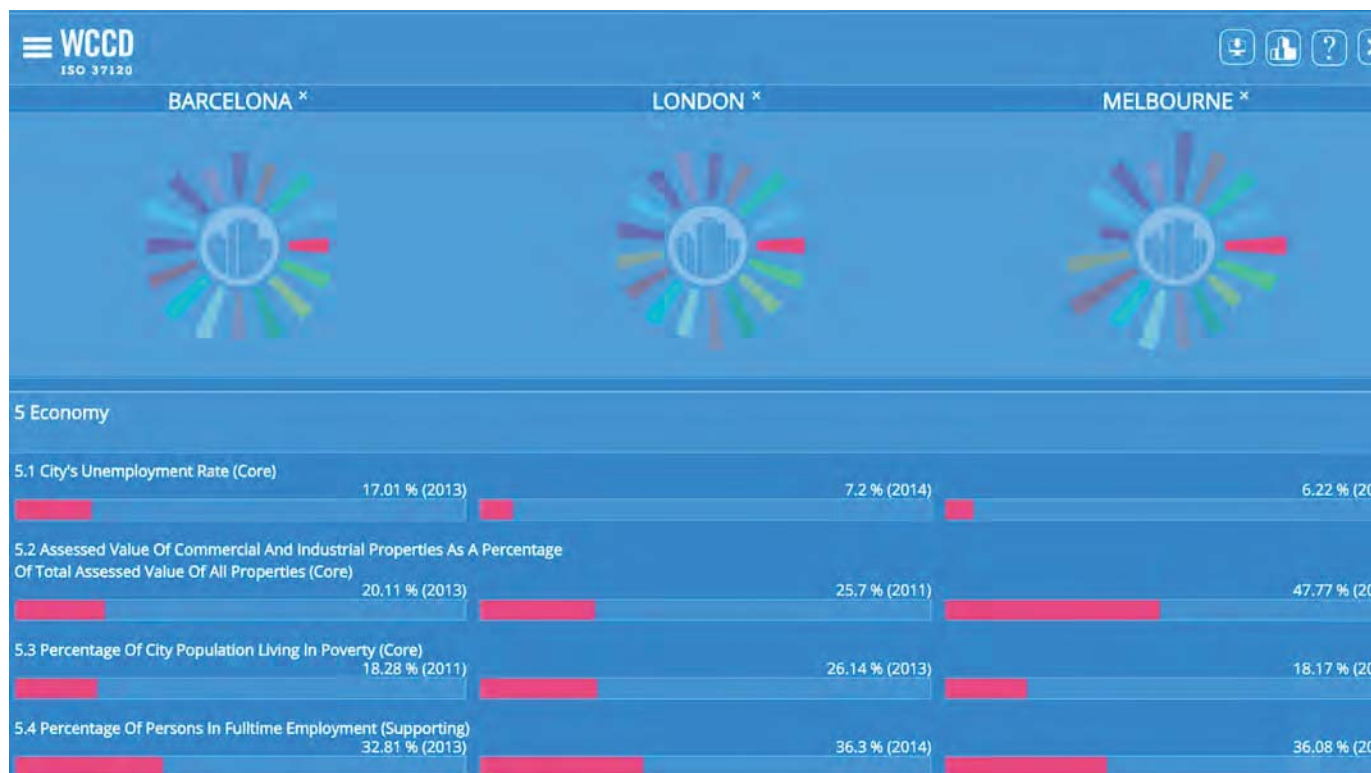
Safety

Connectivity

Learning

Cultures

Leading

Open

Your Say

What data set would you like to see available for your community?

PARRAMATTA WE'RE BUILDING AUSTRALIA'S NEXT GREAT CITY

SMART CITY BENCHMARKS

Source: World Council on City Data, open.dataforcities.org

A Global Standard for Communities

As a Smart City, attaining measurable improvement is a critical indicator of success and a means of guiding prioritisation of initiatives.

In 2014 the International Organisation for Standardisation (ISO) published a new standard called "ISO 37120 - Sustainable Development of Communities — Indicators for City Services and Quality of Life."

This standard identifies a holistic and standardised range of indicators that allows a city to benchmark itself and provide a means to compare their performance to other cities.

The range of indicators includes: economy, education, energy, environment, finance, fire and emergency response, governance, health, recreation, safety, shelter, solid waste, telecommunications and innovation, transportation, urban planning, waste, water and sanitation.

Strategy	Category	Method
Leadership and Governance	Governance	Standards and Approaches

Key Beneficiaries

Local Council	Public	Education	Health

Supports Smart City Guiding Principles

Liveability	Efficiency	Growth	Environment	Safety
Connectivity	Learning	Cultures	Leading	Open

Your Say

What is your most important indicator of a Smart City?

SMART CITY INTELLIGENCE CENTRE

Source: Glasgow Operations Centre, futurecity.glasgow.gov.uk

A Collaborative Approach to City Intelligence

Sensing, collecting and analysing a range of data sources are essential for any Smart City.

A number of Smart Cities have adopted a centralised, shared facility in which government and private agencies can view, assess and act upon a range of information and intelligence sources.

By operating out of a shared facility a greater degree of collaboration and efficiency can be achieved.

The types of services that can be co-located include:

- Traffic and public transport monitoring
- CCTV
- Police review and intelligence
- Emergency planning and management
- Environmental/pollution monitoring
- Situation management
- GIS mapping
- Statistical analysis

Strategy

Connectivity

Category

Urban Planning

Method

Software, Web and Apps

Key Beneficiaries

Public

Local Government

Commercial Sector

Retail

Supports Smart City Guiding Principles

Liveability

Efficiency

Growth

Environment

Safety

Connectivity

Learning

Cultures

Leading

Open

Your Say

What makes you feel safe in your neighbourhood?

PARRAMATTA WE'RE BUILDING AUSTRALIA'S NEXT GREAT CITY

COMMUNITY LEARNING CENTRE

Source: Rayshobby.net

Centre for Skilling, Learning & Development

A common approach used by many Smart Cities is the encouragement of community spaces to facilitate education, community engagement and the exchange of ideas.

Typically these spaces provide opportunities for creativity and learning on topics such as:

– General computer skills
– General technology
– Coding
– Gardening
– Sustainability
– Literature
– 3D printing
– Fabrication workshops
– Hacker spaces

Various libraries, council halls and other facilities can be used as locations for these community hubs.

See techshop.ws, mensshed.org, hackerspaces.org.

Your Say

What new skill would you like to learn?

Strategy
People and Neighbourhoods

Category
Education

Method
Campaigns and Incentives

Key Beneficiaries

Public

Education

Residential Sector

Industrial

Supports Smart City Guiding Principles

Liveability

Efficiency

Growth

Environment

Safety

Connectivity

Learning

Cultures

Leading

Open

CROWD FUNDING

Let the Community Identify their Needs

The use of crowdfunding as a model has popularised the method of raising funds and resources needed for local projects that share common support amongst a community.

Crowdfunding works by allowing people to raise an idea for a project and to outline what the community benefit would be. A target amount to raise is specified as well as a method to donate in increments is used to acknowledge a person's contribution. People can also volunteer their time or some other type of resource such as labour, expertise or materials for the project.

Crowdfunding is growing in popularity and it provides a natural filtering mechanism to identify initiatives that have genuine community support. It also allows Local Government to better engage with a broader range of community groups.

Strategy	Category	Method
People and Neighbourhoods	Education	Campaigns and Incentives

Key Beneficiaries

Public	Residential Sector	Local Government

Supports Smart City Guiding Principles

Liveability	Efficiency	Growth	Environment	Safety
Connectivity	Learning	Cultures	Leading	Open

Your Say

What great idea would you like to share?

SMART CITY ENGAGEMENT

Engage with Local Communities

One of the key issues in the start-up phase of a Smart City is engaging the community to increase its awareness of the vision, approach and possibilities.

Using a range of communication mediums, marketing materials, educational content and personal engagement events, a community can be made more aware of a range of concepts and potential initiatives that can improve the way they can work and live in a smart city.

One technique used by a lot of Smart Cities is to initiate a public awareness campaign that gets the messages out to people in the street. For example, the use of pop-up booths and attendance at community, sporting and entertainment events is a means of improving communication about a big picture vision, current initiatives and to gather new ideas.

Towards this, Parramatta aims to communicate effectively regarding its Smart City Vision.

Your Say

What would you like to learn more about your Smart City?

Strategy	Category	Method
Leadership and Governance	Education	Campaigns and Incentives

Key Beneficiaries

Public	Residential Sector	Local Government	Commercial Sector

Supports Smart City Guiding Principles

Liveability	Efficiency	Growth	Environment	Safety
Connectivity	Learning	Cultures	Leading	Open

ONLINE SERVICES & APPLICATIONS
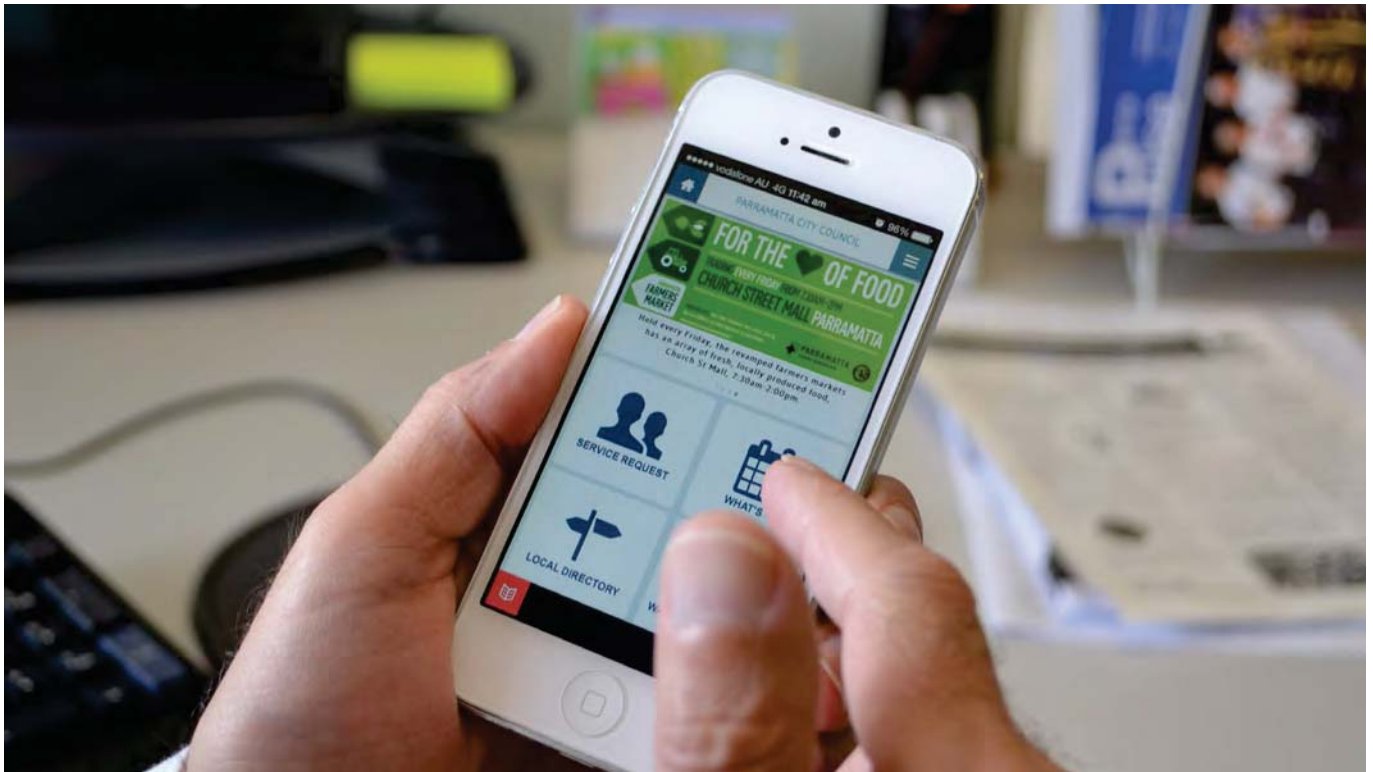
Source: myparra App, PCC

Make Mobile Services a Key Capability

The availability of a wide range of online Council services and smart phone applications are a good indicator of how efficient and convenient it can be living in a Smart City.

A key approach is to make as many Council services as possible available online. These include services such as general facilities information, registrations, permits, development applications, payments and so on.

Typical examples of some Smart City Apps and services include:

- – Finding information
- – Paying for services
- – Locating parking, services & facilities
- – Reporting faults and issues
- – Local directory
- – Community calendar and Council news
- – City guides, culture, arts & entertainment
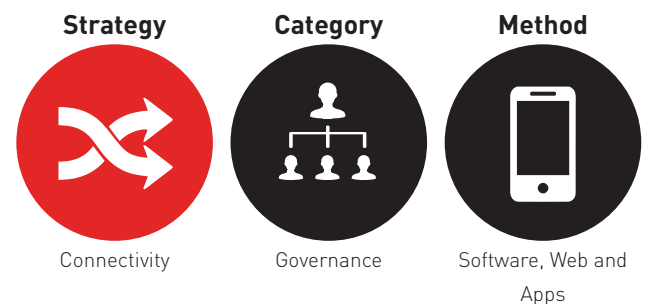
Your Say

What Smart City app would you like to see developed?

Strategy	Category	Method
Connectivity	Governance	Software, Web and Apps

Key Beneficiaries

Public	Residential Sector	Local Government	Commercial Sector

Supports Smart City Guiding Principles

Liveability	Efficiency	Growth	Environment	Safety
Connectivity	Learning	Cultures	Leading	Open

COMMUNITY WIFI

Source: 123rf.com

Connect with the World

The extensive availability of high-speed fixed line communications, mobile data and WiFi is an essential ingredient for any Smart City.

The convenience of mobile communications is the high availability of information at your fingertips. Whether the need is for business, education, health, social needs or personal interest, the convenience of being able to connect to the Internet from anywhere is essential.

The extent of smartphone, tablet and mobile computing use is well known. People are mobile and so are the devices they use to connect to information. The expectations are for reliability, speed, quality, convenience and affordable cost.

Strategy

Connectivity

Category

Telecommunications and Innovation

Method

Software, Web and Apps

Key Beneficiaries

Public

Education

Retail

Commercial Sector

Supports Smart City Guiding Principles

Liveability

Efficiency

Growth

Environment

Safety

Connectivity

Learning

Cultures

Leading

Open

Your Say 💬

Where would you like to be able to access free community WiFi?

DIGITAL WAYFINDING

Source: BrandCulture.com.au

Navigate your City

Digital wayfinding is a means to provide more effective ways of locating and communicating information about a city using digital technologies.

Traditionally, this has involved the use of digital screens and information kiosks, but increasingly, this capability combines mobile apps with fixed signage.

Smartphone apps can use in-built location capabilities such as GPS, Bluetooth and NFC to link to additional, contextually relevant information about any location.

Typical uses include information regarding: building information & directions, history, culture, art, environment and shopping.

Digital wayfinding technologies are already being deployed across university campuses, museums, airports, entertainment venues, gardens and other places of public interest worldwide.

Strategy	Category	Method
Connectivity	Telecommunications and Innovation	Software, Web and Apps

Key Beneficiaries

Public	Local Government	Commercial Sector	Retail

Supports Smart City Guiding Principles

Liveability	Efficiency	Growth	Environment	Safety
Connectivity	Learning	Cultures	Leading	Open

Your Say

What types of locations, services and information would you like to more easily find?

TRANSPORT

Source: Parramatta City Council

Commute with Ease

A Smart City is an efficient one that enables people to easily commute to the places they need to be in a timely, economical and environmentally efficient way.

Core to this capability is the effectiveness of public transport infrastructures to meet the needs of residents and workers across the geography of a city.

Achieving more effective outcomes for transportation relies upon extensive collaboration and co-ordination amongst a wide range of Federal, State, Local and community groups.

To be smarter in our approach we will rely upon effective sharing of information, regarding this complex topic and being aware of diverse requirements relating to a balance of needs for travel by: air, rail, bus, light rail, car, bicycle and by foot.

Your Say

What method of transport would you like to see more of?

Strategy

Connectivity

Category

Transport

Method

Standards and Approaches

Key Beneficiaries

Public

Local Government

Commercial Sector

Retail

Supports Smart City Guiding Principles

Liveability

Efficiency

Growth

Environment

Safety

Connectivity

Learning

Cultures

Leading

Open

ELECTRIC VEHICLE CHARGING

Source: Shutterstock

Reduce Carbon Emissions

Reducing carbon emissions and expenditure on fossil fuels are the key benefits associated with electric vehicle (EV) use.

One of the major concerns of electric vehicle drivers, however, is the availability of a network of EV power chargers.

Many Smart Cities around the world are leading the way by providing EV charging stations in locations such as town halls, car parks and streets.

Innovations also associated with electric vehicle charging include the ability to use renewable energy sources such as solar charging and fuel cells as an electricity source.

Strategy
Environment

Category
Transport

Method
Utilities

Key Beneficiaries

Public

Commercial Sector

Retail

Health

Supports Smart City Guiding Principles

Liveability

Efficiency

Growth

Environment

Safety

Connectivity

Learning

Cultures

Leading

Open
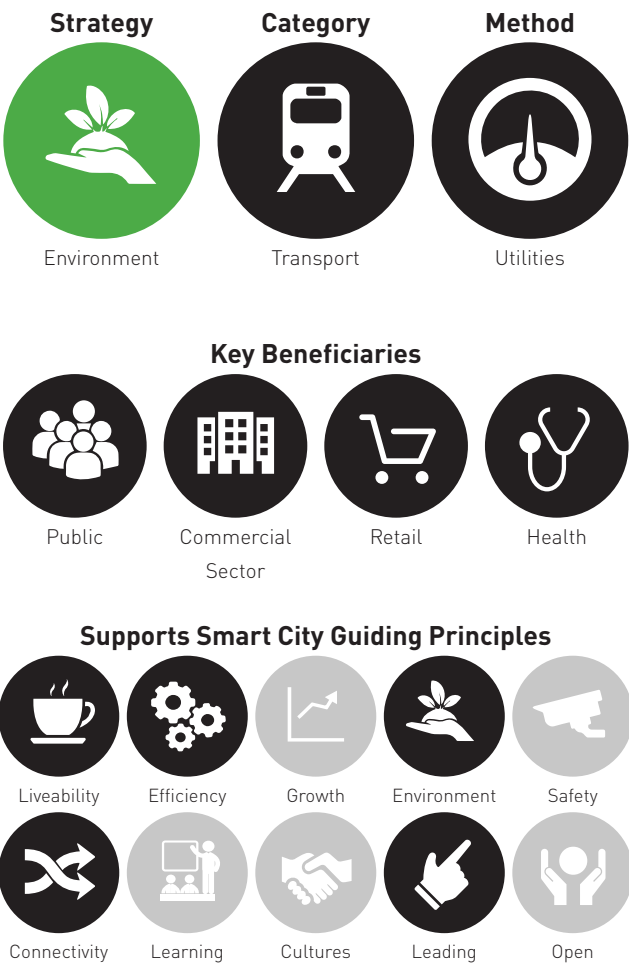
Your Say

Would you consider using an electric vehicle if more charging stations were available?

DIGITAL ART
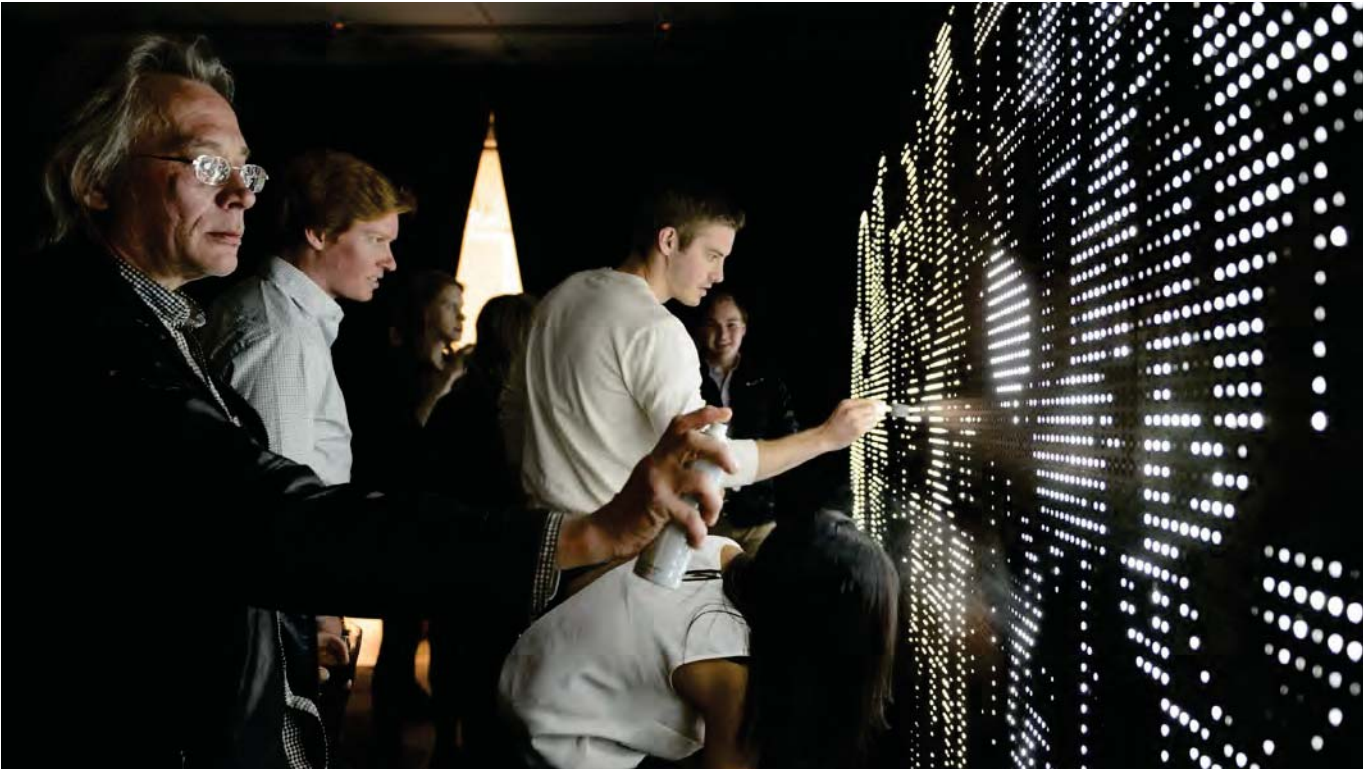
Source: Water Light Graffiti - waterlightgraffiti.com

Creative Digital Connections

Globally, the use of digital technology is adding to the range of mediums being used by artists to provide more interactive and engaging artworks with light, sound and other sensory effects.

Often digital artists are provided with interpretive briefs to make use of data to express, communicate and engage people's attention.

Of course, the use of digital mediums is not the only type of art to consider in a Smart City. Increasingly the use of mobile apps are also being used to help people discover artworks of all types in public spaces, buildings and hidden in laneways.

Strategy

Culture and Sport

Category

Art and Culture

Method

Campaigns and Incentives

Key Beneficiaries

Public

Commercial Sector

Retail

Local Government

Supports Smart City Guiding Principles

Liveability

Efficiency

Growth

Environment

Safety

Connectivity

Learning

Cultures

Leading

Open

Your Say

How would you like to engage with digitial creative mediums?

PARRAMATTA'S CURRENT SMART CITY INITIATIVES

The following initiatives are a list of over 50 great examples of how Parramatta has already begun the journey towards becoming a Smart City.

Communications

Free WiFi – currently available in six regional libraries and Church Street Parramatta in the CBD (between Westfield and Riverside theatre).

Technology

ParraSync Card - Smart phone app and Smart Card that provides an ability to pay for parking, buy products and services, building access, and for employee & payroll use.

Hackathon Meetups – Hackathons have become a great way for developers, designers, data scientists and user interface specialists to get together to solve problems using real data sets of Government data.

3D Printing Studios – Parramatta has a major 3D printing business in the CBD that provides 3D design, 3D scanning, 3D printing and training. They host meetups where people from all over Sydney can learn how to use these exciting new technologies.

Smartphone Apps

My Parra App – The myParra app provides a convenient way for residents and visitors to access to Council information and services such as: service requests, sporting venue wet weather closures, waste collection dates, events, local directory and Council contact details.

Parking @ Parramatta – Provides information on secure Council carparking including mapping, location and carpark information, available spaces and directional guidance.

DigiMacq - DigiMacq is a multimedia tour that takes you on an adventure through the streets of Parramatta 200 years ago.

ePlatform App – eBook reader app used by Parramatta City Libraries.

Western Sydney Wanderers – Official app of the Western Sydney Wanderers Football Club providing stats, videos and live match info.

Parramatta Eels – Official app of the Parramatta Eels providing a range of information on Parramatta's local NRL team.

Source: dailytelegraph.com

Infrastructure

LED Street Lighting - Council is progressively rolling out new energy efficient LED lighting.

Light Rail - Council has developed a comprehensive feasibility study for new for Light Rail Services.

CoGen Power Generation - Council has developed a comprehensive feasibility study for CoGen for Parramatta Square.

Electric Vehicle Charge Points – Parramatta has a number of electric vehicle charge points in the CBD.

Security

Wireless Solar-powered CCTV cameras – Council has placed 50 solar powered Rapid Deployment CCTV cameras across the city for crime & dumping prevention and event management. Each unit has GPS technology to prevent theft or vandalism.

Citysafe VSS (Video Surveillance System) – Public Space Surveillance system consisting of 48 High Definition cameras recording at Broadcast quality 1080p @ 25 FPS. The cameras and lights are powered by a private power network that has the ability to connect to a thermal energy system being considered for Parramatta Square. The cameras are connected to a 2km network of blown optical fibre.

Security Control Room and Operations Centre – Parramatta have a central security facility to provide the capacity for 24 hour monitoring and command.

Planning

Parramatta City 3D Model - Council has developed a 3D model of the city that illustrates the current and future built form of the Parramatta CBD. Land use planners and urban designers are able to collaborate by critically analysing proposed developments in 3D from planning and design perspectives. The public can also access the 3D model.

Design

Parramatta Square - Council is working with UWS and key tenants for Parramatta Square to meet their long term technology needs and Council's plans for a 'library of the future', new Chambers and civic buildings.

Online Council Services

Residential Parking Permits – Apply for a residential parking permit online.

Rate payments – Pay your rates online.

Application payments – Pay for Council application permits online.

Debtor payments – Pay a Council invoice.

Change of name – Update your personal details with the Council.

Change of mailing address – Update your mail address with the Council.

Request property certificates – Request various planning and land use certificates (Section 149, 603, 735A, 121ZP).

Report a problem – Report on issues with waste, illegal dumping, dangerous trees, animal complaints & other issues.

General Council Facility Enquiries – Enquire about use of Council facilities.

Council Facility Bookings – Book a range of Council facilities and spaces.

Council Building Virtual tours – View online virtual tours of 8 Council facilities and locations.

Council Text-Complaint Hotline – Council provides an SMS text service that allows residents to submit service requests to Council via text message. After reporting a problem such as a pot hole or missed bin collection, the person who sent the message will receive a return text message acknowledging their request.

Transport

Free Parramatta Shuttle Bus – Parramatta has a free shuttle bus that loops the CBD.

Community Bus Hire – Council provides two buses that that can be hired by local community groups.

Car Share Schemes – A number of car share schemes operate in Parramatta with 9 dedicated car share parking bays available.

Parking

Smart Parking Meters – Council is progressively rolling out new parking meters with an easy-to-operate user interface that supports convenient methods of payment such as mobile phone payments.

Variable Message Signs – Council has installed a number of messaging signs on major roads leading into the CBD indicating the number of available parking spots at Council car parks.

Car Park Sharing Scheme – A private Car Park share scheme is available whereby private owners of car parks can make available car spaces that would typically sit vacant in high demand areas. divvy.com.au

Community

ParraConnect – Parraconnect is a community led initiative that aims to foster new digital initiatives. The Parraconnect Advisory committee has led initiatives such as the Parrasync Card, Parramatta Free WiFi and the 'Submit your Ideas' portal'.

ParraConnect 'Submit Your Idea' - is a section of the ParraConnect website that allows the community to submit their ideas for new digital initiatives.

Parramatch Crowdfunding – In 2014 Council invited local social innovators to submit proposals for a crowdfunding campaign for great community based projects benefitting the Parramatta region. http://startsomegood.com/profile/parramatch

Homelessness Information Portal – Parramatta Council provides a community information portal to address the needs of the homeless and those committed to helping those in need. http://parrarhi.org

Westmead Alliance Group – This group has formed to develop and promote initiatives that advance the Westmead Medical precinct.

Technical Aid for the Disabled (TAD NSW) - TAD NSW demonstrate the history of technological innovation within the Parramatta LGA. Based in Northmead, they utilise the skills of volunteer retired engineers who develop equipment for use by disabled children.

Northcott Innovate - Northcott Disability Service has been in the Parramatta LGA for more than 60 years. In 2015 they launched a new entity, Northcott Innovate, that seeks to use design thinking to develop new technological responses to the challenges faced by people with a disability.

Open Local - Open Local is a local Parramatta based organisation that develops apps to increase civic participation and open source data. Their 'Fix My Street' app aims to streamline service requests through local government.

Parramatta Computer Pals for Seniors - Parramatta Computer Pals for Seniors or ParraPals caters for senior citizens who want to learn about a range of technology subjects for PCs and MACs, iPads, Android and Windows tablets, iPhones and smartphones.

Library Services

Digital library - Provides library members with 24/7 access to databases; the capacity to renew physical items online and to issue/renew and return e-books and e-magazines. https://parralibrary.wheelers.co/

e-book and tablet program – allows library members the opportunity to trial new technology and to access the library's collection of e-books and e-magazines.

Internet Dongle loans (proposed) – The library is looking to provide a loan system for USB dongles to help provide Internet access for library members who currently have no Internet access.

Library Education program (proposed) - Provide an education program to help support people to develop job readiness skills.

Technology Classes – Provision of technology classes on a range of subjects.

Technology Learning Centre – 9 PCs, Data projector, whiteboard and printer facilities available for community hire.

SMART CITY GOVERNANCE

THE NEED FOR GOOD GOVERNANCE

Good governance is essential for success in becoming a Smart City.

Parramatta will steer the outcomes of its Smart City vision by being a proactive leader that adopts good governance principles based upon an open government and collaborative approach.

An Open Government Approach

Parramatta's approach is aligned with Open Government principles defined by the Australian Government.

This approach is an:

> **"...open government based on a culture of engagement, built on better access to and use of government held information, and sustained by the innovative use of technology."**

Australian Government
Declaration for Open Data

The Australian Government defines support for openness and transparency in Government based upon three key principles:

1. **Informing** - strengthening citizen's rights of access to information, establishing a pro-disclosure culture across Australian Government agencies including through online innovation, and making government information more accessible and usable;
2. **Engaging** - collaborating with citizens on policy and service delivery to enhance the processes of government and improve the outcomes sought; and
3. **Participating** - making government more consultative and participative.

A Collaborative Approach

Smart Cities around the world have recognised that a key criteria for success is the need to develop a culture of collaboration, communication and trust between a local government and it's community.

Common to the creation of a successful Smart City is the implementation of a good governance model that supports the ability to collaborate, communicate and coordinate.
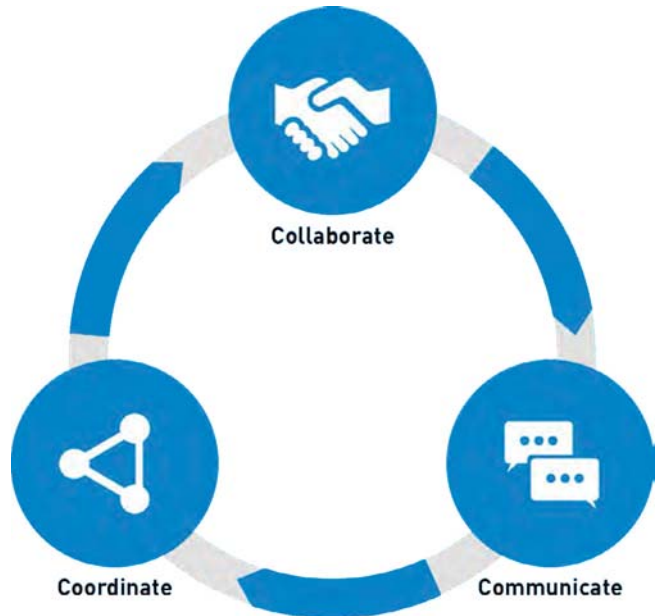
Parramatta has adopted the following approach.

1. **Collaborate** - Parramatta collaborates with a range of stakeholders in order to identify common needs and beneficial outcomes that will benefit the people of Parramatta.
2. **Communicate** – Communication is key to our approach in driving change within all areas of our community. In collaborating with the people of Parramatta we will communicate and further develop our vision for a Parramatta Smart City. Over time, this will foster a greater understanding of the benefits of a Smart City as a catalyst for innovation, efficiency and economic prosperity.
3. **Coordinate** - Parramatta will coordinate efforts between its partnering stakeholders to ensure that Smart City initiatives are effective in their outcomes and complement other efforts and strategies. Through better coordination, we will avoid siloing of initiatives and technologies and make better use of funding, resources and expertise.

Parramatta City Council

Councillors and Council
Group Function Representatives

Community Input

Industry Representatives

Smart City Officer | Finance | Strategic Outcomes & Development | City Services

Councillors | Property & Significant Assets | Corporate Services | Marketing & City Identity

Education | Health | Retail | Specialist Advisors

Business | Industrial | Social Sector | Marketing

Smart City Communities

Smart City Initiative Projects

A SMART CITY GOVERNANCE MODEL FOR PARRAMATTA

Parramatta's Smart City governance model will be structured to include a range of key stakeholders to help guide a robust approach to building a smart city.

The following structure provides oversight of new smart city initiatives and to ensures that new projects are tailored to the real needs of Parramatta's businesses, residents and communities.

Smart City Officer

Parramatta will appoint the role of a Smart City Officer who will help to facilitate and drive the Smart City vision through the creation and coordination of key industry stakeholder partnerships. These include partnerships in sectors such as education and health.

Council Leadership

Parramatta's Councillors and the Council's executive leadership team play an important role in supporting our Smart City. Their goal is to inspire, lead and drive the Smart City vision.

Through strong communication, advocacy and leadership skills the role of Council will be to:

– Advocate the Parramatta Smart City vision;
– Support Parramatta's broader strategic objectives;
– Adopt the principles of open government, open data and transparency of operation;
– Support the functions of a 'Smart City Steering Group';
– Reduce barriers and challenges - cut red tape, reduce layers of regulation;
– Promote a culture of risk taking, promoting entrepreneurship, creativity and sustainability;
– Act as a facilitator and communicator of change;
– Assist with co-ordination and alignment of initiatives; and
– Assist with identification of funding sources, expertise, partnership opportunities and other potential resourcing requirements.

Smart City Steering Group

The use of a Smart City Steering Group (SCSG) such as ParraConnect will provide Parramatta with a specific governance capability focused upon the initiation and delivery of specific Smart City initiatives.

Through collaboration, communication and coordination this team will champion the implementation of specific smart city initiatives.

SCSG Functions

Council will define a detailed terms of reference for the SCSG that will in essence:

– **Liaise** with Parramatta Council and the executive leadership team to ensure that proposed initiatives align with strategic priorities;
– **Engage** with a range of key stakeholders to guide the selection of relevant initiatives
– **Advise** on planning for new project initiatives using clearly defined milestones and outcomes;
– **Publish** all performance data and project information for the public; and
– **Educate** the public and various community groups in order to further encourage participation and strengthen the Smart City vision within the community.

Key SCSG Representatives

Parramatta has a diverse and growing number of stakeholders that need to be consulted in the development of our Smart City plans. The following stakeholders will provide representation in the SCSG:

– Council project team managers
– Business sector
– Education
– Health
– Private sector
– Social sector
– Specialist subject matter experts

Membership Criteria

Building an effective smart city group means engaging personnel that can respect and adhere to the broader strategic objectives of Parramatta.

Parramatta will establish clear terms of reference for members of the Steering Group to ensure that they are:

– People focused;
– Community focused;
– Outcome focussed;
– Innovative;
– Independent of vendor affiliations; and
– Technology literate.

Smart City Project Teams

Delivering the infrastructure to build a Smart City requires a focused and well-planned approach.

The SCSG will establish specific project teams to lead the implementation of individual initiatives. These project teams will be led by a project manager with relevant expertise in the field and will be provided with the necessary tools to help organise, plan, budget and communicate it's project plan.

Smart City project teams will use a range of internal and external resources who have the capacity to achieve tangible outcomes.

Smart City Communities

As interest and inertia for our Smart City grows, it is likely that various special interest groups will form.

These groups may have a special interest or expertise in areas such as sustainability, public art, senior citizens, youth culture etc. These groups will be encouraged to participate in the development of Parramatta's Smart City Community.

NEXT STEPS

Creating a smarter city will not happen overnight. However, we believe that this Masterplan is the first step in organising ourselves to achieve our vision for a vibrant people-centric connected city.

The approach we will undertake draws from lessons learnt from other Smart Cities around the world who are already on the journey.

General Approach

Creating an accountable, independent and representative Smart City governance structure will be our first priority.

– We have a vision for Parramatta as Australia's next great City.
– We have a Smart City vision and a framework.
– We have already made a great start on over 50 Smart City related initiatives.
– We have already identified over 100 potential Smart City initiatives.

Our approach will be to ensure that our new Smart City governance model creates a successful start to the next wave of initiatives that we will undertake. We plan to use our governance model to prioritise initiatives based upon current and future needs of the community.

Some of the initiatives may be small quick wins others will be small steps as part of a broader strategy. What is essential in order to build the confidence in our communities is that these first stages are tangible, achievable and inspirational.

Communicate and Engage

An essential method in our approach will be to communicate, engage and listen to our communities needs.

We need to communicate awareness of this Smart City Masterplan to a wide range of sectors in the community. We need to engage and listen to the needs and challenges of the people of Parramatta and to identify the areas that a Smart City and the use of technology can potentially help to resolve.

Move Fast

Our Smart City governance approach aims to be agile. We want to ensure that projects are properly project managed and are focused on delivering outcomes for communities in a timely and efficient manner that safeguards the process from challenges such as new elections or other political factors.

Borrow and Contribute Good Ideas

With a host of international Smart City best practice examples to refer to, Parramatta is well positioned to learn from both the successes and lessons learnt by other cities. In return, we will contribute our own learnings to the broadening knowledge base of other Smart Cities around the world.
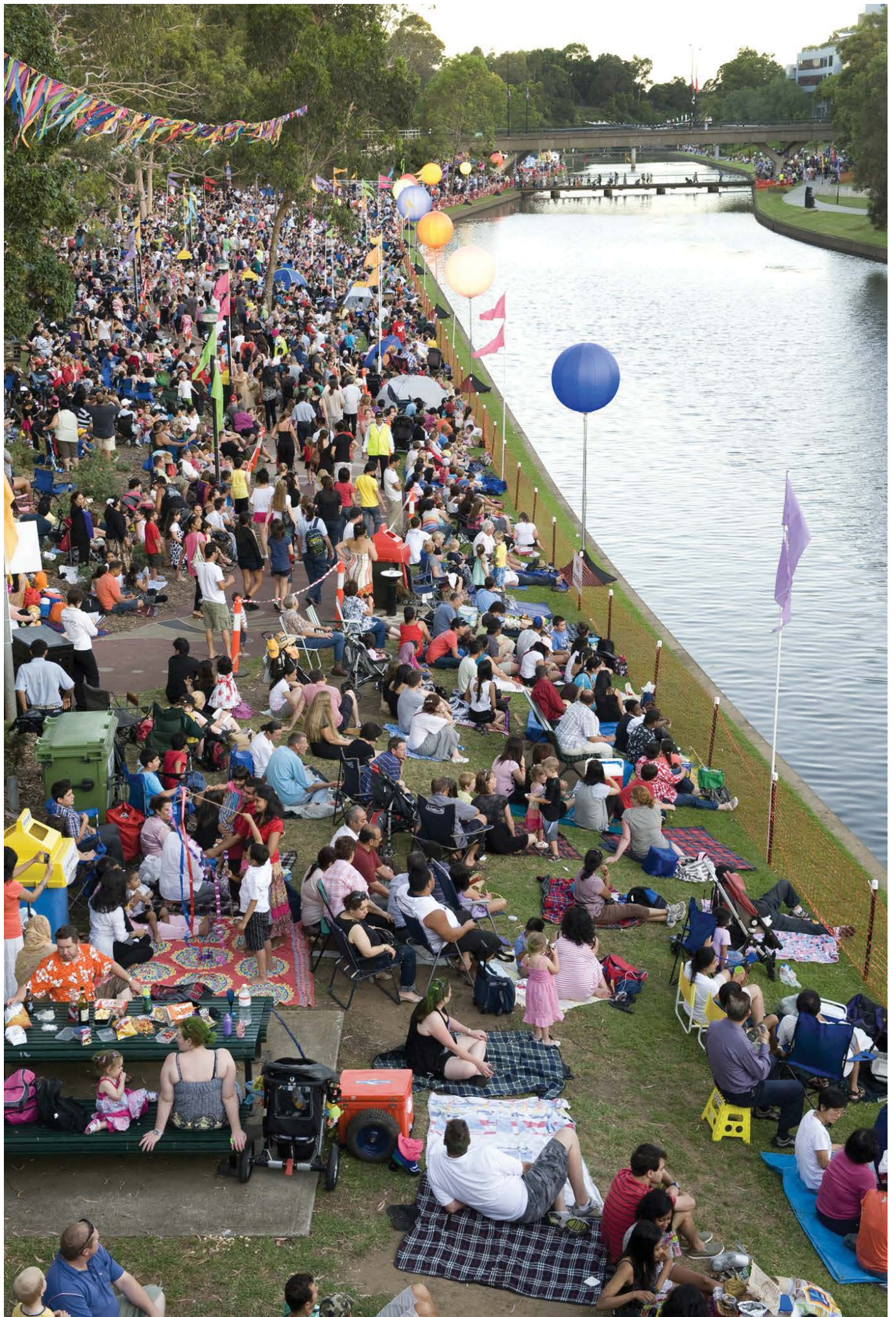
APPENDICES

PARRAMATTA AT A GLANCE

OVERVIEW

Location
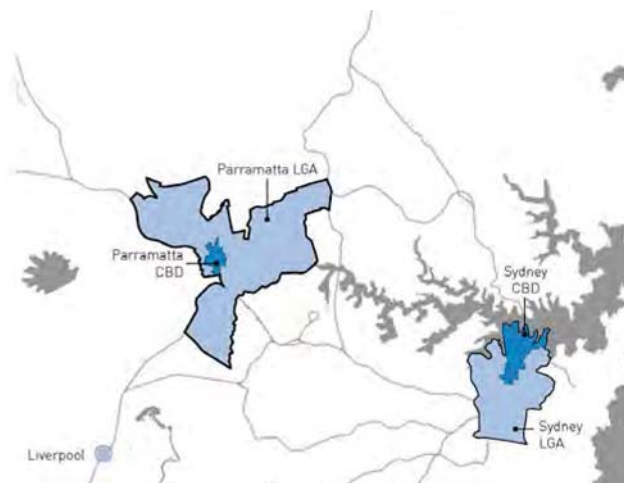
Sydney and Parramatta as dual CBDs play a crucial role in the NSW economy.

Parramatta is affirming its prominence as an important hub of activity at the geographical centre of the Sydney Metropolitan Region, bridging the East and West.

Key Precincts
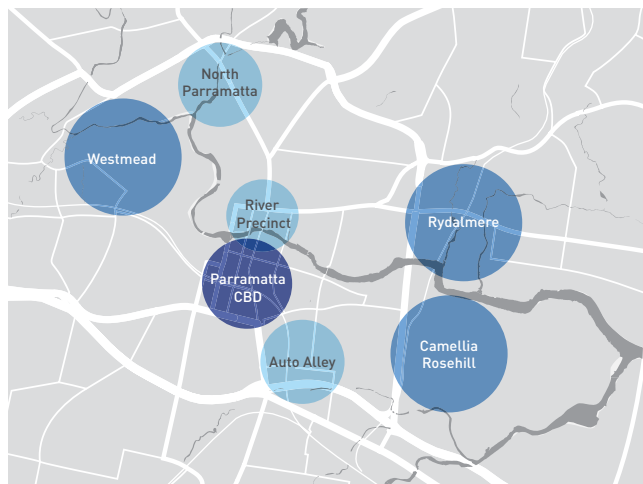
Currently there are a number of key precincts within the LGA undergoing future development. Each of these contains sub-precincts. For the purposes of this masterplan, only the CBD sub-precincts have been further defined, as precise urban plans for the other precincts are still in the process of being developed.

Key precincts include:

- – Westmead
- – North Parramatta
- – Parramatta CBD
- – River Foreshore
- – Auto Alley
- – Rydalmere
- – Camellia

LOCAL GOVERNMENT AREA

LGA | Suburb | CBD
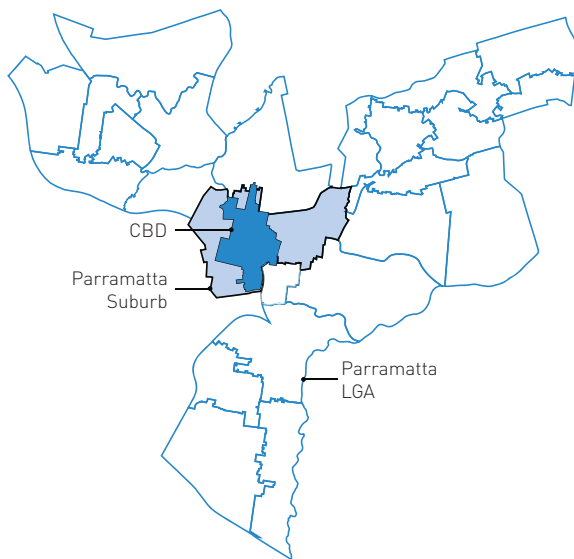
This map illustrates the relationship between the LGA, the suburb of Parramatta and the CBD.

CBD
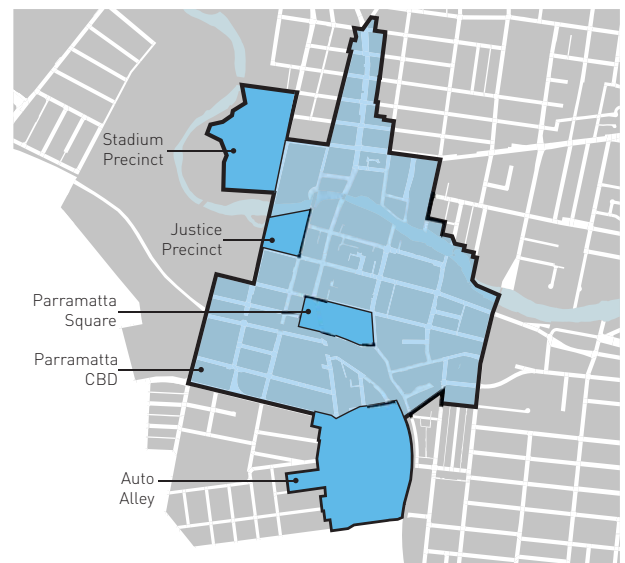
The Parramatta CBD is broken down into a number of precincts.

Suburbs
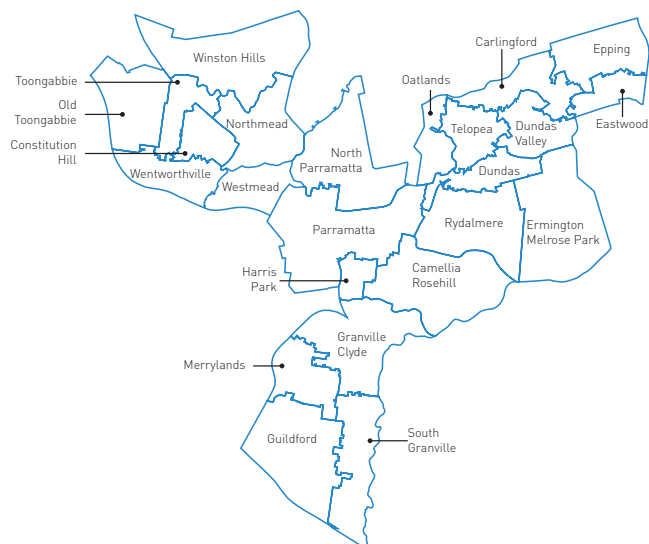
The Parramatta LGA consists of 24 suburbs.

Local Government Area

For the purposes of this masterplan, the Local Government Area is referred to as the LGA, the suburb of Parramatta is referred to as Suburban Parramatta, Central Business District within the suburb of Parramatta (partially extending into surrounding suburbs) is referred to as the CBD.

As illustrated in these maps, there are a range of boundaries that are used to describe what we know as Parramatta.

Federal
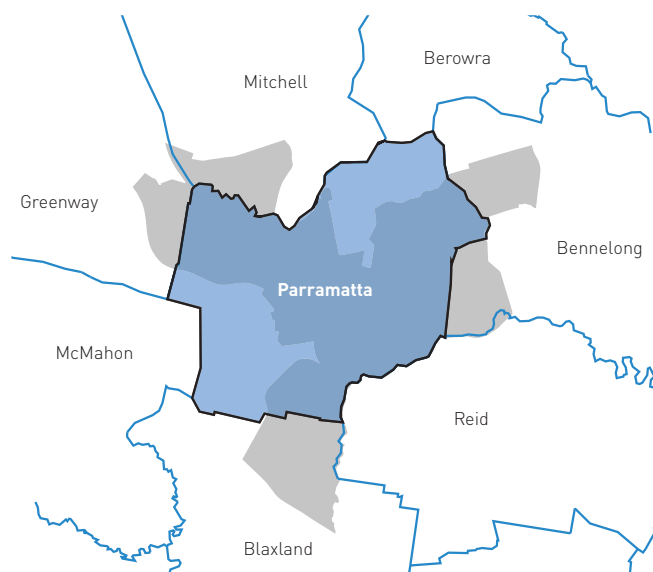
The Federal seat of Parramatta extends beyond the Parramatta LGA.

State
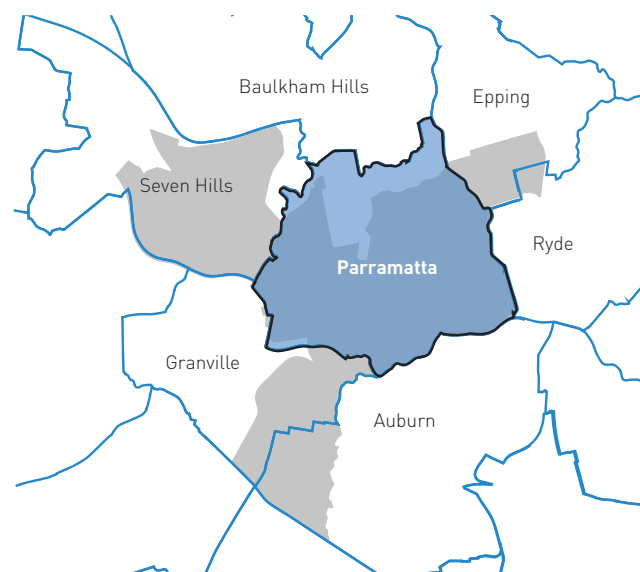
The State seat of Parramatta (and the basis of Australian Bureau of Statistics calculations) is shaded.

Local / Wards
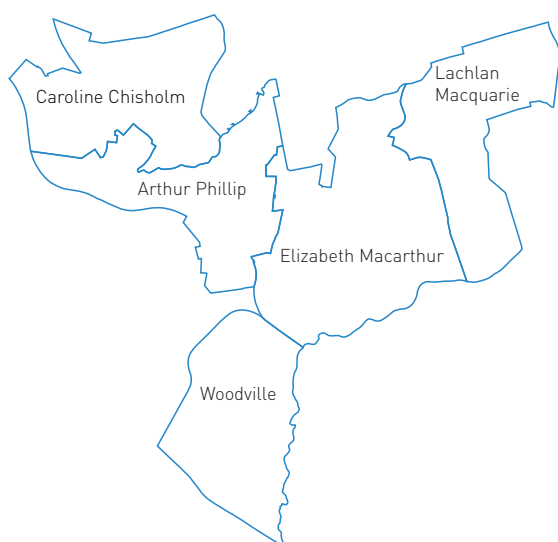
Parramatta Local Government is made up of 5 electoral wards.

Aboriginal
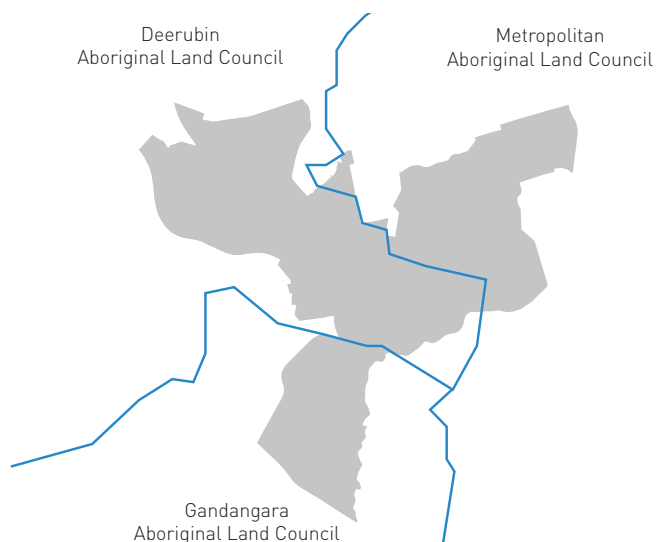
Parramatta City Council acknowledges the traditional owners and custodians of the land the Darug Peoples.

KEY STATISTICS

Size & Extent of Parramatta

"All eyes are turning inland to Western Sydney, NSW's fastest growing region and the engine room of the state. Western Sydney is the fifth largest economy in Australia after Sydney, Melbourne, Perth and Brisbane, with its gross regional product (GRP) of $118 billion in 2012. It will account for 60% of Sydney's and 25% of the nations population growth in the next 25 years."

(Source: Parramatta Investing in Western Sydney)

Parramatta LGA currently consists of either whole or parts of the following suburbs:

- Carlingford
- Constitution Hill
- Dundas
- Dundas Valley
- Eastwood
- Epping
- Ermington
- Granville
- South Granville
- Guildford
- Harris Park
- Merrylands
- Northmead
- Oatlands
- Old Toongabbie
- Parramatta
- City of Parramatta
- North Parramatta
- Rydalmere
- Rosehill
- Telopea
- Toongabbie
- Wentworthville
- Westmead
- Winston Hills

Population Size

With a population of approximately 180,000 people, Parramatta's booming economy was valued at $14 billion in 2014.

A result of these strong economic conditions has encouraged population growth into the area with the opportunity of housing and employment. Between 2007 and 2012 the city's population grew by 13.7%.

(Source: Parramatta Investing in Western Sydney)

Population growth 2006—2011
Major regions of metropolitan Sydney, 2006 to 2031

- ● Parramatta
- ● Western Sydney
- ● Greater Sydney
- ● Eastern Sydney

Source: Australian Bureau of Statistics, 3218.0 Regional Population Growth, Australia; NSW Department of Planning and Infrastructure, New South Wales in the future: Preliminary Population Projections 2013
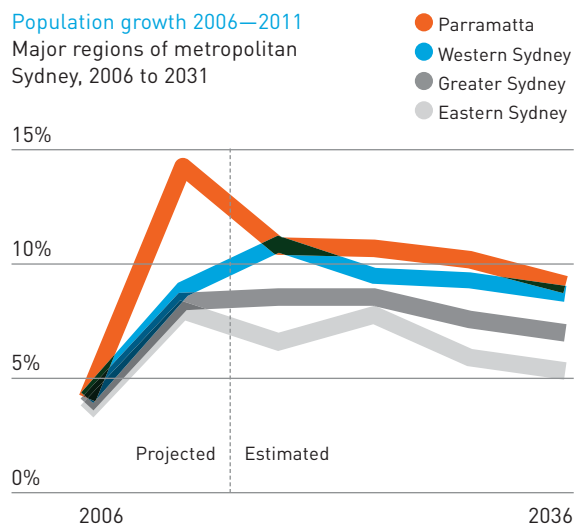
Education

The demographics of the Parramatta LGA have undergone a large change in the past 10 years. There has been a growth in culturally diverse, younger tertiary educated individuals, who speak more then one language at home.

The Parramatta LGA is home to three of Sydney's leading and fastest growing universities, University of Western Sydney, University of New England and University of Sydney.

- 23.6% of residents in the Parramatta LGA hold a university degree.
- 20% have completed a form of tertiary education, such as TAFE or a diploma.

(Source: Parramatta Investing in Western Sydney)

"The dream demographic – 25 to 34 year old, tertiary educated professionals – is a standout indicator of Western Sydney's economic vitality."

(Source: Parramatta Investing in Western Sydney)

Population
With tertiary qualifications %

- 🔴 Parramatta
- 🔵 Western Sydney
- ⚪ Greater Sydney

Postgraduate degree	Graduate dip. and certificate	Bachelor degree	Advanced diploma
6.0	1.1	14.1	7.2
2.5	0.8	9.0	6.2
4.8	1.3	14.2	7.3

Source: 2011 Population Census

Commercial Space

Commercial A-grade office space is currently in high and growing demand. With a vacancy rate of 2.4% in 2014, it's among the lowest in Sydney.

There is a need for additional office space to support the growing white-collar professional population who call Parramatta home.

CBD

Commercial Space Available
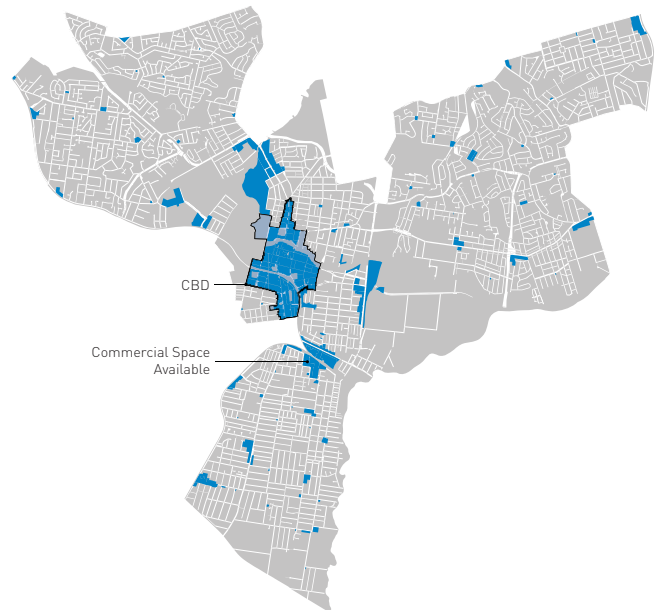
With competitive office rental lease costs compared to the rest of Sydney, an increasing number of organisations are now moving or expanding their activities into Parramatta.

(Source: Parramatta Economy The Facts –2014 Edition)

OFFICE VACANCY RATE (A GRADE)
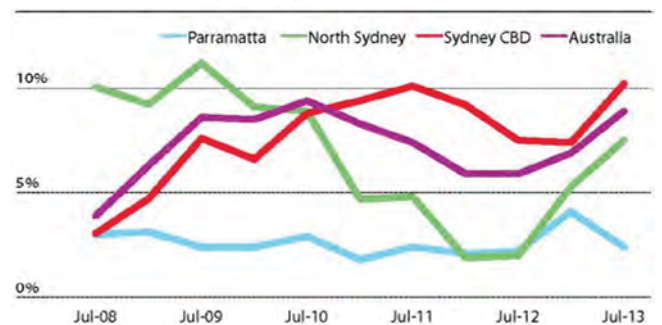
Source: Property Council of Australia

Connectivity

With the growing population and workforce of Parramatta, improved Internet connectivity for local residents and businesses is of increasing importance.

The Parramatta CBD has begun the implementation of free and open WiFi access. It is currently available along Church Street between the Riverside Theatre and Westfield, along with access at Parramatta Libraries.

The NBN is currently being rolled out across Australia and is expected to take around a decade to complete. The NBN will perform a vital function in increasing the connectivity and communication of the community.

"Parramatta is home to some of the biggest organisations in Australia that need this kind of high-level technology and connectivity."

(Source: Parracity, http://parracity.nsw.gov.au)
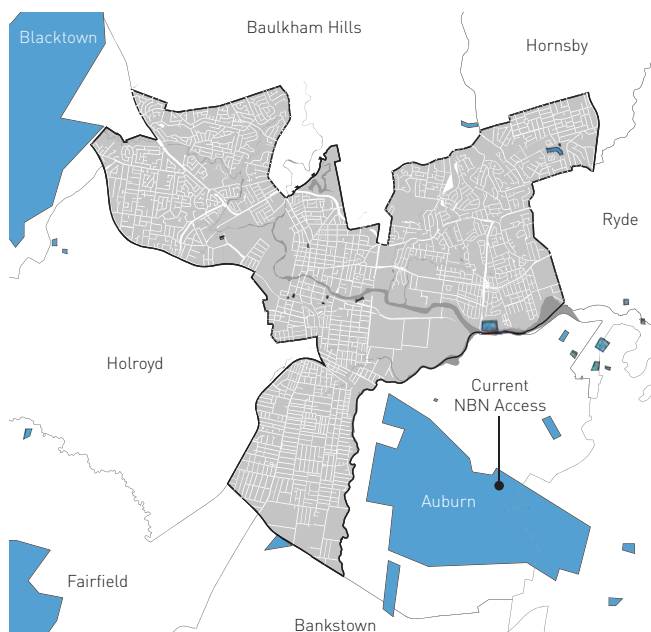
Cultural Diversity

The Parramatta LGA is made up of a diverse and unique mixture of cultures and nationalities.

Over 50% of residents of the Parramatta LGA speak a language other than English at home. This retention of cultural identity plays a large role in shaping the culturally diverse environment that sets Parramatta apart.

"No other region in Australia has greater cultural diversity than Western Sydney – and diversity is critical to innovation because people from different cultures bring different ideas and approaches to the workplace"

(Source: Peter Forrester, Managing Partner Regional Offices National Executive, Deloitte)

Population
Born overseas (%)

- 🔴 Parramatta
- 🔵 Western Sydney
- ⚪ Greater Sydney
- 🔵 NSW
- 🟡 Australia

Overseas born	Australian born	Not stated
44.9	48.6	6.5
35.9	58.9	5.2
34.3	59.9	5.8
25.7	68.6	5.7
24.6	69.8	5.6

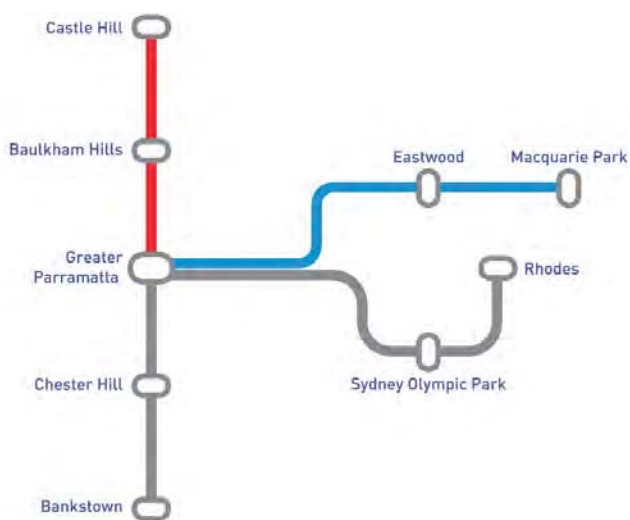Source: 2011 Population Census

With over 600,000 commuters travelling into the region every day, Parramatta is regarded as a critical hub of interconnecting public transport systems as part of the Sydney Metropolitan Transport System

22.5 per cent of commuters who travel to and from Parramatta CBD travel via public transport. The remaining percentage either drive or get driven into the CBD.

(Source: Bureau of Statistics)

Commuters in the Parramatta LGA currently have three public transport options available, rail, bus and ferry. The NSW government has committed $400 million to a new light rail network with a start date to be announced.

With a growing population and workforce there is a strong need for reliable and effective transportation network.

Health

The health care industry is one of the nation's fastest and largest growing sectors. The Westmead Medical Precinct is home to the largest concentration of health services in Australia including:

- – 4 hospitals;
- – 3 research institutions;
- – 16,000 employees;
- – 900 PhD students; and
- – 1 million patients.

Westmead Hospital will undergo the "largest hospital redevelopment ever undertaken in NSW" The works are expected to exceed $1 billion when complete. It will make Westmead Hospital a state of the art medical facility, increasing bed capacity and catering to the current and future growing population of the Parramatta LGA and beyond.

This redevelopment is also expected to provide an additional 11,000 jobs by 2031.

(Source: WSLHD, http://wslhd.health.nsw.gov.au)
(Source: Parracity, http://parracity.nsw.gov.au

Proposed Light Rail System
Source: Transport Sydney
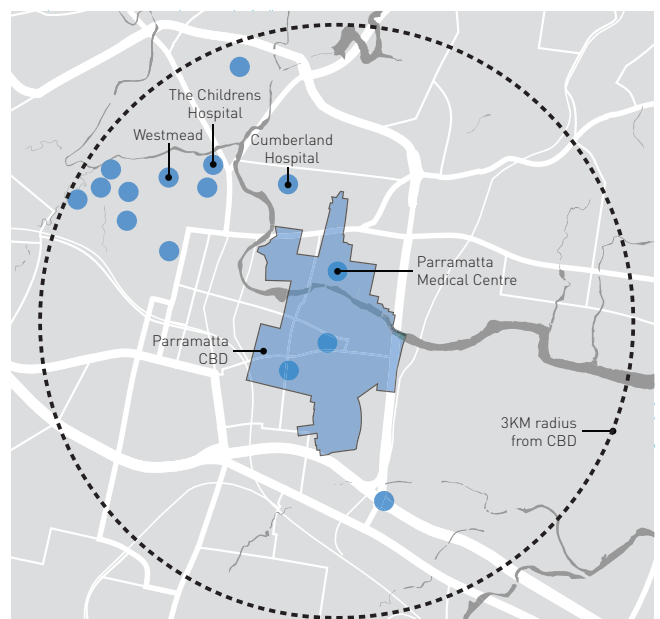
Sport

Parramatta has a long running sporting culture. There are numerous sporting facilities such as Pirtek Stadium, the home of the Parramatta Eels and the Western Sydney Wanderers. There are a number of different sporting facilities within the Parramatta LGA including:

– Tennis courts
– Cricket facilities
– Soccer
– Netball courts
– Rugby fields
– AFL field
– Athletics facilities
– Swimming facilities
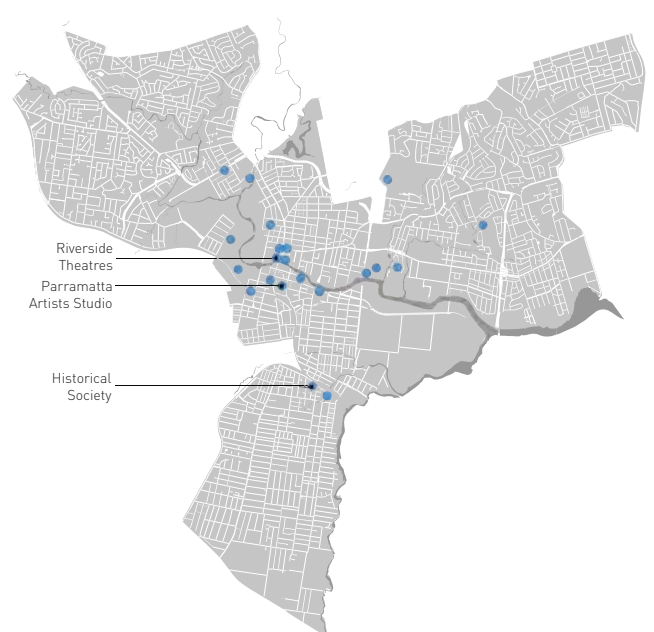– Basketball court
– Golf course
– Hockey field
– Baseball fields
– Horse racing
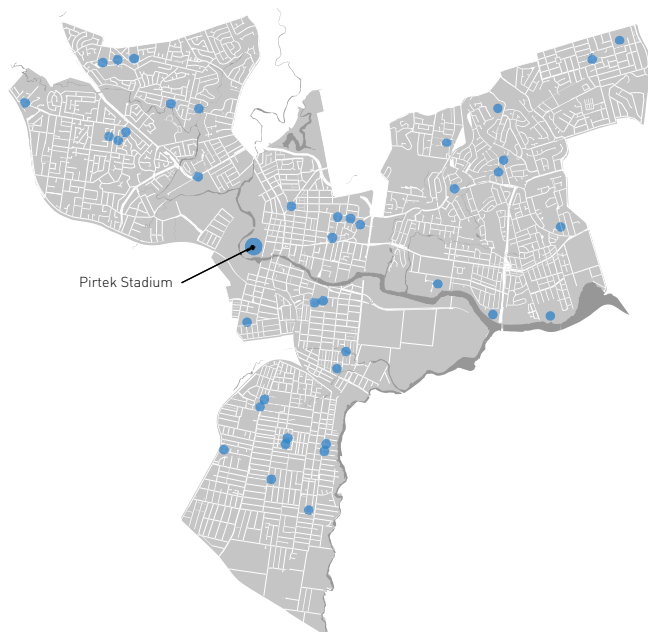
Art

Parramatta is home to many local and international acts, cultural attractions, performances and functions each and every year.

The key arts facilities include:

– The Riverside Theatre
– Parramatta Artists Studio
– Connect Studios
– Information & Cultural Exchange

The cultural diversity of Parramatta has fostered the growth of a huge range of festivals and events to celebrate life and culture amongst residents and people outside of the area. Events include:

– Burramatta Festival
– Arab Film Festival
– Sydney Festival
– Parramasala
– Sydney Writers Festival
– Sci-Fi Film Festival
– Parramatta Lanes

Pirtek Stadium

Riverside Theatres

Parramatta Artists Studio

Historical Society

PARRAMATTA WE'RE BUILDING AUSTRALIA'S NEXT GREAT CITY

RESOURCES

Smart City Advocacy

Smart Cities Council

A leading smart city advocacy site

http://smartcitiescouncil.com

Smart Circle

Focused on collecting and communicating information regarding a range of Smart City initiatives.

http://www.smart-circle.org

10 smartest cities in Europe

Fast Company article listing Europe's top 10 smartest cities.

http://www.fastcoexist.com/3024721/the-10-smartest-cities-in-europe

10 smartest cities in North America

Fast Company article listing North America's top 10 smartest cities.

http://www.fastcoexist.com/3021592/the-10-smartest-cities-in-north-america

Smart City Examples - International

Amsterdam

Amsterdam Smart City

http://amsterdamsmartcity.com

Barcelona

BCN Smart City

http://smartcity.bcn.cat/en

Copenhagen

Copenhagen Connecting

http://cc.cphsolutionslab.dk/_include/img/work/full/CopenhagenConnecting-UK_new.pdf

Glasgow

Future City Glasgow

http://futurecity.glasgow.gov.uk

Liverpool, UK

Connected Liverpool

http://www.connectedliverpool.co.uk/blog/

San Diego

SmartCities San Diego

http://cleantechsandiego.org/smart-city-san-diego/

Singapore

Smart Nation Vision

http://www.ida.gov.sg/Tech-Scene-News/Smart-Nation-Vision

Smart City Examples - Australia

Adelaide

A vision for Adelaide as a Smart City.

http://www.adelaidecitycouncil.com/media-centre/whats-new/adelaide-a-global-smart-city

Brisbane

An initiative to protect the future of Brisbane City to help make Brisbane, Australia's most sustainable city.

http://www.citysmart.com.au

Melbourne

Melbourne Smart City Vision Document.

http://www.cityofsound.com/files/c40_melbourne_report_final_email.pdf

Smart City Initiatives

2030 Districts

An initiative to meet the energy, water, and transportation emissions reduction targets of the 2030 Challenge for Planning in North America.

http://www.2030districts.org

European Smart Cities Platform

Provides a smart cities model, profiles, ranks and benchmarks for European cities.

https://eu-smartcities.eu

Local Data

A cloud based real-time street-level mapping platform to help cities and communities make data driven decisions.

http://localdata.com

Operations Centre Microsoft Redmond Campus

A Smart Campus analytics platform monitoring the Microsoft Redmond Operations Centre (ROC).

https://www.microsoft.com/en-us/stories/88acres/88-acres-how-microsoft-quietly-built-the-city-of-the-future-chapter-1.aspx

Pacific Controls Dubai

Provides end-to-end managed application services and solutions for over 60,000 buildings connected to their Global Command Control Centre.

http://www.pacificcontrols.net/solutions/global-command-centre.html

Technology Initiatives

Code for America

An organisation focused on building open source technology to make governments simple, effective and easy to use.

https://www.codeforamerica.org

Government Technology

Online portal to Government Technology, a magazine covering information on technology's role in state and local governments.

http://www.govtech.com

Information Technology and Innovation Institute

A non-partisan think tank to formulate and promote public policies to advance technological innovation and productivity

http://www.itif.org

GovHack

GovHack is an annual open data competition held over Australia and New Zealand.

Http://Govhack.org

Open Government Data - International

Open Government Data Principles

An overview of eight open government data principles based on 30 open government advocates.

http://opengovdata.org/

World Council on City Data

Interactive comparison on city data around the world, built on the basis of the ISO 37120 standard

http://open.dataforcities.org

US Government Open Data

132,213 Data sets

http://www.data.gov/

New York Open Data

1,300 Data Sets

https://nycopendata.socrata.com

Chicago Open Data

912 Data sets

https://data.cityofchicago.org/

http://www.socrata.com/case-study/chicago-growing-open-data-economy/

Open Government Data - Australia
Australian Government Open Data

6,700 Data sets

http://data.gov.au

NSW Government Open Data

313 Data sets

http://data.nsw.gov.au

VIC Government Open Data

9,152 Data sets

http://www.data.vic.gov.au/

QLD Government Open Data

1,678 Data sets

https://data.qld.gov.au/

SA Government Open Data

599 Data sets

http://data.sa.gov.au/

Melbourne Open Data

80 Data sets

https://data.melbourne.vic.gov.au/

Adelaide Open Data

46 Data sets

http://www.adelaidecitycouncil.com/digital-strategy/open-government/

ABOUT THIS PUBLICATION