

OUR SMART CITY OF CANADA BAY:

An Intelligent Plan

Contents

Mayor's forward	5	
The City of Canada Bay.....	6	
City of Canada Bay statistics	7	
Rationale for pursuing smarter approaches	8	
Vision and Purpose	10	
What is a Smart City?.....	11	
Definition.....	11	
Smart benefits	12	
Policy context	13	
Federal	13	
State	13	
Local	13	
Smart Principals	14	
1. Embed smartness into capital works	15	
2. Improve sustainability through leveraging efficiency.....	18	
3. Share knowledge by connecting and collaborating with our community.....	20	
4. Create tactical solutions to pilot and test smart approaches.....	22	
5. Seek partnerships to deliver improved solutions.....	24	
6. Improving accessibility to quality services for our community through smart practice	26	
7. Employ the cloud and internet of things, and adapt to emerging technology for our City.....	28	
8. Support community creation of smart solutions to improve our neighbourhoods	31	
9. Creating more open government in our City	33	
The future		
What does success look like?.....	35	

“The more you know, the less you need.”

Australian Aboriginal saying

“It (Life) is constantly changing, and yet it remains the same.”

Jan Hawkins, Shadow Dreaming



Mayor's forward

Since its inception in 2000 the City of Canada Bay has recognised that its places and communities are changing. Our commitment to innovation and improving our service delivery and our ability to adapt and welcome change has emerged as a defining characteristic. We are committed to putting our people at the centre of everything we do to deliver high quality and cost effective services.

I am proud of the high levels of leadership we have shown in a wide range of areas, from deliberative decision making to technological innovations to ensure sustainability. All we have achieved has been in partnership with our community, business and other levels of government, and are widely recognised.

We strive to demonstrate our respect for the community and this Smart City Plan aims to share our ways of approaching the challenges and opportunities facing our City. It is a platform for a more considered approach to innovation, evaluating technological change and our values for implementing smarter ways of delivering the range of services we offer. It is also about being more transparent and open so that our community can be confident about the way we govern.

At the City of Canada Bay we follow a broad approach to being a smart city and we appreciate that digital and technology opportunities are a relatively small part to becoming an intelligent place. I encourage you to be part of this journey with us and share ideas about how we become a more intelligent City.

A stylized signature of Mayor Angelo Tsirekas, featuring a pink asterisk-like symbol followed by a cursive signature.

Mayor Angelo Tsirekas



The City of Canada Bay



The City of Canada Bay is a vibrant and interesting City in the heart of Sydney’s Inner West. The 38 kilometres of Parramatta River foreshore defines the City and with much of it accessible, it is a place of increasing significance in the Sydney conurbation.

The traditional owners of the land are the Wangal clan of the Eora Nation and predate the European settlement by over 40,000 years. They have protected and maintained the local ecology which features a plethora of smart flora and fauna. Mangroves around the foreshore cleanse the waterways but also serve as an important home for fish, birds and insects, and provide a rich breeding ground for mullets who return every four years. There are also migratory birds such as the Bar-tailed Godwit which return to our City annually taking respite from the harsh northern hemisphere winters.

Significant growth has occurred over the past decade with the redevelopment of former industrial sites around the foreshore into residential communities.

The economic hub at Rhodes sits at the edge of the Sydney technology arch, which travels through Macquarie Park and North Sydney to the CBD. There are a range of technology firms in the City including global leaders Hewlett Packard, Unisys, Alcatel-Lucent technology and a range of related start-ups which are part of the economic ecology.

The presence of Sydney University Medical School at Concord Repatriation Hospital is part of a health innovation cluster, including the Bernie Batton Research Centre and ANZAC research centre.

City of Canada Bay statistics

Litres of recycled water per year	180,000,000
Website visits per year	1,179,424
Items borrowed annually	515,322
Attendees at Council event in a year	Over 200,000
RFID tags used	125,000
Population	88,015
Library members	39,000
Private dwellings	36,767
Companion animals registered	20,000
Trees	13,000
People playing sport each weekend	12,000
Facebook likes	7,784
More women than men	3,318
Council operated street lights	2,265
Devices owned by Council	1,541
Kilometres of footpath	440.5
Kilometres of road	207.6
Median age	36
Land area	19.9
Average daily electricity consumption per household (kWh)	13.8
Average daily water consumption per household (litres)	643

Rationale for pursuing smarter approaches

There is a culture of innovation in the City of Canada Bay. Since its inception in 2000 Council has recognised that its places and communities are changing. We have focused upon improving our leadership to drive innovation, partnerships, and respect for the community. The three key reasons Council is pursuing the smart city agenda is for good governance, improved sustainability and to be a responsive government.

The primary reason for pursuing smart initiatives is responding to community demand to demonstrate strong leadership and offer transparent Local government. To achieve this we rely upon using smart systems to support both Council and the community. The aim of these applications is enabling more resilient, sustainable and efficient approaches to the many challenges across the City, from climate change to connecting with residents and visitors. We are also being challenged to share our knowledge and work together more closely to be creative in finding solutions which provide advantages to face the future. Successive directions from Federal and State government for better, more transparent and more efficient governance has created a wider policy push for changes and some financial support for infrastructure development to meet specific demands. The development of a Smart City Plan will increase the transparency of this program of activities and enable residents to fully appreciate the improvements and programs delivered. It will improve recognition for our wide ranging achievements and for staff's innovation.

Our community is engaged in planning for our future as our population continues to grow. The outcome we seek is to continue our enviable lifestyle and improve access to quality open spaces and village centres to

enhance everyone's experiences. We are challenged to be a "Bolder Council, more progressive voice" to face the future with confidence.

The second driver to smartness is to continue our leadership and success in the area of sustainability. Our community wants the focus to continue through:

- Maintaining green open spaces and protecting our natural environment
- Increasing public transport and encouraging walking and cycling to reduce car use
- Improved resource efficiency through energy and water conservation, an increase in renewable energy and water and waste reduction through avoidance, reuse, sharing and recycling
- Improved design features to deliver resilience across our City.

The increasing awareness of environmental and economic sustainability challenges has already driven changes across the City, however the pace and intensity of these demands is set to intensify as scientific discovery of the impacts of plastics and pollution around the globe increases. The application of smart approaches and technology is a vital weapon in defending the wonderful foreshore environment, improving the area, and reducing the impacts of the increasing local population.

Finally, like all levels of government, the City of Canada Bay has responded to the technological opportunities to improve. Increased population, prosperity and higher levels of education are driving community expectations of government and local service providers, particularly in areas such as community wellbeing, infrastructure, transport,

and Council services. People have much higher expectations of what the City of Canada Bay delivers beyond the traditional roads, rates and rubbish. Where Council provides community services such as childcare, sports facilities, libraries and cultural facilities, customers are demanding competitive services of a high standard.

The introduction of smart urban technologies into infrastructure has resulted in numerous challenges and opportunities. The pace and impact of these changes is set to escalate. It is vital that Council effectively leverages new business models which can deliver benefits for our City and community. As the technology becomes more widespread and affordable, opportunities for Council will continue to emerge and a plan will help guide how we prioritise and assess these opportunities. An essential part of the smart cities agenda is to look beyond our response to technology products toward the opportunities to improve the community's trust in government. This is achieved through enhancing our transparency and how we engage people to collaborate to improve our quality of life and tackle common problems.

Council is also aware that the technological changes do not come without burdens and questions about cyber safety and privacy. The plan will also address the broad digital City standards that we should expect and set some principles for our progress – directions for our work that will deliver the results for Council and the community.

The vision for our Smart City Plan is to deliver innovative solutions linking our diverse communities.



Vision and Purpose

The City of Canada Bay exists to service, meet the needs of, and provide high quality experiences for its residents, workers and visitors. We aim to deliver a strong City through inclusive and sustainable growth and effective leadership which seeks to connect our communities and leverage innovation for their benefit.

We will apply smart city approaches to transform our services and develop new ways of working alongside stakeholders to achieve our vision. We will carefully invest our resources and collaborate across the City to improve outcomes for our community.

What is a Smart City?

Definition

A Smart City is one in which Council seeks out intelligent solutions to enable the vision for the City to be achieved.

It is a Council that uses innovation to work with residents and enable a City of Canada Bay that is:

- Inclusive, involved and prosperous
- Environmentally responsible
- Easy to get around
- Engaged and future focused
- Visionary, smart and accountable.



Smart benefits

The changes to more intelligent approaches have long-term benefits for the City and community in achieving quadruple bottom line outputs.

Economic

- Leverage data to improve our efficiency
- More local employment in the technology industry and more technology in all industries
- More effective tourism and marketing by representing the City in the digital dimension
- Cumulative benefits increasing access to global and local markets.

Social

- Ensuring people are at the centre of our approach to digital transformation
- Identifying partnerships to build community capacity
- Connecting communities and increasing community participation and engagement.

Governance

- Improve data governance approaches
- Increasing community participation and engagement
- Collaboration to manage and maintain public places and shared resourcing of activities
- Improved management of our resources.

Environmental

- Best practice management of Council's resources
- Improving lifestyle and local environments
- Shifting from carbon based activities to virtual connections.

The City of Canada Bay's intelligent approach is made manifest in four areas:

1. Council administration, which includes e-services, live chat, smart customer services, HR systems and Council services.

important in local government. Our approach targets economic, social and environmental outcomes. We build upon a strong tradition of innovation and striving to reduce our impacts on the wider ecology.
2. Libraries are consistently our most highly valued services and aim to bring people and knowledge together. Residents identify that the libraries provide our community access to leading technology and programs.
3. Environmental targets help drive our achievements in creating a more sustainable City which is becoming increasingly
4. Engagement is a critical element of our smarter approach. From deliberative democracy programs to our suite of e-news, online communication and apps, we aim to connect our communities.



Policy context

Federal

The Federal Smart City Plan (2016) aims to position Australian cities to thrive in the modern economy and seeks to support productive, accessible, attractive and liveable cities to drive innovation and success. The Plan sets out the Government's vision for Australia's cities – metropolitan and regional – and its commitment to smart investment, smart policy and smart technology. It describes the essential role innovation plays in the life of every Australian, and how it is central to Australia's economic and social prosperity.

State

The New South Wales Government has its Bringing Big Ideas to Life – NSW Innovation Strategy, of which government as an innovation leader is one of the four pillars of the policy. Government provides a framework for smart cities which enables intelligent development and other areas of city planning.

Infrastructure NSW are also looking at the creation of an action plan to help deliver this agenda and create a cohesive action plan for all tiers of government within the state.

Local

It is widely acknowledged that Local Government has a lead role in local planning and development, because it already has skills, experience and the knowledge of local communities. It delivers a range of services and projects alongside regulatory and development powers to implement its policies and plans.

Council's work is embedded in the commitments identified in its Community Strategic Plan and Local Environmental Plan. This has proven a fertile ground for a range of service leaders in the City to look for and implement intelligent technology solutions and process improvements.

Smart Principals

The City of Canada Bay has a set of principles, rather than a set of rules or specific strategy, to becoming smart. We have described a number of statements which outline the areas of opportunity and approaches we can take to becoming a smarter City. It acknowledges that we cannot always plan for the future in the way we have in the past. Disruptive technologies can quickly transform the way we work and how we respond to the demands they drive within government. However, we also acknowledge we need to be transparent about how we test, apply and support these transformations for the good of our community.

The City of Canada Bay’s smart city principles are:

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01. Embed smartness into capital works
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02. Improve sustainability through leveraging efficiency
- 

03. Share knowledge by connecting and collaborating with our community
- 

04. Create tactical solutions to pilot and test smart approaches
- 

05. Seek partnerships to deliver improved solutions
- 

06. Improving accessibility to quality services for our community through smart practices
- 

07. Employ the cloud and internet of things, and adapt to emerging technology for our City
- 

08. Support community creation of smart solutions to improve our neighbourhoods
- 

09. Creating more open government in our City

01

Embed smartness into capital works

The single most significant opportunity for delivering a smarter City is through the capital works program. This is the major investment program for our infrastructure, from natural environments to buildings. The opportunity to design infrastructure means that collaborating teams can use data to inform decisions, and embed smartness and technologies into spaces. Project architects have a leadership role in delivering a smarter City and are challenged to explain and promote the contribution of their project to our future City. The approaches should show how the wider principles are reflected, from energy efficiency, collecting data, or remote management and monitoring. The future will be about using technology to improve control and communications, and to maximise performance and efficiency. The key question for Council will be how more intelligent buildings and public places can have a positive impact on the people who use them.

Over the past decade Council has been developing these types of opportunities across the program. Council has taken advantage of grant opportunities and has been successful attracting funds to support innovation and smarter approaches in projects like Drummoyne Oval, particularly around water security. The development of a new suburb at Rhodes has enabled smarter working in delivering new infrastructure which leveraged technology and smarter processes. The Connection, Rhodes has included smarter building techniques and technologies to be provided to our community. These have been driven by a desire to increase sustainability and efficiency and have been enabled by the opportunity new buildings offer. This principle allows the City to leverage external funding opportunities for smarter solutions and approaches to attract grants and sponsorship.



Examples



Drummoyne Oval Precinct

The Drummoyne Oval precinct is an important community facility that provides open space and sporting facilities to many different codes and also hosts occasional international level sporting fixtures. The upgrade to the Drummoyne Oval precinct has been a long-term project made possible by a \$5.3 million grant application through the Federal Government’s Regional and Local Community Infrastructure Program. The upgrade included installation of six broadcast-quality lights to attract world-class sporting events to the precinct and engage in a digital culture presentation. Improved stormwater management included the replacement of stormwater filtration systems and the installation of above-ground rainwater tanks adjacent to the Taplin Park toilet facilities.



The Connection, Rhodes

The Connection, Rhodes community precinct is a smart waterfront facility based on the concept of connectivity. It features four single-storey pavilions which create a network of dynamic internal and external public spaces that activate the park-like site and maintain water views for the surrounding community. The design embedded flexibility and operability across the site with indoor outdoor spaces and innovative room configurations. Open plan zones, flexible furniture and moveable partitions allow the community to adapt the spaces to suit changing requirements from day-to-day as well as for the life of the building.

The design took an integrated approach to sustainability and produced better light access, cross ventilation and natural shading outcomes. The buildings make best use of natural resources: energy and water efficient, maximising recycled content, sustainably grown timber and recyclable materials, extending the lifespan of the fit-out by using durable materials. The design seeks to maximise user comfort through strong acoustic performance, pollutant-free indoor environments, lighting and thermal comfort and opportunities for natural ventilation with user operability where appropriate. The building was designed to meet Green Star standards and brings added value in terms of reduced utility costs, longer lasting fit-outs, increased user productivity, health and satisfaction.

The site was reclaimed from a highly contaminated site and was part of the wider regeneration of Rhodes.



Cabarita Park Conservatory

The Conservatory is an adaptable arts and cultural facility designed with community collaboration to enable a range of cultural pursuits, including workshops, classes and exhibitions. It consists of a multipurpose hall, courtyard with outdoor seating, storage, public toilets, kitchen and food truck facilities. The building is innovative, using recycled timber framing and smartglass with the design ensuring the vistas across the iconic Cabarita Park are maintained. Environmental features include reliance on natural heating and cooling, shade and rain water tanks to service the amenities.

The public art at the centre is a permanent 3D mapped artwork projected for two hours per evening on the ancient fig at the heart of the precinct, which reflects the history of the site and uses community comments and new technology to engage audiences.

Future directions

Smart building management systems

Through the development of major new facilities such as the Redevelopment of Concord Oval, Council will integrate building management systems to allow remote access and management of air conditioning, lighting, security and the likes to make it more efficient to manage and to run.

Smart signage

As new recreation facilities are developed, Council will use improve communications and connections through smart signage. In places such as the Homebush Bay Circuit, which is being established as a world class facility for walking, running and cycling on the foreshore area of Homebush Bay, the aim is to seamlessly interface with the waterfront and celebrate the area’s unique history using innovative technology for wayfinding.

Sensors and smart controlled street infrastructure

Sensors and smart controlled street infrastructure which improves energy efficiency and our understanding of how places are used.

Sustainable design

Improve sustainability through leveraging efficiency and green technology.

Increasing community facility resilience through implementation of sustainable design principles.



02 Improve sustainability through leveraging efficiency

The area of data mining and analysis using wireless sensor systems is a rapidly developing field. These systems identify faults and can even prioritise work according to your organisational priorities to optimise functionality and reduce energy and running costs. They also provide real time energy usage and costs to help improve efficiency.

Council has been deploying these systems for over a decade. This includes irrigation systems controlled by real-time weather data to regulate the use of water. We have also implemented water and energy management use in citizens' homes, local businesses and Council buildings through audits and smart meters, which have led to a wide range of changes in resourcing.

Examples

Intelligent Illumination

Council has piloted a number of smart lighting techniques to become more sustainable. This year we have installed smart light poles and energy efficient LED lighting in parks and neighbourhoods. The introduction of variable level pedestrian lighting along foreshore walks to adjust supply to match use through sensors are currently being piloted as part of the Bay Run, Wiremill and Prince Edward Parks, and Majors Bay Road shopping precinct. The sensors help reduce consumption by dimming when there is no activity but also improve public safety by providing improved illumination as required, triggered by sensors. The latest smart poles are integrated with electric car charging stations and a trial is planned for 2018/19.

Water for Our Community

The multi-award winning, \$5.2 million stormwater harvesting project was delivered to provide a secure sustainable supply of water to irrigate 15 playing fields and two 18 hole golf courses to ensure our open spaces are protected against drought. It captures water from a stormwater canal beside Concord Oval, filters, disinfects and then pumps it via 4.9km of underground pipeline to 220 hectares of open space. In the first year of operation, the Cintra Park water treatment plant harvested over 250,000kL of stormwater for irrigation.

Since this project was implemented, the playing field conditions have significantly improved. Locations such as Edwards Park have seen increased usage, a huge benefit to our community and local sporting clubs. By keeping our fields well irrigated we are also reducing the ambient temperature of these sites.

The water reuse system is considered best practice in the industry and has been the subject of many accolades, winning several awards. The system is used for teaching and tours are provided to others wishing to implement similar systems.

Litter – the digital way

Council's latest litter pilot will utilise sensors on bins, with a trial planned to rollout across the City. This extends on our previous trial of solar powered waste bins that can hold up to five times the amount of waste of a conventional 120 litre wheelie bin and provide sensor information about the collection requirements. The Big Belly Bins, provided by Solar Bins Australia, use sustainable energy to power a compactor that compresses waste when it is disposed of, reducing the potential for bins to overflow and reducing the need for collection trips. The bins also use cloud technology to alert Council staff when they are full to reduce inspection requirements. By saving service trips, they are estimated to reduce greenhouse emissions related to bin servicing costs by up to 80 per cent.

Future directions

Environmental monitoring

Council is keen to develop their current monitoring platforms to enable open source environmental monitoring systems. This will allow data to be shared more freely within the community at locations to encourage reduced energy consumption in Council facilities and collaboration with innovators on improved environmental management. This data can also be used to forecast costs of new facilities and provide for better planning.

Improving Council systems

Council has improved efficiency through the introduction of a single data management system. Further investment in this product will deliver a full mobile service enabling staff to work and process information anywhere.

Smart trees

An increase in canopy across the City is part of our smart strategy. This is not only vital for the beautification of our places but provides for climate resilience, improves neighbourhoods and adds value to our properties. The deployment of a specialist strategy to manage trees as assets has been developed using detailed analysis of available climate data.

03

Share knowledge by connecting and collaborating with our community

As Council became smarter the techniques used were shared with residents. Residential programs have included smart meters for loan from libraries to help residents manage their consumption and make informed decisions. Business analysis was employed to support local businesses to address water, energy consumption and waste generation. A range of high and low-tech techniques have been employed, including the use of wireless meters and devices to transmit information in real time.

Smartphones are an indispensable tool tackling a wide range of problems in our personal and professional life. Increasingly teams across Council are adopting app and platform technology to better engage and connect with residents. Council benefits from promoting these tools to support our residents and address everyday challenges.



Examples

Libraries

The purpose for the City of Canada Bay Library team is to bring people and knowledge together. They offer a full and varied program to share smart approaches and emerging technology and ideas with our community. The programs range from 3D printing through to health and wellbeing research and programs. The programs offer accessible learning opportunities for residents from 0 to 100 through baby rhyme time to support with technology for older adults.

3D print club

3D print club is a weekly program run by the library service, which supports a community of practice around 3D printers, and 3D modelling in CAD software. It is primarily an adult program, beginners are welcome. Each week participants are invited to share their projects, ideas, and skills. There is a guest speaker or a short, informal skills session, often led by one of the participants. In this way, people have been able to develop modelling skills, and work together to produce objects for their homes, communities, and for use by the library community. Objects modelled and printed include cable management systems, safety modifications for our printers, architectural models, custom items for models and costumes, modifications for vacuum hoses, and cases for electronic components. They have built and maintained two CR10 printers. The skills and knowledge that are shared in 3D print club also help the library service grow its own skills and services, and deliver a broader range of knowledge programs for the community.

Future Directions

Community Engagement Portal

Council is seeking to centralise engagement through the purchase of an online digital engagement platform. Its purpose is to drive deeper community involvement in decision making through improving the opportunities to collaborate on Council decisions. Once someone registers they can be directly notified about their areas of interest, and see all the consultations and project updates in the portal as they are promoted across the City. The range of consultation tools will also be expanded to include document libraries, mapping, forums, polls, surveys, vox pops and many more.



04

Create tactical solutions to pilot and test smart approaches

Local government is trained to be considered and transparent in all we do. However, as the digital frontiers are pushed forward there is a need to respond to opportunities and meet community demands. Council has worked closely with emerging suppliers and has been willing to experiment with initiatives like Blue Dot parking. The City became smarter but shared the risk to reduce costs.

Examples

Smart parking sensors – Rhodes

The City has been introducing parking sensors on the streets around the community precinct in Rhodes. These sensors connect to app technology so visitors and residents can easily identify available parking. More recently a different technology with the same function has been piloted in Drummoyne. These trials will assess opportunities for supporting parking management across the City and includes an app which provided a heat map of parking availability. The app also alerts parking rangers if parkers overstay the recommended times ensuring effective turn over of parking spaces to optimise the benefits to local businesses and residents.

Digital parking meters

Council created a partnership with a local resident and entrepreneur to pilot an early parking app within the City which enabled residents to pay for parking using their smart phone through a loaded credits scheme. Ensuring probity they also trialled similar initiative launched by a competitor. The opportunity for residents was well received and the roll out of a wider system is currently being progressed. Council was particularly supportive of this local initiative helping a local resident to grow their company through effective collaboration.

Concord West sustainable village

The Concord West sustainable village project employed place based approaches to tackle climate change with local business partnerships around sustainability and infrastructure pilots. The smart road was constructed from a white asphalt to reduce the heat of the road pavement and a second area used two types of disused printer cartridges to create the surface. This initiative reduced the temperature of the road by eight degrees Celsius and the overall ambient temperature in the village by two degrees Celsius. The new road is also environmentally friendly as it incorporates 40 per cent recycled asphalt and utilises 8,000 toner cartridges from printers and photocopiers, which is 20 per cent of cartridges used in the City per annum. Furthermore, the pre-existing asphalt removed from the site was recycled locally to construct the new St Lukes Park carpark. Council partnered with Downer EDI to produce and install this sustainable road and shared the cost of the pilot.



Future Directions

Pilot assessment framework

Council needs a new tool for pilot assessments to help make the work we achieve be both more transparent and to help innovators have a shared process for assessment across the community. For this program to be truly successful, Council will need an effective framework for consideration. Council will seek to work with State Government and other stakeholders to create a transparent framework to assess how projects are partnered and piloted across the City to maximise our opportunities, whilst ensuring that implementation is feasible. Current purchasing systems challenge the pilot and partner routes due to constraints with procurement. Council are keen to participate in a review of these systems to ensure that smart solutions at scale are feasible.

05

Seek partnerships to deliver improved solutions

Council recognise the range of experts from across our community and beyond in the delivery of smart City programs and strive to engage and work with the leaders in this area. Our values of innovation and collaboration enable productive partnerships to be established and great outcomes to key challenges to be delivered across the City.

The City of Canada Bay's first parking app allowing people to pay for car parking came from a local entrepreneur keen to tackle the challenge of paying for parking and never having the correct change for small charges. Blue Dot parking was trialled by Council and has lead to a range of trials and new types of parking meters being rolled out across the City.

Examples

Electric car chargers

The City of Canada Bay hosted one of the earliest electric car charging stations in Sydney by partnering with NRMA and providing a public location for the technology. More recently Mirvac have installed chargers in their facilities around the City, creating a network accessible to our local community. Council are now investing in smart poles and will roll out further stations in key village centres.



Waste partnerships

The City of Canada Bay is taking an innovative lead on waste and recycling. Council invested heavily in resource recovery by match funding State Government with \$172,000 to build a community recycling centre in Five Dock for problem household waste items such as batteries, gas, lights, paints and oils. The community recycling centre opened in November 2016, and has diverted 9 tonnes of paint, 1.8 tonnes of household batteries and 1 tonne of gas cylinders from landfill to specialist recycling.

Council have also partnered with a local business to provide free e-waste collection for our local businesses. By reusing the waste collected and on selling constituent parts, the local businesses have a free waste service and Council are meeting sustainability target by facilitating this.

The use of MyWaste app, a smart platform, seeks to engage our community in waste programs. The app provides around the clock multilingual and targeted information. Last year, Council introduced a 'report a problem' function on the app, which allows residents to quickly report a problem with Council's waste services at any time.

Big Belly Bins was also a pilot with the company to trial the technology for deployment in the metropolitan areas. Council also partners with two other Councils to create a bespoke bin solution for hot coal litter as the market solutions were not effective for park users and difficult for staff to manage.

Future directions

Social listening and Sydney University

Federal Government Smart City funding was achieved to improve the understanding of community commentaries about major development projects. A Sydney University Research team is developing and testing algorithms for social listening and data mining the internet to help us better respond to community concerns and suggestions.

Low cost community accessible solutions for new opportunities.

Council is keen to partner the community, business and government across Sydney and to meet the challenges facing our metropolitan area, whether this be to pool big data to encourage innovative business solutions or to enable driverless cars to be introduced. Infrastructure NSW and others are working to create leadership and guidance in the establishment of a low-power wide-area network or data platforms for sharing and Council is a founding part of this program. Council has commenced use of a LoRaWAN (Long Range Wide Area Network) trial and installed a gateway to ensure that the whole local government area (LGA) will have access to this not for profit open source platform, which looks set to be critical in the delivery of a an internet of things network.

Community hacking

Council is keen to develop opportunities to create community hackathons for smarter approaches to a range of City challenges.

Council will work with the community to look at opportunities for the internet of things using the LoRAWAN. Opportunities for sensor development to be a collaborative process will be developed.

The work with the Men's Tech Shed is leveraging community skills to create opportunities and addressing accessibility challenge by sharing knowledge and skills to build new printers and robots for community education.



06

Improving accessibility to quality services for our community through smart practice.

Digital technology has offered unprecedented levels of information sharing to communities across the world. The rapid increases in the development and access to knowledge and information is transforming government broadly. The City of Canada Bay has been an enthusiastic participant in this revolution with deliberative democracy programs and online application tracking and engagement. Investment in digital technologies is vital to enable continued innovation in service delivery and better management of assets. Council's focus has been to deliver better customer service to date. Through this we have noticed the improvement in reporting of required maintenance in the public domain, and additional information provided by residents using apps have reduced the time it takes to investigate the problems.

Examples

Self service library collections and services

The library has invested heavily in self-service technologies and cloud-based services to gain efficiencies in staffing and delivering collections online. The RFID (radio frequency identification) enabled self-service technology that the library service team have implemented is at the vanguard of empowering the community to gain more access to services by implementing smart technology solutions include:

- Installed self-service kiosks to enable smart card transactions for loans and returns
- Implemented app based print shop opportunities which support the use of bring your own device and remote transactions.
- Created an extensive online collection and membership to provide 24/7 access to a range of materials from music and magazines to literature and video.

E-services

Council is increasingly investing in the delivery of e-services from online chat to make an appointment for Council's duty planner and justice of the peace services. Online payment options for rates, debtor account and application fees are available. Council is charged to manage a range of permits and approvals and the transition to online applications can be challenging, depending upon the regulatory requirements. However, there are currently effective online search facilities to view application processing for developments and applications for planning certificates, health and building certificates and event applications online. They can also find comprehensive information relating to their property such as zoning, heritage, development control plans, and relevant contributions plans, and effectively check whether they require planning approval.

App reporting of public domain repairs

NeatStreets, the public toilet app and similar apps have been useful for residents, staff, businesses and strata organisations. These smartphone applications make reporting public domain repairs easy. They have also benefited Council by providing clarity in reporting, a GPS location and photo, and ensuring the report gets to the right agency/section for action.

Future directions

Extend self service opportunities across Council

The work in self service opportunities will continue to emerge within Council and the team are actively seeking to expand self service solutions with effective real time customer support.

Remote booking and accessing Council facilities

Work is underway to deliver improved service and access to council facilities to enable residents to book, pay for and access community spaces. This will enable the efficient extension of the use of these valuable spaces.

07

Employ the cloud and internet of things, and adapt to emerging technology for our City

The City has developed good links with the community through use of cloud based services and apps. Free and low cost accessible cloud services are often well understood by the community and have helped Council involve more people in maintaining high quality local environments.

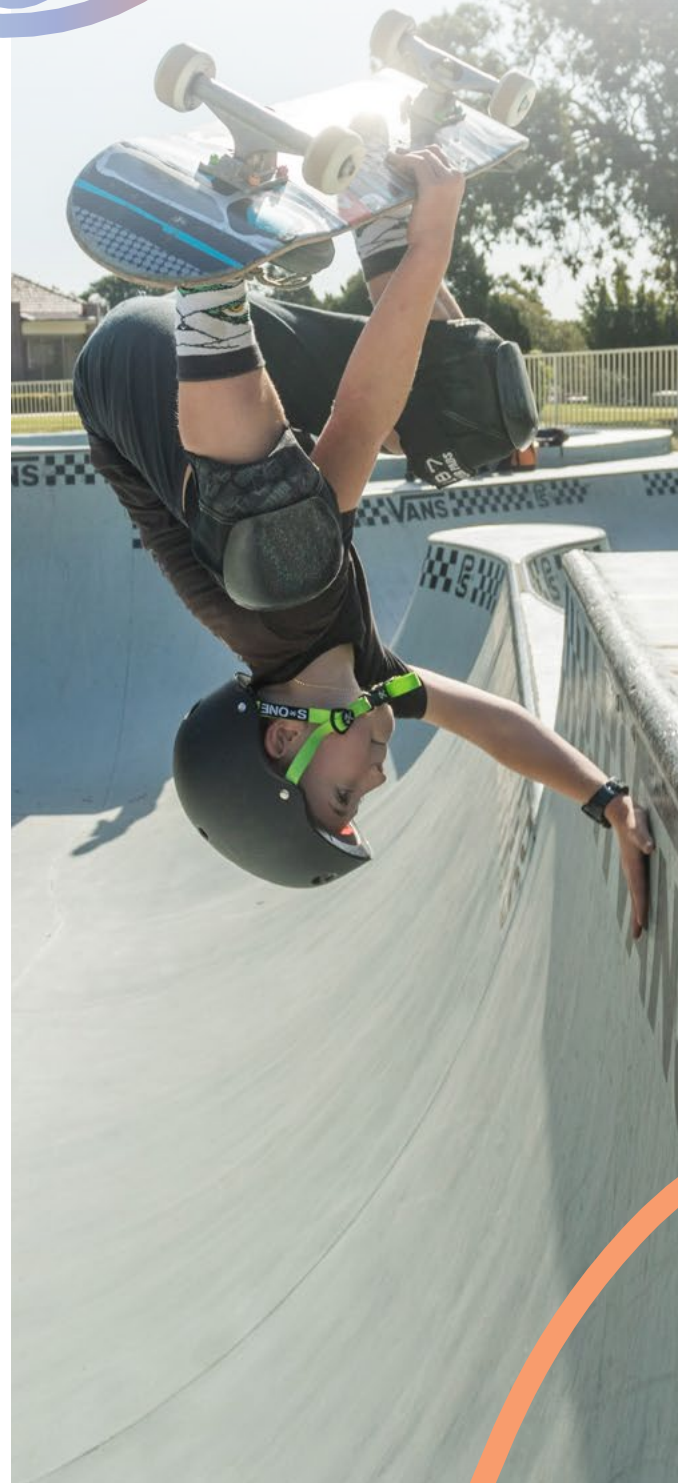
Examples

Freeware and platforms

Platforms such as free websites support creative projects and learning opportunities within the community. We use open source virtual reality platforms for community developed experiences as part of our library learning programs. This includes the parksify project where children create interesting creatures for our virtual park. We have also to develop virtual tours of our facilities (leisure centres, community facilities and libraries) based on open source platforms. We also support our 3D printing programs and user clubs accessing free designs and platforms for creation.

Internet of things

We have sensor based technology controlling irrigation and sports field lighting so that we can minimise the cost associated with running sports and playing fields. The current sensors for sports fields are linked through 3G SIM cards but we are transitioning some of our services and introducing new bin sensor and building programs on the LoRaWAN network. This will reduce the cost and reliance on the 3G network, which will cease to operate after 2021. The investment in this platform which is open source and free to access provides new opportunities for our residents and businesses to leverage the value of the internet of things simply.



Future directions

New opportunities are on the horizon and accessing these will be vital in developing effective city management into the future.

Smart building sensors

Council currently relies on movement sensors to control lighting in offices. The development of this program will be applied to managing spaces more effectively, including air conditioning optimisation through using sensors. This project will use smartphone detection technology for real-time measurement of people using the space. Real time data will allow Council to better understand and therefore manage its spaces.

Already, building access is controlled using smart technology, including biometric entry for our childcare centres. Similar systems will be rolled out into the future to improve building security.

Remote access toilets

After pilots for smart toilets which allow access and basic cleansing routines remotely Council is looking at introducing self-opening and closing toilet facilities to reduce cost, out of hours work and improve access to our public toilet facilities. This project will reduce Council costs and improve our service.

People counting

Council is keen to analyse, use and develop evidence based programs and will install a sensor network collecting data on use of public spaces. It will build a platform to enable feedback about facility and public space use. This will improve service management by providing evidence to target allocation of scarce resources. This project will use smartphone detection technology for real-time measurement of pedestrian and bike activity. This real time data will benefit the community by enabling Council to make informed decisions about transport and urban planning, accommodating population growth impacts on mobility.



08

Support community creation of smart solutions to improve our neighbourhoods

The City of Canada Bay has taken a leadership role in enabling our communities to be part of delivering a great place to live. From 2009 we have employed innovative deliberative democracy programs to look at the management of the City and review operating costs. We developed this process for addressing contentious issue such as rent rebates on Council buildings and have used this methodology as a means of testing values and priorities for Council investment. We have created innovative management and engagement program through our delivery of a place process in terms of managing villages, centres and parks. This has empowered residents to deliver their own solutions, many of which are smart.



Examples

The Connection, Rhodes

The Connection is an innovative multipurpose community precinct operating since December 2016. Located on the Rhodes foreshore, it integrates indoor and outdoor spaces to provide venues, services and programs for the City's growing population. The Connection includes four buildings, including The Learning Space. The Learning Space is a reimagined library, with a dedicated digital gallery, accessible maker technology, digital image and sound studio, study spaces and classrooms. It was designed to create inclusionary digital learning opportunities for the community to access cutting edge technologies from robotics, coding, 3D printing and mapping, augmented reality and more.

The Connection team recently established a Men's Tech Shed, based on the traditional Men's Shed model, which enabled retired men in the community to learn new skills, create robots, build 3D printers and code. They have provided 20 small new codable robots and four new 3D printers and tools for use in community programs at the Connection.



Future directions

New networks for the internet of things

The deployment of a LoRAWAN network across the City will enable more community participation in City problem solving by developing interesting data sets about public domain, and using this data to inform decision making.

Council will also invest in training local people to participate in building elements of the Internet of things for use and also to innovate new uses and to identify opportunities for our local government area.

Supporting local innovation and entrepreneurship

By providing public learning and maker spaces which allow access to equipment and spaces to collaborate, the City of Canada Bay Libraries have a solid program of supporting local small and micro business providing business support, spaces and places for people to operate. This program is set to grow and develop over the coming years.



09

Creating more open government in our City

There is growing public demand across all sectors of government to improve data governance approaches and be transparent about how government in particular is using information and protecting people's privacy. Legislation, such as the Privacy and Personal Information Protection Act 1998, sets out how Council and other governments manage personal information. The Act sets our obligations regarding the collection, use, disclosure, and the provision of access to personal information and how they protect this personal information.

Recent corporate challenges such as the way Cambridge Analytica used information to benefit its clients and distort the political process has created much greater awareness and concern about these issues.

Council is being challenged to address not only the legalities but also to have a clear ethical approach created in collaboration with the community.

Examples

Live stream Council meetings

One of the first initiatives of the Council elected in 2017 was to broadcast Council meetings live on Facebook. This new development provides greater access to the way Council works and allows a new form of engagement with local democracy in the City. On average meetings are viewed by over 1,200 people and actively engage around 20 people commenting on proceedings, on average doubling the number of community members participating in Council's meetings.

Social listening

Social listening is the process of following threads and conversations around specific issues on social media, blogs and wikis, and considering these inputs when developing our response and actions for the community. It takes community engagement beyond responding to the active citizens striving to influence Council to the

wider community. This enables Councils to reach different demographics who are notoriously difficult to engage (for example, young people). This tactic goes beyond simply responding to comments, monitoring Council's feed and monitoring and replying to incoming questions or comments. It is about seeking to understand social media conversations and can be applied to the way we do things with our community. In the words of one of our residents it is "really important that Council and the government understand what the community needs."

The City of Canada Bay has a long tradition of innovation in the community engagement space, from establishing a very sophisticated deliberative democracy program through to early adoption of online engagement tools.

Social listening is the latest iteration in our quest to connect with our community. Council is involved in two social listening programs: social analytics platform Neighbourlytics and a research program with the University of Sydney. The research program creates accessible reports from big data to help place makers understand the unique local identity of the places they plan, create and manage. They help apply useful community intelligence and pull together local stories to present insights into community values and aspirations at a neighbourhood level.

The research program with the University of Sydney recognises that social media and online communication has changed the way citizens engage in all aspects of their lives, including how their communities are being planned and developed. The project will develop new algorithms and tools to capture the diversity of citizens' voices to better inform local government decision-making. It will produce a flexible digital platform enabling local governments to capture, visualise and analyse conversations on social media to augment existing planning and consultation processes. Leveraging smart techniques is vital to ensuring citizens are part of smart urban decision making processes. This project is supported by the Australian Government through the Smart Cities and Suburbs Program and the ambition is to improve decision making in local and state governments using these techniques.

Consulting regularly can also help members of the community to build relationships and networks.

Future Directions

Open source

We are keen to move relevant data to the public domain to help and encourage deeper understanding of our area and enable entrepreneurs and innovators to identify solutions to the City's challenges. We believe that transparency will enable more equitable partnerships with our community and create improvements through better collaborative approaches.

Inclusive democracy projects

We will continue the tradition of creative engagement with our community. This way community members will be more involved in decision making processes. We are looking at further collaboration with locals to create access and engagement.

The future



Smart processes and systems support both the City of Canada Bay and the community to be more resilient, sustainable and efficient, connect easily, share knowledge, work together and be creative in finding solutions. It is vital our community is engaged in planning for our future, particularly with our population continuing to grow. Now more than ever, our City needs strong leadership to ensure that it is served by an effective and transparent Local Government. Council is being challenged to not only address the legalities but also to have a clear ethical approach created in collaboration with the community.

The investment in improving planning by using the data that smarter approaches and new technology offers should result in services that support our enviable lifestyle, quality open spaces, range of housing types, vibrant commercial centres and new infrastructure that enhance and complement existing suburbs.

What does success look like?

The success criteria for the rollout of this plan includes but is not limited to:

- Number of beneficiaries
- Collaboration and partnerships created
- Community solutions achieved
- Data driven solutions and impacts
- Productivity improvements with Council
- Savings made through smart approaches.

Embedding the culture within Council to embrace smarter approaches and the organisation management is an evolutionary process. The evidence of the impact of smart practice to date reveals a number of benefits are being realised. These include:

- A greater return on investment
- The benefits of linking communication and communities more instantly
- Innovation and solutions to wicked problems
- Improved efficiency and sustainability
- Access to our smart City programs is valued in the community.

We know that these are positive benefits to working smarter. Though feedback from staff and the community we can continue to iterate and improve services. Broad participation in programs enables Council to better measure and anticipate changes in our community. By leveraging smarter ways of working, from improved use of data to deployment of technology, Council strives to achieve cost reductions while improving service delivery.

The effectiveness of these programs are revealed in improvements to our financial sustainability and revealed in measurement in our our State of the Environment reports. The external recognition in terms of award winning programs and the stream of visits from over 50 Councils from across the country, to learn about our programs, are testament to value in the City's approach.

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