

SMART CITY STRATEGY PROGRESS REPORT

2022



WYNDHAM

TOMORROW REALISED





ACKNOWLEDGEMENT OF COUNTRY

Wyndham City Council recognises Aboriginal and Torres Strait Islander peoples as the First Custodians of the lands on which Australia was founded. We acknowledge the Wadawurrung and Bunurong Peoples as Traditional Owners of the lands on which Wyndham City operates. For tens of thousands of years, the Werribee River (Wirribi-yalook) has been a significant meeting place for Aboriginal people to build community, exchange resources, and share responsibility for its lands.

The grasslands and basalt plains around the Werribee River are the ancient home for the Bunurong People to the east of the river and Wadawurrung people to the west of the river. We pay respect for the wisdom, strength and resilience of Elders: past, present and emerging. We share a commitment to a future in which all generations of Aboriginal and Torres Strait Islander people flourish.

CONTENTS

Portfolio Holder Foreword	4
<hr/>	
1. Introduction	5
1.1 Our Unique Smart City	6
1.2 Smart Cities in the Covid Era	7
<hr/>	
2. Key Statistics & Achievements	8
<hr/>	
3. Smart City Projects	9
3.1 Smart Parking – Werribee City Centre	10
3.2 Smart Places & Spaces	11
3.3 Enterprise Geospatial Platform	12
<hr/>	
4. Smart City Industry Trends	17
<hr/>	
5. Strategic Landscape & Future Priorities	18
<hr/>	
6. Conclusion	20

PORTFOLIO HOLDER FOREWORD

I am pleased to present our smart city achievements over the last 24 months, achieved in what has been a challenging time for many. The global pandemic has had a significant and lasting impact on the city and highlighted the importance of technology, data, and innovation to address the challenges of our time.

The need for cities to be agile, responsive and resilient is ever present. Dramatic changes in behaviour are now commonplace. Understanding and responding to this new dynamic is now a critical role for government, but conditional on access to accurate and temporally relevant data delivered in part through smart systems.

Throughout the reporting period, we have made significant progress towards becoming a smarter, more resilient, and more sustainable city. This is evident through the delivery of various projects & key smart city initiatives including:

- ▶ Completion of a large-scale smart parking solution in Werribee City Centre consisting of over 2000 in-ground bay sensors throughout the city centre.
- ▶ Deployment of a range of sensors and technology in key parks across the city as part of our Smart Places and Space project. The rollout includes wireless charging benches, public Wi-Fi, smart BBQs and smart bins.
- ▶ Complete replacement of our GIS mapping system, a critical component to how we analyse, view, communicate and share city-data.
- ▶ Variety of sustainability-focused projects delivering cost-benefit, improving environmental outcomes and providing valuable data.

Our smart city agenda is already building momentum and our ambitious project schedule whilst diverse remains centred on a singular smart vision defined in the Wyndham Smart City Strategy. Thank you to our staff, partners, and community for sharing our smart city vision.

Cr Sahana Ramesh.





INTRODUCTION

Building upon the Wyndham 2040 vision, the Wyndham Smart City Strategy was adopted in June 2019. It set an ambitious vision for what a smart Wyndham could be. Strategic themes defined in the strategy, are directly related to the unique challenges and opportunities for the city and are underpinned by an extensive engagement process. The Strategy outlined our commitment to harness technology, data and innovation to address these challenges and improve the way that our citizens, businesses and visitors work, play and live.

A key component of the strategy is to reflect on progress and maintain a channel of communication with key city stakeholders and community through this reporting process.



OUR UNIQUE SMART CITY

A smart city must be cognisant of its individual traits, locational context and its people. Wyndham's vision of a smart city is unique, tailored and contoured to distinct local challenges and opportunities. As an area of significant growth and investment, combined with a vibrant and youthful populace, Wyndham is well positioned for further smart city development & investment.

Our community is young, diverse, and engaged. 56 % of residents are below the age of 35, and more than half of Wyndham households are families with children. Additionally, 41 percent of Wyndham City residents were born overseas resulting in over 170 languages spoken and 100 different faiths being represented.

Similarly, Wyndham's unique location between metropolitan Melbourne and regional gateway Geelong, position the city as a place of exceptional growth with a projected population greater than 500,000 by 2040.

Wyndham intends to be a leader within Australia's smart ecosystem. This bold commitment means technology and innovation are at the forefront of all Council planning, service delivery, and action. By setting sights on developing into a leader in smart cities in Australia, Wyndham aims to become renowned for its inclusivity, transparency, sustainability, and community vibrancy.

SMART CITIES IN THE COVID ERA

Like most cities, the pandemic had a significant impact on Wyndham. The adaptability of any city has always been an important characteristic, but recently this has been further reinforced through the many challenges resulting from COVID-19. Continual limitations on movement, restrictions to business and the more direct impacts on mental & physical health present a constant challenge.

The role of technology and data in response to COVID-19 cannot be understated, QR code check-in, video conferencing for work/health, online commerce & entertainment and digital social connection. The increasing reliance on digital infrastructure is evident across the city. Wyndham boasts two of the top five suburbs for high-speed internet plans (100Mbps or greater) in the country (source: NBN).

Whilst there have undoubtedly been significant adverse impacts both globally and locally, there have also been new opportunities. Changes to work behaviour have resulted in a greater retention of the work population in the city with potential positive outcomes including enhanced liveability, greater utilisation of parks and recreational facilities and greater activation of activity centres.

Smart cities play an important role in providing timely city-based data to better understand and respond to these impacts and adapt as the city transitions to the new COVID normal.

KEY STATISTICS & ACHIEVEMENTS



4.1 million parking sessions detected in Werribee City Centre via 2200 installed parking sensors

2019 IT News Benchmark Awards Finalist



72 IoT sensors deployed including light, motion, temperature

2019 MavTech Smart City Award Highly Commended



19 LPWAN (Low Power Wide Area Network) IoT Network Base Stations

2019 Smart City Strategy Award Winner – Smart City Council ANZ Awards



8 smart barbecues installed and operational.

2020 Mav Tech Awards Highly Commended



54 installed smart bins sensors 277,817L of waste collected.



510,512 pedestrian/cycling trips recorded along the federation trail.



12 locations for free public WiFi and **30,000** sessions per month.

Successful Smart Cities & Suburbs Round 2 - Grant Funding (Smart Sports)



40+ datasets uploaded & maintained on data.gov.au

SMART PROJECTS

Significant progress across numerous smart projects and initiatives were delivered over the reporting period by various departments and business units across the organisation. These projects are extensive and multidisciplinary covering areas such as waste management, IT systems, smart infrastructure, and green-technology, culminating in significant progress towards Wyndham's smart city vision. Projects cover a wide range of technologies, smart city objectives and community council benefits

Key projects are detailed below and have been classified according to strategic themes within the [Wyndham Smart City Strategy 2019-2024](#).

-  DD Data Driven
-  T Transport
-  ES Environment & Sustainability
-  I Innovation
-  P Partnerships
-  CC Citizen Centric.

SMART PARKING

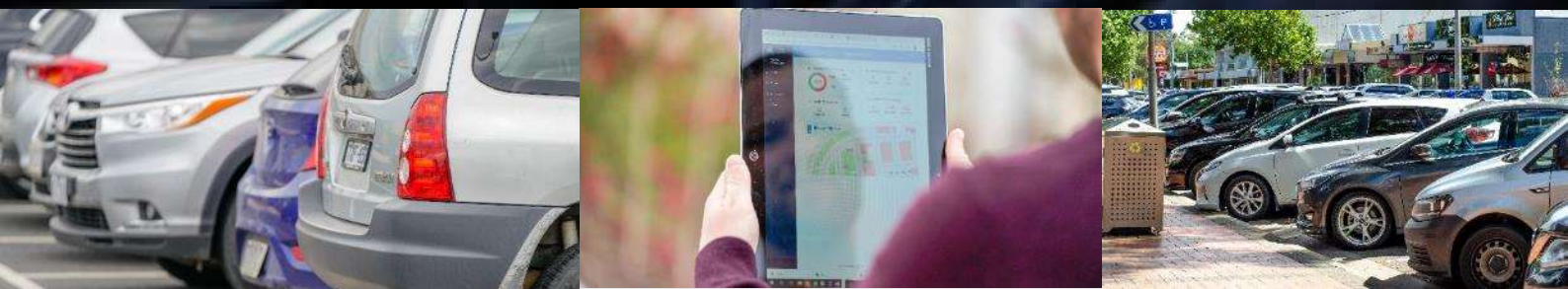
SMART CITY OFFICE

2020 saw the completion of one of Australia's leading smart parking systems within the Werribee City Centre. The system uses sensors to detect parking utilisation over 2000 bays, facilitating real-time data monitoring and app-based guidance to parking availability. Engagement conducted to inform the smart city strategy highlighted transport as an area the community felt could benefit through the use of technology & innovation.

The system is a compelling proposition with a variety of benefits to a range of stakeholders:

- ▶ Reduced traffic congestion in the Werribee City Centre, making it easier for customers to shop local.
- ▶ An improved parking experience whilst reduced noise, traffic and emissions from circling traffic
- ▶ Facilitating a data-driven model to parking management & planning, ensuring fit-for-purpose parking infrastructure to meet the expectations of visitors and businesses and residents.
- ▶ An enhanced understanding of the city utilisation, city dynamics, and commercial activity.

<https://www.wyndham.vic.gov.au/project/smart-parking-werribee-city-centre>



SMART PLACES & SPACES

SMART CITY OFFICE

The Smart Places & Spaces project deployed a range of technology such as public Wi-Fi, smartphone charging stations, smart bins and smart barbecues into 3 key sites. These technologies simultaneously enhance the user experience whilst providing valuable utilisation data for more efficient maintenance and an enhanced understanding of how public spaces & buildings are used.



WYNDHAM PARK

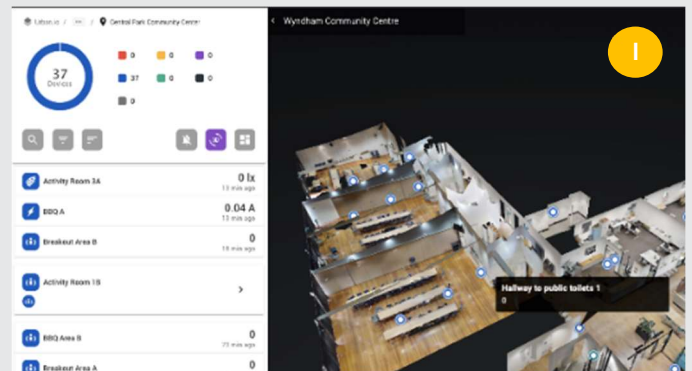
Completed in June 2020, the \$13 million Wyndham Park redevelopment utilised \$3.2 million from the Victorian Government Growing Suburbs Fund to transform the park into a vibrant recreation and events space.

A key component of this revitalisation was the inclusion of smart technologies including public wi-fi, phone charging stations, smart bins, smart barbeques, and other sensor technology. Smart technology will facilitate a data-driven approach to asset maintenance and park amenity and provide utilisation data to inform future planning decisions.



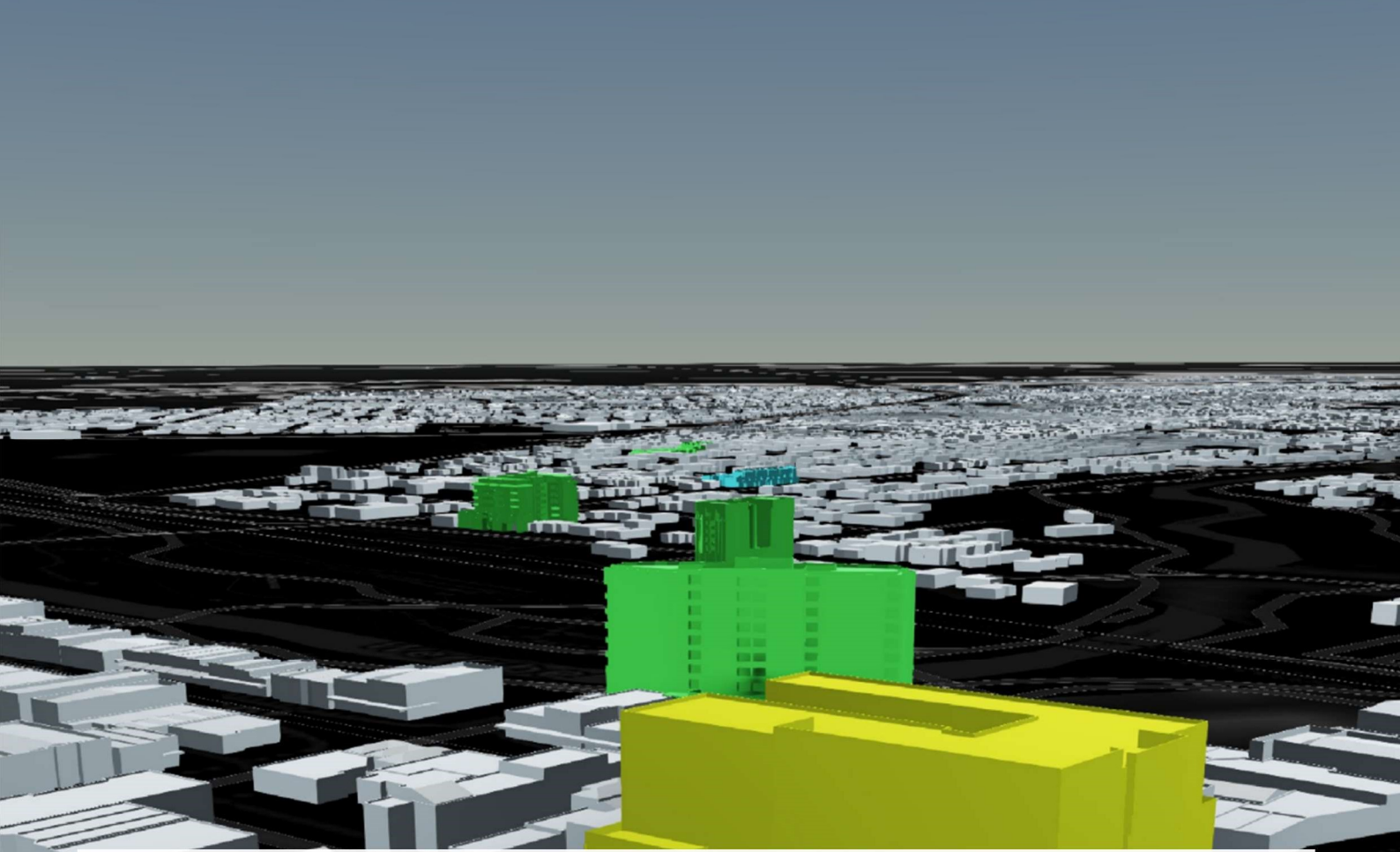
GREENING THE PIPELINE

Greening the Pipeline aims to transform 27 kilometres of the heritage listed Main Outfall Sewer reserve into a continuous parkland. This project is delivered in partnership with the Victorian State Government, Greening the West, City West Water, VicRoads and Melbourne Water. Smart technology was incorporated into the pilot park in Williams Landing to better understand utilisation of the space and various water harvesting technologies were deployed to better manage city water assets.



CENTRAL PARK SMART UPGRADE

Central Park Community Centre provides community spaces for classes, functions, meeting, recreation activities and other events. The space was recently refurbished and as part of the project included technology to understand how various aspects of the building were utilised, which can be used to inform future design and buildings at other locations.



ENTERPRISE GEOSPATIAL PLATFORM

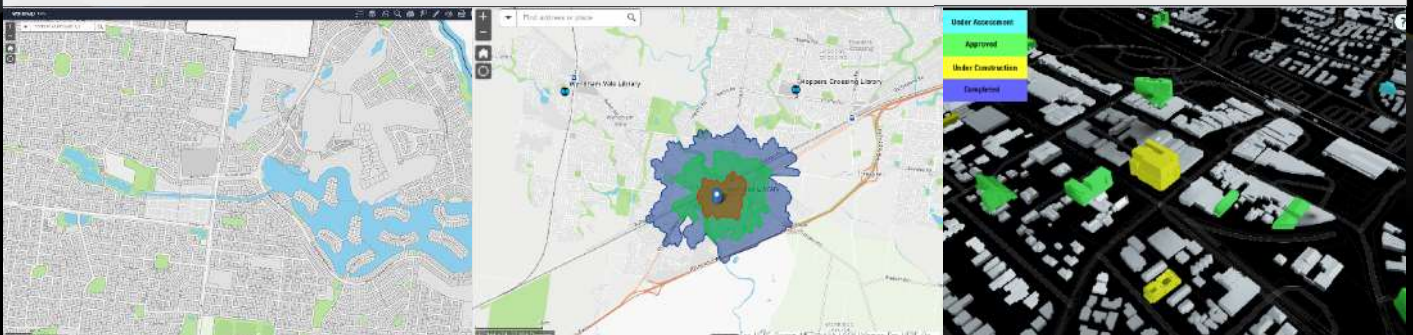
DD

SMART CITY OFFICE

A key component of a smart city is the ability to view, analyse, and present city data in a way that is actionable, insightful, and valuable. The enterprise geospatial platform project, completed in 2021, was a significant upgrade and extension to aging geospatial systems. The extensive replacement of all mapping systems included data migration and geodetic datum shift to the Australian 2020 standard.

These upgrades will facilitate the creation of new analytical tools to better interpret, communicate and share smart city data, driving business improvement & efficiency. Additionally, the new system provides 3D capability, presentation of live data and new possibilities to view, edit and analyse data in the field.

Part of the project involved integration to other key systems such as the asset management system, providing a channel for smart-enabled infrastructure/IoT devices to link into asset management workflows, allowing infrastructure to self-report or pursue preventative interventions that save cost and improve the resident experience.

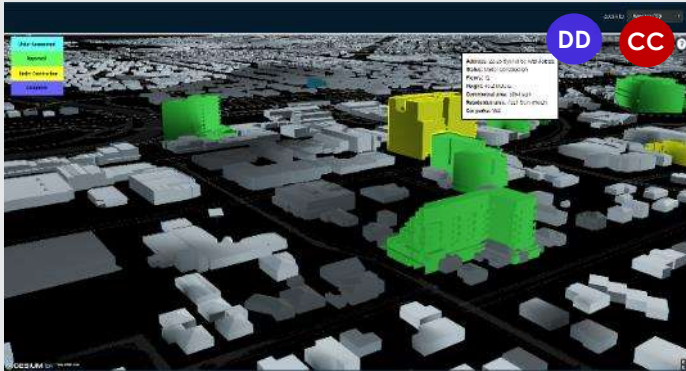
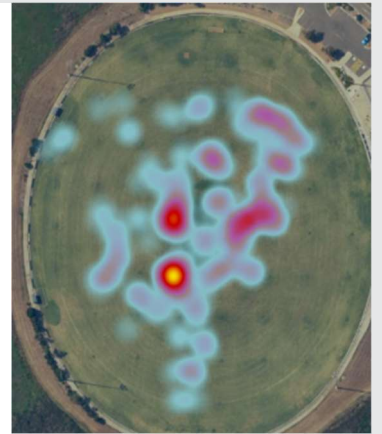




SMART SPORTS FIELD PLANNING MONITORING & MANGEMENT

SMART CITY OFFICE

Smart sports field management enables Council to better understand the visitation, usage patterns, and maintenance requirements for recreational spaces across the city. The project uses computer vision technology to detect utilisation and heatmaps across sports fields. Over the reporting period, 9 installations were completed. This project intends to reduce maintenance costs and increase efficiency through usage data and guide future infrastructure decisions.



3D DEVELOPMENT PLAN VIEWER

SMART CITY OFFICE

Visualisation of large scale 3D developments was first explored in the award winning CityLens project. This project extended on the original augmented reality-based version with a more accessible web-based application to view and understand large scale developments in 3D, their status and context to Wyndham's surrounds.

<https://imagery.wyndham.vic.gov.au/developments3d>



ACTIVATION OF WATTON ST & WYNDHAM PARK

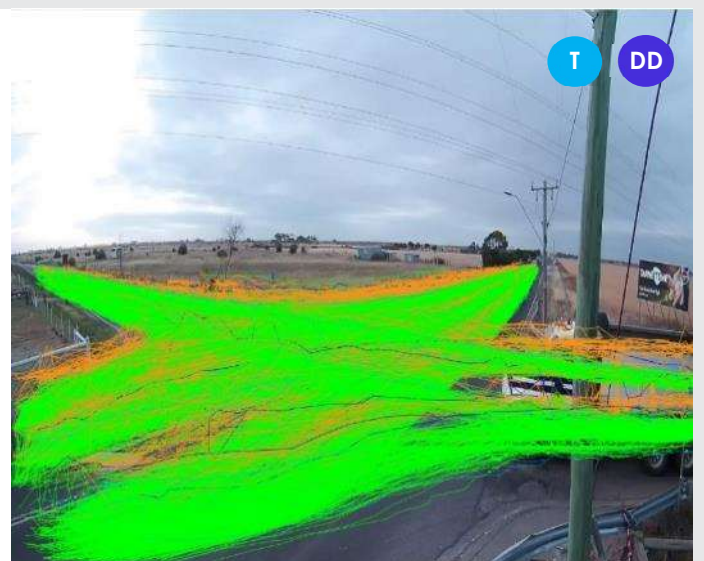
VIBRANT CITY CENTRES / SMART CITY OFFICE

Activation sensors and Wi-Fi analytics were used in the Werribee City Centre to measure activation during key events. This provides valuable insights on event numbers and activation during key periods.

INTERSECTION SAFETY ANALYSIS USING AI

CITY TRANSPORT/SMART CITY OFFICE

Wyndham is a rapidly growing city and population growth/traffic can outpace transport infrastructure. This project investigated 2 key intersections using camera-based AI vehicle detection to determine safety risks, near misses and other issues of concern. This information could then be used to validate the need for safety upgrades and increase capacity.

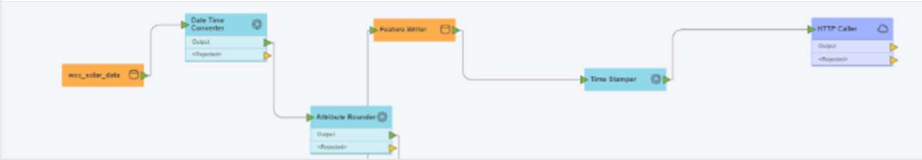


OPEN DATA PARTNERSHIPS



SMART CITY OFFICE

Open data can help citizens, academia, businesses, and the broader community to access information to foster new ideas, develop new services, and create solutions to local challenges. Wyndham is one of the most active publishers of open data sets on data.gov.au, with over 40 data sets currently available including waste collection, roads, Council facilities, trees, playgrounds, libraries and more.



PUBLIC WI-FI ANALYTICS & VISITOR INSIGHTS

INFORMATION SERVICES

Wyndham has 14 public Wi-Fi locations across the city, providing high speed internet access across the city & insight into foot traffic in the local area/s.



ES

EV INFRASTRUCTURE

CLIMATE FUTURES OFFICE

8 public EV chargers have now been deployed at 5 sites across the city. Wyndham boasts some of the highest uptake of solar in state, which has been correlated to the uptake on EVs.



CHANGING SYSTEMS – CORE SYSTEM REPLACEMENT & ONLINE SERVICE DELIVERY

CHANGING SYSTEMS/INFORMATION SERVICES

The Changing Systems transformation project is a multi-year program that will deliver direct efficiencies to the organisation and provide the necessary foundation to ensure that Wyndham City Council can continue to meet the future needs of Wyndham 2040 vision. Throughout the reporting period a number of new modules have been deployed including an online customer portal and asset management system.

DD

SMART CITY VERTICALS

SMART CITY OFFICE

8 smart BBQs have been installed across multiple locations. Unlike conventional BBQs these can self-report issues e.g. when cleaning is required and usage patterns. This allows for a much more intelligent and targeted maintenance response.



ES

LIGHTING THE WEST

CLIMATE FUTURES OFFICE

Through the Lighting the West project, council aims to both reduce energy costs and improve environmental outcomes by replacing the light bulbs in streetlights across Wyndham with energy-saving LEDs. Through the program council forecasts to save \$13 million over 20 years and reduce greenhouse gas emissions by 2,600 tonnes annually.

Some lights will also include smart connectivity and remote management such as temperature & outage information.





WYNDHAM SOLAR CITY

CLIMATE FUTURE OFFICE / SMART CITY OFFICE

The Wyndham Solar City Project has been designed to reduce the energy demands and greenhouse emissions of the municipality's community buildings through the installation of solar panels and cutting-edge battery technology.

The Large-Scale Solar Project is one of the largest rollouts of commercial-scale, rooftop solar by a local government in Australia, with over 2.27MW of solar and 373kWh of batteries installed to date.

The Smart City office completed a project aggregating solar generation data cross all solar enabled council facilities the city, provided a single view to for users to understand the total solar generation across council sites as part of the Wyndham Solar City Project and Wyndham's drive towards a more sustainable future.

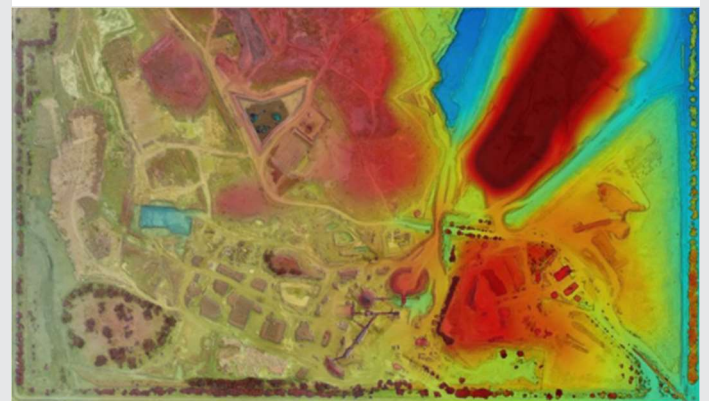


INNOVATION IN WASTE MANAGEMENT



WASTE MANAGEMENT & DISPOSAL

The Werribee Refuse Disposal Facility is a key strategic asset of council. Various technologies have been deployed to the site including a range of drone captures & monitoring resulting in 3D scans and VR analysis.



WYNNNOVATION



CLIMATE FUTURES / ECONOMIC DEVELOPMENT

Wyndham has continued to develop and grow the WYNNnovation program including pitch competition and WYNNnovation summit. These successful events highlight the growing start-up innovation scene in the city.



SMART BINS (SOLAR POWERED)



CLIMATE FUTURES OFFICE / SMART CITY OFFICE

Wyndham City was one of the first councils in Victoria to install smart garbage and recycling bins. The 16 dual solar compactor bins were installed at various locations in the Werribee and Point Cook City Centres which can compress rubbish and alert when full. These bins with further supplemented with other smart bins sensors across the city provide valuable data into fill levels, improving collection efficiency and providing insight into city activation.



AIR QUALITY SENSORS

SMART CITY OFFICE

As part of IoT rollout, air quality sensors were deployed detecting real time air quality information. This data was of interest during the 2019-20 bushfires with smoke covering large parts of Victoria & NSW.



SMART SOLAR LIGHTING- SOLDIERS RESERVE & WESTLEIGH GARDENS

ES

SPORT & RECREATION / CITY TRANSPORT

Small scale Smart Lighting installations are important projects for a more active, inclusive, and safe community. Unlike larger grid-based lighting solutions, Smart Lighting can be programmed to be dimmed when not in use and brightened when motion is detected saving energy.

Westleigh Gardens project utilised a solar battery reducing the need for expensive ground works near other critical underground infrastructure.



PARK ASSETS – RECYCLED MATERIALS

ES

FACILITIES & OPEN SPACE

Council collaborated with Swinburne University to produce 339 metres of footpath using recycled materials. Deploying 2.2 tonnes of recycled kerbside waste plastics and 4.8 tonnes of glass, equivalent to 199,000 plastic and glass bottles and another significant initiative towards a circular economy.



MOBILITY ENABLED DATA COLLECTION – VACANT LAND

CITY AMENITY / SMART CITY OFFICE

Vacant lots can pose a risk of grass fire through excessive growth and reduced maintenance. Creation of mobility solutions to allow vacant sites to be inspected by field staff provide an efficient means of ensuring a safe and vibrant city.

DD



AUGMENTED REALITY - MAGICAL PARK

VIBRANT CITY CENTRES

I C

Magical park uses a phone based augmented reality experience in parks across Wyndham.

The app provides an opportunity for children (especially those aged 6-11) to interact with an 'augmented reality' experience that is both fun and educational.

SMART CITY TRENDS

There are a variety of emerging smart city trends that present an opportunity for Wyndham into the future. Driven by pressing issues such as climate change, growing population and increased urbanisation, these trends represent technology-driven responses to current and future challenges. Key trends for Wyndham to consider moving forward include:

Digital Twin

A digital twin is a detailed 3D model of a city integrated with a rich web of city-data. Digital twin initiatives are already being developed across the world, and indeed cities across Australia, to inform city planning, potential development, and infrastructure analysis. The main benefits of a digital twin lie in their ability to ingest multiple data sources and simulate various scenarios leading to a more predictive approach to city management.

A digital twin is also a key tool in improving city resilience. The ability to quickly extract data from different government agencies and services during an event for better informed response is hugely beneficial. Similarly, long term planning and management of risk factors through modelled scenarios and predictive analysis are core functions of a digital twin.

Digital Twins can also facilitate the communication, visualisation and interpretation of city with context not possible before. Shared access allows provides a digital space for stakeholders to engage, plan and coordinate projects and activities. The Victorian Government has recently allocated \$35 million towards the development of a Digital Twin Victoria Project.

AI & Machine Learning Ethical Considerations

The use of AI (Artificial Intelligence) and machine learning technology in society continues to grow. These technologies are already being used across a variety of industries and applications from chatbots to medical imaging technology, self-driving cars, and waste detection. The removal of repetitive tasks through automation and AI have huge potential benefits but raises issues of ethical considerations in its use such as facial recognition/privacy concerns and algorithmic biases.

<https://www.industry.gov.au/data-and-publications/australias-artificial-intelligence-ethics-framework>

Circular Economy & Green Technology

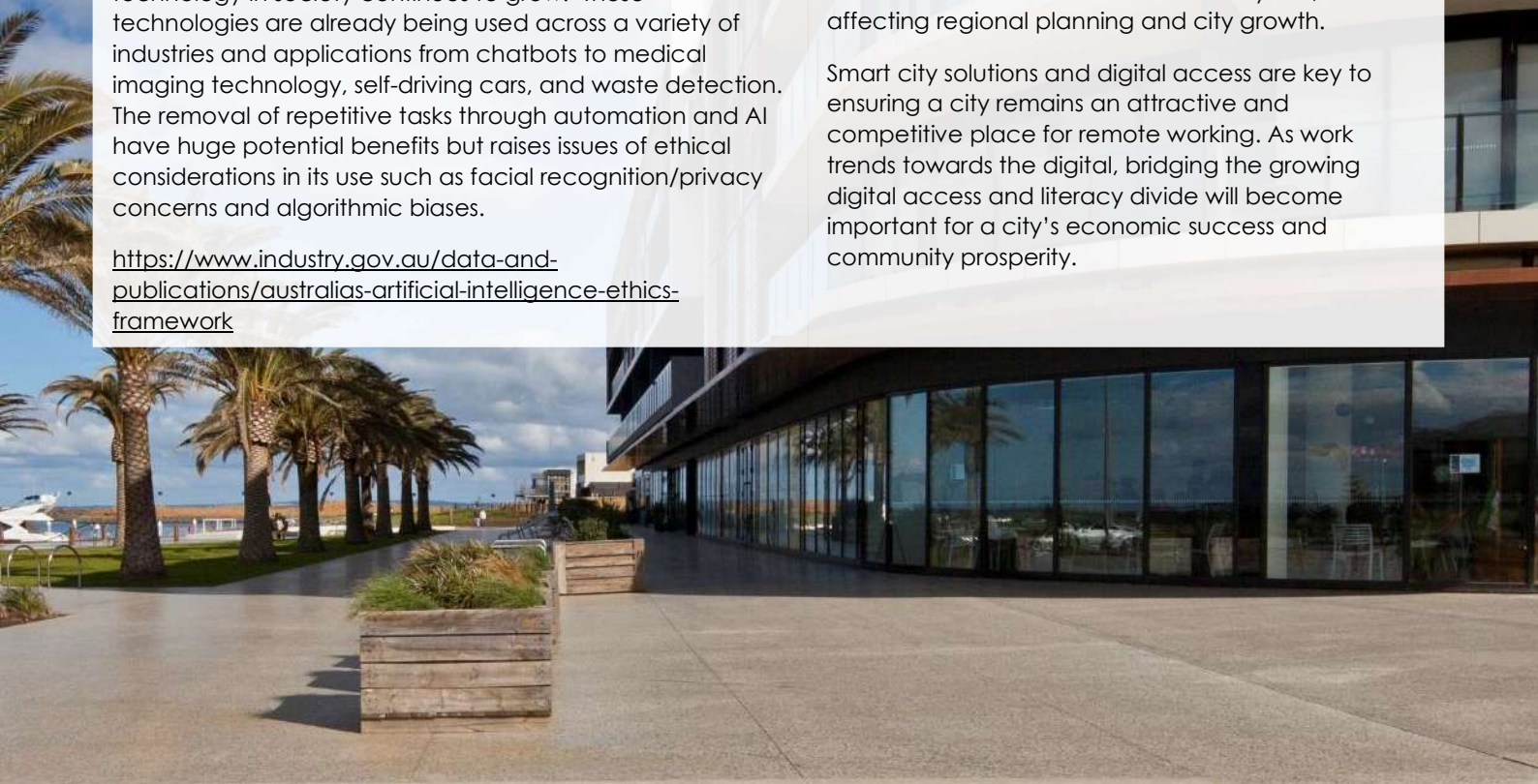
Closely tied to smart city development, the growth of green technology and green economy have enabled growth and new advances in environmental protection. Renewable energy solutions are already being widely implemented, along with smart technologies including smart bins and smart lighting which aim at reducing environmental impact and operating cost. Sustainability, circular economy and resource efficiency are being accepted as important economic principles.

The future of smart city technology is closely tied to green technology. Future smart city projects that support environmental sustainability include smart waste management, smart buildings & facilities and electric mobility options.

Future of Work

Accelerated by the COVID-19 pandemic and enabled by digitalisation, the number of people working from home has dramatically increased. This trend has been widely accepted, with research showing that 47% of employers are open to supporting working from home after the pandemic¹. By 2025, an estimated 70 percent of the workforce will work remotely at least five days in a month¹. This has further enabled population movement from overcrowded cities to suburbs and beyond, affecting regional planning and city growth.

Smart city solutions and digital access are key to ensuring a city remains an attractive and competitive place for remote working. As work trends towards the digital, bridging the growing digital access and literacy divide will become important for a city's economic success and community prosperity.



STRATEGIC LANDSCAPE

A smart Wyndham will need to be responsive to technological, political and societal change. Wyndham like much of the world has ensured significant change over the past 24 months. Wyndham 2040 set a vision to meet the evolving expectations and aspirations of the community. Consequently, it is important that our smart city program aligns with future strategic initiatives, legislative requirements and is built upon sound community engagement. Some key recent strategic documents include:

- [Wyndham 2040 Refresh](#)
- [Long Term Financial Plan 2021-2031](#)
- [Council Plan 2021-2025](#)
- [Resilient Wyndham 2021-2025](#)
- [Wyndham Active Transport Strategy](#)
- [Wyndham Plan](#)

SMART CITY STRATEGIC THEMES & FUTURE PRIORITIES

While Wyndham has made significant progress towards its smart city vision, there are still opportunities to expand the program. Wyndham is in a crucial phase of smart city development, where scaling-up, expanding, re-prioritising, and leveraging foundational projects are the focus.

Strategic Themes	Future Priorities	Future Opportunities
<ul style="list-style-type: none">▶ Transport▶ Environment & Sustainability▶ Data Driven▶ Partnership & Collaboration▶ Innovation▶ Citizen-Centric	<ul style="list-style-type: none">▶ Improve accessibility of parking data & information▶ Enhance collection, sharing and communication of smart city ideas and concepts.▶ Maximise the value of existing smart systems and investment with improved data analytics and tools.▶ Improve the accessibility of smart data to field staff▶ Explore ways to innovate waste management & services.▶ Support the Wyndham Plan through data and communication.	<ul style="list-style-type: none">▶ Exploring the role of local government in the Digital Twin Victoria project.▶ Leveraging new data processing tools such as AI and machine learning to interpret & analyse smart city data▶ Further smart enablement the capital works program▶ Pursue a virtual operations centre combining live data, analytics and dashboards to solve business challenges.



NEXT STEPS

Wyndham is in the third year of smart city implementation and is reaching the crucial 'embedding' phase of organisational integration.

Beginning &
Developing
(complete)

Embedding
(2019 - 2024)

Leading
(2024+)

This phase will further build smart city capacity across the organisation and the city and focus on:

- Smart enablement of the extensive capital program.
- Seeking opportunities to maximise value from existing technology deployments.
- Building organisational data literacy and a data driven ideology to decision making.
- Development of tools, maps and 3D visualisations for the communication and accessibility of smart city data and systems.

SUMMARY

Council is one component of a larger smart city ecosystem. Collaboration between the local community, state government, national government, private partners, and other institutions are key to the continual success of the smart city agenda.

Council will continue to work with our partners and community to build Wyndham's smart city capability and opportunities, making the most of our unique and diverse demographics.

<https://www.wyndham.vic.gov.au/services/smart-wyndham> is the main point of call for any interested stakeholders who wish to know more about Wyndham's smart city journey and progress to date.

Key stakeholders can get involved through the following means:

Community

Collaborators and benefactors of smart city services and solutions

- Follow Council on social media
- Participate in co-creation opportunities

Businesses

Supporters and collaborators in smart city vision

- Participate in smart city events, projects and ecosystem.
- Collaborate through existing council procurement pathways
- Build strong relationships between council and business.

Researchers & Educators

Innovation, research, project partners, and facilitators of smart city ecosystem

- Establish a partnership or memorandum of understanding
- Explore Joint Funding applications

Innovators & Investors

Nurturers of organic innovation and upskilling of community

- Build partnerships and proactive relationships for exploratory / discovery of new ideas.

Solution Providers

Provide solutions and products/services that look beyond the here and now

- Collaborate through existing council procurement pathways.